Host Access Class Library

About This Book

This book provides necessary programming information for you to use the HCL Z and I Emulator for Windows, Version 16.0 Host Access Class Library (HACL). In this book, *Windows*® refers to Windows® 7, Windows® 8, Windows® 8.1, Windows® 10, Windows® Server 2008, and Windows® Server 2012. Throughout this book, *workstation* refers to all supported personal computers. When only one model or architecture of the personal computer is referred to, only that type is specified.

Who Should Read This Book

This book is intended for programmers and developers who write application programs that use the Host Access Class Library (HACL) functions.

A working knowledge of Windows® is assumed. For information about Windows®, see the list of publications under Where to Find More Information on page ii.

This book assumes you are familiar with the language and compiler that you are using. For information on how to write, compile, or link-edit programs, refer to Where to Find More Information on page ii for the appropriate references for the specific language you are using.

How to Use This Book

This book is organized as follows:

- Introduction on page 4, gives an overview of the Host Access Class Library.
- Host Access Class Library C++ on page 14, describes the Host Access Class Library C++ methods and properties.
- Host Access Class Library Automation Objects on page 254, describes the methods and properties of the Host Access Class Library Automation Objects.
- Host Access Class Library for Java on page 424, explains where you can find detailed information about the Host Access Class Library (HACL) Java™ classes.
- Sendkeys Mnemonic Keywords on page 426, contains the mnemonic keywords for the Sendkeys method.
- ECL Planes — Format and Content on page 429, describes the format and contents of the different data planes in the HACL presentation space model.

Where to Find More Information

The Z and I Emulator for Windows library includes the following publications:

- *Installation Guide*
- *Quick Beginnings*
- *Emulator User's Reference*
- *Administrator's Guide and Reference*

- *Emulator Programming*
- *Host Access Class Library*

In addition to the printed books, there are HTML documents provided with Z and I Emulator for Windows:

Host Access Class Library for Java

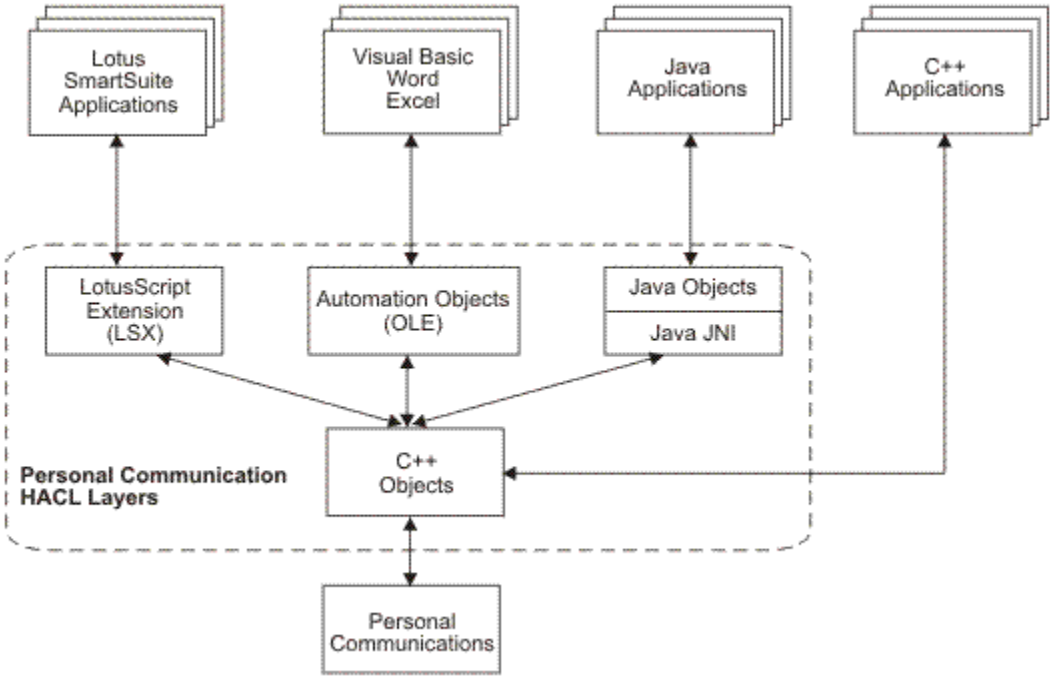
The HACL Java HTML files describe how to write an ActiveX/OLE 2.0-compliant application to use Z and I Emulator for Windows as an embedded object. These files can be accessed from the Docs_Admin_Aids zipped folder delivered along with Z and I Emulator for Windows product documentation in the following path : *ZIEWin_3.0_Docs_Admin_Aids.zip\publications\en_US\doc\hacl*

Chapter 1. Introduction

The Host Access Class Library (HACL) is a set of objects that allows application programmers to access host applications easily and quickly. HCL Z and I Emulator for Windows provides support for a wide variety of programming languages and environments by supporting several different HACL layers: C++ objects, Java™ objects, Microsoft® COM-based automation technology (OLE). Each layer provides the same basic functionality, but each layer has some differences due to the different syntax and capabilities of each environment. The most functional and flexible layer is the C++ layer, which provides the basis for all others.

This layering concept allows the basic HACL functions to be used with a wide variety of programming environments including Java™, Microsoft® Visual Basic®, Visual Basic® for Applications, Lotus® Notes™, Lotus® WordPro and Visual C++®. The following figure shows the HACL layers.

Figure 1. HACL Layers



C++ Objects

This C++ class library presents a complete object-oriented abstraction of a host connection that includes: reading and writing the host presentation space (screen), enumerating the fields on the screen, reading the Operator Indicator Area (OIA) for status information, accessing and updating information about the visual emulator window, transferring files, and performing asynchronous notification of significant events.

See Host Access Class Library C++ on page 14 for details on C++ objects.

Java Objects

Java™ objects provides Java™ wrapping for all HACL functions similar to Host-on-Demand Version 3. See Host Access Class Library for Java on page 424 for details on HACL Java™ classes.

Automation Objects

The Host Access Class Library Automation Objects allow Z and I Emulator for Windows to support the Microsoft® COM-based automation technology (formerly known as OLE automation). The HACL Automation Objects are a series of automation servers that allow automation controllers, for example, Microsoft® Visual Basic®, to programmatically access Z and I Emulator for Windows' data and functionality. In other words, applications that are enabled for controlling the automation protocol (automation controller) can control some of Z and I Emulator for Windows' operations (automation server).

Note: The Automation Objects provided by HCL Z and I Emulator for Windows are 32-bit in nature. These can be used only with 32-bit Microsoft Office programs.

See Host Access Class Library Automation Objects on page 254 for details on the Automation Objects layer.

ECL Concepts

The following sections describe several essential concepts of the *Emulator Class Library* (ECL). Understanding these concepts will aid you in making effective use of the library.

Connections, Handles and Names

In the context of the ECL, a connection is a single, unique Z and I Emulator for Windows emulator window. The emulator window may or may not be actually connected to a host and may or may not be visible on the screen. For instance, a Z and I Emulator for Windows window can be in a disconnected state. Connections are distinguished by their connection handle or by their connection name. Most HACL objects are associated with a specific connection. Typically, the object takes a connection handle or connection name as a parameter on the constructor of the object. For languages like Visual Basic® that do not support parameters on constructors, a member function is supplied for making the association. Once constructed, the object cannot be associated with any other connection. For example, to create an ECLPS (Presentation Space) object associated with connection 'B', the following code would be used:

C++

```
ECLPS *PSObject;
PSObject = new ECLPS('B');
```

Visual Basic®

```
Dim PSObject as Object
Set PSObject = CreateObject("ZIEWin.autECLPS")
PSObject.SetConnectionByName("B")
```

An HACL connection name is a single character from A–Z or a-z. There are a maximum of 52 connection names, and Z and I Emulator for Windows is currently limited to 52 concurrent connections. A connection's name is the same as its EHLLAPI short session ID, and the session ID shown on the Z and I Emulator for Windows window title and OIA.

An HACL handle is a unique 32-bit number that represents a single connection. Unlike a connection name, a connection handle is not limited to 52 values, and the value itself has no significance to the application. You can use a connection handle across threads and processes to refer to the same connection.

For future expansion, applications should use the connection handle whenever possible. Most HACL objects accept a handle or a name when a connection needs to be identified. There are functions available in the base HACL class to convert a handle to a name, and a name to a handle. These functions are available from any HACL object.

Note: Connection properties are dynamic. For example, the connection type returned by GetConnType may change if you reconfigure the connection to a different host. In general, the application should not assume that connection properties remain fixed.

Sessions

In the context of the ECL, a session object (ECLSession) is only a container for all the other connection-specific objects. It provides a shortcut for an application to create a complete set of HACL objects for a particular connection. The term *session* should not be confused with the Z and I Emulator for Windows session concept. A Z and I Emulator for Windows session refers to a physical emulation window on the screen.

Creating or destroying ECLSession objects does not affect Z and I Emulator for Windows sessions (windows). An application can create any number of ECLSession objects that refer to the same or different connections.

ECL Container Objects

Several of the HACL classes act as containers of other objects. For example, the ECLSession object contains an instance of the ECLPS, ECLOIA, ECLWinMetrics, and ECLXfer objects. Containers provide methods to return a pointer to the contained object. For example, the ECLSession object has a GetOIA method, which returns a pointer to an OIA object. Contained objects are not implemented as public members of the container's class, but rather are accessed only through methods.

For performance or other reasons, the contained objects may or may not be created when the container object is created. The class implementation may choose to defer construction of the contained objects until the first time the application requests a pointer to them. The application should not assume that contained objects are created at the same time as the container. For example, an instance of the ECLPS object may not be constructed when an ECLSession object is constructed. Instead, the ECLSession class may delay the construction of the ECLPS object until the first time the GetPS method is called.

When a container class is destroyed, all the contained instances are also destroyed. Any pointers that have been returned to the application become invalid and must not be used.

Note: Some HACL layers (such as the Automation Objects) may hide the containment scheme or recast it into a naming scheme that does not use explicit pointers

ECL List Objects

Several HACL classes provide list iteration capabilities. For example, the ECLConnList class manages the list of connections. ECL list classes are not asynchronously updated to reflect changes in the list content. The application must explicitly call the Refresh method to update the contents of a list. This allows an application to iterate a list without concern that the list may change during the iteration.

Events

The HACL provides the capability of asynchronous notification of certain events. An application can choose to be notified when specific events occur. For example, the application can be notified when a new Z and I Emulator for Windows connection starts. Currently the HACL supports notification for the following events:

- Connection start/stop
- Communications connect/disconnect
- Operator keystrokes
- Presentation space or OIA updates

Notification of events is implemented by the ECLNotify abstract base classes. A separate class exists for each event type. To be notified of an event, the application must define and create an object derived from one of the ECLNotify abstract base classes. That object must then be registered by calling the appropriate HACL registration function. Once an application object is registered, its NotifyEvent method is called whenever the event of interest occurs.

Note:

1. The application's NotifyEvent method is called asynchronously on a separate thread of execution. Therefore, the NotifyEvent method should be reentrant, and if it accesses application resources, appropriate locking or synchronization should be used.
2. Some HACL layers (such as the Automation Objects) may not fully support or implement HACL events.

Error Handling

At the C++ layer, HACL uses C++ structured exception handling. In general, errors are indicated to the application by the throwing of a C++ exception with an ECLErr object. To catch errors, the application should enclose calls to the HACL objects in a try/catch block such as:

```
try {
   PSObj = new ECLPS('A');
   x = PSObj->GetSize();

   //...more references to HACL objects...

} catch (ECLErr ErrObj) {
   ErrNumber = ErrObj.GetMsgNumber();
   MessageBox(NULL, ErrObj.GetMsgText(), "ECL Error");
}
```

When a HACL error is caught, the application can call methods of the ECLErr object to determine the exact cause of the error. The ECLErr object can also be called to construct a complete language-sensitive error message.

In the Automation Objects layer , runtime errors cause an appropriate scripting error to be created. An application can use an On Error handler to capture the error, query additional information about the error and take appropriate action.

Addressing (Rows, Columns, Positions)

The HACL provides two ways of addressing points (character positions) in the host presentation space. The application can address characters by row/column numbers, or by a single linear position value. Presentation space addressing is always 1-based (not zero-based) no matter what addressing scheme is used.

The row/column addressing scheme is useful for applications that relate directly to the physical screen presentation of the host data. The rectangular coordinate system (with row 1 column 1 in the upper left corner) is a natural way to address points on the screen. The linear positional addressing method (with position 1 in the upper left corner, progressing from left to right, top to bottom) is useful for applications that view the entire presentation space as a single array of data elements, or for applications ported from the EHLLAPI interface which uses this addressing scheme.

At the C++ layer, the different addressing schemes are chosen by calling different signatures for the same methods. For example, to move the host cursor to a given screen coordinate, the application can call the ECLPS::SetCursorPos method in one of two signatures:

```
PSObj->SetCusorPos(81);
PSObj->SetCursorPos(2, 1);
```

These statements have the same effect if the host screen is configured for 80 columns per row. This example also points out a subtle difference in the addressing schemes — the linear position method can yield unexpected results if the application makes assumptions about the number of characters per row of the presentation space. For example, the first line of code in the example would put the cursor at column 81 of row 1 in a presentation space configured for 132 columns. The second line of code would put the cursor at row 2 column 1 no matter what the configuration of the presentation space.

Note: Some HACL layers may expose only a single addressing scheme.

Migrating from EHLLAPI

Applications currently written to the Emulator High Level Language API (EHLLAPI) can be modified to use the Host Access Class Library. In general it requires significant source code changes or application restructuring to migrate from EHLLAPI to HACL. HACL presents a different programming model than EHLLAPI and in general requires a different application structure to be effective.

The following sections will help a programmer familiar with EHLLAPI understand how HACL is similar and how HACL is different than EHLLAPI. Using this information you can understand how a particular application can be modified to use the HACL.

Note: EHLLAPI uses the term *session* to mean the same thing as an HACL *connection*. The terms are used interchangeably in this section.

Execution/Language Interface

At the most fundamental level, EHLLAPI and HACL differ in the mechanics of how the API is called by an application program.

EHLLAPI is implemented as a single call-point interface with multiple-use parameters. A single entry point (hllapi) in a DLL provides all the functions based on a fixed set of four parameters. Three of the parameters take on different meanings depending on the value of the forth command parameter. This simple interface makes is easier to call the API from a variety of programming environments and languages. The disadvantage is a lot of complexity packed into one function and four parameters.

HACL is an object-oriented interface that provides a set of programming objects instead of explicit entry points or functions. The objects have properties and methods that can be used to manipulate a host connection. You do not have to be concerned with details of structure packing and parameter command codes, but can focus on the application functions. HACL objects can only be used from one of the supported HACL layer environments (C++ or Automation Objects). These three layers are accessible to most modern programming environments such as Microsoft® Visual C++®, Visual Basic® and Lotus® SmartSuite® applications.

Features

At a high level, HACL provides a number of features not available at the EHLLAPI level. There are also a few features of EHLLAPI not currently implemented in any HACL class.

HACL unique features include:

- Connection (session) start/stop functions
- Event notification for host communications link connect/disconnect
- Event notification for connection (session) start/stop
- Comprehensive error trapping
- Generation of language-specific error message text
- No architectural limit to the number of connections (sessions); currently, Z and I Emulator for Windows is limited to 52
- Support for multiple concurrent connections (sessions) and multithreaded applications
- Row/column addressing for host presentation space
- Simplified model for presentation space
- Automatic generation of list of fields and attributes
- Keyword-based function key strings

EHLLAPI features not currently implemented in the HACL include:

- Structured field support
- OIA character images
- Lock/unlock presentation space

Session IDs

The HACL architecture is not limited to 52 sessions. Therefore, a single character session ID such as that used in EHLLAPI is not appropriate. The HACL uses the concept of a connection handle, which is a simple 32-bit value that has no particular meaning to the application. A connection handle uniquely identifies a specific connection (session). You can use a connection handle across threads and processes to refer to the same connection.

All HACL objects and methods that need to reference a particular connection accept a connection handle. In addition, for backward compatibility and to allow a reference from the emulator user interface (which does not display the handle), some objects and methods also accept the traditional session ID. The application can obtain a connection handle by enumerating the connections with the ECLConnList object. Each connection is represented by an ECLConnection object. The ECLConnection::GetHandle method can be used to retrieve the handle associated with that specific connection.

It is highly recommended that applications use connection handles instead of connection names (EHLLAPI short session ID). Future implementations of the HACL may prevent applications that use connection names from accessing more than 52 sessions. In some cases it may be necessary to use the name, such as when the user is

required to input the name of a specific session the application is to utilize. In the following C+ + example, you supply the name of a session. The application then finds the connection in the connection list and creates PS and OIA objects for that session:

```
ECLConnList        ConnList;  // Connection list
ECLConnection       *ConnFound;  // Ptr to found connection
ECLPS           *PS;        // Ptr to PS object
ECLOIA             *OIA;      // Ptr to OIA object
char              UserRequestedID;

//... user inputs a session name (A-Z or a-z) and it is put
//... into the UserRequesteID variable.  Then...

ConnList.Refresh();  // Update list of connections
ConnFound = ConnList.FindConnection(UserRequestedID);
if (ConnFound == NULL) {
  // Session name given by user does not exist...
}
else {
  // Create PS and OIA objects using handle of the
  // connection just found:
  PS = new ECLPS(ConnFound.GetHandle());
  OIA= new  ECLOIA(ConnFound.GetHandle());

  // The following would also work, but is not the
  // preferred method:
  PS = new ECLPS(UserRequestedID);
  OIA= new ECLOIA(UserRequestedID);
}
```

The second way of creating the PS and OIA objects shown in the example is not preferred because is uses the session name instead of the handle. This creates an implicit 52-session limit in this section of the code. Using the first example shown allows that section of code to work for any number of sessions.

Presentation Space Models

The HACL presentation space model is easier to use than that of EHLLAPI. The HACL presentation space consists of a number of planes, each of which contains one type of data. The planes are:

- Text
- Field attributes
- Color
- Extended attributes

The planes are all the same size and contain one byte for each character position in the host presentation space. An application can obtain any plane of interest using the ECLPS::GetScreen method.

This model is different from the EHLLAPI, in which text and non-text presentation space data is often interleaved in a buffer. An application must set the EHLLAPI session parameter to specify what type of data to retrieve, then make another call to copy the data to a buffer. The HACL model allows the application to get the data of interest in a single call and different data types are never mixed in a single buffer.

SendKey Interface

The HACL method for sending keystrokes to the host (ECLPS::Sendkeys) is similar to the EHLLAPI SendKey function. However, EHLLAPI uses cryptic escape codes to represent non-text keys such as Enter, PF1 and Backtab. The ECLPS object uses bracketed keywords to represent these keystrokes. For example, the following C++ sample would type the characters ABC at the current cursor position, followed by an Enter key:

```
ECLPS  *PS;

PS = new ECLPS('A');   // Get PS object for "A"
PS->SendKeys("ABC[enter]");  // Send keystrokes
```

Events

EHLLAPI provides some means for an application to receive asynchronous notification of certain events. However, the event models are not consistent (some events use semaphores, others use window system messages), and the application is responsible for setting up and managing the event threads. The HACL simplifies all the event handling and makes it consistent for all event types. The application does not have to explicitly create multiple threads of execution, the HACL takes care of the threading internally.

However, you must be aware that the event procedures are called on a separate thread of execution. Access to dynamic application data must be synchronized when accessed from an event procedure. The event thread is spawned when the application registers for the event, and is terminated when the event is unregistered.

PS Connect/Disconnect and Multithreading

An EHLLAPI application must manage a connection to different sessions by calling ConnectPS and DisconnectPS EHLLAPI functions. The application must be carefully coded to avoid being connected to a session indefinitely because sessions have to be shared by all EHLLAPI applications. You must also ensure that an application is connected to a session before using certain other EHLLAPI functions.

The HACL does not require any explicit session connect or disconnect by the application. Each HACL object is associated with a particular connection (session) when it is constructed. To access different connections, the application only needs to create objects for each one. For example, the following example sends the keystrokes ABC to session A, then DEF to session B, and then the Enter key to session A. In an EHLLAPI program, the application would have to connect/disconnect each of the sessions since it can interact with only one at a time. An HACL application can just use the objects in any order needed:

```
ECLPS  *PSA, *PSB;

PSA = new ECLPS('A');
PSB = new ECLPS('B');

PSA->Sendkeys("ABC");
PSB->Sendkeys("DEF");
PSA->Sendkeys("[enter]");
```

For applications that interact with multiple connections (sessions), this can greatly simplify the code needed to manage the multiple connections.

In addition to the single working session, EHLLAPI also places constraints on the multithreaded nature of the application. Connecting to the presentation space and disconnecting from the presentation space has to be managed carefully when the application has more than one thread calling the EHLLAPI interface, and even with multiple threads the application can interact with only one session at a time.

The ECLPS does not impose any particular multithreading restrictions on applications. An application can interact with any number of sessions on any number of threads concurrently.

Chapter 2. Host Access Class Library C++

This C++ class library presents a complete object-oriented abstraction of a host connection that includes: reading and writing the host presentation space (screen), enumerating the fields on the screen, reading the Operator Indicator Area (OIA) for status information, accessing and updating information about the visual emulator window, transferring files, and performing asynchronous notification of significant events. The class libraries support Microsoft® Visual C ++® compilers.

The Host Access Class Library C++ layer consists of a number of C++ classes arranged in a class hierarchy. Figure 2: Host Access Class Objects on page 15 illustrates the C++ inheritance hierarchy of the Host Access Class Library C ++ layer. Each object inherits from the class immediately above it in the diagram.

Figure 2. Host Access Class Objects

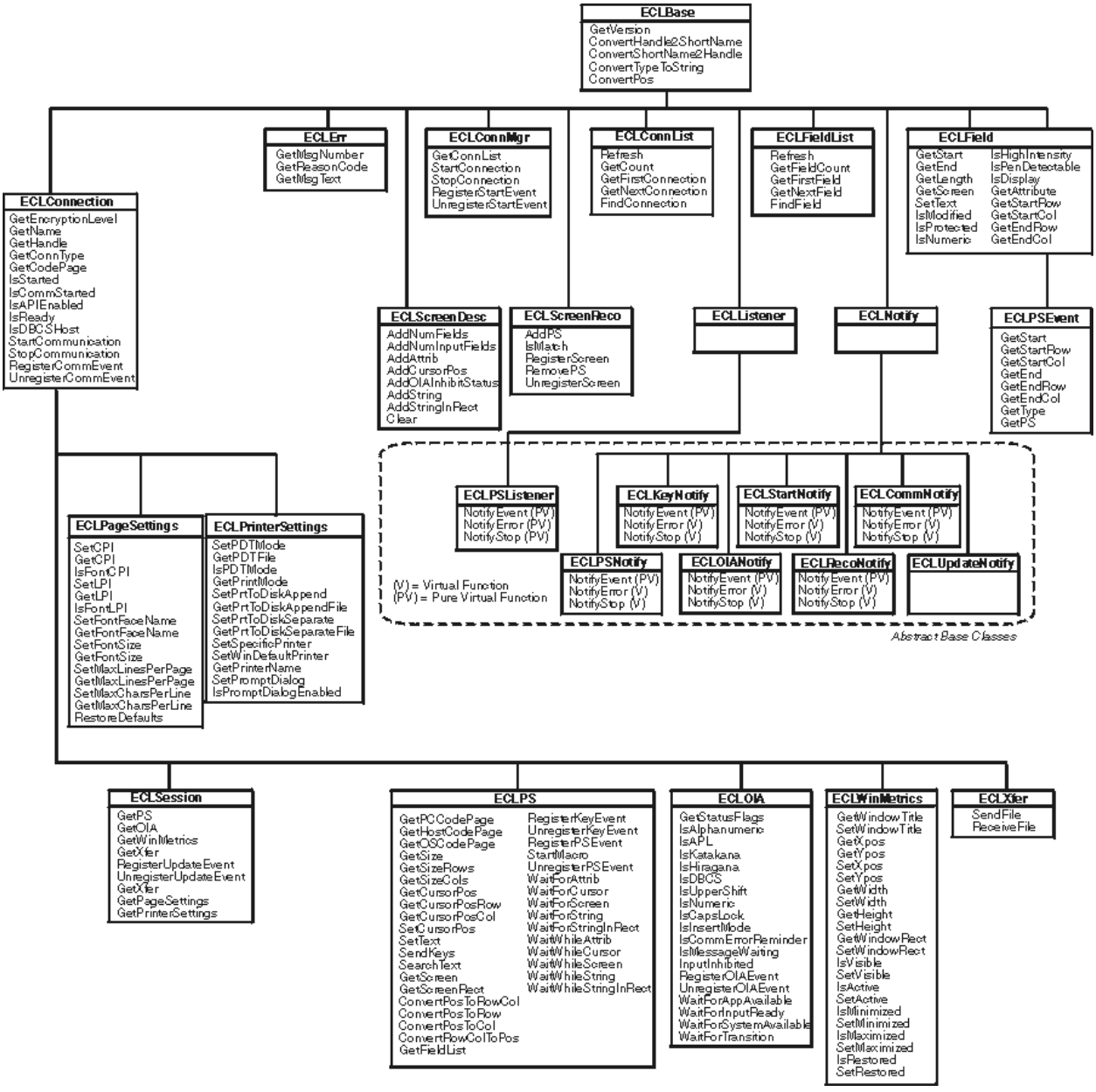


Figure 2: Host Access Class Objects on page 15 also shows all the member functions of each class. Note that in addition to the functions shown for each class, classes inherit all the functions of the parent class. For example, the function IsReady() is available on ECLSession, ECLPS, ECLOIA, ECLWinMetrics, and ECLXfer classes.

Each class is described briefly in the following sections. See the individual class descriptions in this chapter for more details.

All the examples shown in this chapter are supplied in the ECLSAMPS.CPP file. This file can be used to compile and execute any of the examples using any supported compiler.

The following is a brief overview of the Host Access Class Library C++ classes. Each class name begins with ECL, which is the common prefix for the Host Access Class Library.

- ECLBase, on page ECLBase Class on page 18, is the base class for all ECL objects. It provides some basic utility methods such as the conversion of connection names and handles. Because all ECL objects inherit from this class, these methods can be used on any ECL object.
- ECLConnection, on page ECLConnection Class on page 24, represents a single Z and I Emulator for Windows connection and contains connection information such as the connection status, the type of connection (for example, 3270 or 5250), and the name and handle of the connection. This class is also the base class for all the connection-specific ECL objects such as ECLPS and ECLOIA.
- ECLConnList, on page ECLConnList Class on page 39, contains a list of all the Z and I Emulator for Windows connections that were in existence at the time the object was created or the last time the Refresh method was called. Each connection is represented by an ECLConnection object.
- ECLConnMgr, on page ECLConnMgr Class on page 46, enumerates all the currently running Z and I Emulator for Windows connections (windows) using the ECLConnList object. Is also provides methods for starting new connections and stopping connections.
- ECLCommNotify, on page ECLCommNotify Class on page 54, is a notification class that an application can use to be notified whenever a connection is disconnected from or connected to a host. It can be used to monitor the status of a connection and take action when a connection is disconnected unexpectedly.
- ECLErr, on page ECLErr Class on page 59, provides a method for returning run-time error information from Host Access Class Library classes.
- ECLField, on page ECLField Class on page 62, contains information about a single field on the screen, such as the field attributes, field color, position on the screen or length. A method is also supplied to update input fields.
- ECLFieldList, on page ECLFieldList Class on page 80, contains a collection of ECLField objects. When the Refresh method is called, the current host screen is examined, and the list of fields is extracted and used to build the list of ECLField objects. An application can use this collection to manage fields without having to build the list itself.
- ECLKeyNotify, on page ECLKeyNotify Class on page 87, is a notification class that an application can use to be notified of keystroke events. The application can filter (remove) keystrokes, replace them with other keystrokes or discard them.
- ECLListener, on page ECLListener Class on page 93, is the base class for all new HACL event listener objects. It provides common functions for all listener objects.
- ECLOIA, on page ECLOIA Class on page 93, provides access to operator status information such as shift indicators, input inhibited conditions and communications errors.
- ECLOIANotify, on page ECLOIANotify Class on page 106, is an abstract base class. Applications create objects derived from this class to receive notification of OIA changes.
- ECLPS, on page ECLPS Class on page 109, represents the presentation space (screen) of a single connection. It contains methods for obtaining a copy of the screen contents in the form of data planes. Each plane represents a specific aspect of the presentation space, such as the text, field attributes and color attributes. Methods are provided for searching for strings in the presentation space, sending keystrokes to the

host, getting and setting the host cursor position, and many other functions. Also provided is an ECLFieldList object that can be used to enumerate the list of fields on the screen.

- ECLPSEvent, on page ECLPSEvent Class on page 155, is an event object which is passed to PS event listeners when the presentation space has been updated. It contains information about the event including what caused the update and the portion of the screen which has been updated.
- ECLPSListener, on page ECLPSListener Class on page 159, is an abstract base class. Applications create objects derived from this class to receive presentation space update events with all the information provided by the ECLPSEvent object.
- ECLPSNotify, on page ECLPSNotify Class on page 162, is an abstract base class. Applications create objects derived from this class to receive notification of presentation space updates with minimal information.
- ECLRecoNotify, on page ECLRecoNotify Class on page 165, is an abstract base class. Applications create objects derived from this class to receive notifications of screen recognitions.
- ECLScreenDesc, on page ECLScreenDesc Class on page 169, is a class used to describe a single host screen. Screen description class objects are then used to trigger events when the described host screen appears, or to synchronously wait for a particular host screen.
- ECLScreenReco, on page ECLScreenReco Class on page 178, is a class used to collect a set of screen description objects and generate asynchronous events when any of the screens in the collection appear in the presentation space.
- ECLSession, on page ECLSession Class on page 183, contains a collection of all the connection-specific objects. ECLSession can be used to easily create a complete set of objects for a particular connection.
- ECLStartNotify, on page ECLStartNotify Class on page 191,is a notification class that an application can use to be notified whenever a connection is started or stopped. It can be used to monitor the status of the system and take action when a connection is closed unexpectedly.
- ECLUpdateNotify, on page ECLUpdateNotify Class on page 196, is a notification class that an application can use to be notified whenever the host screen or OIA is updated.
- ECLWinMetrics, on page ECLWinMetrics Class on page 196, represents the physical window in which the emulation is running. Methods are provided for getting and setting the window state (min, max, restored), window size and visibility.
- ECLXfer, on page ECLXfer Class on page 220, initiates file transfers to or from the host over the connection.
- ECLPageSettings, on page ECLPageSettings Class on page 226, control and retrieve the settings of the emulator session **File > Page Setup** dialog.
- ECLPrinterSettings, on page ECLPrinterSettings Class on page 238, control and retrieve the settings of the emulator session **File > Printer Setup** dialogs.

Building C++ ECL Programs

This section describes the mechanics of how to build a C++ program which uses the ECL. The source code preparation, compiling and linking requirements are described.

Microsoft Visual C++

The following sections describe how to prepare, compile, and link Microsoft® Visual C++ applications that use the ECL. Z and I Emulator for Windows currently supports Microsoft® Visual C++ compiler Version 4.2 and later.

Source Code Preparation

Programs that use ECL classes must include the ECL header files to obtain the class definitions and other compile-time information. Although it is possible to include only the subset of header files the application requires, for simplicity it is recommended that applications include all ECL header files using the ECLALL.HPP file.

Any C++ source file which contains references to ECL objects or definitions should have the following statement before the first reference:

```
#include "eclall.hpp"
```

Compiling

The compiler must be instructed to search the ZIEWin subdirectory containing the ECL header files. This is done using the /I compiler option, or the Developer Studio Project Setting dialog.

The application must be compiled for multithreaded execution by using the /MT (for executable files), or /MD (for DLLs) compiler options.

Linking

The linker must be instructed to include the ECL linkable library file (PCSECLVC.LIB). This is done by specifying the fully qualified name of the library file on the linker command line, or by using the Developer Studio Project Settings dialog.

Executing

When an application that uses the ECL is executed, the ZIEWin libraries must be found in the system path. By default, the ZIEWin directory is added to the system path during ZIEWin installation.

ECLBase Class

ECLBase is the base class for all ECL objects. It provides some basic utility methods such as the conversion of connection names and handles. Because all ECL objects inherit from this class, these methods can be used on any ECL object.

An application should not create objects of this class directly.

Derivation

None

ECLBase Methods

The following shows the methods that are valid for ECLBase classes.

```
int GetVersion(void)
char ConvertHandle2ShortName(long ConnHandle)
long ConvertShortName2Handle(char Name)
void ConvertTypeToString(int ConnType,char *Buff)
inline void ConvertPos(ULONG Pos, ULONG *Row, ULONG *Col, ULONG PSCols)
```

GetVersion

This method returns the version of the Host Access Class Library. The value returned is the decimal version number multiplied by 100. For example, version 1.02 would be returned as 102.

Prototype

int GetVersion(void)

Parameters

None

Return Value

int

The ECL version number multiplied by 100.

Example

```
//---------------------------------------------------------------------
// ECLBase::GetVersion
//
// Display major version number of ECL library.
//---------------------------------------------------------------------
void Sample2() {

if (ECLBase::GetVersion() >= 200) {
  printf("Running version 2.0 or later.\n");
}
else {
  printf("Running version 1.XX\n");
```

```
}

} // end sample
```

ConvertHandle2ShortName

This method returns the name (A–Z or a-z) of the ECL connection handle specified. Note that this function may return a name even if the specified connection does not exist.

Prototype

char ConvertHandle2ShortName(long ConnHandle)

Parameters

long ConnHandle

The handle of an ECL connection.

Return Value

char

The name of the ECL connection in the range A–Z or a-z.

Example

```
//---------------------------------------------------------------------
// ECLBase::ConvertHandle2ShortName
//
// Display name of first connection in the connection list.
//---------------------------------------------------------------------
void Sample3() {

ECLConnList  ConnList;
long Handle;
char Name;

if (ConnList.GetCount() > 0) {
  // Print connection name of first connection in the
  // connection list.
  Handle = ConnList.GetFirstConnection()->GetHandle();
  Name = ConnList.ConvertHandle2ShortName(Handle);
  printf("Name of first connection is: %c \n", Name);
}
else printf("There are no connections.\n");

} // end sample
```

ConvertShortName2Handle

This method returns the connection handle of the ECL connection with the specified name. The name must be in the range A–Z or a-z. Note that this function may return a handle even if the specified connection does not exist.

Prototype

char ConvertShortName2Handle(char Name)

Parameters

char Name

The name of an ECL connection in the range A–Z or a-z.

Return Value

char

The handle of the ECL connection.

Example

```
//---------------------------------------------------------------------
// ECLBase::ConvertShortName2Handle
//
// Display handle of connection 'A'.
//---------------------------------------------------------------------
void Sample4() {

ECLConnList  ConnList;
long Handle;
char Name;

Name = 'A';
Handle = ConnList.ConvertShortName2Handle(Name);
printf("Handle of connection A is: 0x%lx \n", Handle);

} // end sample
```

ConvertTypeToString

This method converts a connection type returned by ECLConnection::GetConnType() into a null terminated string. The string returned is not language sensitive.

ConnType	Returned String
HOSTTYPE_3270DISPLAY	"3270 DISPLAY"
HOSTTYPE_3270PRINTER	"3270 PRINTER"
HOSTTYPE_5250 DISPLAY	"5250 PRINTER"

ConnType	Returned String
HOSTTYPE_5250PRINTER	"5250 PRINTER"
HOSTTYPE_VT	"ASCII TERMINAL"
HOSTTYPE_PC	"PC SESSION"
Any other value	"UNKNOWN"

Prototype

void ConvertTypeToString(int ConnType,char *Buff)

Parameters

int ConnType

The connection type and must be one of the HOSTTYPE_* constants defined in ECLBASE.HPP.

char *Buff

A buffer of size TYPE_MAXSTRLEN as defined in ECLBase.hpp in which the string will be returned.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLBase::ConvertTypeToString
//
// Display type of connection 'A'.
//---------------------------------------------------------------------
void Sample5() {

ECLConnection  *pConn;
char           TypeString[21];

pConn = new ECLConnection('A');

pConn->ConvertTypeToString(pConn->GetConnType(), TypeString);
// Could also use:
// ECLBase::ConvertTypeToString(pConn->GetConnType(), TypeString);

printf("Session A is a %s \n", TypeString);

delete pConn;

} // end sample
```

ConvertPos

This method is an inline function (macro) to convert an ECL position coordinate into a row/column coordinate given a position and the width of the presentation space. This function is faster than using ECLPS::ConvertPosToRowCol() for applications that already know (or assume) the width of the presentation space.

Prototype

inline void ConvertPos(ULONG Pos,ULONG *Row,ULONG *Col,ULONG PSCols).

Parameters

ULONG Pos

The linear positional coordinate to be converted (input).

ULONG *Row

The pointer to the returned row number of the given position (output).

ULONG *Col

The pointer to the returned column number of the given position (output).

ULONG *PSCols

The number of columns in the host presentation space (input).

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLBase::ConvertPos
//
// Display row/column coordinate of a given point.
//---------------------------------------------------------------------
void Sample6() {

ECLPS     *pPS;
ULONG     NumRows, NumCols, Row, Col;

try {
  pPS = new ECLPS('A');

  pPS->GetSize(&NumRows, &NumCols);  // Get height and width of PS

  // Get row/column coordinate of position 81
  ECLBase::ConvertPos(81, &Row, &Col, NumCols);
  printf("Position 81 is row %lu, column %lu \n", Row, Col);
```

```
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLConnection Class

ECLConnection contains connection-related information for a given connection. This object can be created directly by an application, and is also created indirectly by the ECLConnList object or when creating any object that inherits from ECLConnection (for example, ECLSession).

The information returned by the methods of this object are current as of the time the method is called.

ECLConnection is inherited by ECLSession, ECLPS, ECLOIA, ECLWinMetrics, and ECLXfer.

Derivation

ECLBase > ECLConnection

ECLConnection Methods

The following shows the methods that are valid for ECLConnection classes.

```
ECLConnection(char ConnName)
ECLConnection(long ConnHandle)
~ECLConnection()
long GetHandle()
int GetConnType()
int GetEncryptionLevel()
char GetName()
BOOL IsStarted()
BOOL IsCommStarted()
BOOL IsAPIEnabled()
BOOL IsReady()

unsigned int GetCodePage()
void StartCommunication()
void StopCommunication()
void RegisterCommEvent(ECLCommNotify *NotifyObject, BOOL InitEvent = TRUE)
void UnregisterCommEvent(ECLCommNotify *NotifyObject)
```

ECLConnection Constructor

This method constructs an ECLConnection object from either a connection name or a handle.

Prototype

ECLConnection(long ConnHandle)

ECLConnection(char ConnName)

Parameters

long ConnHandle

Handle of connection to create a connection object.

char ConnName

Name (A–Z or a-z) of connection to create a connection object.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnection::ECLConnection    (Constructor)
//
// Create two connection objects for connection 'A', one created
// by name, the other by handle.
//---------------------------------------------------------------------
void Sample7() {

ECLConnection   *pConn1, *pConn2;
long              Hand;

try {
  pConn1  = new ECLConnection('A');
  Hand    = pConn1->GetHandle();
  pConn2  = new ECLConnection(Hand);  // Another ECLConnection for 'A'

  printf("Conn1 is for connection %c, Conn2 is for connection %c.\n",
         pConn1->GetName(), pConn2->GetName());

  delete pConn1;  // Call destructors
  delete pConn2;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
```

```
} // end sample
```

ECLConnection Destructor

This method destroys an ECLConnection object.

Prototype

~ECLConnection()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnection::~ECLConnection    (Destructor)
//
// Create two connection objects, then delete both of them.
//---------------------------------------------------------------------
void Sample8() {

ECLConnection   *pConn1, *pConn2;
long              Hand;

try {
  pConn1  = new ECLConnection('A');
  Hand    = pConn1->GetHandle();
  pConn2  = new ECLConnection(Hand);  // Another ECLConnection for 'A'

  printf("Conn1 is for connection %c, Conn2 is for connection %c.\n",
         pConn1->GetName(), pConn2->GetName());

  delete pConn1;  // Call destructors
  delete pConn2;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetCodePage

This method returns the host code page for which the connection is configured.

Prototype

unsigned int GetCodePage()

Parameters

None

Return Value

unsigned int

Host code page of the connection.

Example

```
//---------------------------------------------------------------------
// ECLConnection::GetCodePage
//
// Display host code page for each ready connection.
//---------------------------------------------------------------------
void Sample16() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

  if (Info->IsReady())
    printf("Connection %c is configured for host code page %u.\n",
            Info->GetName(), Info->GetCodePage());
}

} // end sample
```

GetHandle

This method returns the handle of the connection. This handle uniquely identifies the connection and may be used in other ECL functions that require a connection handle.

Prototype

long GetHandle()

Parameters

None

Return Value

long

Connection handle of the ECLConnection object.

Example

The following example shows how to return the handle of the first connection in the connection list.

```
//---------------------------------------------------------------------
// ECLConnection::GetHandle
//
// Get the handle of connection 'A' and use it to create another
// connection object.
//---------------------------------------------------------------------
void Sample9() {

ECLConnection   *pConn1, *pConn2;
long              Hand;

try {
  pConn1  = new ECLConnection('A');
  Hand    = pConn1->GetHandle();
  pConn2  = new ECLConnection(Hand);  // Another ECLConnection for 'A'

  printf("Conn1 is for connection %c, Conn2 is for connection %c.\n",
         pConn1->GetName(), pConn2->GetName());

  delete pConn1;  // Call destructors
  delete pConn2;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetConnType

This method returns the connection type. This connection type may change over time (for example, you may reconfigure the connection for a different host). The application should not assume the connection type is fixed. See below for connection types returned.

Note: The ECLBase::ConvertTypeToString function converts the connection type to a null terminated string.

Prototype

int GetConn Type()

Parameters

None

Return Value

int

Connection type constant (HOSTTYPE_* from HOSTBASE.HPP). The following table shows the value returned and its meaning.

Value Returned	Meaning
HOSTTYPE_3270DISPLAY	3270 display
HOSTTYPE_3270PRINTER	3270 printer
HOSTTYPE_5250DISPLAY	5250 display
HOSTTYPE_5250PRINTER	5250 printer
HOSTTYPE_VT	ASCII VT display
HOSTTYPE_UNKNOWN	Unknown connection type

Example

The following example shows how use the GetConnType method to return the connection type.

```
//---------------------------------------------------------------------
// ECLConnection::GetConnType
//
// Find the first 3270 display connection in the current list of
// all connections.
//---------------------------------------------------------------------
void Sample10() {

ULONG      i;             // Connection counter
ECLConnList ConnList;     // Connection list object
ECLConnection *Info=NULL; // Pointer to connection object

for (i=0; i<ConnList.GetCount(); i++) {

  Info = ConnList.GetNextConnection(Info);
  if (Info->GetConnType() == HOSTTYPE_3270DISPLAY) {
    // Found the first 3270 display connection
    printf("First 3270 display connection is '%c'.\n",
            Info->GetName());
    return;
  }

} // for
printf("Found no 3270 display connections.\n");

} // end sample
```

GetName

This method returns the connection name (a single, alphabetic character from A–Z or a-z) of the connection. This name also corresponds to the EHLLAPI session ID.

Prototype

char GetName()

Parameters

None

Return Value

char

Connection short name.

Example

The following example shows how to use the GetName method to return the connection name.

```
//---------------------------------------------------------------------
// ECLConnection::GetName
//
// Find the first 3270 display connection in the current list of
// all connections and display its name (session ID).
//---------------------------------------------------------------------
void Sample11() {

ULONG      i;             // Connection counter
ECLConnList ConnList;     // Connection list object
ECLConnection *Info=NULL; // Pointer to connection object

for (i=0; i<ConnList.GetCount(); i++) {

  Info = ConnList.GetNextConnection(Info);
  if (Info->GetConnType() == HOSTTYPE_3270DISPLAY) {
    // Found the first 3270 display connection, display the name
    printf("First 3270 display connection is '%c'.\n",
            Info->GetName());
    return;
  }

} // for
printf("Found no 3270 display connections.\n");

} // end sample
```

GetEncryptionLevel

This method returns the encryption level of the current connection.

Prototype

int GetEncryptionLevel()

Parameters

None

Return Value

int

Encryption level constant. The following table shows the value returned and its meaning.

Value Returned	Meaning
ENCRYPTION_NONE	No Encryption
ENCRYPTION_40BIT	40 bit encryption
ENCRYPTION_56BIT	56 bit encryption
ENCRYPTION_128BIT	128 bit encryption
ENCRYPTION_168BIT	168 bit encryption
ENCRYPTION_NOKEY	Encrypted without a key

Example

The following example shows how use the GetEncryptionLevel method to return the encryption level.

```
//-------------------------------------------------------
// ECLConnection::GetEncryptionLevel
//
// Display the encryption level of session A
//
//-------------------------------------------------------
void SampleEL()
{
int EncryptionLevel = 0;   //Encryption Level
ECLConnection * Info = NULL;  //Pointer to connection object

Info = new ECLConnection('A');
If (Info != NULL)
{
 EncryptionLevel = Info->GetEncryptionLevel();
 switch (EncryptionLevel)
 {
 case ENCRYPTION_NONE:
  printf("Encryption Level = None");
  break;
```

```
 case ENCRYPTION_40BIT:
  printf("Encryption Level = 40 BIT");
  break;
 case ENCRYPTION_56BIT:
  printf("Encryption Level = 56 BIT");
  break;
 case ENCRYPTION_128BIT:
  printf("Encryption Level = 128 BIT");
  break;
 case ENCRYPTION_168BIT:
  printf("Encryption Level = 168 BIT");
  break;

     default:
 }
}
}
```

IsStarted

This method indicates if the connection is started. A started connection may or may not be connected to a host. Use the IsCommStarted function to determine if the connection is currently connected to a host.

Prototype

BOOL IsStarted()

Parameters

None

Return Value

BOOL

TRUE value if the connection is started; FALSE value if the connection is not started.

Example

```
//---------------------------------------------------------------------
// ECLConnection::IsStarted
//
// Display list of all started connections.  Note they may or may
// not be communications-connected to a host, and may or may not
// be visible on the screen.
//---------------------------------------------------------------------
void Sample12() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

// Print list of started connections
```

```
for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

  if (Info->IsStarted())
    printf("Connection %c is started.\n", Info->GetName());
}

} // end sample
```

IsCommStarted

This method indicates if the connection is currently connected to the host (for example, it indicates if host communications is active for the connection). This function returns a FALSE value if the connection is not started (see IsStarted on page 32).

Prototype

BOOL IsCommStarted()

Parameters

None

Return Value

BOOL

TRUE value if the connection is connected to the host; FALSE value if the connection is not connected to the host.

Example

```
//---------------------------------------------------------------------
// ECLConnection::IsCommStarted
//
// Display list of all started connections which are currently
// in communications with a host.
//---------------------------------------------------------------------
void Sample13() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

  if (Info->IsCommStarted())
    printf("Connection %c is connected to a host.\n", Info->GetName());
}
```

```
} // end sample
```

IsAPIEnabled

This method indicates if the connection is API-enabled. A connection that does not have API enabled cannot be used with the Host Access Class Library. This function returns a FALSE value if the connection is not started.

Prototype

BOOL IsAPIEnabled()

Parameters

None

Return Value

BOOL

TRUE value if API is enabled; FALSE value if API is not enabled.

Example

```
//---------------------------------------------------------------------
// ECLConnection::IsAPIEnabled
//
// Display list of all started connections which have APIs enabled.
//---------------------------------------------------------------------
void Sample14() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

  if (Info->IsAPIEnabled())
    printf("Connection %c has APIs enabled.\n", Info->GetName());
}

} // end sample
```

IsReady

This method indicates that the connection is ready, meaning the connection is started, connected, and API-enabled. This function is faster and easier than calling IsStarted, IsCommStarted, and IsAPIEnabled.

Prototype

BOOL IsReady()

Parameters

None

Return Value

BOOL

TRUE if the connection is started, CommStarted, and API-enabled; FALSE if otherwise.

Example

```
//-------------------------------------------------------------------
// ECLConnection::IsReady
//
// Display list of all connections which are started, comm-connected
// to a host, and have APIs enabled.
//-------------------------------------------------------------------
void Sample15() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

   if (Info->IsReady())
    printf("Connection %c is ready (started, comm-connected, API
          enabled).\n", Info->GetName());
}

} // end sample
```

StartCommunication

This method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator communication menu and choosing Connect.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

```
//-------------------------------------------------------------------
// ECLConnection::StartCommunication
//
// Start communications link for any connection which is currently
// not comm-connected to a host.
//-------------------------------------------------------------------
void Sample17() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

  if (!(Info->IsCommStarted())) {
    printf("Starting comm-link for connection %c...\n", Info->GetName());
    Info->StartCommunication();
  }
}

} // end sample
```

StopCommunication

This methods disconnects the ZIEWin emulator from the host data stream. This has the same effect as going to the ZIEWin emulator communication menu and choosing Disconnect.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnection::StopCommunication
//
// Stop comm-link for any connection which is currently connected
// to a host.
//---------------------------------------------------------------------
void Sample18() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object

for (Info = ConnList.GetFirstConnection();
     Info != NULL;
     Info = ConnList.GetNextConnection(Info)) {

  if (Info->IsCommStarted()) {
    printf("Stopping comm-link for connection %c...\n", Info->GetName());
    Info->StopCommunication();
  }
}

} // end sample
```

RegisterCommEvent

This member function registers an application object to receive notification of all communication link connect/disconnect events. To use this function, the application must create an object derived from the ECLCommNotify class. A pointer to that object is then passed to this registration function. *Implementation Restriction:* An application can register only one object for communication event notification.

After a notify object has been registered with this function, it will be called whenever the connections communication link with the host connects or disconnects. The object will receive notification for all communication events whether they are caused by the StartCommunication() function or explicitly by the user. This event should not be confused with the connection start/stop event which is triggered when a new ZIEWin connection starts or stops.

The optional InitEvent parameter causes an initial event to be generated when the object is registered. This can be useful to synchronize an event object with the current state of the communications link. If InitEvent is specified as FALSE, no initial event is generated when the object is registered. The default for this parameter is TRUE.

The application must call UnregisterCommEvent() before destroying the notification object. The object is automatically unregistered if the ECLConnection object where it is registered is destroyed.

See the description of ECLCommNotify Class on page 54 for more information.

Prototype

void RegisterCommEvent(ECLCommNotify *NotifyObject, BOOL InitEvent = TRUE)

Parameters

ECLCommNotify *NotifyObject

Pointer to an object derived from ECLCommNotify class.

BOOL InitEvent

Generate an initial event with the current state.

Return Value

None

Example

See ECLCommNotify Class on page 54 for an example of ECLConnection::RegisterCommEvent.

UnregisterCommEvent

This member function unregisters an application object previously registered for communication events with the RegisterCommEvent() function. A registered application notify object should not be destroyed without first calling this function to unregister it. If there is no notify object currently registered, or the registered object is not the NotifyObject passed in, this function does nothing (no error is thrown).

When a notify object is unregistered, its NotifyStop() member function will be called.

See the description of ECLCommNotify Class on page 54 for more information.

Prototype

void UnregisterCommEvent(ECLCommNotify *NotifyObject)

Parameters

ECLCommNotify *NotifyObject

This is a currently registered application notification object.

Return Value

None

Example

See ECLCommNotify Class on page 54 for an example of ECLConnection::UnregisterCommEvent.

ECLConnList Class

ECLConnList obtains information about all host connections on a given machine. An ECLConnList object contains a collection of all the connections that are currently known in the system.

The ECLConnList object contains a collection of ECLConnection objects. Each element of the collection contains information about a single connection. A connection in this list may be in any state (for example, stopped or disconnected). All started connections appear in this list. The ECLConnection object contains the state of the connection.

The list is a snapshot of the set of connections at the time this object is created, or the last time the Refresh method was called. The list is not dynamically updated as connections are started and stopped. An application can use the RegisterStartEvent member of the ECLConnMgr object to be notified of connection start and stop events.

An ELCConnList object may be created directly by the application or indirectly by the creation of an ECLConnMgr object.

Derivation

ECLBase > ECLConnList

Usage Notes

An ECLConnList object provides a static snapshot of current connections. The Refresh method is automatically called upon construction of the ECLConnList object. If you use the ECLConnList object right after construction it contains an accurate representation of the list of connections at that moment. However, you should call the Refresh method in the ECLConnList object before you start accessing it if some time has passed since its construction.

The application can iterate over the collection by using the GetFirstConnection and GetNextConnection methods. The object pointers returned by GetFirstConnection and GetNextConnection are valid only until the Refresh member is called, or the ECLConnList object is destroyed. The application can locate a specific connection of interest in the list using the FindConnection function. Like GetNextConnection, the returned pointer is valid only until the next Refresh or the ECLConnList object is destroyed.

The order of connections in the connection list is undefined. An application should not make any assumptions about the list order. The order of connections in the list does not change until the Refresh function is called.

An ECLConnList object is automatically created when an ECLConnMgr object is created. However, the ECLConnList object can be created without an ECLConnMgr object.

ECLConnList Methods

The following section describes the methods that are valid for the ECLConnList class.

ECLConnection * GetFirstConnection()
ECLConnection * GetNextConnection(ECLConnection *Prev)
ECLConnection * FindConnection(Long ConnHandle)
ECLConnection * FindConnection(char ConnName)
ULONG GetCount()
void Refresh()

ECLConnList Constructor

This method creates an ECLConnList object and initializes it with the current list of connections.

Prototype

ECLConnList();

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnList::ECLConnList        (Constructor)
//
// Dynamically construct a connection list object, display number
// of connections in the list, then delete the list.
//---------------------------------------------------------------------
void Sample19() {

ECLConnList *pConnList;  // Pointer to connection list object

try {
  pConnList = new ECLConnList();
  printf("There are %lu connections in the connection list.\n",
         pConnList->GetCount());

  delete pConnList;  // Call destructor
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLConnList Destructor

This method destroys an ECLConnList object.

Prototype

~ECLConnList()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnList::~ECLConnList        (Destructor)
//
// Dynamically construct a connection list object, display number
// of connections in the list, then delete the list.
//---------------------------------------------------------------------
void Sample20() {

ECLConnList *pConnList;  // Pointer to connection list object

try {
  pConnList = new ECLConnList();
  printf("There are %lu connections in the connection list.\n",
         pConnList->GetCount());

  delete pConnList;  // Call destructor
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetFirstConnection

The GetFirstConnection method returns a pointer to the first connection information object in the ECLConnList collection. See ECLConnection Class on page 24 for details on its contents. The returned pointer becomes invalid when the ECLConnList Refresh member is called or the ECLConnList object is destroyed. The application should not delete the returned object. If there are no connections in the list, NULL is returned.

Prototype

ECLConnection *GetFirstConnection()

Parameters

None

Return Value

ECLConnection *

Pointer to the first ECLConnection object in the list. If there are no connections in the list, null is returned.

Example

```
//-------------------------------------------------------------------
// ECLConnection::GetFirstConnection
//
// Iterate over list of connections and display information about
// each one.
//-------------------------------------------------------------------
void Sample21() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object
char TypeString[21];     // Type of connection

for (Info = ConnList.GetFirstConnection();       // Get first one
     Info != NULL;                               // While there is one
     Info = ConnList.GetNextConnection(Info)) {  // Get next one

  ECLBase::ConvertTypeToString(Info->GetConnType(), TypeString);
  printf("Connection %c is a %s type connection.\n",
         Info->GetName(), TypeString);
}

} // end sample
```

GetNextConnection

This method returns a pointer to the next connection information object in the ECLConnList collection given a connection in the list. The application supplies a pointer to a connection previously returned by this function or GetFirstConnection. See ECLConnection Class on page 24 for details on its contents. The returned pointer is not valid after the next ECLConnList Refresh() call, or the ECLConnList object is destroyed. A NULL pointer is returned if there is an attempt to read past the end of the list. Successive calls to this method (supplying the prior pointer on

each call) iterates over the list of connections. After the last connection is returned, subsequent calls return a NULL pointer. The first connection in the list can be obtained by supplying NULL for the previous connection.

Prototype

ECLConnection *GetNext Connection (ECLConnection *Prev)

Parameters

ECLConnection *Prev

Pointer returned by prior call to this function, GetFirstConnection(), or NULL.

Return Value

ECLConnection *

This is the pointer to the next ECLConnection object, or NULL if end of list.

Example

```
//-------------------------------------------------------------------
// ECLConnection::GetNextConnection
//
// Iterate over list of connections and display information about
// each one.
//-------------------------------------------------------------------
void Sample22() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object
char TypeString[21];     // Type of connection

for (Info = ConnList.GetFirstConnection();       // Get first one
     Info != NULL;                               // While there is one
     Info = ConnList.GetNextConnection(Info)) {  // Get next one

  ECLBase::ConvertTypeToString(Info->GetConnType(), TypeString);
  printf("Connection %c is a %s type connection.\n",
         Info->GetName(), TypeString);
}

} // end sample
```

FindConnection

This method searches the current connection list for the connection specified. The desired connection can be specified by handle or by name. There are two signatures for the FindConnection method. If the specified connection is found, a pointer to the ECLConnection object is returned. If the specified connection is not in the list, NULL is returned. The list is not automatically refreshed by this function; if a new connection has started since the list was

constructed or refreshed it is not found. The returned pointer is to an object in the connection list maintained by the ECLConnList object. The returned pointer is invalid after the next ECLConnList::Refresh call or the ECLConnList object is destroyed.

Prototype

ECLConnection *FindConnection(Long ConnHandle),

ECLConnection *FindConnection(char ConnName)

Parameters

Long ConnHandle

Handle of the connection to find in the list.

char ConnName

Name of the connection to find in the list.

Return Value

ECLConnection *

Pointer to the requested ECLConnection object. If the specified connection is not in the list, NULL is returned.

Example

```
//---------------------------------------------------------------------
// ECLConnection::FindConnection
//
// Find connection 'B' in the list of connections.  If found, display
// its type.
//---------------------------------------------------------------------
void Sample23() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object
char TypeString[21];     // Type of connection

Info = ConnList.FindConnection('B');  // Find connection by name
if (Info != NULL) {

  ECLBase::ConvertTypeToString(Info->GetConnType(), TypeString);
  printf("Connection 'B' is a %s type connection.\n",
          TypeString);
}
else printf("Connection 'B' not found.\n");

} // end sample
```

GetCount

This method returns the number of connections currently in the ECLConnList collection.

Prototype

ULONG GetCount()

Parameters

None

Return Value

ULONG

Number of connections in the collection.

Example

```
//---------------------------------------------------------------------
// ECLConnList::GetCount
//
// Dynamically construct a connection list object, display number
// of connections in the list, then delete the list.
//---------------------------------------------------------------------
void Sample24() {

ECLConnList *pConnList;  // Pointer to connection list object

try {
  pConnList = new ECLConnList();
  printf("There are %lu connections in the connection list.\n",
         pConnList->GetCount());

  delete pConnList;  // Call destructor
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

Refresh

This method updates the ECLConnList collection with a list of all currently known connections in the system. All pointers previously returned by GetNextConnection, GetFirstConnection and FindConnection become invalid.

Prototype

void Refresh()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnection::Refresh
//
// Loop-and-wait until connection 'B' is started.
//---------------------------------------------------------------------
void Sample25() {

ECLConnection *Info;     // Pointer to connection object
ECLConnList ConnList;    // Connection list object
int i;

printf("Waiting up to 60 seconds for connection B to start...\n");
for (i=0; i<60; i++) {   // Limit wait to 60 seconds
  ConnList.Refresh();    // Refresh the connection list
  Info = ConnList.FindConnection('B');
  if ((Info != NULL) && (Info->IsStarted())) {
    printf("Connection B is now started.\n");
    return;
  }
  Sleep(1000L);          // Wait 1 second and try again
}

printf("Connection 'B' not started after 60 seconds.\n");

} // end sample
```

ECLConnMgr Class

ECLConnMgr manages all Z and I Emulator for Windows connections on a given machine. It provides methods relating to the management of connections such as starting and stopping connections. It also creates an ECLConnList object to enumerate the list of all known connections on the system (see ECLConnList Class on page 39).

Derivation

ECLBase > ECLConnMgr

ECLConnMgr Methods

The following shows the methods that are valid with the ECLConnMgr class.

ECLConnMgr()
~ECLConnMgr()
ECLConnList * GetConnList()
void StartConnection(char *ConfigParms)
void StopConnection(Long ConnHandle, char *StopParms)
void RegisterStartEvent(ECLStartNotify *NotifyObject)
void UnregisterStartEvent(ECLStartNotify *NotifyObject)

ECLConnMgr Constructor

This method constructs an ECLConnMgr object.

Prototype

ECLConnMgr()

Parameters

None

Return Value

None

Example

```
//-------------------------------------------------------------------
// ECLConnMgr::ECLConnMgr          (Constructor)
//
// Create a connection mangager object, start a new connection,
// then delete the manager.
//-------------------------------------------------------------------
void Sample26() {

ECLConnMgr   *pCM; // Pointer to connection manager object

try {
  pCM = new ECLConnMgr();  // Create connection manager
  pCM->StartConnection("profile=coax connname=e");
  printf("Connection 'E' started with COAX profile.\n");
```

```
  delete pCM;              // Delete connection manager
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLConnMgr Deconstructor

This method destroys an ECLConnMgr object.

Prototype

~ECLConnMgr()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLConnMgr::~ECLConnMgr          (Destructor)
//
// Create a connection mangager object, start a new connection,
// then delete the manager.
//---------------------------------------------------------------------
void Sample27() {

ECLConnMgr   *pCM; // Pointer to connection manager object

try {
  pCM = new ECLConnMgr();  // Create connection manager
  pCM->StartConnection("profile=coax connname=e");
  printf("Connection 'E' started with COAX profile.\n");
  delete pCM;              // Delete connection manager
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetConnList

This method returns a pointer to an ECLConnList object. See ECLConnList Class on page 39 for more information. The ECLConnList object is destroyed when the ECLConnMgr object is destroyed.

Prototype

ECLConnList * GetConnList()

Parameters

None

Return Value

ECLConnList *

Pointer to an ECLConnList object

Example

```
//-------------------------------------------------------------------
// ECLConnMgr::GetConnList
//
// Use connection manager's connection list object to display
// number of connections (see also ECLConnList::GetCount).
//-------------------------------------------------------------------
void Sample28() {

ECLConnMgr   CM; // Connection manager object

printf("There are %lu connections in the connection list.\n",
       CM.GetConnList()->GetCount());

} // end sample
```

StartConnection

This method starts a new Z and I Emulator for Windows emulator connection. The ConfigParms string contains connection configuration information as explained under Usage Notes on page 50.

Prototype

void StartConnection(char *ConfigParms)

Parameters

char *ConfigParms

Null terminated connection configuration string.

Return Value

None

Usage Notes

The connection configuration string is implementation-specific. Different implementations of the Host Access Class Library may require different formats or information in the configuration string. This call is asynchronous in nature; the new connection may not yet be started when this call returns. An application can use the RegisterStartEvent function to be notified when a connection starts.

For Z and I Emulator for Windows, the configuration string has the following format:

```
PROFILE=[\"]<filename>[\"] [CONNNAME=<c>] [WINSTATE=<MAX|MIN|RESTORE|HIDE>]
```

Optional parameters are enclosed in square brackets []. The parameters are separated by at least one blank. Parameters may be in upper, lower, or mixed case and may appear in any order. The meaning of each parameter is as follows:

PROFILE=<filename>

Names the Z and I Emulator for Windows workstation profile (.WS file) that contains the connection configuration information. This parameter is not optional; a profile name must be supplied. If the file name contains blanks, the name must be enclosed in double quotation marks. The <filename> value may be either the profile name with no extension, the profile name with the .WS extension, or the fully-qualified profile name path.

CONNNAME=<c>

Specifies the connection name (EHLLAPI short session ID) of the new connection. This value must be a single, alphabetic character (A-Z or a-z). If this value is not specified, the next available connection name is assigned automatically. If a connection already exists with the specified name an error is thrown (ERRMAJ_INVALID_SESSION).

WINSTATE=<MAX|MIN|RESTORE|HIDE>

Specifies the initial state of the emulator window. The default if this parameter is not specified is RESTORE.

Note: Due to the asynchronous nature of this call, it is possible for this function to return without error, but the connection fails to start. For example, if two connections are started in a short period of time with the same connection name the second StartConnection does not fail because the first connection has not yet started. However, when the second connection finally attempts to register its name it does fail to start because the

name is already in use by the first connection. To minimize this possibility, connections should be started without specifying the CONNNAME parameter if possible.

Example

The following is an example of the StartConnection method.

```
ECLConnMgr Manager;  // Connection manager object

// Start a host connection "E" and check for errors

try {
  Manager.StartConnection("profile=coax connname=e");
}
catch (ECLErr Error) {
  MessageBox(NULL, Error.GetMsgText(), "Session start error!", MB_OK);
}
```

StopConnection

This method stops (terminates) the emulator connection identified by the connection handle. See Usage Notes on page 51 for contents of the StopParms string.

Prototype

void StopConnection(Long ConnHandle, char *StopParms)

Parameters

Long ConnHandle

Handle of the connection to be stopped.

char * StopParms

Null terminated connection stop parameter string.

Return Value

None

Usage Notes

The connection stop parameter string is implementation-specific. Different implementations of the Host Access Class Library may require a different format and contents of the parameter string. For Z and I Emulator for Windows the string has the following format:

```
[SAVEPROFILE=<YES|NO|DEFAULT>]
```

Optional parameters are enclosed in square brackets []. The parameters are separated by at least one blank. Parameters may be in upper, lower, or mixed case and may appear in any order. The meaning of the SAVEPROFILE parameter is as follows:

SAVEPROFILE=<YES|NO|DEFAULT> controls the saving of the current connection configuration back to the workstation profile (.WS file). This causes the profile to be updated with any configuration changes you may have made during the connection. If NO is specified, the connection is stopped and the profile is not updated. If YES is specified, the connection is stopped and the profile is updated with the current (possibly changed) configuration. If DEFAULT is specified, the update option is controlled by the **File->Save On Exit** emulator menu option. If this parameter is not specified, DEFAULT is used.

Example

```
//---------------------------------------------------------------------
// ECLConnMgr::StopConnection
//
// Stop the first connection in the connection list.
//---------------------------------------------------------------------
void Sample29() {

ECLConnMgr   CM; // Connection manager object

if (CM.GetConnList()->GetCount() > 0) {

  printf("Stopping connection %c.\n",
         CM.GetConnList()->GetFirstConnection()->GetName());

  CM.StopConnection(
    CM.GetConnList()->GetFirstConnection()->GetHandle(),
    "saveprofile=no");
}
else printf("No connections to stop.\n");


} // end sample
```

RegisterStartEvent

This method registers an application object to receive notification of all connection start and stop events. To use this function, the application must create an object derived from the ECLStartNotify class. A pointer to that object is then passed to this registration function. *Implementation Restriction:* An application can register only one object for connection start or stop notification.

After a notify object has been registered with this function, it is called whenever a Z and I Emulator for Windows connection is started or stopped. The object receives notification for all connections whether they are started by the StartConnection function or explicitly by you. This event should not be confused with the start/stop Communication event, which is triggered when a connection connects or disconnects from a host system.

See ECLStartNotify Class on page 191 for more information.

Prototype

void RegisterStartEvent(ECLStartNotify *NotifyObject)

Parameters

ECLStartNotify *NotifyObject

Pointer to object derived from the ECLStartNotify class.

Return Value

None

Example

```
//-------------------------------------------------------------------
// ECLConnMgr::RegisterStartEvent
//
// See ECLStartNotify Class on page 191 for example of this method.
//-------------------------------------------------------------
```

UnregisterStartEvent

This method unregisters an application object previously registered for connection start or stop events with the RegisterStartEvent function. A registered application notify object should not be destroyed without first calling this function to unregister it. If there is no notify object currently registered, or the registered object is not the NotifyObject passed in, this function does nothing (no error is thrown).

When a notify object is unregistered, its NotifyStop method is called.

See ECLStartNotify Class on page 191 for more information.

Prototype

void UnregisterStartEvent(ECLStartNotify *NotifyObject)

Parameters

None

Return Value

None

Example

```
//--------------------------------------------------------------------
// ECLConnMgr::UnregisterStartEvent
//
// See ECLStartNotify Class on page 191 for example of this method.
//--------------------------------------------------------------------
```

ECLCommNotify Class

ECLCommNotify is an abstract base class. An application cannot create an instance of this class directly. To use this class, the application must define its own class which is derived from ECLCommNotify. The application must implement the NotifyEvent() member function in its derived class. It may also optionally implement NotifyError() and NotifyStop() member functions.

The ECLCommNotify class is used to allow an application to be notified of communications connect/disconnect events on a ZIEWin connection. Connect/disconnect events are generated whenever a ZIEWin connection (window) is connected or disconnected from a host system.

To be notified of communications connect/disconnect events, the application must perform the following steps:

1. Define a class derived from ECLCommNotify.
2. Implement the derived class and implement the NotifyEvent() member function.
3. Optionally implement the NotifyError() function, NotifyStop() function or both.
4. Create an instance of the derived class.
5. Register the instance with the ECLConnection::RegisterCommEvent() function.

The example shown demonstrates how this may be done. When the above steps are complete, each time a connection's communications link is connected or disconnected from a host, the applications NotifyEvent() member function will be called.

If an error is detected during event generation, the NotifyError() member function is called with an ECLErr object. Events may or may not continue to be generated after an error, depending on the nature of the error. When event generation terminates (either due to an error, by calling the ECLConnection::UnregisterCommEvent, or by destruction of the ECLConnection object) the NotifyStop() member function is called. However event notification is terminated, the NotifyStop() member function is always called, and the application object is unregistered.

If the application does not provide an implementation of the NotifyError() member function, the default implementation is used (a simple message box is displayed to the user). The application can override the default behavior by implementing the NotifyError() function in the applications derived class. Likewise, the default NotifyStop() function is used if the application does not provide this function (the default behavior is to do nothing).

Note that the application can also choose to provide its own constructor and destructor for the derived class. This can be useful if the application wants to store some instance-specific data in the class and pass that information as a parameter on the constructor. For example, the application may want to post a message to an application window

when a communications event occurs. Rather than define the window handle as a global variable (so it would be visible to the NotifyEvent() function), the application can define a constructor for the class which takes the window handle and stores it in the class member data area.

The application must not destroy the notification object while it is registered to receive events.

Implementation Restriction: Currently the ECLConnection object allows only one notification object to be registered for communications event notification. The ECLConnection::RegisterCommEvent will throw an error if a notify object is already registered for that ECLConnection object.

Derivation

ECLBase > ECLNotify > ECLCommNotify

Example

```
//-------------------------------------------------------------------
// ECLCommNotify class
//
// This sample demonstrates the use of:
//
// ECLCommNotify::NotifyEvent
// ECLCommNotify::NotifyError
// ECLCommNotify::NotifyStop
// ECLConnection::RegisterCommEvent
// ECLConnection::UnregisterCommEvent
//-------------------------------------------------------------------


 //.............................................................
// Define a class derived from ECLCommNotify
//.............................................................
class MyCommNotify: public ECLCommNotify
{
public:
  // Define my own constructor to store instance data
  MyCommNotify(HANDLE DataHandle);

  // We have to implement this function
  void NotifyEvent(ECLConnection *ConnObj, BOOL Connected);

  // We choose to implement this function
  void NotifyStop (ECLConnection *ConnObj, int Reason);

  // We will take the default behaviour for this so we
  // don't implement it in our class:
  // void NotifyError (ECLConnection *ConnObj, ECLErr ErrObject);

private:
  // We will store our application data handle here
  HANDLE MyDataH;
};
```

```
//.............................................................
void MyCommNotify::NotifyEvent(ECLConnection *ConnObj,
                           BOOL Connected)
//
// This function is called whenever the communications link
// with the host connects or disconnects.
//
// For this example, we will just write a message.  Note that we
// have access the the MyDataH handle which could have application
// instance data if we needed it here.
//
// The ConnObj pointer is to the ECLConnection object upon which
// this event was registered.
//.............................................................
{
  if (Connected)
    printf("Connection %c is now connected.\n", ConnObj->GetName());
  else
    printf("Connection %c is now disconnected.\n", ConnObj->GetName());

  return;
}

 //.............................................................
MyCommNotify::MyCommNotify(HANDLE DataHandle)   // Constructor
//.............................................................
{
  MyDataH = DataHandle;  // Save data handle for later use
}

//.............................................................
void MyCommNotify::NotifyStop(ECLConnection *ConnObj,
                          int Reason)
//.............................................................
{
  // When notification ends, display message
  printf("Comm link monitoring for %c stopped.\n", ConnObj->GetName());
}

 //.............................................................
// Create the class and start notification on connection 'A'.
//.............................................................
void Sample30() {

ECLConnection *Conn;    // Ptr to connection object
MyCommNotify *Event;    // Ptr to my event handling object
HANDLE InstData;      // Handle to application data block (for example)

try {
  Conn = new ECLConnection('A');         // Create connection obj
  Event = new MyCommNotify(InstData);    // Create event handler

  Conn->RegisterCommEvent(Event);        // Register for comm events

  // At this point, any comm link event will cause the
```

```
  // MyCommEvent::NotifyEvent() function to execute.  For
  // this sample, we put this thread to sleep during this
  // time.

  printf("Monitoring comm link on 'A' for 60 seconds...\n");
  Sleep(60000);
```

```
  // Now stop event generation.  This will cause the NotifyStop
  // member to be called.
  Conn->UnregisterCommEvent(Event);

  delete Event;  // Don't delete until after unregister!
  delete Conn;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLCommNotify Methods

The following section describes the methods that are valid for the ECLCommNotify class:

ECLCommNotify()
~ECLCommNotify()
virtual void NotifyEvent (ECLConnection *ConnObj, BOOL Connected) = 0
virtual void NotifyError (ECLConnection *ConnObj, ECLErr ErrObject)
virtual void NotifyStop (ECLConnection *ConnObj, int Reason)

NotifyEvent

This method is a “pure virtual” member function (the application *must* implement this function in classes derived from ECLCommNotify). This function is called whenever a connection starts or stops and the object is registered for start/stop events. The Connected BOOL is TRUE if the communications link is connected, or FALSE if it is not connected to the host.

Prototype

virtual void NotifyEvent (ECLConnection *ConnObj, BOOL Connected)

Parameters

ECLConnection *ConnObj

This is the pointer to ECLConnection object where the event occurred.

BOOL Connected

This is TRUE if comm link is connected and FALSE if disconnected.

Return Value

None

NotifyError

This method is called whenever the ECLConnection object detects an error during event generation. The error object contains information about the error (see ECLErr Class on page 59). Events may continue to be generated after the error, depending on the nature of the error. If the event generation stops due to an error, the NotifyStop() function is called. An application can choose to implement this function or allow the ECLCommNotify base class to handle the error. The base class will display the error in a message box using the text supplied by the ECLErr::GetMsgText() function. If the application implements this function in its derived class, it will override the base class function.

Prototype

virtual void NotifyError (ECLConnection *ConnObj, ECLErr ErrObject)

Parameters

ECLConnection *ConnObj

This is the pointer to ECLConnection object in which the error occurred.

ECLErr ErrObject

This is the ECLErr object describing the error.

Return Value

None

NotifyStop

This method is called when event generation is stopped for any reason (for example, due to an error condition or a call to ECLConnection::UnregisterCommEvent, etc.).

Implementation Note: the reason code is currently unused and will be zero.

Prototype

virtual void NotifyStop (ECLConnection *ConnObj, int Reason)

Parameters

ECLConnection *ConnObj

This is the ptr to ECLConnection object that is stopping notification.

int Reason

This is unused (zero).

Return Value

None

ECLErr Class

The ECLErr class provides a method of returning run-time error information from Host Access Class Library classes. In error situations, ECLErr objects are created and populated with error and diagnostic information. The ECLErr objects are then thrown as C++ exceptions. The error and diagnostic information can then be queried from the caught ECLErr object.

Applications should not create or throw ECLErr objects directly.

Derivation

ECLBase > ECLErr

ECLErr Methods

The following section describes the methods that are valid for the ECLErr class.

const int GetMsgNumber()
const int GetReasonCode()
const char *GetMsgText()

GetMsgNumber

This method returns the message number that was set when this ECLErr object was created. Error message numbers are described in ERRORIDS.HPP.

Prototype

const int GetMsgNumber()

Parameters

None

Return Value

const int

The error message number.

Example

```
//---------------------------------------------------------------------
// ECLErr::GetMsgNumber
//
// Cause an 'invalid parameters' error and tryp the ECL exception.
// The extract the error number and language-sensative text.
//---------------------------------------------------------------------
void Sample31() {

ECLPS   *PS = NULL;

try {
  PS = new ECLPS('A');
  PS->SetCursorPos(999,999);  // Invalid parameters
}
catch (ECLErr ErrObj) {
  printf("The following ECL error was trapped:\n");
  printf("%s \nError number: %lu\nReason code: %lu\n",
    ErrObj.GetMsgText(),
    ErrObj.GetMsgNumber(),
    ErrObj.GetReasonCode());
}

if (PS != NULL)
  delete PS;

} // end sample
```

GetReasonCode

This method gets the reason code (sometimes referred to as the secondary or minor return code) from the ECLErr object. This code is generally used for debugging and diagnostic purposes. It is subject to change in future versions of the Host Access Class Library and should not be used programmatically. Descriptions of the reason codes can be found in ERRORIDS.HPP.

Prototype

const int GetReasonCode()

Parameters

None

Return Value

const int

The ECLErr reason code.

Example

```
//---------------------------------------------------------------------
// ECLErr::GetReasonCode
//
// Cause an 'invalid parameters' error and tryp the ECL exception.
// The extract the error number and language-sensative text.
//---------------------------------------------------------------------
void Sample32() {

ECLPS   *PS = NULL;

try {
  PS = new ECLPS('A');
  PS->SetCursorPos(999,999);  // Invalid parameters
}
catch (ECLErr ErrObj) {
  printf("The following ECL error was trapped:\n");
  printf("%s \nError number: %lu\nReason code: %lu\n",
    ErrObj.GetMsgText(),
    ErrObj.GetMsgNumber(),
    ErrObj.GetReasonCode());
}

if (PS != NULL)
  delete PS;

} // end sample
```

GetMsgText

This method returns the message text associated with the error code used to create this ECLErr object. The message text is returned in the language for which Z and I Emulator for Windows is currently installed.

Note: The returned pointer is invalid after the ECLErr object is deleted.

Prototype

const char *GetMsgText()

Parameters

None

Return Value

char *

The message text associated with the error code that is part of this ECLErr object.

Example

```
//---------------------------------------------------------------------
// ECLErr::GetMsgText
//
// Cause an 'invalid parameters' error and tryp the ECL exception.
// The extract the error number and language-sensative text.
//---------------------------------------------------------------------
void Sample33() {

ECLPS   *PS = NULL;

try {
  PS = new ECLPS('A');
  PS->SetCursorPos(999,999);  // Invalid parameters
}
catch (ECLErr ErrObj) {
  printf("The following ECL error was trapped:\n");
  printf("%s \nError number: %lu\nReason code: %lu\n",
    ErrObj.GetMsgText(),
    ErrObj.GetMsgNumber(),
    ErrObj.GetReasonCode());
}

if (PS != NULL)
  delete PS;

} // end sample
```

Usage Notes

The message text is retrieved from the Z and I Emulator for Windows message facility.

ECLField Class

ECLField contains information for a given field in an ECLFieldList object contained by an ECLPS object. An application should not create an object of this type directly. ECLField objects are created indirectly by the ECLFieldList object.

An ECLField object describes a single field of the host presentation space. It has methods for querying various attributes of the field and for updating the text of the field (for example, modifying the field text). Field attributes cannot be modified.

Derivation

ECLBase > ECLField

Copy-Constructor and Assignment Operator

This object supports copy-construction and assignment. This is useful for an application that wants to easily capture fields on a host screen for later processing. Rather than allocate text buffers and copy the string contents of the field, the application can simply store the field in a private ECLField object. The stored copy retains all the function of an ECLField object including the field's text value, attributes, starting position, length, etc. For example, suppose an application wanted to capture the first input field of the screen. Table 1: Copy-Construction and Assignment Examples on page 63 shows two ways this could be accomplished.

Table 1. Copy-Construction and Assignment Examples

Save the field as a string

```
#include "eclall.hpp"

{
   char *SavePtr;  // Ptr to saved string
   ECLPS Ps('A'); // PS object
   ECLFieldList *List;
   ECLField       *Fld;

   // Get fld list and rebuild it
   List = Ps->GetFieldList();
   List->Refresh();

   // See if there is an input field
   Fld = List->GetFirstField(GetUnmodified);
   if  (Fld !=NULL) {
      // Copy the field's text value
      SavePtr=malloc(Fld->Length() + 1);
      Fld->GetScreen(SavePtr, Fld->Length()+1);
  }

  // We now have captured the field text
```

Save the field as an ECLField object

```
#include "eclall.hpp"

{
   ECLField SaveFld;  // Saved field
   ECLPS Ps('A');      // PS object
   ECLFieldList *List;
   ECLField       *Fld;

   // Get fld list and rebuild it
   List = Ps->GetFieldList();
   List->Refresh();

   // See if there is an input field
   Fld = List->GetFirstField(GetUnmodified);
   if  (Fld !=NULL) {
      // Copy the field object
      SaveFld = *Fld;
  }

  // We now have captured the field text
  // including text, position, attrib
```

There are several advantages to using an ECLField object instead of a string to store a field:

- The ECLField object does all storage management of the field's text buffer; the application does not have to allocate or free text buffers or calculate the size of the buffer required.
- The saved field retains all of the characteristics of the original field including its attributes and starting position. All of the usual ECLField member functions can be used on the stored field except SetText(). Note that the stored field is a copy of the original — its values are not updated when the host screen changes or when the ECLFieldList::Refresh() function is called. As a result, the field can be stored and used later in the application.

Assignment operator overrides are also provided for character strings and long integer value types. These overrides make it easy to assign new string or numeric values to unprotected fields. For example, the following sets the first two input fields of the screen:

```
ECLField *Fld1; //Ptr to 1st unprotected field in field list
ECLField *Fld2; // PTR to 2nd unprotected field in field list

Fld1 = FieldList->GetFirstField(GetUnprotected);
Fld2 = FieldList->GetNextField(Fld1, GetUnprotected);
if ((Fld1 == NULL) || (Fld2 == NULL)) return;

*Fld1 = "Easy string assignment";
*Fld2 = 1087;
```

Notes:

1. ECLField objects initialized by copy-construction or assignment are read-only copies of the original field object. The SetText() method is invalid for such an object and will cause an ECLErr exception to be thrown. Because the objects are copies, they are not updated or deleted when the original field object is updated or deleted. The application is responsible for deleting copies of field objects when they are no longer needed.
2. Calling any method on an unitialized ECLField object will return undefined results.
3. An ECLField object created by the application can be reassigned any number of times.
4. Assignments can only be made from another ECLField object, a character string, or a long integer value. Assigning any other data type to an ECLField object is invalid.
5. If an assignment is made to an ECLField object that currently is part of an ECLFieldList, the effect is to update only the field's text value. This is allowed only if the field object is an unprotected field. For example, the following will modify the 2nd input field of the screen by copying the value from the 1st input field:

   ```
   ECLField *Fld1;   // Ptr to 1st unprotected field in field list
   ECLField *Fld2;   // Ptr to 2nd unprotected field in field list

   Fld1 = FieldList->GetFirstField(GetUnprotected);
   Fld2 = FieldList->GetNextField(Fld1, GetUnprotected);
   if ((Fld1 == NULL) || (Fld2 == NULL)) return;

   // Update the 2nd input field using text from the first
   FLD2 = * Fld1;
   ```

   Because Fld2 is part of an ECLFieldList, the above assignment is identical to:

   ```
   { char temp[Fld1->GetLength()+1];
     Fld1->GetText(temp, Fld1->GetLength()+1);
     Fld2->SetText(temp);
     delete []temp;
   }
   ```

   Note that this will throw an ECLErr exception if Fld2 is protected. Also note that only the text of Fld2 is updated, not its attributes, position, or length.
6. Assigning a string to a field object is equivalent to calling the SetText() method. You can also assign numeric values without first converting to strings:

```
*Field = 1087;
```

This is equivalent to converting the number to a string and then calling the SetText() method.

ECLField Methods

The following section describes the methods that are valid for the ECLField class.

```
ULONG GetStart()
void GetStart(ULONG *RowULONG *Col)
ULONG GetStartRow()
ULONG GetStartCol()
ULONG GetEnd()
void GetEnd(ULONG *RowULONG *Col)
ULONG GetEndRow()
ULONG GetEndCol()
ULONG GetLength()
ULONG GetScreen(char *Buff, ULONG BuffLen, PS_PLANE Plane = TextPlane)
void SetText(char *text)
BOOL IsModified()
BOOL IsProtected()
BOOL IsNumeric()
BOOL IsHighIntensity()
BOOL IsPenDetectable()
BOOL IsDisplay()
unsigned charGetAttribute()
```

The following methods are valid for the ECLField class :

```
ULONG GetScreen(WCHAR *Buff, ULONG BuffLen, PS_PLANE Plane = TextPlane)
void SetText(WCHAR *text)
```

GetStart

This method returns the position in the presentation space of the first character of the field. There are two signatures for the GetStart method. ULONG GetStart returns the position as a linear value with the upper left corner of the presentation space being “1”. void GetStart(ULONG *Row, ULONG *Col) returns the position as a row and column coordinate.

Prototype

ULONG GetStart(),

void GetStart(ULONG *Row, ULONG *Col)

Parameters

ULONG *Row

This output parameter is a pointer to the row value to be updated.

ULONG *Col

This output parameter is a pointer to the column value to be updated.

Return Value

ULONG

Position in the presentation space represented as a linear array.

Example

The following example shows how to return the position in the presentation space of the first character of the field.

```
/-------------------------------------------------------------------
// ECLField::GetStart
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//-------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();    // Get pointer to field list
  pFieldList->Refresh();               // Build the field list

  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field

    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)
     Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(),
      pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
```

```
  }
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetStartRow

This method returns the starting row position of a given field in the ECLFieldList collection for the connection associated with the ECLPS object.

Prototype

ULONG GetStartRow()

Parameters

None

Return Value

ULONG

This is the starting row of a given field.

Example

```
/-------------------------------------------------------------------
// ECLField::GetStartRow
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//-------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();    // Get pointer to field list
  pFieldList->Refresh();               // Build the field list

  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field
```

```
    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)  Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(), pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
  }
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetStartCol

This method return the starting column position of a given field in the ECLFieldList collection for the connection associated with the ECLPS object.

Prototype

ULONG GetStartCol()

Parameters

None

Return Value

ULONG

This is the starting column of a given field.

Example

```
/-------------------------------------------------------------------
// ECLField::GetStartCol
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//-------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();    // Get pointer to field list
  pFieldList->Refresh();               // Build the field list
```

```
  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field

    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)
      Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(),
      pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
  }
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetEnd

This method returns the position in the presentation space of the last character of the field. There are two signatures for the GetEnd method. ULONG GetEnd returns the position as a linear value with the upper left corner of the presentation space being “1”. void GetEnd(ULONG *Row, ULONG *Col) returns the position as a row and column coordinate.

Prototype

ULONG GetEnd()

void GetEnd(ULONG *Row, ULONG *Col)

Parameters

ULONG *Row

This output parameter is a pointer to the row value to be updated.

ULONG *Col

This output parameter is a pointer to the column value to be updated.

Return Value

ULONG

Position in the presentation space represented as a linear array.

Example

The following example shows how to return the position in the presentation space of the last character of the field.

```
/---------------------------------------------------------------------
// ECLField::GetEnd
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//---------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();    // Get pointer to field list
  pFieldList->Refresh();               // Build the field list

  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field

    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)
     Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(),
      pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
  }
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetEndRow

This method returns the ending row position of the field.

Prototype

ULONG GetEndRow()

Parameters

None

Return Value

ULONG

This is the ending row in a given field.

Example

```
/-------------------------------------------------------------------
// ECLField::GetEndRow
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//-------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();   // Get pointer to field list
  pFieldList->Refresh();              // Build the field list

  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field

    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)
     Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(),
      pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
  }
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetEndCol

This method returns the ending column position of a field.

Prototype

ULONG GetEndCol()

Parameters

None

Return Value

ULONG

This is the ending row in a given field.

Example

```
/---------------------------------------------------------------------
// ECLField::GetEndCol
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//---------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();    // Get pointer to field list
  pFieldList->Refresh();               // Build the field list

  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field

    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)
     Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(),
      pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
  }
  delete pPS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetLength

This method returns the length of the field. The length includes the entire field even if it spans multiple lines of the presentation space. It does not include the field attribute character that starts the field.

Prototype

ULONG GetLength()

Parameters

None

Return Value

ULONG

Length of the field.

Example

The following example shows how to return the length of the field.

```
/-------------------------------------------------------------------
// ECLField::GetLength
//
// Iterate over list of fields and print each field
// starting pos, row, col, and ending pos, row, col.
//-------------------------------------------------------------------
void Sample34() {

ECLPS        *pPS;           // Pointer to PS object
ECLFieldList *pFieldList;    // Pointer to field list object
ECLField     *pField;        // Pointer to field object

try {
  pPS = new ECLPS('A');               // Create PS object for 'A'

  pFieldList = pPS->GetFieldList();    // Get pointer to field list
  pFieldList->Refresh();               // Build the field list

  printf("Start(Pos,Row,Col)  End(Pos,Row,Col) Length(Len)\n");
  for (pField = pFieldList->GetFirstField();      // First field
    pField != NULL;                               // While more
    pField = pFieldList->GetNextField(pField)) {  // Next field

    printf("Start(%04lu,%04lu,%04lu)  End(%04lu,%03lu,%04lu)  Length(%04lu)\n",
      pField->GetStart(), pField->GetStartRow(), pField->GetStartCol(),
      pField->GetEnd(), pField->GetEndRow(),
      pField->GetEndCol(), pField->GetLength());
  }
  delete pPS;
```

```
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetScreen

The GetScreen method fills an application-supplied buffer with data from the field. The type of data copied to the buffer is selected with the optional Plane parameter. The default is to return the text plane data. The data returned is the field as it existed at the time this field object was created; it will not reflect the current contents of the field if it has been updated since the ECLFieldList::Refresh function was called.

The length of the data returned is the length of the field (see GetLength on page 73). When the TextPlane is copied, an additional null terminating byte is added after the last data byte. Therefore, the application should provide a buffer that is at least 1 byte more than the field length when getting the text plane. If the application buffer is too small the returned data is truncated. The number of bytes of copied to the application buffer is returned as the function result (not including the null terminator for copies of the text plane).

The FieldPlane cannot be obtained with this function. The ECLField::GetAttribute can be used to obtain the field attribute value.

Prototype

```
ULONG GetScreen(char *Buff, ULONG BuffLen, PS_PLANE Plane=TextPlane)
```

Parameters

char * Buff

Pointer to application buffer to be filled with field data.

ULONG BuffLen

Length of application buffer.

PS_PLANE Plane

Optional parameter. Enumeration which indicates what plane of field data is to be retrieved. Must be one of TextPlane, ColorPlane, or ExtendedFieldPlane.

Return Value

ULONG

Number of bytes copied to application buffer, not including trailing null character for TextPlane data.

Example

The following example shows how to return a pointer to the field data indicated by the Plane parameter.

```
/-------------------------------------------------------------------
// ECLField::GetScreen
//
// Iterate over list of fields and print each fields text contents.
//-------------------------------------------------------------------
void Sample35() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
ECLField     *Field;        // Pointer to field object
char         *Buff;         // Screen data buffer
ULONG        BuffLen;

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  BuffLen = PS->GetSize() + 1;       // Make big enough for entire screen
  Buff = new char[BuffLen];          // Allocate screen buffer

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  for (Field = FieldList->GetFirstField();     // First field
    Field != NULL;                             // While more
    Field = FieldList->GetNextField(Field)) {  // Next field

      Field->GetScreen(Buff, BuffLen); // Get this fields text
      printf("%02lu,%02lu: %s\n",      // Print "row,col: text"
             Field->GetStartRow(),
             Field->GetStartCol(),
             Buff);
  }
  delete []Buff;
  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetText

This method populates a given field in the presentation space with the character string passed in as text. If the text exceeds the length of the field, the text is truncated. If the text is shorter than the field, the field is padded with nulls.

Prototype

void SetText(char *text)

Parameters

char *text

Null terminated string to set in field.

Return Value

None

Example

The following example shows how to populate a given field in the presentation space with the character string passed in as text.

```
//-------------------------------------------------------------------
// ECLField::SetText
//
// Set the field that contains row 2, column 10 to a value.
//-------------------------------------------------------------------
void Sample36() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
ECLField     *Field;        // Pointer to field object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'
  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  // If the field at row 2 col 10 is an input field, set
  // it to a new value.
  Field = FieldList->FindField(2, 10);    // Find field at this location
  if (Field != NULL) {
    if (!Field->IsProtected())            // Make sure its an input field
      Field->SetText("Way cool!");        // Assign new field text
    else
      printf("Position 2,10 is protected.\n");
  }
  else printf("Cannot find field at position 2,10.\n");

  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

IsModified, IsProtected, IsNumeric, IsHighIntensity, IsPenDetectable, IsDisplay

This method determines if a given field in the presentation space has a particular attribute. The method returns a TRUE value if the field has the attribute or a FALSE value if the field does not have the attribute.

Prototype

BOOL IsModified()

BOOL IsProtected()

BOOL IsNumeric()

BOOL IsHighIntensity()

BOOL IsPenDetectable()

BOOL IsDisplay()

Parameters

None

Return Value

BOOL

Returns a TRUE value if the attribute is present; a FALSE value if the attribute is not present.

Example

The following example shows how to determine if a given field has an attribute.

```
//---------------------------------------------------------------------
// ECLField::IsModified
// ECLField::IsProtected
// ECLField::IsNumeric
// ECLField::IsHighIntensity
// ECLField::IsPenDetectable
// ECLField::IsDisplay
//
// Iterate over list of fields and print each fields attributes.
//---------------------------------------------------------------------
void Sample37() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
ECLField     *Field;        // Pointer to field object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'
```

```
  FieldList = PS->GetFieldList();     // Get pointer to field list
  FieldList->Refresh();               // Build the field list

  for (Field = FieldList->GetFirstField();     // First field
    Field != NULL;                             // While more
    Field = FieldList->GetNextField(Field)) {  // Next field

      printf("Field at %02lu,%02lu is: ",
             Field->GetStartRow(), Field->GetStartCol());

      if (Field->IsProtected())
        printf("Protect ");
      else
        printf("Input   ");

      if (Field->IsModified())
        printf("Modified   ");
      else
        printf("Unmodified ");

      if (Field->IsNumeric())
        printf("Numeric  ");
      else
        printf("Alphanum ");

      if (Field->IsHighIntensity())
        printf("HiIntensity ");
      else
        printf("Normal      ");

      if (Field->IsPenDetectable())
        printf("Penable ");
      else
        printf("NoPen   ");

      if (Field->IsDisplay())
        printf("Display \n");
      else
        printf("Hidden  \n");
  }
  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample

//---------------------------------------------------------------------
```

GetAttribute

This method returns the attribute of the field. The value returned contains the bit flags for each of the possible field attributes (modified, protected, numeric, high intensity, pen, and display). See ECL Planes — Format and Content

on page 429 for more details on these bits. There is a method provided for each type of attribute (for example, IsModified or IsHighIntensity). This method can be used to obtain complete attribute information in a single call.

Prototype

unsigned char GetAttribute()

Parameters

None

Return Value

unsigned char

Attribute bits of the field.

Example

The following example shows how to return the attribute of the field.

```
/ ECLField::GetAttribute
//
// Iterate over list of fields and print each fields attribute
// value.
//-------------------------------------------------------------------
void Sample38() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
ECLField     *Field;        // Pointer to field object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  for (Field = FieldList->GetFirstField();     // First field
    Field != NULL;                             // While more
    Field = FieldList->GetNextField(Field)) {  // Next field

      printf("Attribute value for field at %02lu,%02lu is: 0x%02x\n",
             Field->GetStartRow(), Field->GetStartCol(),
             Field->GetAttribute());
  }
  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
```

```
} // end sample
```

ECLFieldList Class

The ECLFieldList class performs operations on a list of fields in a host presentation space. An application should not create an ECLFieldList object directly, but only indirectly by creating an ECLPS object.

ECLFieldList contains a collection of all the fields in the presentation space. Each element of the collection is an ECLField object. See ECLField Class on page 62 for details on its properties and methods.

An ECLFieldList object provides a static snapshot of what the presentation space contained when the Refresh method was called. If the presentation space is updated after the call to Refresh(), the field list does not reflect those changes. An application must explicitly call Refresh to refresh the field list.

Once an application has called Refresh it can begin walking through the collection of fields using GetFirstField and GetNextField. If the location of a field is known, FindField can be used to locate it in the list directly.

Note: All ECLField object pointers returned by GetFirstField, GetNextField, and FindField become invalid when Refresh is called or the ECLFieldList object is destroyed.

Derivation

ECLBase > ECLFieldList

Properties

None

ECLFieldList Methods

The following section describes the methods that are valid for the ECLFieldList class.

```
void Refresh(PS_PLANE Planes)
ULONG GetFieldCount()
ECLField * GetFirstField()
ECLField *GetNextField(ECLField *Prev)
ECLField * FindField(ULONG Pos)
ECLField * FindField(ULONG Row, ULONG Col)
ECLField *FindField(char* text, PS_DIR DIR=SrchForward);
ECLField *FindField(char* text, ULONG Pos, PS_DIR DIR=SrchForward);
ECLField *FindField(char* text, ULONG Row, ULONG Col, PS_DIR DIR=SrchForward);
```

Refresh

This method gets a snapshot of all the fields currently in the presentation space. All ECLField object pointers previously returned by this object become invalid. To improve performance, the field data can be limited to the planes of interest. Note that the TextPlane and FieldPlane are always obtained.

Prototype

void Refresh(PS_PLANE Planes=TextPlane)

Parameters

PS_PLANE Planes

Plane for which fields are built. Valid values are **TextPlane**, **ColorPlane**, **FieldPlane**, **ExfieldPlane**, and **AllPlanes** (to build for all). This is an enumeration defined in ECLPS.HPP. This optional parameter defaults to TextPlane.

Return Value

None

Example

The following example shows how to use the Refresh method to get a snapshot of all the fields currently in the presentation space.

```
///----------------------------------------------------------------------
// ECLFieldList::Refresh
//
// Display number of fields on the screen.
//----------------------------------------------------------------------
void Sample39() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  printf("There are %lu fields on the screen of connection %c.\n",
    FieldList->GetFieldCount(), PS->GetName());

  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
```

```
} // end sample

----------------------------------------
```

GetFieldCount

This method returns the number of fields present in the ECLFieldList collection (based on the most recent call to the Refresh method).

Prototype

ULONG GetFieldCount()

Parameters

None

Return Value

ULONG

Number of fields in the ECLFieldList collection.

Example

The following example shows how to use the GetFieldCount method to return the number of fields present in the ECLFieldList collection.

```
//---------------------------------------------------------------------
// ECLFieldList::GetFieldCount
//
// Display number of fields on the screen.
//---------------------------------------------------------------------
void Sample40() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  printf("There are %lu fields on the screen of connection %c.\n",
    FieldList->GetFieldCount(), PS->GetName());

  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
```

```
}

} // end sample
```

GetFirstField

This method returns a pointer to the first ECLField object in the collection. ECLFieldList contains a collection of ECLField objects. See ECLField Class on page 62 for more information. The method returns a NULL pointer if there are no fields in the collection.

Prototype

ECLField * GetFirstField();

Parameters

None

Return Value

ECLField *

Pointer to an ECLField object. If there are no fields in the connection, a null is returned.

Example

The following example shows how to use the GetFirstField method to return a pointer to the first ECLField object in the collection.

```
//-------------------------------------------------------------------
// ECLFieldList::GetFirstField
//
// Display starting position of every input (unprotected) field.
//-------------------------------------------------------------------
void Sample41() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
ECLField     *Field;        // Pointer to field object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  // Interate over (only) unprotected fields
  printf("List of input fields:\n");
  for (Field = FieldList->GetFirstField(GetUnprotected);
    Field != NULL;
    Field = FieldList->GetNextField(Field, GetUnprotected)) {
```

```
    printf("Input field starts at %02lu,%02lu\n",
            Field->GetStartRow(), Field->GetStartCol());
  }
  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetNextField

This method returns the next ECLField object in the collection after a given object. If there are no more objects in the collection after the given object, a NULL pointer is returned. An application can make repeated calls to this method to iterate over the ECLField objects in the collection.

Prototype

ECLField *GetNextField(ECLField *Prev)

Parameters

ECLField *Prev

A pointer to any ECLField object in the collection. The returned pointer will be the next object after this one. If this value is NULL a pointer to the first object in the collection is returned. This pointer is a pointer returned by the GetFirstField, GetNextField, or FindField member functions.

Return Value

ECLField *

A pointer to the next object in the collection. If there are no more objects in the collection after the Prev object, NULL is returned.

Example

The following example shows how to use the GetNextFieldInfo method to return a pointer to the next ECLField object in the collection.

```
///----------------------------------------------------------------------
// ECLFieldList::GetNextField
//
// Display starting position of every input (unprotected) field.
//----------------------------------------------------------------------
void Sample42() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
```

```
ECLField     *Field;        // Pointer to field object

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  // Interate over (only) unprotected fields
  printf("List of input fields:\n");
  for (Field = FieldList->GetFirstField(GetUnprotected);
    Field != NULL;
    Field = FieldList->GetNextField(Field, GetUnprotected)) {

    printf("Input field starts at %02lu,%02lu\n",
            Field->GetStartRow(), Field->GetStartCol());
  }
  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

FindField

This method finds a field in the ECLFieldList collection using either text or a position. The position can be either a linear position or a row, column position. If a field contains the text or the position, a pointer to an ECLField object for that field is returned. The returned pointer is to an object in the field list collection. NULL is returned if the field is not found. When searching for text, the search begins at row1 column1 unless you specify a starting position. Also for text, this method will search forward in the list as a default; however, you can specify the direction to search explicitly.

Note: A search for text will be successful even if the text spans multiple fields. The field object returned will be the field where the found text begins.

Prototype

ECLField *FindField(ULONG Pos);
ECLField *FindField(ULONG Row, ULONG Col);
ECLField *FindField(char* text, PS_DIR DIR=SrchForward);
ECLField *FindField(char* text, ULONG Pos, PS_DIR DIR=SrchForward);
ECLField *FindField(char* text, ULONG Row, ULONG Col, PS_DIR DIR=SrchForward);

Parameters

ULONG Pos

Linear position to search for OR linear position to begin text search.

ULONG Row

Row position to search for OR row to begin text search.

ULONG Col

Column position to search for OR column to begin text search.

char *text

String to search

PS_DIR Dir

Direction to search

Return Value

ECLField *

Pointer to an ECLField object if field is found. NULL if field is not found. Returned pointer is invalid after the next call to Refresh.

Example

The following is an example of the FindField method.

```
//-------------------------------------------------------------------
// ECLFieldList::FindField
//
// Display the field which contains row 2 column 10.  Also find
// the first field containing a particular string.
//-------------------------------------------------------------------
void Sample43() {

ECLPS        *PS;           // Pointer to PS object
ECLFieldList *FieldList;    // Pointer to field list object
ECLField     *Field;        // Pointer to field object
char         Buff[4000];

try {
  PS = new ECLPS('A');               // Create PS object for 'A'

  FieldList = PS->GetFieldList();    // Get pointer to field list
  FieldList->Refresh();              // Build the field list

  // Find by row,column coordinate

  Field = FieldList->FindField(2, 10);
  if (Field != NULL) {
    Field->GetText(Buff, sizeof(Buff));
```

```
    printf("Field at 2,10: %s\n", Buff);
  }
  else printf("No field found at 2,10.\n");

  // Find by text.  Note that text may span fields, this
  // will find the field in which the text starts.

  Field = FieldList->FindField("HCL");
  if (Field != NULL) {
    printf("String 'HCL' found in field that starts at %lu,%lu.\n",
            Field->GetStartRow(), Field->GetStartCol());
  }
  else printf("String 'HCL' not found.\n");

  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample

//---------------------------
```

ECLKeyNotify Class

ECLKeyNotify is an abstract base class. An application cannot create an instance of this class directly. To use this class, the application must define its own class which is derived from ECLKeyNotify. The application must implement the NotifyEvent() member function in its derived class. It may also optionally implement NotifyError() and NotifyStop() member functions.

The ECLKeyNotify class is used to allow an application to be notified of keystroke events. The application can also choose to filter (remove) the keystrokes so they are not sent to the host screen, or replace them with other keystrokes. Keystroke notifications are queued so that the application will always receive a notification for each and every keystroke. Only keystrokes made by the real physical keyboard are detected by this object; keystrokes sent to the host by other ECL objects (such as ECLPS::SendKeys) do not cause keystroke notification events.

To be notified of keystroke events, the application must perform the following steps:

1. Define a class derived from ECLKeyNotify.
2. Implement the derived class and implement the NotifyEvent() member function.
3. Optionally implement the NotifyError() and/or NotifyStop() functions.
4. Create an instance of the derived class.
5. Register the instance with the ECLPS::RegisterKeyEvent() function.

The example shown demonstrates how this may be done. When the above steps are complete, each keystroke in the emulator window will cause the applications NotifyEvent() member function to be called. The function is passed parameters indicating the type of keystroke (plain ASCII key, or special function key), and the value of the key (a single ASCII character, or a keyword representing a function key). The application may perform any functions required in the

NotifyEvent() procedure, including calling other ECL functions such as ECLPS::SendKeys(). The application returns a value from NotifyEvent() to indicate if the keystroke is to be filtered or not (return 1 to filter (discard) the keystroke, return 0 to have it processed normally).

If an error is detected during keystroke event generation, the NotifyError() member function is called with an ECLErr object. Keystroke events may or may not continue to be generated after an error, depending on the nature of the error. When event generation terminates (either due to an error, by calling ECLPS::UnregisterKeyEvent, or by destruction of the ECLPS object) the NotifyStop() member function is called. However event notification is terminated, the NotifyStop() member function is always called, and the application object is unregistered.

If the application does not provide an implementation of the NotifyError() member function, the default implementation is used (a simple message box is displayed to the user). The application can override the default behavior by implementing the NotifyError() function in the applications derived class. Likewise, the default NotifyStop() function is used if the application does not provide this function (the default behavior is to do nothing).

Note that the application can also choose to provide its own constructor and destructor for the derived class. This can be useful if the application wants to store some instance-specific data in the class and pass that information as a parameter on the constructor. For example, the application may want to post a message to an application window when a keystroke occurs. Rather than define the window handle as a global variable (so it would be visible to the NotifyEvent() function), the application can define a constructor for the class which takes the window handle and stores it in the class member data area.

The application must not destroy the notification object while it is registered to receive events.

The same instance of a keystroke notification object can be registered with multiple ECLPS objects to receive keystrokes for multiple connections. Thus an application can use a single instance of this object to process keystrokes on any number of sessions. The member functions are passed a pointer to the ECLPS object for which the event occurred so an application can distinguish between events on different connections. The sample shown uses the same object to process keystrokes on two connections.

Implementation Restriction: Currently the ECLPS object allows only one notification object to be registered for a given connection. The ECLPS::RegisterKeyEvent will throw an error if a notify object is already registered for that ECLPS object.

Derivation

ECLBase > ECLNotify > ECLKeyNotify

Example

The following is an example of how to construct and use an ECLKeyNotify object.

```
// ECLKeyNotify class
//
// This sample demonstrates the use of:
//
// ECLKeyNotify::NotifyEvent
```

```
// ECLKeyNotify::NotifyError
// ECLKeyNotify::NotifyStop
// ECLPS::RegisterKeyEvent
// ECLPS::UnregisterKeyEvent
//---------------------------------------------------------------------

//.............................................................
// Define a class derived from ECLKeyNotify
//.............................................................
class MyKeyNotify: public ECLKeyNotify
{
public:
  // Define my own constructor to store instance data
  MyKeyNotify(HANDLE DataHandle);

  // We have to implement this function
  virtual int NotifyEvent(ECLPS *PSObj, char const KeyType[2],
                          const char * const KeyString);

  // We choose to implement this function
  void NotifyStop (ECLPS *PSObj, int Reason);

  // We will take the default behaviour for this so we
  // don't implement it in our class:
  // void NotifyError (ECLPS *PSObj, ECLErr ErrObject);

private:
  // We will store our application data handle here
  HANDLE MyDataH;
};

 //.............................................................
MyKeyNotify::MyKeyNotify(HANDLE DataHandle)   // Constructor
//.............................................................
{
  MyDataH = DataHandle;  // Save data handle for later use
}

//.............................................................
int MyKeyNotify::NotifyEvent(ECLPS *PSObj,
                             char const KeyType[2],
                             const char * const KeyString)
```

```
//.............................................................

{
  // This function is called whenever a keystroke occurs.  We will
  // just do something simple: when the user presses PF1 we will
  // send a PF2 to the host instead.  All other keys will be unchanged.

  if (KeyType[0] == 'M') {             // Is this a mnemonic keyword?
    if (!strcmp(KeyString, "[pf1]")) { // Is it a PF1 key?
      PSObj->SendKeys("[pf2]");        // Send PF2 instead
      printf("Changed PF1 to PF2 on connection %c.\n",
             PSObj->GetName());
      return 1;                        // Discard this PF1 key
    }
  }
```

```
  return 0;                          // Process key normally
}
```

```
//.............................................................
void MyKeyNotify::NotifyStop (ECLPS *PSObj, int Reason)
//.............................................................
{
  // When notification ends, display message
  printf("Keystroke intercept for connection %c stopped.\n", PSObj->GetName());
}

//.............................................................
// Create the class and start keystroke processing on A and B.
//.............................................................
void Sample44() {

ECLPS *PSA, *PSB;       // PS objects
MyKeyNotify *Event;     // Ptr to my event handling object
HANDLE InstData;      // Handle to application data block (for example)

try {

  PSA = new ECLPS('A');               // Create PS objects
  PSB = new ECLPS('B');
  Event = new MyKeyNotify(InstData);  // Create event handler

  PSA->RegisterKeyEvent(Event);       // Register for keystroke events
  PSB->RegisterKeyEvent(Event);       // Register for keystroke events
```

```
  // At this point, any keystrokes on A or B will cause the
  // MyKeyEvent::NotifyEvent() function to execute.  For
  // this sample, we put this thread to sleep during this
  // time.

  printf("Processing keystrokes for 60 seconds on A and B...\n");
  Sleep(60000);

  // Now stop event generation.  This will cause the NotifyStop
  // member to be called.
  PSA->UnregisterKeyEvent(Event);
  PSB->UnregisterKeyEvent(Event);

  delete Event;  // Don't delete until after unregister!
  delete PSA;
  delete PSB;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

```
//--------------------------------------------------------------------
```

ECLKeyNotify Methods

The following section describes the methods that are valid for the ECLKeyNotify class.

virtual int NotifyEvent (ECLPS *PSObj, char const KeyType [2],
    const char * const KeyString) =0
virtual void NotifyError (ELLPS *PSobj, ECLErr ErrObject)
virtual void NotifyStop (ELLPS *PSObj, int Reason)

NotifyEvent

This method is a“pure virtual” member function (the application *must* implement this function in classes derived from ECLKeyNotify). This function is called whenever a keystroke event occurs and the object is registered for keystroke events. The return value indicates the disposition of the keystroke (return 1 to discard, 0 to process).

Prototype

virtual int NotifyEvent (ECLPS *PSObj, char const KeyType [2], const char * const KeyString) =0

Parameters

ECLPS *PSObj

This is a ptr to ECLPS object in which the event occurred.

char const KeyType[2]

This is a null terminated 1–char string indicating the type of key:

A = Plain ASCII keystroke
M = Mnemonic keyword

const char * const KeyString

This is a null terminated string containing the keystroke or mnemonic keyword. Keywords will always be in lowercase (for example, "[enter]"). See Sendkeys Mnemonic Keywords on page 426 for a list of mnemonic keywords.

Return Value

int

This is the filter indicator.

1 = Filter (discard) keystroke
0 = Process keystroke (send to host)

NotifyError

This method is called whenever the ECLPS object detects an error during keystroke event generation. The error object contains information about the error (see ECLErr Class on page 59). Keystroke events may continue to be generated after the error, depending on the nature of the error. If keystroke event generation stops due to an error, the NotifyStop() function will be called.

Prototype

virtual void NotifyError (ELLPS *PSobj, ECLErr ErrObject)

Parameters

ECLPS *PSObj

This is the ptr to ECLPS object in which the error occurred.

ECLErr ErrObject

This is the ECLErr object describing the error.

Return Value

None

NotifyStop

This method is called when keystroke event generation is stopped for any reason (for example, due to an error condition, a call to ECLPS::UnregisterKeyEvent, destruction of the ECLPS object, etc.).

Prototype

virtual void NotifyStop (ELLPS *PSObj, int Reason)

Parameters

ECLPS *PSObj

This is the ptr to ECLPS object in which events are stopping.

int Reason

This is unused (zero).

Return Value

None

ECLListener Class

ECLListener is the base class for all HACL "listener" objects. Listeners are objects which are registered to receive particular types of asynchronous events. Methods on the listener objects are called when events occur or errors are detected.

There are no public methods on the ECLListener class.

Derivation

ECLBase > ECLListener

Usage Notes

Applications do not use this class directly, but create instances of classes which are derived from it (for example, ECLPSListener).

ECLOIA Class

ECLOIA provides Operator Information Area (OIA) services.

Because ECLOIA is derived from ECLConnection, you can obtain all the information contained in an ECLConnection object. See ECLConnection Class on page 24 for more information.

The ECLOIA object is created for the connection identified upon construction. You may create an ECLOIA object by passing either the connection name (a single, alphabetic character from A-Z or a-z) or the connection handle, which is usually obtained from the ECLConnList object. There can be only one Z and I Emulator for Windows connection with a given name or handle open at a time.

Derivation

ECLBase > ECLConnection > ECLOIA

Usage Notes

The ECLSession class creates an instance of this object. If the application does not need other services, this object may be created directly. Otherwise, consider using an ECLSession object to create all the objects needed.

ECLOIA Methods

The following section describes the methods that are valid for the ECLOIA class.

ECLOIA(char ConnName)
ECLOIA(long ConnHandle)
~ECLOIA()

BOOL IsAlphanumeric()
BOOL IsAPL()

BOOL IsUpperShift()
BOOL IsNumeric()
BOOL IsCapsLock()
BOOL IsInsertMode()
BOOL IsCommErrorReminder()
BOOL IsMessageWaiting()
BOOL WaitForInputReady(long nTimeOut = INFINITE)
BOOL WaitForAppAvailable(long nTimeOut = INFINITE)
BOOL WaitForSystemAvailable(long nTimeOut = INFINITE)
BOOL WaitForTransition(BYTE nIndex = 0xFF, long nTimeOut = INFINITE)
INHIBIT_REASON InputInhibited()
ULONG GetStatusFlags()

ECLOIA Constructor

This method creates an ECLOIA object from a connection name (a single, alphabetic character from A-Z or a-z) or a connection handle. There can be only one Z and I Emulator for Windows connection started with a given name.

Prototype

ECLOIA(char ConnName)

ECLOIA(long ConnHandle)

Parameters

char ConnName

One-character short name of the connection (A-Z or a-z).

long ConnHandle

Handle of an ECL connection.

Return Value

None

Example

The following example shows how to create an ECLOIA object using the connection name.

```
// ECLOIA::ECLOIA             (Constructor)
//
// Build an OIA object from a name, and another from a handle.
```

```
//---------------------------------------------------------------------
void Sample45() {

ECLOIA *OIA1, *OIA2;    // Pointer to OIA objects
ECLConnList ConnList;   // Connection list object

try {
  // Create OIA object for connection 'A'
  OIA1 = new ECLOIA('A');

  // Create OIA object for first connection in conn list
  OIA2 = new ECLOIA(ConnList.GetFirstConnection()->GetHandle());

  printf("OIA #1 is for connection %c, OIA #2 is for connection %c.\n",
         OIA1->GetName(), OIA2->GetName());
  delete OIA1;
  delete OIA2;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample

-----------------------------------------
```

IsAlphanumeric

This method checks to determine if the OIA indicates that the cursor is at an alphanumeric location.

Prototype

BOOL IsAlphanumeric()

Parameters

None

Return Value

BOOL

TRUE if the keyboard is in alphanumeric mode; FALSE if the keyboard is not in alphanumeric mode.

Example

The following example shows how to determine if the OIA indicates that the keyboard is in alphanumeric mode.

```
//---------------------------------------------------------------------
// ECLOIA::IsAlphanumeric
//
// Determine status of connection 'A' OIA indicator
//---------------------------------------------------------------------
```

```
void Sample46() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsAlphanumeric())
  printf("Alphanumeric.\n");
else
  printf("Not Alphanumeric.\n");

} // end sample
```

IsAPL

This method checks to determine if the OIA indicates that the keyboard is in APL mode.

Prototype

BOOL IsAPL()

Parameters

None

Return Value

BOOL

TRUE if the keyboard is in APL mode; FALSE if the keyboard is not in APL mode.

Example

The following example shows how to determine if the OIA indicates that the keyboard is in APL mode.

```
//---------------------------------------------------------------------
// ECLOIA::IsAPL
//
// Determine status of connection 'A' OIA indicator
//---------------------------------------------------------------------
void Sample47() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsAPL())
  printf("APL.\n");
else
  printf("Not APL.\n");

} // end sample

//------------------------
```

IsUpperShift

This method checks to determine if the OIA indicates that the keyboard is in upper shift mode.

Prototype

BOOL IsUpperShift()

Parameters

None

Return Value

BOOL

TRUE if the keyboard is in upper shift mode; FALSE if the keyboard is not in upper shift mode.

Example

The following example shows how to determine if the OIA indicates that the keyboard is in upper shift mode.

```
//-----------------------------------------------------------------------
// ECLOIA::IsUpperShift
//
// Determine status of connection 'A' OIA indicator
//-----------------------------------------------------------------------
void Sample51() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsUpperShift())
  printf("UpperShift.\n");
else
  printf("Not UpperShift.\n");

} // end sample
```

IsNumeric

This method checks to determine if the OIA indicates that the cursor is at a numeric-only location.

Prototype

BOOL IsNumLock()

Parameters

None

Return Value

BOOL

TRUE if Numeric is on; FALSE if not Numeric.

Example

The following example shows how to determine if the OIA indicates that the cursor is at a numeric location.

```
//-------------------------------------------------------------------
// ECLOIA::IsNumeric
//
// Determine status of connection 'A' OIA indicator
//-------------------------------------------------------------------
void Sample52() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsNumeric())
  printf("Numeric.\n");
else
  printf("Not Numeric.\n");

} // end sample
```

IsCapsLock

This method checks to determine if the OIA indicates that the keyboard has Caps Lock on.

Prototype

BOOL IsCapsLock()

Parameters

None

Return Value

BOOL

TRUE if Caps Lock is on; FALSE if Caps Lock is not on.

Example

The following example shows how to determine if the OIA indicates that the keyboard has Caps Lock on.

```
//-------------------------------------------------------------------
// ECLOIA::IsCapsLock
//
```

```
// Determine status of connection 'A' OIA indicator
//---------------------------------------------------------------------
void Sample53() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsCapsLock())
  printf("CapsLock.\n");
else
  printf("Not CapsLock.\n");

} // end sample
```

IsInsertMode

This method checks to determine if the OIA indicates that the keyboard is in insert mode.

Prototype

BOOL IsInsertMode()

Parameters

None

Return Value

BOOL

TRUE if the keyboard is in insert mode; FALSE if the keyboard is not in insert mode.

Example

The following example shows how to determine if the OIA indicates that the keyboard is in insert mode.

```
//---------------------------------------------------------------------
// ECLOIA::IsInsertMode
//
// Determine status of connection 'A' OIA indicator
//---------------------------------------------------------------------
void Sample54() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsInsertMode())
  printf("InsertMode.\n");
else
  printf("Not InsertMode.\n");

} // end sample
```

IsCommErrorReminder

This method checks to determine if the OIA indicates that a communications error reminder condition exists.

Prototype

BOOL IsCommErrorReminder()

Parameters

None

Return Value

BOOL

TRUE if a condition exists; FALSE if a condition does not exist.

Example

The following example shows how to determine if the OIA indicates that a communications error reminder condition exists.

```
//---------------------------------------------------------------------
// ECLOIA::IsCommErrorReminder
//
// Determine status of connection 'A' OIA indicator
//---------------------------------------------------------------------
void Sample55() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsCommErrorReminder())
  printf("CommErrorReminder.\n");
else
  printf("Not CommErrorReminder.\n");

} // end sample

//
```

IsMessageWaiting

This method checks to determine if the OIA indicates that the message waiting indicator is on. This can only occur for 5250 connections.

Prototype

BOOL IsMessageWaiting()

Parameters

None

Return Value

BOOL

TRUE if the message waiting indicator is on; FALSE if the indicator is not on.

Example

The following example shows how to determine if the OIA indicates that the message waiting indicator is on.

```
------------------------------------------------------------------
// ECLOIA::IsMessageWaiting
//
// Determine status of connection 'A' OIA indicator
//------------------------------------------------------------------
void Sample56() {

ECLOIA OIA('A');   // OIA object for connection A

if (OIA.IsMessageWaiting())
  printf("MessageWaiting.\n");
else
  printf("Not MessageWaiting.\n");

} // end sample
```

WaitForInputReady

The WaitForInputReady method waits until the OIA of the connection associated with the autECLOIA object indicates that the connection is able to accept keyboard input.

Prototype

BOOL WaitForInputReady(long nTimeOut = INFINITE)

Parameters

long nTimeOut

The maximum length of time to wait in milliseconds, this parameter is optional. The default is INFINITE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

WaitForSystemAvailable

The WaitForSystemAvailable method waits until the OIA of the session connected with the ECLOIA object indicates that session is connected to a host system.

Prototype

BOOL WaitForSystemAvailable(long nTimeOut = INFINITE)

Parameters

long nTimeOut

The maximum length of time to wait in milliseconds, this parameter is optional. The default is INFINITE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

WaitForAppAvailable

The WaitForAppAvailable method waits while the OIA of the connected session indicates that the application is initialized and ready for use.

Prototype

BOOL WaitForAppAvailable(long nTimeOut = INFINITE)

Parameters

long nTimeOut

The maximum length of time to wait in milliseconds, this parameter is optional. The default is INFINITE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

WaitForTransition

The WaitForTransition method waits for the value at the specified position in the OIA of the connected session to change.

Prototype

BOOL WaitForTransition(BYTE nIndex = 0xFF, long nTimeOut = INFINITE)

Parameters

BYTE nIndex

The 1 byte Hex position of the OIA to monitor. This parameter is optional. The default is 3.

long nTimeOut

The maximum length of time to wait in milliseconds, this parameter is optional. The default is INFINITE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

InputInhibited

This method returns an enumerated value that indicates whether input is inhibited or not. If input is inhibited, the reason for the inhibit can be determined. If input is inhibited for more than one reason the highest value enumeration is returned (for example, if there is a communications error and a protocol programming error, the ProgCheck value is returned).

Prototype

INHIBIT_REASON InputInhibited ()

Parameters

None

Return Value

INHIBIT_REASON

Returns one of the INHIBIT_REASON values as defined in ECLOIA.HPP. The value NotInhibited is returned if input is currently not inhibited.

Example

The following example shows how to determine whether input is inhibited or not.

```
//---------------------------------------------------------------------
// ECLOIA::InputInhibited
//
// Determine status of connection 'A' OIA indicator
//---------------------------------------------------------------------
void Sample57() {

ECLOIA OIA('A');   // OIA object for connection A

switch (OIA.InputInhibited()) {
```

```
case NotInhibited:
  printf("Input not inhibited.\n");
  break;
case SystemWait:
  printf("Input inhibited for SystemWait.\n");
  break;
case CommCheck:
  printf("Input inhibited for CommCheck.\n");
  break;
case ProgCheck:
  printf("Input inhibited for ProgCheck.\n");
  break;
case MachCheck:
  printf("Input inhibited for MachCheck.\n");
  break;
case OtherInhibit:
  printf("Input inhibited for OtherInhibit.\n");
  break;
default:
  printf("Input inhibited for unknown reason.\n");
  break;
}
} // end sample
```

GetStatusFlags

This method returns a set of status bits that represent various OIA indicators. This method can be used to collect a set of OIA indicators in a single call rather than making calls to several different IsXXX methods. Each bit returned represents a single OIA indicator where a value of 1 means the indicator is on (TRUE), and 0 means it is off (FALSE). A set of bitmask constants are defined in the ECLOIA.HPP header file for isolating individual indicators in the returned 32–bit value.

Prototype

ULONG GetStatusFlags()

Parameters

None

Return Value

ULONG

Set of bit flags defined as follows:

Bit Position	Mask Constant	Description
31 (msb)	OIAFLAG_ALPHANUM	IsAlphanumeric
30	OIAFLAG_APL	IsAPL
26	OIAFLAG_UPSHIFT	IsUpperShift

Bit Position	Mask Constant	Description
25	OIAFLAG_NUMERIC	IsNumeric
24	OIAFLAG_CAPSLOCK	IsCapsLock
23	OIAFLAG_INSERT	IsInsertMode
22	OIAFLAG_COMMERR	IsCommErrorReminder
21	OIAFLAG_MSGWAIT	IsMessageWaiting
20	OIAFLAG_ENCRYPTED	IsConnectionEncrypted
19-4		<reserved>
3-0	OIAFLAG_INHIBMASK	InputInhibited: 0=NotInhibited 1=SystemWait 2=CommCheck 3=ProgCheck 4=MachCheck 5=OtherInhibit

RegisterOIAEvent

This member function registers an application object to receive notifications of OIA update events. To use this function the application must create an object derived from ECLOIANotify. A pointer to that object is then passed to this registration function. Any number of notify objects may be registered at the same time. The order in which multiple listeners receive events is not defined and should not be assumed.

After an ECLOIANotify object is registered with this function, its NotifyEvent() method will be called whenever a update to the OIA occurs. Multiple updates to the OIA in a short time period may be aggregated into a single event.

The application must unregister the notify object before destroying it. The object will automatically be unregistered if the ECLOIA object is destroyed.

Prototype

void RegisterOIAEvent(ECLOIANotify * notify)

Parameters

ECLOIANotify *

Pointer to the ECLOIANotify object to be registered.

Return Value

None

UnregisterOIAEvent

This member function unregisters an application object previously registered with the RegisterOIAEvent function. An object registered to receive events should not be destroyed without first calling this function to unregister it. If the specific object is not currently registered, no action is taken and no error occurs.

When an ECLOIANotify object is unregistered its NotifyStop() method is called.

Prototype

void UnregisterOIAEvent(ECLOIANotify * notify)

Parameters

ECLPSNotify *

Pointer to the ECLOIANotify object to be unregistered.

Return Value

None

ECLOIANotify Class

ECLOIANotify is an abstract base class. An application cannot create an instance of this class directly. To use this class, the application must define its own class which is derived from ECLOIANotify. The application must implement the NotifyEvent() member function in its derived class. It may also optionally implement NotifyError() and NotifyStop() member functions.

The ECLOIANotify class is used to allow an application to be notified of updates to the Operator Information Area. Events are generated whenever any indicator on the OIA is updated.

Derivation

ECLBase > ECLNotify > ECLOIANotify

Usage Notes

To be notified of OIA updates using this class, the application must perform the following steps:

1. Define a class derived from ECLOIANotify.
2. Implement the NotifyEvent method of the ECLOIANotify-derived class.
3. Optionally implement other member functions of ECLOIANotify.
4. Create an instance of the derived class.
5. Register the instance with the ECLOIA::RegisterOIAEvent() method.

After registration is complete, updates to the OIA indicators will cause the NotifyEvent() method of the ECLOIANotify-derived class to be called.

Note that multiple OIA updates which occur in a short period of time may be aggregated into a single event notification.

An application can choose to provide its own constructor and destructor for the derived class. This can be useful if the application needs to store some instance-specific data in the class and pass that information as a parameter on the constructor.

If an error is detected during event registration, the NotifyError() member function is called with an ECLErr object. Events may or may not continue to be generated after an error. When event generation terminates (due to an error or some other reason) the NotifyStop() member function is called. The default implementation of NotifyError() will present a message box to the user showing the text of the error messages retrieved from the ECLErr object.

When event notification stops for any reason (error or a call the ECLOIA::UnregisterOIAEvent) the NotifyStop() member function is called. The default implementation of NotifyStop() does nothing.

ECLOIANotify Methods

The following section describes the methods that are valid for the ECLOIANotify class and all classes derived from it.

ECLOIANotify()
~ECLOIANotify()
virtual void NotifyEvent(ECLOIA * OIAObj) = 0
virtual void NotifyError(ECLOIA * OIAObj, ECLErr ErrObj)
virtual void NotifyStop(ECLOIA * OIAObj, int Reason)

NotifyEvent

This method is a *pure virtual* member function (the application **must** implement this function in classes derived from ECLOIANotify). This method is called whenever the OIA is updated and this object is registered to receive update events.

Multiple OIA updates may be aggregated into a single event causing only a single call to this method.

Prototype

virtual void NotifyEvent(ECLOIA * OIAObj) = 0

Parameters

ECLOIA *

Pointer to the ECLOIA object which generated this event.

Return Value

None

NotifyError

This method is called whenever the ECLOIA object detects an error during event generation. The error object contains information about the error (see the ECLErr class description). Events may continue to be generated after the error depending on the nature of the error. If the event generation stops due to an error, the NotifyStop() method is called.

An application can choose to implement this function or allow the base ECLOIANotify class handle it. The default implementation will display the error in a message box using text supplied by the ECLErr::GetMsgText() method. If the application implements this function in its derived class it overrides this behavior.

Prototype

virtual void NotifyError(ECLOIA * OIAObj, ECLErr ErrObj)

Parameters

ECLOIA *

Pointer to the ECLOIA object which generated this event.

ECLErr

An ECLErr object which describes the error.

Return Value

None

NotifyStop

This method is called when event generation is stopped for any reason (for example, due to an error condition or a call to ECLOIA::UnregisterOIAEvent).

The reason code parameter is currently unused and will be zero.

The default implementation of this function does nothing.

Prototype

virtual void NotifyStop(ECLOIA * OIAObj, int Reason)

Parameters

ECLOIA *

Pointer to the ECLOIA object which generated this event.

int

Reason event generation has stopped (currently unused and will be zero).

Return Value

None

ECLPS Class

The ECLPS class performs operations on a host presentation space.

The ECLPS object is created for the connection identified upon construction. You may create an ECLPS object by passing either the connection name (a single, alphabetic character from A-Z) or the connection handle, which is usually obtained from an ECLConnection object. There can be only one Z and I Emulator for Windows connection with a given name or handle open at a time.

Derivation

ECLBase > ECLConnection > ECLPS

Properties

None

Usage Notes

The ECLSession class creates an instance of this object. If the application does not need other services, this object may be created directly. Otherwise, you may want to consider using an ECLSession object to create all the objects needed.

ECLPS Methods

The following section describes the methods available for ECLPS.

ECLPS(char ConnName)
ECLPS(char ConnName)
ECLPS(long ConnHandle)
~ECLPS()
int GetPCCodePage()

int GetHostCodePage()
int GetOSCodePage()
void GetSize(ULONG *Rows, ULONG *Cols) ULONG GetSize()
ULONG GetSizeCols() ULONG GetSizeRows()
void GetCursorPos(ULONG *Row, ULONG *Col) ULONG GetCursorPos()
ULONG GetCursorPosRow()
ULONG GetCursorPosCol()
void SetCursorPos(ULONG pos),
void SetCursorPos(ULONG Row, ULONG Col)
void SendKeys(Char *text, ULONG AtPos),
void SendKeys(Char * text),
void SendKeys(Char *text, ULONG AtRow, ULONG AtCol)
ULONG SearchText(const char * const text, PS_DIR Dir=SrchForward,
BOOL FoldCase=FALSE)
ULONG SearchText(const char * const text,
ULONG StartPos, PS_DIR Dir=SrchForward, BOOL FoldCase=FALSE)
ULONG SearchText(const char char * const text, ULONG StartRow,
ULONG StartCol, PS_DIR Dir=SrchForward, BOOL FoldCase=FALSE)
ULONG GetScreen(char * Buff, ULONG BuffLen, PS_PLANE Plane=TextPlane)
ULONG GetScreen(char * Buff, ULONG BuffLen, ULONG StartPos,
ULONG Length, PS_PLANE Plane=TextPlane)
ULONG GetScreen(char * Buff, ULONG BuffLen, ULONG StartRow,
ULONG StartCol, ULONG Length, PS_PLANE Plane=TextPlane)
ULONG GetScreenRect(char * Buff, ULONG BuffLen, ULONG StartPos,
ULONG EndPos, PS_PLANE Plane=TextPlane)
ULONG StartCol, ULONG EndRow, ULONG EndCol,
ULONG GetScreenRect(char * Buff, ULONG BuffLen, ULONG StartRow,
ULONG StartCol, ULONG EndRow, ULONG EndCol,
PS_PLANE Plane=TextPlane)
void SetText(char *text);
void SetText(char *text, ULONG AtPos);
void SetText(char *text, ULONG AtRow, ULONG AtCol);
void CopyText ();
void CopyText (ULONG Long Len);
void CopyText (ULONG AtPos, ULONG Long Len);
void CopyText (ULONG AtRow, ULONG AtCol, ULONG Long Len);

void PasteText ();
void PasteText (ULONG Long Len);
void PasteText (ULONG AtPos, ULONG Long Len);
void PasteText (ULONG AtRow, ULONG AtCol, ULONG Long Len);
void ConvertPosToRowCol(ULONG pos, ULONG *row, ULONG *col)
ULONG ConvertRowColToPos(ULONG row, ULONG col)
ULONG ConvertPosToRow(ULONG Pos)
ULONG ConvertPosToCol(ULONG Pos)
void RegisterKeyEvent(ECLKeyNotify *NotifyObject)
virtual UnregisterKeyEvent(ECLKeyNotify *NotifyObject)
ECLFieldList *GetFieldList()
BOOL WaitForCursor(int Row, int Col, long nTimeOut=INFINITE,
BOOL bWaitForIR=TRUE)
BOOL WaitWhileCursor(int Row, int Col, long nTimeOut=INFINITE,
BOOL bWaitForIR=TRUE)
BOOL WaitForString(char* WaitString, int Row=0, int Col=0,
long nTimeOut=INFINITE, BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
BOOL WaitWhileString(char* WaitString, int Row=0, int Col=0,
long nTimeOut=INFINITE, BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
BOOL WaitForStringInRect(char* WaitString, int sRow, int sCol,
int eRow,int eCol, long nTimeOut=INFINITE,
BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
BOOL WaitWhileStringInRect(char* WaitString, int sRow, int sCol,
int eRow,int eCol, long nTimeOut=INFINITE, BOOL bWaitForIR=TRUE,
BOOL bCaseSens=TRUE)
BOOL WaitForAttrib(int Row, int Col, unsigned char AttribDatum,
unsigned char MskDatum = 0xFF, PS_PLANE plane = FieldPlane,
long TimeOut = INFINITE, BOOL bWaitForIR = TRUE)
BOOL WaitWhileAttrib(int Row, int Col, unsigned char AttribDatum,
unsigned char MskDatum = 0xFF, PS_PLANE plane = FieldPlane,
long TimeOut = INFINITE, BOOL bWaitForIR = TRUE)
BOOL WaitForScreen(ECLScreenDesc* screenDesc, long TimeOut = INFINITE)
BOOL WaitWhileScreen(ECLScreenDesc* screenDesc, long TimeOut = INFINITE)

void RegisterPSEvent(ECLPSNotify * notify)
void RegisterPSEvent(ECLPSListener * listener)
void RegisterPSEvent(ECLPSListener * listener, int type)
void StartMacro(String MacroName)
void UnregisterPSEvent(ECLPSNotify * notify)
void UnregisterPSEvent(ECLPSListener * listener)
void UnregisterPSEvent(ECLPSListener * listener, int type)

The following methods are available for ECLPS :

```
void SendKeys(WCHAR * text),
void SendKeys(WCHAR *text, ULONG AtPos),
void SendKeys(WCHAR *text, ULONG AtRow, ULONG AtCol)
ULONG SearchText(const WCHAR * const text, PS_DIR Dir=SrchForward,
    BOOL FoldCase=FALSE)
ULONG SearchText(const WCHAR * const text,
    ULONG StartPos, PS_DIR Dir=SrchForward, BOOL FoldCase=FALSE)
ULONG SearchText(const WCHAR * const text, ULONG StartRow,
    ULONG StartCol, PS_DIR Dir=SrchForward, BOOL FoldCase=FALSE)
ULONG GetScreen(WCHAR * Buff, ULONG BuffLen, PS_PLANE Plane=TextPlane)
ULONG GetScreen(WCHAR * Buff, ULONG BuffLen, ULONG StartPos,
    ULONG Length, PS_PLANE Plane=TextPlane)
ULONG GetScreen(WCHAR * Buff, ULONG BuffLen, ULONG StartRow,
    ULONG StartCol, ULONG Length, PS_PLANE Plane=TextPlane)
```

ECLPS Constructor

This method uses a connection name or handle to create an ECLPS object.

Prototype

ECLPS(char ConnName)

ECLPS(long ConnHandle)

Parameters

char ConnName

One-character short name of the connection (A-Z or a-z).

long ConnHandle

Handle of an ECL connection.

Return Value

None

Example

The following example shows how to use a connection name to create an ECLPS object.

```
//-------------------------------------------------------------------
// ECLPS::ECLPS              (Constructor)
//
// Build a PS object from a name, and another from a handle.
//-------------------------------------------------------------------
void Sample58() {

ECLPS *PS1, *PS2;       // Pointer to PS objects
ECLConnList ConnList;   // Connection list object

try {
  // Create PS object for connection 'A'
  PS1 = new ECLPS('A');

  // Create PS object for first connection in conn list
  PS2 = new ECLPS(ConnList.GetFirstConnection()->GetHandle());

  printf("PS #1 is for connection %c, PS #2 is for connection %c.\n",
         PS1->GetName(), PS2->GetName());
  delete PS1;
  delete PS2;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

ECLPS Destructor

This method destroys the ECLPS object.

Prototype

~ECLPS()

Parameters

None

Return Value

None

Example

The following example shows how to destroy an ECLPS object.

```
ULONG  RowPos, ColPos;
ECLPS  *pPS;

try {
      pPS = new ECLPS('A');
      RowPos = pPS->ConvertPosToRow(544);
      ColPos = pPS->ConvertPosToCol(544);
      printf("PS position is at row %lu column %lu.",
      RowPos, ColPos);
      // Done with PS object so kill it
      delete pPS;
}
catch (ECLErr HE) {
  // Just report the error text in a message box
  MessageBox( NULL, HE.GetMsgText(), "Error!", MB_OK );
}
```

GetPCCodePage

The GetPCCodePage method retrieves the number designating the code page in force for the personal computer.

Prototype

int GetPCCodePage()

Parameters

None

Return Value

int

Number of the code page.

GetHostCodePage

The GetHostCodePage method retrieves the number designating the code page in force for the host computer.

Prototype

int GetHostCodePage()

Parameters

None

Return Value

int

Number of the code page.

GetOSCodePage

The GetOSCodePage method retrieves the number designating the code page in force for the operating system on the personal computer.

Prototype

int GetOSCodePage()

Parameters

None

Return Value

int

Number of the code page.

GetSize

This method returns the size of the presentation space for the connection associated with the ECLPS object.
There are two signatures of the GetSize method. Using ULONG GetSize(), the size is returned as a linear value and represents the total number of characters in the presentation space. With void GetSize(ULONG *Rows, ULONG *Cols), the number of rows and columns of the presentation space is returned.

Prototype

ULONG GetSize()

void GetSize(ULONG *Rows, ULONG *Cols)

Parameters

ULONG *Rows

This output parameter is the number of rows in the presentation space.

ULONG *Cols

This output parameter is the number of columns in the presentation space.

Return Value

ULONG

Size of the presentation space as a linear value.

Example

The following is an example of using the GetSize method.

```
//---------------------------------------------------------------------
// ECLPS::GetSize
//
// Display dimensions of connection 'A'
//---------------------------------------------------------------------
void Sample59() {

ECLPS PS('A');       // PS object for connection A
ULONG Rows, Cols, Len;

PS.GetSize(&Rows, &Cols);   // Get num of rows and cols
// Could also write as:
Rows = PS.GetSizeRows();    // Redundant
Cols = PS.GetSizeCols();    // Redundant

Len = PS.GetSize();         // Get total size

printf("Connection A has %lu rows and %lu columns (%lu total length)\n",
       Rows, Cols, Len);

} // end sample
```

GetSizeRows

This method returns the number of rows in the Presentation Space for the connection associated with the ECLPS object.

Prototype

ULONG GetSizeRows()

Parameters

None

Return Value

ULONG

This is the number of rows in the Presentation Space.

Example

The following is an example of using the GetSizeRows method.

```
//-------------------------------------------------------------------
// ECLPS::GetSizeRows
//
// Display dimensions of connection 'A'
//-------------------------------------------------------------------
void Sample59() {

ECLPS PS('A');       // PS object for connection A
ULONG Rows, Cols, Len;

PS.GetSize(&Rows, &Cols);   // Get num of rows and cols
// Could also write as:
Rows = PS.GetSizeRows();    // Redundant
Cols = PS.GetSizeCols();    // Redundant

Len = PS.GetSize();         // Get total size

printf("Connection A has %lu rows and %lu columns (%lu total length)\n",
       Rows, Cols, Len);

} // end sample
```

GetSizeCols

This method returns the number of columns in the Presentation Space for the connection associated with the ECLPS object.

Prototype

ULONG GetSizeCols()

Parameters

None

Return Value

ULONG

This is the number of columns in the Presentation Space.

Example

The following is an example of using the GetSizeCols method.

```
//-------------------------------------------------------------------
// ECLPS::GetSizeCols
```

```
//
// Display dimensions of connection 'A'
//--------------------------------------------------------------------
void Sample59() {

ECLPS PS('A');       // PS object for connection A
ULONG Rows, Cols, Len;

PS.GetSize(&Rows, &Cols);   // Get num of rows and cols
// Could also write as:
Rows = PS.GetSizeRows();    // Redundant
Cols = PS.GetSizeCols();    // Redundant

Len = PS.GetSize();         // Get total size

printf("Connection A has %lu rows and %lu columns (%lu total length)\n",
       Rows, Cols, Len);

} // end sample
```

GetCursorPos

This method returns the position of the cursor in the presentation space for the connection associated with the ECLPS object. There are two signatures for the GetCursorPos method. Using ULONG GetCursorPos(), the position is returned as a linear (1-based) position. With void GetCursorPos(ULONG *Row, ULONG * Col), the position is returned as a row and column coordinate.

Prototype

ULONG GetCursorPos()
void GetCursorPos(ULONG *Row, ULONG *Col)

Parameters

ULONG *Row

This output parameter is the row coordinate of the host cursor.

ULONG *Col

This output parameter is the column coordinate of the host cursor.

Return Value

ULONG

Cursor position represented as a linear value.

Example

The following is an example of using the GetCursorPos method.

```
//-------------------------------------------------------------------
// ECLPS::GetCursorPos
//
// Display position of host cursor in connection 'A'
//-------------------------------------------------------------------
void Sample60() {

ECLPS PS('A');       // PS object for connection A
ULONG Row, Col, Pos;

PS.GetCursorPos(&Row, &Col);   // Get row/col position
// Could also write as:
Row = PS.GetCursorPosRow();    // Redundant
Col = PS.GetCursorPosCol();    // Redundant

Pos = PS.GetCursorPos();       // Get linear position

printf("Host cursor of connection A is at row %lu column %lu
 (linear position %lu)\n", Row, Col, Pos);

} // end sample

/
```

GetCursorPosRow

This method returns the row position of the cursor in the Presentation Space for the connection associated with the ECLPS object.

Prototype

ULONG GetCursorPosRow()

Parameters

None

Return Value

ULONG

This is the row position of the cursor in the Presentation Space.

Example

The following is an example of using the GetCursorPosRow method.

```
//-------------------------------------------------------------------
// ECLPS::GetCursorPosRow
//
// Display position of host cursor in connection 'A'
//-------------------------------------------------------------------
void Sample60() {
```

```
ECLPS PS('A');       // PS object for connection A
ULONG Row, Col, Pos;

PS.GetCursorPos(&Row, &Col);   // Get row/col position
// Could also write as:
Row = PS.GetCursorPosRow();    // Redundant
Col = PS.GetCursorPosCol();    // Redundant

Pos = PS.GetCursorPos();       // Get linear position

printf("Host cursor of connection A is at row %lu column %lu
 (linear position %lu)\n", Row, Col, Pos);

} // end sample
```

GetCursorPosCol

This method returns the column position of the cursor in the Presentation Space for the connection associated with the ECLPS object.

Prototype

ULONG GetCursorPosCol()

Parameters

None

Return Value

ULONG

This is the column position of the cursor in the Presentation Space.

Example

The following is an example of using the GetCursorPosCol method.

```
//---------------------------------------------------------------------
// ECLPS::GetCursorPosCol
//
// Display position of host cursor in connection 'A'
//---------------------------------------------------------------------
void Sample60() {

ECLPS PS('A');       // PS object for connection A
ULONG Row, Col, Pos;

PS.GetCursorPos(&Row, &Col);   // Get row/col position
// Could also write as:
Row = PS.GetCursorPosRow();    // Redundant
```

```
Col = PS.GetCursorPosCol();    // Redundant

Pos = PS.GetCursorPos();       // Get linear position

printf("Host cursor of connection A is at row %lu column %lu
 (linear position %lu)\n", Row, Col, Pos);

} // end sample

//-------------------------------------------------------------------
```

SetCursorPos

The SetCursorPos method sets the position of the cursor in the presentation space for the connection associated with the ECLPS object. There are two signatures for the SetCursorPos method. The position can be specified as a linear (1-based) position using void SetCursorPos(ULONG pos), or as a row and column coordinate using void SetCursorPos(ULONG Row, ULONG Col).

Prototype

void SetCursorPos(ULONG pos),

void SetCursorPos(ULONG Row, ULONG Col)

Parameters

ULONG pos

Cursor position as a linear position.

ULONG Row

Cursor row coordinate.

ULONG Col

Cursor column coordinate.

Return Value

None

Example

The following is an example of using the SetCursorPos method.

```
--
// ECLPS::SetCursorPos
//
// Set host cursor to row 2 column 1.
//-------------------------------------------------------------------
void Sample61() {
```

```
ECLPS PS('A');          // PS object for connection A

PS.SetCursorPos(2, 1);  // Put cursor at row 2, column 1
printf("Cursor of connection A set to row 2 column 1.\n");

} // end sample

/
```

SendKeys

The SendKeys method sends a null-terminated string of keys to the presentation space for the connection associated with the ECLPS object. There are three signatures for the SendKeys method. If no position is specified, the keystrokes are entered starting at the current host cursor position. A position may be specified (in linear or row and column coordinates), in which case the host cursor is first moved to the given position.

The text string may contain plain text characters, which are written to the presentation space exactly as given. In addition, the string can contain imbedded keywords (mnemonics) that represent various control keystrokes such as 3270 Enter keys and 5250 PageUp keys. Keywords are enclosed in square brackets (for example, [enter]). When such a keyword is encountered in the string it is translated into the proper emulator command and sent. A text string may contain any number of plain characters and imbedded keywords. The keywords are processed from left to right until the end of the string is reached. For example, the following string would cause the characters ABC to be typed at the current cursor position, followed by a 3270 Erase-end-of-field keystroke, followed by a 3270 Tab keystroke, followed by XYZ and a PF1 key:

```
ABC[eraseeof][tab]XYZ[pf1]
```

Note: Blank characters in the string are written to the host presentation space like any other plain text character. Therefore, blanks should not be used to separate keywords or text.

To send a left or right square bracket character to the host, it must be doubled in the text string (for example, it must occur twice to cause a single bracket to be written). The following example causes the string “A [:]” to be written to the presentation space.

```
A[[:]]
```

If you attempt to write keystrokes to a protected position on the screen, the keyboard locks and the remainder of the keystrokes are discarded.

Refer to Sendkeys Mnemonic Keywords on page 426 for a list of keywords.

Prototype

void SendKeys(char * text),
void SendKeys(char * text, ULONG AtPos),
void SendKeys(char * text, ULONG AtRow, ULONG AtCol)

Parameters

Char *text

String of keys to send to the presentation space.

ULONG AtPos

Position at which to start writing keystrokes.

ULONG AtRow

Row at which to start writing keystrokes.

ULONG AtCol

Column at which to start writing keystrokes.

Return Value

None

Example

The following is an example of using the SendKeys method.

```
//-------------------------------------------------------------------
// ECLPS::SendKeys
//
// Sends a series of keystrokes, including 3270 function keys, to
// the host on connection A.
//-------------------------------------------------------------------
void Sample62() {

ECLPS PS('A');         // PS object for connection A

// The following key string will erase from the current cursor
// position to the end of the field, and then type the given
// characters into the field.
char  SendStr[] = "[eraseeof]ZIEWin is really cool";

// Note that an ECL error is thrown if we try to send keys to
// a protected field.

try {
  PS.SendKeys(SendStr);        // Do it at the current cursor position
  PS.SendKeys(SendStr, 3, 10); // Again at row 3 column 10
}
catch (ECLErr Err) {
  printf("Failed to send keys: %s\n", Err.GetMsgText());
}

} // end sample
```

SearchText

The SearchText method searches for text in the presentation space of the connection associated with the ECLPS object. The method returns the linear position at which the text is found, or zero if the text is not found. The search may be made in the forward (left to right, top to bottom) or backward (right to left, bottom to top) directions using the optional Dir parameter. The search can be case-sensitive or case folded (insensitive) using the optional FoldCase parameter.

If no starting position is given, the search starts at the beginning of the screen for forward searches, or at the end of the screen for backward searches. A starting position may be given in terms of a linear position or row and column coordinates. If a starting position is given it indicates the position at which to begin the search. Forward searches search from the starting position (inclusive) to the last character of the screen. Backward searches search from the starting position (inclusive) to the first character of the screen.

The search string must exist completely within the search area for the search to be successful (for example, if the search string spans over the specified starting position it will not be found).

The returned linear position may be converted to row and column coordinates using the base class ConvertPosToRowCol method.

Prototype

```
ULONG SearchText(const char * const text, PS_DIR Dir=SrchForward,
    BOOL FoldCase=FALSE)
ULONG SearchText(const char * const text,
    ULONG StartPos, PS_DIR Dir=SrchForward, BOOL FoldCase=FALSE)
ULONG SearchText(const char char * const text, ULONG StartRow,
    ULONG StartCol, PS_DIR Dir=SrchForward, BOOL FoldCase=FALSE)
```

Parameters

char *text

Null-terminated string to search for.

PS_DIR Dir

Optional parameter indicating the direction in which to search. If specified, must be one of **SrchForward** or **SrchBackward**. The default is **SrchForward**.

BOOL FoldCase

Optional parameter indicating the case-sensitivity of the search. If specified as FALSE the text string must exactly match the presentation space including the use of uppercase and lowercase characters. If specified as TRUE, the text string will be found without regard to uppercase or lowercase. The default is FALSE.

ULONG StartPos

Indicates the starting linear position of the search. This position will be included in the search.

ULONG StartRow

Indicates the row in which to start the search.

ULONG StartCol

Indicates the column in which to start the search.

Return Value

ULONG

Linear position of the found string, or zero if not found.

Example

The following is an example of using the SearchText method.

```
/-------------------------------------------------------------------
// ECLPS::SearchText
//
// Search for a string in various parts of the screen.
//-------------------------------------------------------------------
void Sample63() {

ECLPS PS('A');            // PS object
char  FindStr[] = "HCL";  // String to search for
ULONG LastOne;            // Position of search result

// Case insensative search of entire screen

printf("Searching for '%s'...\n", FindStr);
printf("  Anywhere, any case: ");
if (PS.SearchText(FindStr, TRUE) != 0)
  printf("Yes\n");
else
  printf("No\n");

// Backward, case sensative search on line 1

printf("  Line 1, exact match: ");
if (PS.SearchText(FindStr, 1, 80, SrchBackward) != 0)
  printf("Yes\n");
else
  printf("No\n");

// Backward, full screen search

LastOne = PS.SearchText(FindStr, SrchBackward, TRUE);
if (LastOne != 0)
  printf("  Last occurance on the screen is at row %lu, column %lu.\n",
         PS.ConvertPosToRow(LastOne), PS.ConvertPosToCol(LastOne));
```

```
} // end sample
```

GetScreen

This method retrieves data from the presentation space of the connection associated with the ECLPS object. The data is returned as a linear array of byte values, one byte per presentation space character position. The array is not null terminated except when data is retrieved from the TextPlane, in which case a single null termination byte is appended.

The application must supply a buffer for the returned data, and the length of the buffer. If the requested data does not fit into the buffer it is truncated. For TextPlane data, the buffer must include at least one extra byte for the terminating null. The method returns the number of bytes copied to the application buffer (not including the terminating null for TextPlane copies).

The application must specify the number of bytes of data to retrieve from the presentation space. If the starting position plus this length exceeds the size of the presentation space an error is thrown. Data is returned starting at the given starting position or row 1, column 1 if no starting position is specified. Returned data is copied from the presentation space in a linear fashion from left to right, top to bottom spanning multiple rows up to the length specified. If the application wants to get screen data for a rectangular area of the screen, the GetScreenRect method should be used.

The application can specify any plane for which to retrieve data. If no plane is specified, the TextPlane is retrieved. See ECL Planes — Format and Content on page 429 for details on the different ECL planes.

Prototype

```
ULONG GetScreen(char * Buff, ULONG BuffLen, PS_PLANE Plane=TextPlane)
ULONG GetScreen(char * Buff, ULONG BuffLen, ULONG StartPos, ULONG Length,
    PS_PLANE Plane=TextPlane)
ULONG GetScreen(char * Buff, ULONG BuffLen, ULONG StartRow, ULONG StartCol,
    ULONG Length, PS_PLANE Plane=TextPlane)
```

Parameters

char *Buff

Pointer to application supplied buffer of at least BuffLen size.

ULONG BuffLen

Number of bytes in the supplied buffer.

ULONG StartPos

Linear position in the presentation space at which to start the copy.

ULONG StartRow

Row in the presentation space at which to start the copy.

ULONG StartCol

Column in the presentation space at which to start the copy.

ULONG Length

Linear number of bytes to copy from the presentation space.

PS_PLANE plane

Optional parameter specifying which presentation space plane is to be copied. If specified, must be one of **TextPlane**, **ColorPlane**, **FieldPlane**, and **ExfieldPlane**. The default is **TextPlane**. See ECL Planes — Format and Content on page 429 for the content and format of the different ECL planes.

Return Value

ULONG

Number of data bytes copied from the presentation space. This value does not include the trailing null byte for TextPlane copies.

Example

The following is an example of using the GetScreen method.

```
//-------------------------------------------------------------------
// ECLPS::GetScreen
//
// Get text and other planes of data from the presentation space.
//-------------------------------------------------------------------
void Sample64() {

ECLPS PS('A');            // PS object
char  *Text;              // Text plane data
char  *Field;             // Field plane data
ULONG Len;                // Size of PS

Len = PS.GetSize();

// Note text buffer needs extra byte for null terminator

Text  = new char[Len + 1];
Field = new char[Len];

PS.GetScreen(Text, Len+1);               // Get entire screen (text)
PS.GetScreen(Field, Len, FieldPlane);    // Get entire field plane
PS.GetScreen(Text, Len+1, 1, 1, 80);     // Get line 1 of text

printf("Line 1 of the screen is:\n%s\n", Text);

delete []Text;
delete []Field;
```

```
} // end sample
```

GetScreenRect

This method retrieves data from the presentation space of the connection associated with the ECLPS object. The data is returned as a linear array of byte values, one byte per presentation space character position. The array is not null terminated.

The application supplies a starting and ending coordinate in the presentation space. These coordinates form the opposing corner points of a rectangular area. The presentation space within the rectangular area is copied to the application buffer as a single linear array. The starting and ending points may be in any spatial relationship to each other. The copy is defined to start from the row containing the uppermost point to the row containing the lowermost point, and from the left-most column to the right-most column. Both coordinates must be within the bounds of the size of the presentation space or an error is thrown. The coordinates may be specified in terms of linear position or row and column numbers.

The supplied application buffer must be at least large enough to contain the number of bytes in the rectangle. If the buffer is too small, no data is copied and zero is returned as the method result. Otherwise the method returns the number of bytes copied.

The application can specify any plane for which to retrieve data. If no plane is specified, the TextPlane is retrieved. See ECL Planes — Format and Content on page 429 for details on the different ECL planes.

Prototype

ULONG GetScreenRect(char * Buff, ULONG BuffLen,
    ULONG StartPos, ULONG EndPos, PS_PLANE Plane=TextPlane)
ULONG GetScreenRect(char * Buff, ULONG BuffLen,
    ULONG StartRow, ULONG StartCol, ULONG EndRow,
    ULONG EndCol, PS_PLANE Plane=TextPlane)

Parameters

char *Buff

Pointer to application supplied buffer of at least BuffLen size.

ULONG BuffLen

Number of bytes in the supplied buffer.

ULONG StartPos

Linear position in the presentation space of one corner of the copy rectangle.

ULONG EndPos

Linear position in the presentation space of one corner of the copy rectangle.

ULONG StartRow

Row in the presentation space of one corner of the copy rectangle.

ULONG StartCol

Column in the presentation space of one corner of the copy rectangle.

ULONG EndRow

Row in the presentation space of one corner of the copy rectangle.

ULONG EndCol

Column in the presentation space of one corner of the copy rectangle.

PS_PLANE plane

Optional parameter specifying which presentation space plane is to be copied. If specified, must be one of **TextPlane**, **ColorPlane**, **FieldPlane**, or **ExfieldPlane**. The default is **TextPlane**. See ECL Planes — Format and Content on page 429 for the content and format of the different ECL planes.

Return Value

ULONG

Number of data bytes copied from the presentation space.

Example

The following is an example of using the GetScreenRect method.

```
------------------------------
// ECLPS::GetScreenRect
//
// Get rectangular parts of the host screen.
//--------------------------------------------------------------------
void Sample66() {

ECLPS PS('A');         // PS object for connection A
char Buff[4000];       // Big buffer

// Get first 2 lines of the screen text
PS.GetScreenRect(Buff, sizeof(Buff), 1, 1, 2, 80);

// Get last 2 lines of the screen
PS.GetScreenRect(Buff, sizeof(Buff),
                 PS.GetSizeRows()-1,
                 1,
                 PS.GetSizeRows(),
                 PS.GetSizeCols());

// Get just a part of the screen (VM main menu calendar)
PS.GetScreenRect(Buff, sizeof(Buff),
                 5,  51,
                 13, 76);
```

```
// Same as previous (specify any 2 oposite corners of the rectangle)
PS.GetScreenRect(Buff, sizeof(Buff),
                 13, 51,
                 5,  76);

// Note results are placed in buffer end-to-end with no line delimiters
printf("Contents of rectangular screen area:\n%s\n", Buff);

} // end sample
```

SetText

The SetText method sends a character array to the Presentation Space for the connection associated with the ECLPS object. Although this is similar to the SendKeys method, it is different in that it does not send mnemonic keystrokes (for example, [enter] or [pf1]).

If a position is not specified, the text is written starting at the current cursor position.

Prototype

void SetText(char *text);

void SetText(char *text, ULONG AtPos);

void SetText(char *text, ULONG AtRow, ULONG AtCol);

Parameters

char *text

Null terminated string of characters to copy to the presentation space.

ULONG AtPos

Linear position in the presentation space at which to begin the copy.

ULONG AtRow

Row in the presentation space of which to begin the copy.

ULONG AtCol

Column in the presentation space at which to begin the copy.

Return Value

None

Example

The following is an example of using the SetText method.

```
//---------------------------------------------------------------------
// ECLPS::SetText
//
// Update various input fields of the screen.
//---------------------------------------------------------------------
void Sample65() {

ECLPS PS('A');         // PS object for connection A

// Note that an ECL error is thrown if we try to write to
// a protected field.

try {
  // Update first 2 input fields of the screen.  Note
  // fields are not erased before update.
  PS.SendKeys("[home]");
  PS.SetText("Field 1");
  PS.SendKeys("[tab]");
  PS.SetText("Field 2");
  // Note: Above 4 lines could also be written as:
  // PS.SendKeys("[home]Field 1[tab]Field 2");
  // But SetText() is faster, esp for long strings
}
catch (ECLErr Err) {
  printf("Failed to send keys: %s\n", Err.GetMsgText());
}

} // end sample

//-------------------------------------
```

CopyText

This method copies the text from a given location in presentation space of a specified length to clipboard. The length of the text copied will be the length specified, if no length is specified the text till the end of presentation space is copied. If the location is not specified, the text copied is from the current cursor position in presentation space. In case of no parameters, whole presentation space is copied to clipboard.

Prototype

void CopyText ();

void CopyText (ULONG Long Len);

void CopyText (ULONG AtPos, ULONG Long Len);

void CopyText (ULONG AtRow, ULONG AtCol, ULONG Long Len);

Parameters

ULONG Long Len

Linear number of bytes to copy from the presentation space.

ULONG AtPos

Linear position in the presentation space at which to begin the copy.

ULONG AtRow

Row in the presentation space of which to begin the copy.

ULONG AtCol

Column in the presentation space at which to begin the copy.

Return Value

None

Example

The following is an example of using the CopyText method.

```
//---------------------------------------------------------------------
// ECLPS::CopyText
//
// Copy text from Presentation Space to clipboard.
//---------------------------------------------------------------------
void Sample126() {

ECLPS PS('A');         // PS object for connection A
long row, col, length2copy;

// Note that an ECL error is thrown if we try to write to
// a protected field.
try {
   printf("Please enter the position and length to copy from PS [row col length2copy] \n");

   scanf("%ld %ld %ld", &row, &col, &length2copy);
  PS.CopyText(row, col, length2copy);
  }
catch (ECLErr Err) {
   printf("Failed to copy text: %s\n", Err.GetMsgText());
}
} // end sample
//-------------------------------------
```

PasteText

This method pastes the text of specified length from clipboard to a given location in presentation space. The length of the text pasted is the length specified, if no length is specified the whole text in clipboard is pasted until it reaches the end of presentation space. If the location is not specified, the text is pasted at the current cursor position in presentation space. If the presentation space is field formatted and while pasting the clipboard content, when there is a tab character '\t,' the remaining paste content is moved to the next writable field.

Prototype

void PasteText ();

void PasteText (ULONG Long Len);

void PasteText (ULONG AtPos, ULONG Long Len);

void PasteText (ULONG AtRow, ULONG AtCol, ULONG Long Len);

Parameters

ULONG Long Len

Linear number of bytes to paste from the presentation space.

ULONG AtPos

Linear position in the presentation space at which to begin the paste.

ULONG AtRow

Row in the presentation space of which to begin the paste.

ULONG AtCol

Column in the presentation space at which to begin the paste.

Return Value

None

Example

The following is an example of using the PasteText method.

```
//---------------------------------------------------------------------
// ECLPS::PasteText
//
// Paste text to Presentation Space from clipboard.
//---------------------------------------------------------------------
void Sample127() {

ECLPS PS('A');         // PS object for connection A
long row, col, length2paste;

// Note that an ECL error is thrown if we try to write to
// a protected field.
try {
   printf("Please enter the position and length to paste from clipboard [row col length2paste] \n");
   scanf("%ld %ld %ld", &row, &col, &length2paste);
  PS.PasteText(row, col, length2paste);
}
catch (ECLErr Err) {
  printf("Failed to paste text: %s\n", Err.GetMsgText());
```

```
}
} // end sample
//---------------------------------------------
```

ConvertPosToRowCol

The ConvertPosToRowCol method converts a position in the presentation space represented as a linear array to a position in the presentation space given in row and column coordinates. The position converted is in the presentation space for the connection associated with the ECLPS object.

Prototype

void ConvertPosToRowCol(ULONG pos, ULONG *row, ULONG *col)

Parameters

ULONG pos

Position to convert in the presentation space represented as a linear array.

ULONG *row

Converted row coordinate in the presentation space.

ULONG *col

Converted column coordinate in the presentation space.

Return Value

None

Example

The following example shows how to convert a position in the presentation space represented as a linear array to a position shown in row and column coordinates.

```
///---------------------------------------------------------------------
// ECLPS::ConvertPosToRowCol
//
// Find a string in the presentation space and display the row/column
// coordinate of its location.
//---------------------------------------------------------------------
void Sample67() {

ECLPS PS('A');            // PS Object
ULONG FoundPos;           // Linear position
ULONG FoundRow,FoundCol;


FoundPos = PS.SearchText("HCL", TRUE);
if (FoundPos != 0) {
  PS.ConvertPosToRowCol(FoundPos, &FoundRow, &FoundCol);
```

```
  // Another way to do the same thing:
  FoundRow = PS.ConvertPosToRow(FoundPos);
  FoundCol = PS.ConvertPosToCol(FoundPos);

  printf("String found at row %lu column %lu (position %lu)\n",
         FoundRow, FoundCol, FoundPos);
}
else printf("String not found.\n");

} // end sample
```

ConvertRowColToPos

The ConvertRowColToPos method converts a position in the presentation space in row and column coordinates to a position in the presentation space represented as a linear array. The position converted is in the presentation space for the connection associated with the ECLPS object.

Prototype

ULONG ConvertRowColToPos(ULONG row, ULONG col)

Parameters

ULONG row

Row coordinate to convert in the presentation space.

ULONG col

Column coordinate to convert in the presentation space.

Return Value

ULONG

Converted position in the presentation space represented as a linear array.

Example

The following example shows how to convert a position in the presentation space shown in row and column coordinates to a linear array position.

```
///-----------------------------------------------------------------
// ECLPS::ConvertRowColToPos
//
// Find a string in the presentation space and display the row/column
// coordinate of its location.
//-----------------------------------------------------------------
void Sample67() {

ECLPS PS('A');            // PS Object
ULONG FoundPos;           // Linear position
```

```
ULONG FoundRow,FoundCol;


FoundPos = PS.SearchText("HCL", TRUE);
if (FoundPos != 0) {
  PS.ConvertPosToRowCol(FoundPos, &FoundRow, &FoundCol);
  // Another way to do the same thing:
  FoundRow = PS.ConvertPosToRow(FoundPos);
  FoundCol = PS.ConvertPosToCol(FoundPos);

  printf("String found at row %lu column %lu (position %lu)\n",
         FoundRow, FoundCol, FoundPos);
}
else printf("String not found.\n");

} // end sample
```

ConvertPosToRow

This method takes a linear position value in the Presentation Space and returns the row in which it resides for the connection associated with the ECLPS object.

Prototype

ULONG ConvertPosToRow(ULONG Pos)

Parameters

ULONG Pos

This is the linear position in the Presentation Space to convert.

Return Value

ULONG

This is the row position for the linear position.

Example

The following is an example of using the ConvertPosToRow method.

```
///----------------------------------------------------------------------
// ECLPS::ConvertPosToRow
//
// Find a string in the presentation space and display the row/column
// coordinate of its location.
//----------------------------------------------------------------------
void Sample67() {

ECLPS PS('A');            // PS Object
ULONG FoundPos;           // Linear position
```

```
ULONG FoundRow,FoundCol;


FoundPos = PS.SearchText("HCL", TRUE);
if (FoundPos != 0) {
  PS.ConvertPosToRowCol(FoundPos, &FoundRow, &FoundCol);
  // Another way to do the same thing:
  FoundRow = PS.ConvertPosToRow(FoundPos);
  FoundCol = PS.ConvertPosToCol(FoundPos);

  printf("String found at row %lu column %lu (position %lu)\n",
         FoundRow, FoundCol, FoundPos);
}
else printf("String not found.\n");

} // end sample
```

ConvertPosToCol

This method takes a linear position value in the Presentation Space and returns the column in which it resides for the connection associated with the ECLPS object.

Prototype

ULONG ConvertPosToCol(ULONG Pos)

Parameters

ULONG Pos

This is the linear position in the Presentation Space to convert.

Return Value

ULONG

This is the column position for the linear position.

Example

The following is an example of using the ConvertPosToCol method.

```
///----------------------------------------------------------------------
/// ECLPS::ConvertPosToCol
//
// Find a string in the presentation space and display the row/column
// coordinate of its location.
//----------------------------------------------------------------------
void Sample67() {

ECLPS PS('A');            // PS Object
ULONG FoundPos;           // Linear position
```

```
ULONG FoundRow,FoundCol;


FoundPos = PS.SearchText("HCL", TRUE);
if (FoundPos != 0) {
  PS.ConvertPosToRowCol(FoundPos, &FoundRow, &FoundCol);
  // Another way to do the same thing:
  FoundRow = PS.ConvertPosToRow(FoundPos);
  FoundCol = PS.ConvertPosToCol(FoundPos);

  printf("String found at row %lu column %lu (position %lu)\n",
         FoundRow, FoundCol, FoundPos);
}
else printf("String not found.\n");

} // end sample
```

RegisterKeyEvent

The RegisterKeyEvent function registers an application-supplied object to receive notification of operator keystroke events. The application must construct an object derived from the ECLKeyNotify abstract base class. When an operator keystroke occurs, the NotifyEvent() method of the application supplied object is called. The application can choose to have the keystroke filtered or passed on and processed in the usual way. See ECLKeyNotify Class on page 87 for more details.

Implementation Restriction: Only one object may be registered to receive keystroke events at a time.

Prototype

void RegisterKeyEvent(ECLKeyNotify *NotifyObject)

Parameters

ECLKeyNotify *NotifyObject

Application object derived from ECLKeyNotify class.

Return Value

None

Example

The following example shows how to register an application-supplied object to receive notification of operator keystroke events. See the ECLKeyNotify Class on page 87 for a RegisterKeyEvent example.

```
// This is the declaration of your class derived from ECLKeyNotify....
class MyKeyNotify: public ECLKeyNotify
{
public:
```

```
  // App can put parms on constructors if needed
  MyKeyNotify();          // Constructor
  MyKeyNotify();         // Destructor

  // App must define the NotifyEvent method
  int NotifyEvent(char KeyType[2], char KeyString[7]);  // Keystroke callback

private:
  // Whatever you like...
};
// this is the implementation of app methods...

int MyKeyNotify::NotifyEvent( ECLPS *, char *KeyType, char *Keystring )
{
  if (...) {
    ...
    return 0;  // Remove keystroke (filter)
  }
  else
    ...
    return 1;  // Pass keystroke to emulator as usual
  }
}

// this would be the code in say, WinMain...

ECLPS *pPS;            // Pointer to ECLPS object
MyKeyNotify *MyKeyNotifyObject; // My key notification object,derived
                                // from ECLKeyNotify

try {
  pPS = new ECLPS('A');              // Create PS object for 'A' session

  // Register for keystroke events
  MyKeyNotifyObject = new MyKeyNotify();
  pPS->RegisterKeyEvent(MyKeyNotifyObject);

  // After this, MyKeyNotifyObject->NotifyEvent() will be called
  // for each operator keystroke...
}
catch (ECLErr HE) {
  // Just report the error text in a message box
  MessageBox( NULL, HE.GetMsgText(), "Error!", MB_OK );
}
```

UnregisterKeyEvent

The UnregisterKeyEvent method unregisters an application object previously registered for keystroke events with the RegisterKeyEvent function. A registered application notify object should not be destroyed without first calling this function to unregister it. If there is no notify object currently registered, or the registered object is not the NotifyObject passed in, this function does nothing (no error is thrown).

Prototype

virtual UnregisterKeyEvent(ECLKeyNotify *NotifyObject)

Parameters

ECLKeyNotify *NotifyObject

Object currently registered for keystroke events.

Return Value

None

Example

See the ECLKeyNotify Class on page 87 for a UnregisterKeyEvent example.

GetFieldList

This method returns a pointer to an ECLFieldList object. The field list object can be used to iterate over the list of fields in the host presentation space. The ECLFieldList object returned by this function is automatically destroyed when the ECLPS object is destroyed. See ECLFieldList Class on page 80 for more information about this object.

Prototype

ECLFieldList *GetFieldList()

Parameters

None

Return Value

ECLFieldList *

Pointer to ECLFieldList object.

Example

The following example shows how to return a pointer to an ECLFieldList object.

```
// ECLPS::GetFieldList
//
// Display number of fields on the screen.
//-------------------------------------------------------------------
void Sample68() {

ECLPS        *PS;           // Pointer to PS object
```

```
ECLFieldList *FieldList;    // Pointer to field list object

try {
  PS = new ECLPS('A');                // Create PS object for 'A'

  FieldList = PS->GetFieldList();     // Get pointer to field list
  FieldList->Refresh();               // Build the field list

  printf("There are %lu fields on the screen of connection %c.\n",
    FieldList->GetFieldCount(), PS->GetName());

  delete PS;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

WaitForCursor

The WaitForCursor method waits for the cursor in the presentation space of the connection associated with the ECLPS object to be located at a specified position.

Prototype

BOOL WaitForCursor(int Row, int Col, long nTimeOut=INFINITE,
    BOOL bWaitForIR=TRUE)

Parameters

int Row

Row position of the cursor. If negative, this value indicates the Row position from the bottom of the PS.

int Col

Column position of the cursor. If negative, this value indicates the Cursor position from the edge of the PS.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
int TimeOut = 5000;
BOOL waitOK = ps.WaitForCursor(23,1,TimeOut, TRUE);

// do the processing for the screen
```

WaitWhileCursor

The WaitWhileCursor method waits while the cursor in the presentation space of the connection associated with the ECLPS object is located at a specified position.

Prototype

BOOL WaitWhileCursor(int Row, int Col, long nTimeOut=INFINITE,
    BOOL bWaitForIR=TRUE)

Parameters

int Row

Row position of the cursor. If negative, this value indicates the Row position from the bottom of the PS.

int Col

Column position of the cursor. If negative, this value indicates the Cursor position from the edge of the PS.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
int TimeOut = 5000;
BOOL waitOK = ps.WaitWhileCursor(23,1,TimeOut, TRUE);

// do the processing for when the screen goes away
```

WaitForString

The WaitForString method waits for the specified string to appear in the presentation space of the connection associated with the ECLPS object. If the optional Row and Column parameters are used, the string must begin at the specified position. If 0,0 are passed for Row,Col the method searches the entire PS.

Prototype

```
BOOL WaitForString( char* WaitString, int Row=0, int Col=0, long nTimeOut=INFINITE,
    BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
```

Parameters

char* WaitString

The string which will be the subject of the wait.

int Row

Row position of the cursor. If negative, this value indicates the Row position from the bottom of the PS. The default is zero.

int Col

Column position of the cursor. If negative, this value indicates the Cursor position from the edge of the PS. The default is zero.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

BOOL bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
BOOL waitOK = ps.WaitForString("LOGON");

// do the processing for the screen
```

WaitWhileString

The WaitWhileString method waits while the specified string is in the presentation space of the connection associated with the ECLPS object. If the optional Row and Column parameters are used, the string must begin at the specified position. If 0,0 are passed for Row,Col the method searches the entire PS.

Prototype

```
BOOL WaitWhileString(char* WaitString, int Row=0, int Col=0,
                     long nTimeOut=INFINITE,
                     BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
```

Parameters

char* WaitString

The string which will be the subject of the wait.

int Row

Start Row position of the string. If negative, this value indicates the Row position from the bottom of the PS. The default is zero.

int Col

Start Column position of the string. If negative, this value indicates the Cursor position from the edge of the PS. The default is zero.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

BOOL bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
BOOL waitOK = ps.WaitWhileString("LOGON");

// do the processing for when the screen goes away
```

WaitForStringInRect

The WaitForStringInRect method waits for the specified string to appear in the presentation space of the connection associated with the ECLPS object in the specified Rectangle.

Prototype

```
BOOL WaitForStringInRect(char* WaitString, int sRow, int sCol, int eRow,int eCol,
    long nTimeOut=INFINITE, BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
```

Parameters

char* WaitString

The string which will be the subject of the wait.

int Row

Start Row position of the rectangle.

int Col

Start Column position of the rectangle.

int eRow

Ending row position of the search rectangle.

int eCol

Ending column position of the search rectangle.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

BOOL bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
BOOL waitOK = ps.WaitForStringInRect("LOGON",1,1,23,80);

// do the processing for the screen
```

WaitWhileStringInRect

The WaitWhileStringInRect method waits while the specified string is in the presentation space of the connection associated with the ECLPS object in the specified Rectangle.

Prototype

```
BOOL WaitWhileStringInRect(char* WaitString, int sRow, int sCol, int eRow,int eCol,
    long nTimeOut=INFINITE, BOOL bWaitForIR=TRUE, BOOL bCaseSens=TRUE)
```

Parameters

char* WaitString

The string which will be the subject of the wait.

int Row

Start Row position of the rectangle.

int Col

Start Column position of the rectangle.

int eRow

Ending row position of the search rectangle.

int eCol

Ending column position of the search rectangle.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

BOOL bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
BOOL waitOK = ps.WaitWhileStringInRect("LOGON",1,1,23,80);

// do the processing for when the screen goes away
```

WaitForAttrib

The WaitForAttrib method will wait until the specified Attribute value appears in the presentation space of the connection associated with the ECLPS object at the specified Row/Column position. The optional MaskData parameter can be used to control which values of the attribute you are looking for. The optional plane parameter allows you to select any of the four PS planes.

Prototype

```
BOOL WaitForAttrib(int Row, int Col, unsigned char AttribDatum,
    unsigned char MskDatum= 0xFF, PS_PLANE plane = FieldPlane,
    long TimeOut = INFINITE, BOOL bWaitForIR = TRUE)
```

Parameters

int Row

Row position of the attribute.

int Col

Column position of the attribute.

unsigned char AttribDatum

The 1 byte HEX value of the attribute to wait for.

unsigned char MskDatum

The 1 byte HEX value to use as a mask with the attribute. This parameter is optional. The default value is 0xFF.

PS_PLANE plane

The plane of the attribute to get. The plane can have the following values: **TextPlane**, **ColorPlane**, **FieldPlane**, and **ExfieldPlane**. See ECL Planes — Format and Content on page 429 for the content and format of the different ECL planes.

This parameter is optional. The default is FieldPlane.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
BOOL waitOK = ps.WaitForAttrib(10, 16, 0xE0, 0xFF, FieldPlane, INFINITE, FALSE);

// do the processing for when the screen goes away
```

WaitWhileAttrib

The WaitWhileAttrib method waits while the specified Attribute value appears in the presentation space of the connection associated with the ECLPS object at the specified Row/Column position. The optional MaskData parameter can be used to control which values of the attribute you are looking for. The optional plane parameter allows you to select any of the four PS planes.

Prototype

```
BOOL WaitWhileAttrib(int Row, int Col, unsigned char AttribDatum,
    unsigned char MskDatum= 0xFF, PS_PLANE plane = FieldPlane,
    long TimeOut = INFINITE, BOOL bWaitForIR = TRUE)
```

Parameters

int Row

Row position of the attribute.

int Col

Column position of the attribute unsigned.

char AttribDatum

The 1 byte HEX value of the attribute to wait for.

unsigned char MskDatum

The 1 byte HEX value to use as a mask with the attribute. This parameter is optional. The default value is 0xFF.

PS_PLANE plane

The plane of the attribute to get. The plane can have the following values: **TextPlane**, **ColorPlane**, **FieldPlane**, and **ExfieldPlane**. See ECL Planes — Format and Content on page 429 for the content and format of the different ECL planes.

This parameter is optional. The default is FieldPlane.

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

BOOL bWaitForIR

If this value is true, after meeting the wait condition the function will wait until the OIA indicates the PS is ready to accept input. This parameter is optional and is defaulted to TRUE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// do the wait
BOOL waitOK = ps.WaitWhileAttrib(10, 16, 0xE0, 0xFF, FieldPlane, INFINITE, FALSE);

// do the processing for when the screen goes away
```

WaitForScreen

Synchronously waits for the screen described by the ECLScreenDesc parameter to appear in the Presentation Space.

Prototype

BOOL WaitForScreen(ECLScreenDesc* screenDesc, long TimeOut = INFINITE)

Parameters

ECLScreenDesc

screenDesc Object that describes the screen (see ECLScreenDesc Class on page 169).

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddCursorPos(23,1);
eclSD.AddString("LOGON");

// do the wait
int TimeOut = 5000;
BOOL waitOK = ps.WaitForScreen(eclSD, timeInt.intValue());

// do processing for the screen
```

WaitWhileScreen

Synchronously waits until the screen described by the ECLScreenDesc parameter is no longer in the Presentation Space.

Prototype

BOOL WaitWhileScreen(ECLScreenDesc* screenDesc, long TimeOut = INFINITE)

Parameters

ECLScreenDesc

screenDesc Object that describes the screen (see ECLScreenDesc Methods on page 169).

long nTimeOut

The maximum length of time in milliseconds to wait. This parameter is optional. The default is INFINITE.

Return Value

The method returns TRUE if the condition is met, or FALSE if nTimeOut (in milliseconds) has elapsed.

Note: This method will block if nTimeOut is default value (INFINITE) when the test condition would return FALSE.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddCursorPos(23,1);
eclSD.AddString("LOGON");

// do the wait
int TimeOut = 5000;
BOOL waitOK = ps.WaitWhileScreen(eclSD, timeInt.intValue());

// do processing for when the screen goes away
```

RegisterPSEvent

This member function registers an application object to receive notifications of PS update events. To use this function the application must create an object derived from either ECLPSNotify or ECLPSListener. A pointer to that object is then passed to this registration function. Any number of notify or listener objects may be registered at the same time. The order in which multiple listeners receive events is not defined and should not be assumed.

Different prototypes for this function allow different types of update events to be generated, and different levels of detail about the updates. The simplest update event is registered with an ECLPSNotify object. The type of registration produces an event for every PS update. No information about the update is generated. See the description of the ECLPSNotify object for more information.

For applications with need more information about the update, the ECLPSListener object can be registered. Registration of this object gives the application the ability to ignore some types of updates (for example, local terminal functions such as keystrokes) and to determine the region of the screen which was updated. See the

description of the ECLPSListener object for more information. When registering an ECLPSListener object, the application can optionally specify the type of updates which are to cause events.

After an ECLPSNotify or ECLPSListener object is registered with this function, it's NotifyEvent() method will be called whenever a update to the presentation space occurs. Multiple updates to the PS in a short time period may be aggregated into a single event.

The application must unregister the notify/listener object before destroying it. The object will automatically be unregistered if the ECLPS object is destroyed.

Prototype

void RegisterPSEvent(ECLPSNotify * notify)
void RegisterPSEvent(ECLPSListener * listener)
void RegisterPSEvent(ECLPSListener * listener, int type)

Parameters

ECLPSNotify *

Pointer to the ECLPSNotify object to be registered.

ECLPSListener *

Pointer to the ECLPSListener object to be registered.

int

Type of updates which will cause events:

- USER_EVENTS (local terminal functions)
- HOST_EVENTS (host updates)
- ALL_EVENTS (all updates)

Return Value

None

StartMacro

The StartMacro method runs the Z and I Emulator for Windows macro file indicated by the MacroName parameter.

Prototype

void StartMacro(String MacroName)

Parameters

String MacroName

Name of macro file located in the Z and I Emulator for Windows user-class application data directory (specified at installation), without the file extension. This method does not support long file names.

Return Value

None

Usage Notes

You must use the short file name for the macro name. This method does not support long file names.

Example

The following example shows how to start a macro.

```
Dim PS as Object

Set PS = CreateObject("ZIEWin.autECLPS")
PS.StartMacro "mymacro"
```

UnregisterPSEvent

This member function unregisters an application object previously registered with the RegisterPSEvent function. An object registered to receive events should not be destroyed without first calling this function to unregister it. If the specific object is not currently registered, no action is taken and no error occurs.

When an ECLPSNotify or ECLPSListener object is unregistered its NotifyStop() method is called.

Prototype

void UnregisterPSEvent(ECLPSNotify * notify)
void UnregisterPSEvent(ECLPSListener * listener)
void UnregisterPSEvent(ECLPSListener * listener, int type)

Parameters

ECLPSNotify *

Pointer to the ECLPSNotify object to be unregistered.

ECLPSListener *

Pointer to the ECLPSListener object to be unregistered.

int

Type of updates which where registered:

- USER_EVENTS (local terminal functions)
- HOST_EVENTS (host updates)
- ALL_EVENTS (all updates)

Return Value

None

ECLPSEvent Class

ECLPSEvent objects are passed to ECLListener objects when the presentation space has been updated. This event object represents the presentation space update event and contains information about the update.

There are two sets of functions an application can use to determine the region of the presentation space which was updated. The GetStart() and GetEnd() methods return a linear position indicating the starting position and ending position of the update region in the presentation space. Linear addressing starts at 1 for the upper-left-most character and proceeds left-to-right wrapping from row to row. A corresponding set of functions (GetStartRow, GetStartCol, GetEndRow, GetEndCol) return the same information in row/column coordinates.

The update region includes all PS characters from the starting character to the ending character (inclusive). If the start and end position are not on the same row then the update region wraps from the end of one row to the first column of the next row. Note that the update region is (generally) not rectangular. If the starting position is greater than the ending position, the update region starts at the starting position, wraps from the last character of the screen to the first, and continues to the ending position.

Note that the update region may encompass more than the actual changed portion of the presentation space, but it is guaranteed to cover at least the changed area. When multiple PS updates occur in a short period of time the changes may be aggregated into a single event in which the update region spans the sum of all the updates.

Derivation

ECLBase > ECLEvent > ECLPSEvent

Usage Notes

Applications do not use this class directly. Applications create ECLListener-derived objects which receive ECLPSEvent objects on the ECLListener::NotifyEvent method.

ECLPSEvent Methods

The following section describes the methods that are valid for the ECLPSEvent class and all classes derived from it.

ECLPS * GetPS()
int GetType()
ULONG GetStart()
ULONG GetEnd()
ULONG GetStartRow()
ULONG GetStartCol()
ULONG GetEndRow()
ULONG GetEndCol()

GetPS

This method returns the ECLPS object which generated this event.

Prototype

ECLPS * GetPS()

Parameters

None

Return Value

ECLPS *

Pointer to ECLPS object which generated the event.

GetType

This method returns the type of presentation space update which generated this event. The return value is on of USER_EVENTS or HOST_EVENTS. User events are defined as any PS update which occurs as a local terminal function (for example, keystrokes entered by the user or by a programming API). Host events are PS updates which occur from host outbound datastreams.

Prototype

int GetType()

Parameters

None

Return Value

int

Returns USER_EVENTS or HOST_EVENTS constants.

GetStart

This method returns the linear location in the presentation space of the start of the update region. Note that the row/column coordinate of this location is dependant on the number of columns currently defined for the presentation space. If this value is greater than that returned by GetEnd(), then the update region starts at this location, wraps at the end of the screen to the beginning of the screen, and continues to the ending position.

Prototype

ULONG GetStart()

Parameters

None

Return Value

ULONG

Linear position of start of the update region.

GetEnd

This method returns the linear location in the presentation space of the end of the update region. Note that the row/column coordinate of this location is dependant on the number of columns currently defined for the presentation space. If this value is less than that returned by GetStart(), then the update region starts at the GetStart() location, wraps at the end of the screen to the beginning of the screen, and continues to this position.

Prototype

ULONG GetEnd()

Parameters

None

Return Value

ULONG

Linear position of end of the update region.

GetStartRow

This method returns the row number in the presentation space of the start of the update region. If the starting row/column position is greater than that of the ending row/column position, then the update region starts at this location, wraps at the end of the screen to the beginning of the screen, and continues to the ending position.

Prototype

ULONG GetStartRow()

Parameters

None

Return Value

ULONG

Row number of start of the update region.

GetStartCol

This method returns the column number in the presentation space of the start of the update region. If the starting row/column position is greater than that of the ending row/column position, then the update region starts at the starting row/column, wraps at the end of the screen to the beginning of the screen, and continues to the ending position.

Prototype

ULONG GetStartCol()

Parameters

None

Return Value

ULONG

Column number of start of the update region.

GetEndRow

This method returns the row number in the presentation space of the end of the update region. If the starting row/column position is greater than that of the ending row/column position, then the update region starts at the starting row/column, wraps at the end of the screen to the beginning of the screen, and continues to the ending row/column.

Prototype

ULONG GetEndRow()

Parameters

None

Return Value

ULONG

Row number of end of the update region.

GetEndCol

This method returns the column number in the presentation space of the end of the update region. If the starting row/column position is greater than that of the ending row/column position, then the update region starts at the starting row/column, wraps at the end of the screen to the beginning of the screen, and continues to the ending row/column.

Prototype

ULONG GetEndCol()

Parameters

None

Return Value

ULONG

Column number of end of the update region.

ECLPSListener Class

ECLPSListener is an abstract base class. An application cannot create an instance of this class directly. To use this class, the application must define its own class which is derived from ECLPSListener. The application must implement all the methods in this class.

The ECLPSListener class is used to allow an application to be notified of updates to the presentation space. Events are generated whenever the host screen is updated (any data in the presentation space is changed in any plane).

This class is similar to the ECLPSNotify class in that it is used to receive notifications of PS updates. It differs however in that it receives much more information about the cause and scope of the update than the ECLPSNotify class. In general using this class will be more expensive in terms of processing time and memory since more information has to be generated with each event. For applications which need to efficiently update a visual representation of the host screen this class may be more efficient than redrawing the representation each time an update occurs. Using this class the application can update only the portion of the visual representation that has changed.

This class also differs from ECLPSNotify in that all the methods are pure virtual and therefor must be implemented by the application (there is no default implementation of any methods).

Derivation

ECLBase > ECLListener > ECLPSListener

Usage Notes

To be notified of PS updates using this class, the application must perform the following steps:

1. Define a class derived from ECLPSListener.
2. Implement all methods of the ECLPSListener-derived class.
3. Create an instance of the derived class.
4. Register the instance with the ECLPS::RegisterPSEvent() method.

After registration is complete, updates to the presentation space will cause the NotifyEvent() method of the ECLPSListener-derived class to be called. The application can then used the ECLPSEvent object supplied on the method call to determine what caused the PS update and the region of the screen affected.

Note that multiple PS updates which occurred in a short period of time may be aggregated into a single event notification.

An application can choose to provide its own constructor and destructor for the derived class. This can be useful if the application needs to store some instance-specific data in the class and pass that information as a parameter on the constructor.

If an error is detected during event registration, the NotifyError() member function is called with an ECLErr object. Events may or may not continue to be generated after an error. When event generation terminates (due to an error or some other reason) the NotifyStop() member function is called.

ECLPSListener Methods

The following section describes the methods that are valid for the ECLPSListener class and all classes derived from it. Note that all methods except the constructor and destructor are pure virtual methods.

ECLPSListener()
ECLPSListener()
virtual void NotifyEvent(ECLPSEvent * event) = 0
virtual void NotifyError(ECLPS * PSObj, ECLErr ErrObj) = 0
virtual void NotifyStop(ECLPS * PSObj, int Reason) = 0

NotifyEvent

This method is a *pure virtual* member function (the application *must* implement this function in classes derived from ECLPSListener). This method is called whenever the presentation space is updated and this object is registered to receive update events. The ECLPSEvent object passed as a parameter contains information about the event including the region of the screen that was modified. See ECLPSEvent Class on page 155 for details.

Multiple PS updates may be aggregated into a single event causing only a single call to this method. The changed region contained in the ECLPSEvent object will encompass the sum of all the modifications.

Events may be restricted to only a particular type of PS update by supplying the appropriate parameters on the ECLPS::RegisterPSEvent() method. For example the application may choose to be notified only for updates from the host and not for local keystrokes.

Prototype

virtual void NotifyEvent(ECLPSEvent * event) = 0

Parameters

ECLPSEvent *

Pointer to an ECLPSEvent object which represents the PS update.

Return Value

None

NotifyError

This method is called whenever the ECLPS object detects an error during event generation. The error object contains information about the error (see ECLErr Class on page 59). Events may continue to be generated after the error depending on the nature of the error. If the event generation stops due to an error, the NotifyStop() method is called.

This is a *pure virtual* method which the application must implement.

Prototype

virtual void NotifyError(ECLPS * PSObj, ECLErr ErrObj) = 0

Parameters

ECLPS *

Pointer to the ECLPS object which generated this event.

ECLErr

An ECLErr object which describes the error.

Return Value

None

NotifyStop

This method is called when event generation is stopped for any reason (for example, due to an error condition or a call to ECLPS::UnregisterPSEvent).

This is a *pure virtual* method which the application must implement.

The reason code parameter is currently unused and will be zero.

Prototype

virtual void NotifyStop(ECLPS * PSObj, int Reason) = 0

Parameters

ECLPS *

Pointer to the ECLPS object which generated this event.

int

Reason event generation has stopped (currently unused and will be zero).

Return Value

None

ECLPSNotify Class

ECLPSNotify is an abstract base class. An application cannot create an instance of this class directly. To use this class, the application must define its own class which is derived from ECLPSNotify. The application must implement the NotifyEvent() member function in its derived class. It may also optionally implement NotifyError() and NotifyStop() member functions.

The ECLPSNotify class is used to allow an application to be notified of updates to the presentation space. Events are generated whenever the host screen is updated (any data in the presentation space is changed in any plane).

This class is similar to the ECLPSListener class in that it is used to receive notifications of PS updates. It differs however in that it receives no information about the cause and scope of the update than the ECLPSNotify class. In general using this class will be more efficient in terms of processing time and memory since no information has to be

generated with each event. This class may be used for applications which only need notification of updates and do not need the details of what caused the event or what part of the screen was updated.

This class also differs from ECLPSListener in that default implementations are provided for the NotifyError() and NotifyStop() methods.

Derivation

ECLBase > ECLNotify > ECLPSNotify

Usage Notes

To be notified of PS updates using this class, the application must perform the following steps:

1. Define a class derived from ECLPSNotify.
2. Implement the NotifyEvent method of the ECLPSNotify-derived class.
3. Optionally implement other member functions of ECLPSNotify.
4. Create an instance of the derived class.
5. Register the instance with the ECLPS::RegisterPSEvent() method.

After registration is complete, updates to the presentation space will cause the NotifyEvent() method of the ECLPSNotify-derived class to be called.

Note that multiple PS updates which occur in a short period of time may be aggregated into a single event notification.

An application can choose to provide its own constructor and destructor for the derived class. This can be useful if the application needs to store some instance-specific data in the class and pass that information as a parameter on the constructor.

If an error is detected during event registration, the NotifyError() member function is called with an ECLErr object. Events may or may not continue to be generated after an error. When event generation terminates (due to an error or some other reason) the NotifyStop() member function is called. The default implementation of NotifyError() will present a message box to the user showing the text of the error messages retrieved from the ECLErr object.

When event notification stops for any reason (error or a call the ECLPS::UnregisterPSEvent) the NotifyStop() member function is called. The default implementation of NotifyStop() does nothing.

ECLPSNotify Methods

The following section describes the methods that are valid for the ECLPSNotify class and all classes derived from it.

ECLPSNotify()=0
~ECLPSNotify()
virtual void NotifyEvent(ECLPS * PSObj)

virtual void NotifyError(ECLPS * PSObj, ECLErr ErrObj)
virtual void NotifyStop(ECLPS * PSObj, int Reason)

NotifyEvent

This method is a *pure virtual* member function (the application **must** implement this function in classes derived from ECLPSNotify). This method is called whenever the presentation space is updated and this object is registered to receive update events.

Multiple PS updates may be aggregated into a single event causing only a single call to this method.

Prototype

virtual void NotifyEvent(ECLPS * PSObj)

Parameters

ECLPS *

Pointer to the ECLPS object which generated this event.

Return Value

None

NotifyError

This method is called whenever the ECLPS object detects an error during event generation. The error object contains information about the error (see ECLErr Class on page 59). Events may continue to be generated after the error depending on the nature of the error. If the event generation stops due to an error, the NotifyStop() method is called.

An application can choose to implement this function or allow the base ECLPSNotify class handle it. The default implementation will display the error in a message box using text supplied by the ECLErr::GetMsgText() method. If the application implements this function in its derived class it overrides this behavior.

Prototype

virtual void NotifyError(ECLPS * PSObj, ECLErr ErrObj) = 0

Parameters

ECLPS *

Pointer to the ECLPS object which generated this event.

ECLErr

An ECLErr object which describes the error.

Return Value

None

NotifyStop

This method is called when event generation is stopped for any reason (for example, due to an error condition or a call to ECLPS::UnregisterPSEvent).

The reason code parameter is currently unused and will be zero.

The default implementation of this function does nothing.

Prototype

virtual void NotifyStop(ECLPS * PSObj, int Reason) = 0

Parameters

ECLPS *

Pointer to the ECLPS object which generated this event.

int

Reason event generation has stopped (currently unused and will be zero).

Return Value

None

ECLRecoNotify Class

ECLRecoNotify can be used to implement an object which will receive and handle ECLScreenReco events. Events are generated whenever any screen in the PS is matched to an ECLScreenDesc object in ECLScreenReco. Special events are generated when event generation stops and when errors occur during event generation.

To be notified of ECLScreenReco events, the application must perform the following steps:

1. Define a class which derives from the ECLRecoNotify class.
2. Implement the NotifyEvent(), NotifyStop(), and NotifyError() methods.
3. Create an instance of the new class.
4. Register the instance with the ECLScreenReco::RegisterScreen() method.

See ECLScreenReco Class on page 178 for an example.

Derivation

ECLBase > ECLNotify > ECLRecoNotify

ECLRecoNotify Methods

Valid methods for ECLRecoNotify are listed below:

ECLRecoNotify()
~ECLRecoNotify()
void NotifyEvent(ECLPS *ps, ECLScreenDesc *sd)
void NotifyStop(ECLPS *ps, ECLScreenDesc *sd)
void NotifyError(ECLPS *ps, ECLScreenDesc *sd, ECLErr e)

ECLRecoNotify Constructor

Creates an empty instance of ECLRecoNotify.

Prototype

ECLRecoNotify()

Parameters

None

Return Value

None

Example

See ECLScreenReco Class on page 178 for an example.

ECLRecoNotify Destructor

Destroys the instance of ECLRecoNotify

Prototype

~ECLRecoNotify()

Parameters

None

Return Value

None

Example

See ECLScreenReco Class on page 178 for an example.

NotifyEvent

Called when the ECLScreenDesc registered with the ECLRecoNotify object on ECLScreenReco appears in the presentation space.

Prototype

void NotifyEvent(ECLPS *ps, ECLScreenDesc *sd)

Parameters

ECLPS ps

The ECLPS object that you registered.

ECLScreenDesc sd

ECLScreenDesc that you registered.

Return Value

None

Example

See ECLScreenReco Class on page 178 for an example.

NotifyStop

Called when the ECLScreenReco object stops monitoring its ECLPS objects for the registered ECLScreenDesc objects.

Prototype

void NotifyStop(ECLPS *ps, ECLScreenDesc *sd)

Parameters

ECLPS ps

The ECLPS object that you registered.

ECLScreenDesc sd

ECLScreenDesc that you registered.

Return Value

None

Example

See ECLScreenReco Class on page 178 for an example.

NotifyError

Called when the ECLScreenReco object encounters an error.

Prototype

void NotifyError(ECLPS *ps, ECLScreenDesc *sd, ECLErr e)

Parameters

ECLPS ps

The ECLPS object that you registered.

ECLScreenDesc sd

ECLScreenDesc that you registered.

ECLErr e

ECLErr object that contains the error information.

Return Value

None

Example

See ECLScreenReco Class on page 178 for an example.

ECLScreenDesc Class

ECLScreenDesc is the class that is used to *describe* a screen for the Host Access Class Library screen recognition technology. It uses all four major planes of the presentation space to describe it (TEXT,FIELD,EXFIELD, COLOR), as well as the cursor position.

Using the methods provided on this object, the programmer can set up a detailed description of what a given screen looks like in a host side application. Once an ECLScreenDesc object is created and set, it may be passed to either the synchronous WaitFor... methods provided on ECLPS, or it may be passed to ECLScreenReco, which fires an asynchronous event if the screen matching the ECLScreenDesc object appears in the PS.

Derivation

ECLBase > ECLScreenDesc

ECLScreenDesc Methods

Valid methods for ECLScreenDesc are listed below:

```
ECLScreenDesc()
~ECLScreenDesc()
void AddAttrib(BYTE attrib, UINT pos, PS_PLANE plane=FieldPlane);
void AddAttrib(BYTE attrib, UINT row, UINT col, PS_PLANE plane=FieldPlane);
void AddCursorPos(uint row, uint col)
void AddNumFields(uint num)
void AddNumInputFields(uint num)
void AddOIAInhibitStatus(OIAStatus type=NOTINHIBITED)
void AddString(LPCSTR s, UINT row, UINT col, BOOL caseSensitive=TRUE)
void AddStringInRect(char * str, int Top, int Left, int Bottom, int Right,
                     BOOL caseSense=TRUE)
void Clear()
```

ECLScreenDesc Constructor

Creates an empty instance of ECLScreenDesc.

Prototype

ECLScreenDesc()

Parameters

None

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddCursorPos(23,1);
eclSD.AddString("LOGON");

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

ECLScreenDesc Destructor

Destroys the instance of ECLScreenDesc.

Prototype

~ ECLScreenDesc()

Parameters

None

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddCursorPos(23,1);
eclSD.AddString("LOGON");

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
// destroy the descriptor
delete eclSD;
```

AddAttrib

Adds an attribute value at the given position to the screen description.

Prototype

```
void AddAttrib(BYTE attrib, UINT pos, PS_PLANE plane=FieldPlane);
void AddAttrib(BYTE attrib, UINT row, UINT col, PS_PLANE plane=FieldPlane);
```

Parameters

BYTE attrib

Attribute value to add.

int row

Row position.

int col

Column position.

PS_PLANE plane

Plane in which attribute resides. Valid values are: TextPlane, ColorPlane, FieldPlane, Exfield Plane, GridPlane.**TextPlane**, **ColorPlane**, **FieldPlane**, and **ExfieldPlane**. See ECL Planes — Format and Content on page 429 for the content and format of the different ECL planes.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

AddCursorPos

Sets the cursor position for the screen description to the given position.

Prototype

void AddCursorPos(uint row, uint col)

Parameters

uint row

Row position.

uint col

Column position.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

AddNumFields

Adds the number of input fields to the screen description.

Prototype

void AddNumFields(uint num)

Parameters

uint num

Number of fields.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

AddNumInputFields

Adds the number of input fields to the screen description.

Prototype

void AddNumInputFields(uint num)

Parameters

uint num

Number of input fields.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

AddOIAInhibitStatus

Sets the type of OIA monitoring for the screen description.

Prototype

void AddOIAInhibitStatus(OIAStatus type=NOTINHIBITED)

Parameters

OIAStatus type

Type of OIA status. Current valid values are DONTCARE and NOTINHIBITED.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;
```

```
// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

AddString

Adds a string at the given location to the screen description. If row and column are not provided, string may appear anywhere in the PS.

Note: Negative values are absolute positions from the bottom of the PS. For example, row=-2 is row 23 out of 24 rows.

Prototype

void AddString(LPCSTR s, UINT row, UINT col, BOOL caseSensitive=TRUE)

Parameters

LPCSTR s

String to add.

uint row

Row position.

uint col

Column position.

BOOL caseSense

If this value is TRUE, the strings are added as case-sensitive. This parameter is optional. The default is TRUE.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
```

```
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

AddStringInRect

Adds a string in the given rectangle to the screen description.

Prototype

void AddStringInRect(char * str, int Top, int Left, int Bottom, int Right,
BOOL caseSense=TURE)

Parameters

char * str

String to add.

int Top

Upper left row position. This parameter is optional. The default is the first row.

int Left

Upper left column position. This parameter is optional. The default is the first column.

int Bottom

Lower right row position. This parameter is optional. The default is the last row.

int Right

Lower right column position. This parameter is optional. The default is the last column.

BOOL caseSense

If this value is TRUE, the strings are added as case-sensitive. This parameter is optional. The default is TRUE.

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
```

```
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());
```

Clear

Removes all description elements from the screen description.

Prototype

void Clear()

Parameters

None

Return Value

None

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45) ;
eclSD.AddNumInputFields(17) ;
AddOIAInhibitStatus(NOTINHIBITED) ;
eclSD.AddString("LOGON"., 23, 11, TRUE) ;
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE) ;

// do the wait
int TimeOut = 5000;
BOOL waitOK = eclPS.WaitForScreen(eclSD, timeInt.intValue());

// do processing for the screen

eclSD.Clear() // start over for a new screen
```

ECLScreenReco Class

The ECLScreenReco class is the engine for the Host Access Class Library screen recognition system. It contains the methods for adding and removing descriptions of screens. It also contains the logic for recognizing those screens and for asynchronously calling back to your handler code for those screens.

Think of an object of the ECLScreenReco class as a unique *recognition set*. The object can have multiple ECLPS objects that it watches for screens, multiple screens to look for, and multiple callback points to call when it sees a screen in any of the ECLPS objects.

All you need to do is set up your ECLScreenReco objects at the start of your application, and when any screen appears in any ECLPS that you want to monitor, your code will get called by ECLScreenReco. You do absolutely no legwork in monitoring screens!

Here's an example of a common implementation:

```
class MyApp {
ECLPS myECLPS('A'); // My main HACL PS object
ECLScreenReco myScreenReco(); // My screen reco object
ECLScreenDesc myScreenDesc(); // My screen descriptor
MyRecoCallback myCallback(); // My GUI handler

MyApp() {
// Save the number of fields for below
ECLFieldList *fl = myECLPS.GetFieldList()
Fl->Refresh();
int numFields = fl->GetFieldCount();

// Set up my HACL screen description object. Say the screen
// is identified by a cursor position, a key word, and the
// number of fields
myScreenDesc.AddCursorPos(23,1);
myScreenDesc.AddString("LOGON");
myScreenDesc.AddNumFields(numFields);
```

```

// Set up HACL screen reco object, it will begin monitoring here
myScreenReco.AddPS(myECLPS);
myScreenReco.RegisterScreen(&myScreenDesc, &myCallback);
}

 MyApp() {
myScreenReco.UnregisterScreen(&myScreenDesc, &myCallback);
myScreenReco.RemovePS(&eclPS);
}

public void showMainGUI() {
// Show the main application GUI, this is just a simple example
}


// ECLRecoNotify-derived inner class (the "callback" code)
```

```
class MyRecoCallback public: ECLRecoNotify {
public: void NotifyEvent(ECLScreenDesc *sd, ECLPS *ps) {
// GUI code here for the specific screen
// Maybe fire a dialog that front ends the screen
}

public void NotifyError(ECLScreenDesc *sd, ECLPS *ps, ECLErr e) {
// Error handling
}
```

```
public void NotifyStop(ECLScreenDesc *sd, ECLPS *ps, int Reason) {
// Possible stop monitoring, not essential
}
}

}

int main() {
MyApp app = new MyApp();
app.showMainGUI();
}
```

Derivation

ECLBase > ECLScreenReco

ECLScreenReco Methods

The following methods are valid for ECLScreenReco:

ECLScreenReco()

~ECLScreenReco()

AddPS(ECLPS*)

IsMatch(ECLPS*, ECLScreenDesc*)

RegisterScreen(ECLScreenDesc*, ECLRecoNotify*)

RemovePS(ECLPS*)

UnregisterScreen(ECLScreenDesc*)

ECLScreenReco Constructor

Creates an empty instance of ECLScreenReco

Prototype

ECLScreenReco()

Parameters

None

Return Value

None

Example

See the example of a common implementation provided in ECLScreenReco Class on page 178.

ECLScreenReco Destructor

Destroys the instance of ECLScreenReco

Prototype

~ECLScreenReco()

Parameters

None

Return Value

None

Example

See the example of a common implementation provided in ECLScreenReco Class on page 178.

AddPS

Adds Presentation Space object to monitor.

Prototype

AddPS(ECLPS*)

Parameters

ECLPS*

PS object to monitor.

Return Value

None

Example

See the example of a common implementation provided in ECLScreenReco Class on page 178.

IsMatch

Static member method that allows for passing an ECLPS object and an ECLScreenDesc object and determining if the screen description matches the PS. It is provided as a static method so any routine can call it without creating an ECLScreenReco object.

Prototype

IsMatch(ECLPS*, ECLScreenDesc*)

Parameters

ECLPS*

ECLPS object to compare.

ECLScreenDesc*

ECLScreenDesc object to compare.

Return Value

TRUE if the screen in PS matches, FALSE otherwise.

Example

```
// set up PS
ECLPS ps = new ECLPS('A');

// set up screen description
ECLScreenDesc eclSD = new ECLScreenDesc();
eclSD.AddAttrib(0xe8, 1, 1, ColorPlane);
eclSD.AddCursorPos(23,1);
eclSD.AddNumFields(45);
eclSD.AddNumInputFields(17);
AddOIAInhibitStatus(NOTINHIBITED);
eclSD.AddString("LOGON"., 23, 11, TRUE);
eclSD.AddStringInRect("PASSWORD", 23, 1, 24, 80, FALSE);
if(ECLScreenReco::IsMatch(ps,eclSD)) {
        // Handle Screen Match here . . .
}
```

RegisterScreen

Begins monitoring all ECLPS objects added to the screen recognition object for the given screen description. If the screen appears in the PS, the NotifyEvent method on the ECLRecoNotify object will be called.

Prototype

RegisterScreen(ECLScreenDesc*, ECLRecoNotify*)

Parameters

ECLScreenDesc*

Screen description object to register.

ECLRecoNotify*

Object that contains the callback code for the screen description.

Return Value

None

Example

See the example of a common implementation provided in ECLScreenReco Class on page 178.

RemovePS

Removes the ECLPS object from screen recognition monitoring.

Prototype

RemovePS(ECLPS*)

Parameters

ECLPS*

ECLPS object to remove.

Return Value

None

Example

See the example of a common implementation provided in ECLScreenReco Class on page 178.

UnregisterScreen

Removes the screen description and its callback code from screen recognition monitoring.

Prototype

UnregisterScreen(ECLScreenDesc*)

Parameters

ECLScreenDesc*

Screen description object to remove.

Return Value

None

Example

See the example of a common implementation provided in ECLScreenReco Class on page 178.

ECLSession Class

ECLSession provides general emulator connection-related services and contains pointers to instances of other objects in the Host Access Class Library.

Derivation

ECLBase > ECLConnection > ECLSession

Properties

None

Usage Notes

Because ECLSession is derived from ECLConnection, you can obtain all the information contained in an ECLConnection object. See ECLConnection Class on page 24 for more information.

Although the objects ECLSession contains are capable of standing on their own, pointers to them exist in the ECLSession class. When an ECLSession object is created, ECLPS, ECLOIA, ECLXfer, and ECLWinMetrics objects are also created.

ECLSession Methods

The following section describes the methods that are valid for the ECLSession class:

```
ECLSession(char Name)
ECLSession(Long Handle)
~ECLSession()
ECLPS *GetPS()
ECLOIA *GetOIA()
ECLXfer *GetXfer()
ECLWinMetrics *GetWinMetrics()
void RegisterUpdateEvent(UPDATETYPE Type, ECLUpdateNotify *UpdateNotifyClass,
    BOOL InitEvent)
void UnregisterUpdateEvent(ECLUpdateNotify *UpdateNotifyClass,)
```

ECLSession Constructor

This method creates an ECLSession object from a connection name (a single, alphabetic character from A-Z or a-z) or a connection handle. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can only be one connection "A" open at a time.

Prototype

ECLSession(char Name)

ECLSession(long Handle)

Parameters

char Name

One-character short name of the connection (A-Z or a-z).

long Handle

Handle of an ECL connection.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLSession::ECLSession      (Constructor)
//
// Build PS object from name.
//---------------------------------------------------------------------
void Sample73() {

ECLSession *Sess;       // Pointer to Session object for connection A
ECLPS      *PS;         // PS object pointer
```

```
try {
  Sess = new ECLSession('A');

  PS = Sess->GetPS();
  printf("Size of presentation space is %lu.\n", PS->GetSize());

  delete Sess;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

ECLSession Destructor

This method destroys an ECLSession object.

Prototype

~ECLSession();

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLSession::~ECLSession      (Destructor)
//
// Build PS object from name and then delete it.
//---------------------------------------------------------------------
void Sample74() {

ECLSession *Sess;       // Pointer to Session object for connection A
ECLPS      *PS;         // PS object pointer

try {
  Sess = new ECLSession('A');

  PS = Sess->GetPS();
  printf("Size of presentation space is %lu.\n", PS->GetSize());

  delete Sess;
}
catch (ECLErr Err) {
```

```
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

GetPS

This method returns a pointer to the ECLPS object contained in the ECLSession object. Use this method to access the ECLPS object methods. See ECLPS Class on page 109 for more information.

Prototype

ECLPS *GetPS()

Parameters

None

Return Value

ECLPS *

ECLPS object pointer.

Example

```
//---------------------------------------------------------------------
// ECLSession::GetPS
//
// Get PS object from session object and use it.
//---------------------------------------------------------------------
void Sample69() {

ECLSession *Sess;       // Pointer to Session object for connection A
ECLPS      *PS;         // PS object pointer

try {
  Sess = new ECLSession('A');

  PS = Sess->GetPS();
  printf("Size of presentation space is %lu.\n", PS->GetSize());

  delete Sess;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

GetOIA

This method returns a pointer to the ECLOIA object contained in the ECLSession object. Use this method to access the ECLOIA methods. See ECLOIA Class on page 93 for more information.

Prototype

ECLOIA *GetOIA()

Parameters

None

Return Value

ECLOIA *

ECLOIA object pointer.

Example

```
//-------------------------------------------------------------------
// ECLSession::GetOIA
//
// Get OIA object from session object and use it.
//-------------------------------------------------------------------
void Sample70() {

ECLSession *Sess;       // Pointer to Session object for connection A
ECLOIA     *OIA;        // OIA object pointer

try {
  Sess = new ECLSession('A');

  OIA = Sess->GetOIA();
  if (OIA->InputInhibited() == NotInhibited)
    printf("Input is not inhibited.\n");
  else
    printf("Input is inhibited.\n");

  delete Sess;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

GetXfer

This method returns a pointer to the ECLXfer object contained in the ECLSession object. Use this method to access the ECLXfer methods. See ECLXfer Class on page 220 for more information.

Prototype

ECLXfer *GetXfer()

Parameters

None

Return Value

ECLXfer *

ECLXfer object pointer.

Example

```
//-------------------------------------------------------------------
// ECLSession::GetXfer
//
// Get OIA object from session object and use it.
//-------------------------------------------------------------------
void Sample71() {

ECLSession *Sess;       // Pointer to Session object for connection A
ECLXfer    *Xfer;       // Xfer object pointer

try {
  Sess = new ECLSession('A');

  Xfer = Sess->GetXfer();
  Xfer->SendFile("c:\\autoexec.bat", "AUTOEXEC BAT A", "(ASCII CRLF");

  delete Sess;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

GetWinMetrics

This method returns a pointer to the ECLWinMetrics object contained in the ECLSession object. Use this method to access the ECLWinMetrics methods. See ECLWinMetrics Class on page 196 for more information.

Prototype

ECLWinMetrics *GetWinMetrics()

Parameters

None

Return Value

ECLWinMetrics *

ECLWinMetrics object pointer.

Example

```
//-------------------------------------------------------------------
// ECLSession::GetWinMetrics
//
// Get WinMetrics object from session object and use it.
//-------------------------------------------------------------------
void Sample72() {

ECLSession *Sess;       // Pointer to Session object for connection A
ECLWinMetrics *Metrics; // WinMetrics object pointer

try {
  Sess = new ECLSession('A');

  Metrics = Sess->GetWinMetrics();
  printf("Window height is %lu pixels.\n", Metrics->GetHeight());

  delete Sess;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}
} // end sample
```

GetPageSettings

This method returns a pointer to the ECLPageSettings object contained in the ECLSession object. Use this method to access the ECLPageSettings methods. See ECLPageSettings Class on page 226 for more information.

Prototype

ECLPageSettings *GetPageSettings() const;

Parameters

None

Return Value

ECLPageSettings *

ECLPageSettings object pointer.

Example

```
//-------------------------------------------------------------------
// ECLSession::GetPageSettings
//
// Get PageSettings object from session object and use it.
//-------------------------------------------------------------------
void Sample124() {
   ECLSession *Sess;       // Pointer to Session object for connection A
   ECLPageSettings *PgSet; // PageSettings object pointer

   try {
      Sess = new ECLSession('A');
      PgSet = Sess->GetPageSettings();
      printf("FaceName = %s\n", PgSet->GetFontFaceName());
      delete Sess;
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

GetPrinterSettings

This method returns a pointer to the ECLPrinterSettings object contained in the ECLSession object. Use this method to access the ECLPrinterSettings methods. See ECLPageSettings Class on page 226 for more information.

Prototype

ECLPrinterSettings *GetPrinterSettings() const;

Parameters

None

Return Value

ECLPrinterSettings *

ECLPrinterSettings object pointer.

Example

```
//-------------------------------------------------------------------
// ECLSession::GetPrinterSettings
//
// Get PrinterSettings object from session object and use it.
//-------------------------------------------------------------------
void Sample125() {
   ECLSession *Sess;        // Pointer to Session object for connection A
   ECLPrinterSettings *PrSet; // PrinterSettings object pointer

   try {
      Sess = new ECLSession('A');
      PrSet = Sess->GetPrinterSettings();
      if (PrSet->IsPDTMode())
         printf("PDTMode\n");
      else
         printf("Not PDTMode\n");
      delete Sess;
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

RegisterUpdateEvent

Deprecated. See ECLPS::RegisterPSEvent in RegisterPSEvent on page 152.

UnregisterUpdateEvent

Deprecated. See ECLPS::UnregisterPSEvent in UnregisterPSEvent on page 154.

ECLStartNotify Class

ECLStartNotify is an abstract base class. An application cannot create an instance of this class directly. To use this class, the application must define its own class which is derived from ECLStartNotify. The application must implement the NotifyEvent() member function in its derived class. It may also optionally implement NotifyError() and NotifyStop() member functions.

The ECLStartNotify class is used to allow an application to be notified of the starting and stopping of ZIEWin connections. Start/stop events are generated whenever a ZIEWin connection (window) is started or stopped by any means, including the ECLConnMgr start/stop methods.

To be notified of start/stop events, the application must perform the following steps:

1. Define a class derived from ECLStartNotify.
2. Implement the derived class and implement the NotifyEvent() member function.
3. Optionally implement the NotifyError() and/or NotifyStop() functions.

4. Create an instance of the derived class.
5. Register the instance with the ECLConnMgr::RegisterStartEvent() function.

The example shown demonstrates how this may be done. When the above steps are complete, each time a connection is started or stopped the applications NotifyEvent() member function will be called. The function is passed two parameters giving the handle of the connection, and a BOOL start/stop indicator. The application may perform any functions required in the NotifyEvent() procedure, including calling other ECL functions. Note that the application cannot prevent the stopping of a connection; the notification is made after the session is already stopped.

If an error is detected during event generation, the NotifyError() member function is called with an ECLErr object. Events may or may not continue to be generated after an error, depending on the nature of the error. When event generation terminates (either due to an error, by calling the ECLConnMgr::UnregisterStartEvent, or by destruction of the ECLConnMgr object) the NotifyStop() member function is called. However event notification is terminated, the NotifyStop() member function is always called, and the application object is unregistered.

If the application does not provide an implementation of the NotifyError() member function, the default implementation is used (a simple message box is displayed to the user). The application can override the default behavior by implementing the NotifyError() function in the applications derived class. Likewise, the default NotifyStop() function is used if the application does not provide this function (the default behavior is to do nothing).

Note that the application can also choose to provide its own constructor and destructor for the derived class. This can be useful if the application wants to store some instance-specific data in the class and pass that information as a parameter on the constructor. For example, the application may want to post a message to an application window when a start/stop event occurs. Rather than define the window handle as a global variable (so it would be visible to the NotifyEvent() function), the application can define a constructor for the class which takes the window handle and stores it in the class member data area.

The application must not destroy the notification object while it is registered to receive events.

*Implementation Restriction:*Currently, the ECLConnMgr object allows only one notification object to be registered for a start/stop event notification. The ECLConnMgr::RegisterStartEvent will throw an error if a notify object is already registered for that ECLConnMgr object.

Derivation

ECLBase > ECLNotify > ECLStartNotify

Example

```
//---------------------------------------------------------------------
// ECLStartNotify class
//
// This sample demonstrates the use of:
//
// ECLStartNotify::NotifyEvent
// ECLStartNotify::NotifyError
```

```
// ECLStartNotify::NotifyStop
// ECLConnMgr::RegisterStartEvent
// ECLConnMgr::UnregisterStartEvent
//---------------------------------------------------------------------

//.............................................................
// Define a class derived from ECLStartNotify
//.............................................................
class MyStartNotify: public ECLStartNotify
{
public:
  // Define my own constructor to store instance data
  MyStartNotify(HANDLE DataHandle);

  // We have to implement this function
  void NotifyEvent(ECLConnMgr *CMObj, long ConnHandle,
                   BOOL Started);

  // We will take the default behaviour for these so we
  // don't implement them in our class:
  // void NotifyError (ECLConnMgr *CMObj, long ConnHandle, ECLErr ErrObject);
  // void NotifyStop (ECLConnMgr *CMObj, int Reason);
```

```
private:
  // We will store our application data handle here
  HANDLE MyDataH;
};

 //.............................................................
MyStartNotify::MyStartNotify(HANDLE DataHandle)   // Constructor
//.............................................................
{
  MyDataH = DataHandle;  // Save data handle for later use
}

//.............................................................
void MyStartNotify::NotifyEvent(ECLConnMgr *CMObj, long ConnHandle,
                   BOOL Started)
//.............................................................
{
  // This function is called whenever a connection start or stops.

  if (Started)
    printf("Connection %c started.\n", CMObj->ConvertHandle2ShortName(ConnHandle));
  else
    printf("Connection %c stopped.\n", CMObj->ConvertHandle2ShortName(ConnHandle));

  return;
}

 //.............................................................
```

```
// Create the class and begin start/stop monitoring.
//.............................................................
void Sample75() {

ECLConnMgr    CMgr;     // Connection manager object
MyStartNotify *Event;   // Ptr to my event handling object
HANDLE InstData;      // Handle to application data block (for example)

try {
  Event = new MyStartNotify(InstData);  // Create event handler

  CMgr.RegisterStartEvent(Event);       // Register to get events
```

```
  // At this point, any connection start/stops will cause the
  // MyStartEvent::NotifyEvent() function to execute.  For
  // this sample, we put this thread to sleep during this
  // time.

  printf("Monitoring connection start/stops for 60 seconds...\n");
  Sleep(60000);

  // Now stop event generation.
  CMgr.UnregisterStartEvent(Event);
  printf("Start/stop monitoring ended.\n");

  delete Event;  // Don't delete until after unregister!
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLStartNotify Methods

The following section describes the methods that are valid for the ECLStartNotify class.

ECLStartNotfiy()

ECLStartNotify()

virtual int NotifyEvent (ECLConnMgr *CMObj, long ConnHandle,
BOOL Started) = 0

virtual void NotifyError (ECLConnMgr *CMObj, long ConnHandle,
ECLErr ErrObject)

virtual void NotifyStop (ECLConnMgr *CMObj int Reason)

NotifyEvent

This method is a pure virtual member function (the application *must* implement this function in classes derived from ECLStartNotify). This function is called whenever a connection starts or stops and the object is registered for start/stop events. The Started BOOL is TRUE if the connection is started, or FALSE if is stopped.

Prototype

```
virtual int NotifyEvent (ECLConnMgr  *CMObj, long ConnHandle,
                BOOL Started) = 0
```

Parameters

ECLConnMgr *CMObj

This is the pointer to ECLConnMgr object in which the event occurred.

long ConnHandle

This is the handle of the connection that started or stopped.

BOOL Started

This is TRUE if the connection is started, or FALSE if the connection is stopped.

Return Value

None

NotifyError

This method is called whenever the ECLConnMgr object detects an error event generation. The error object contains information about the error (see the ECLErr class description). Events may continue to be generated after the error, depending on the nature of the error. If event generation stops due to an error, the NotifyStop() function is called.

The ConnHandle contains the handle of the connection that is related to the error. This value may be zero if the error is not related to any specific connection.

An application can choose to implement this function or allow the ECLStartNotify base class to handle the error. The base class will display the error in a message box using the text supplied by the ECLErr::GetMsgText() function. If the application implements this function in its derived class it will override the base class function.

Prototype

```
virtual void NotifyError  (ECLConnMgr  *CMObj, long ConnHandle,
            ECLErr ErrObject)
```

Parameters

ECLConnMgr *CMObj

This is the ptr to ECLConnMgr object in which the error occurred.

long ConnHandle

This is the handle of the connection related to the error or zero.

ECLErr ErrObject

This is theECLErr object describing the error.

Return Value

None

NotifyStop

This method is called when event generation is stopped for any reason (for example, due to an error condition or a call to ECLConnMgr::UnregisterStartEvent).

Prototype

virtual void NotifyStop (ECLConnMgr *CMObj int Reason)

Parameters

ECLConnMgr *CMObj

This is the ptr to ECLConnMgr object that is stopping notification.

int Reason

This is the unused zero.

Return Value

None

ECLUpdateNotify Class

Deprecated. See the class descriptions in ECLPSListener Class on page 159 and ECLOIA Class on page 93.

ECLWinMetrics Class

The ECLWinMetrics class performs operations on a Z and I Emulator for Windows connection window. It allows you to perform window rectangle and position manipulation (for example, SetWindowRect, GetXpos or SetWidth), as well as window state manipulation (for example, SetVisible or IsRestored).

Derivation

ECLBase > ECLConnection > ECLWinMetrics

Properties

None

Usage Notes

Because ECLWinMetrics is derived from ECLConnection, you can obtain all the information contained in an ECLConnection object. See ECLConnection Class on page 24 for more information.

The ECLWinMetrics object is created for the connection identified upon construction. You may create an ECLWinMetrics object by passing either the connection ID (a single, alphabetical character from A-Z or a-z) or the connection handle, which is usually obtained from the ECLConnection object. There can be only one Z and I Emulator for Windows connection with a given name or handle open at a time.

Note: There is a pointer to the ECLWinMetrics object in the ECLSession class. If you just want to manipulate the connection window, create ECLWinMetrics on its own. If you want to do more, you may want to create an ECLSession object.

ECLWinMetrics Methods

The following methods apply to the ECLWinMetrics class.

ECLWinMetrics(char Name)
ECLWinMetrics(long Handle)
~ECLWinMetrics()
const char *GetWindowTitle()
void SetWindowTitle(char *NewTitle)
long GetXpos()
void SetXpos(long NewXpos)
long GetYpos()
void SetYpos(long NewYpos)
long GetWidth()
void SetWidth(long NewWidth)
long GetHeight()
void SetHeight(long NewHeight)
void GetWindowRect(Long *left, Long *top, Long *right, Long *bottom)
void SetWindowRect(Long left, Long top, Long right, Long bottom)
BOOL IsVisible()
void SetVisible(BOOL SetFlag)

BOOL Active()
void SetActive(BOOL SetFlag)
BOOL IsMinimized()
void SetMinimized()
BOOL IsMaximized()
void SetMaximized()
BOOL IsRestored()
void SetRestored()

ECLWinMetrics Constructor

This method creates an ECLWinMetrics object from a connection name or connection handle. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time.

Prototype

ECLWinMetrics(char Name)

ECLWinMetrics(long Handle)

Parameters

char Name

One-character short name of the connection (A-Z or a-z).

long Handle

Handle of an ECL connection.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::ECLWinMetrics   (Constructor)
//
// Build WinMetrics object from name.
//---------------------------------------------------------------------
void Sample77() {

ECLWinMetrics *Metrics;    // Ptr to object

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  printf("Window of connection A is %lu pixels wide.\n",
```

```
    Metrics->GetWidth());

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLWinMetrics Destructor

This method destroys a ECLWinMetrics object.

Prototype

~ECLWinMetrics()

Parameters

None

Return Value

None

Example

```
//-----------------------------------------------------------------------
// ECLWinMetrics::ECLWinMetrics   (Destructor)
//
// Build WinMetrics object from name.
//-----------------------------------------------------------------------
void Sample78() {

ECLWinMetrics *Metrics;    // Ptr to object

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  printf("Window of connection A is %lu pixels wide.\n",
    Metrics->GetWidth());

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetWindowTitle

The GetWindowTitle method returns a pointer to a null terminate string containing the title that is currently in the title bar for the connection associated with the ECLWinMetrics object. Do not assume that the string returned is persistent over time. You must either make a copy of the string or make a call to this method each time you need it.

Prototype

const char *GetWindowTitle()

Parameters

None

Return Value

Pointer to null terminated string that contains the title.

Example

```
//-------------------------------------------------------------------
// ECLWinMetrics::GetWindowTitle
//
// Display current window title of connection A.
//-------------------------------------------------------------------
void Sample79() {

ECLWinMetrics *Metrics;    // Ptr to object

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  printf("Title of connection A is: %s\n",
    Metrics->GetWindowTitle());

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetWindowTitle

The SetWindowTitle method changes the title currently in the title bar for the connection associated with the ECLWinMetrics object to the title passed in the input parameter. A null string can be used to reset the title to the default title.

Prototype

void SetWindowTitle(char *NewTitle)

Parameters

char *NewTitle

Null-terminated title string.

Return Value

None

Example

```
//-------------------------------------------------------------------
// ECLWinMetrics::SetWindowTitle
//
// Change current window title of connection A.
//-------------------------------------------------------------------
void Sample80() {

ECLWinMetrics *Metrics;    // Ptr to object

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  // Get current title
  printf("Title of connection A is: %s\n", Metrics->GetWindowTitle());

  // Set new title
  Metrics->SetWindowTitle("New Title");
  printf("New title is: %s\n", Metrics->GetWindowTitle());

  // Reset back to original title
  Metrics->SetWindowTitle("");
  printf("Returned title to: %s\n", Metrics->GetWindowTitle());

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

Usage Notes

If NewTitle is a null string, SetWindowTitle will restore the window title to its original setting.

GetXpos

The GetXpos method returns the *x* position of the upper left point of the connection window rectangle.

Prototype

long GetXpos()

Parameters

None

Return Value

long

x position of connection window.

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::GetXpos
//
// Move window 10 pixels.
//---------------------------------------------------------------------
void Sample81() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot move minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetXpos();
    Y = Metrics->GetYpos();
    Metrics->SetXpos(X+10);
    Metrics->SetYpos(Y+10);
  }

  delete Metrics;
}
```

```
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetXpos

The SetXpos method sets the *x* position of the upper left point of the connection window rectangle.

Prototype

void SetXpos(long NewXpos)

Parameters

long NewXpos

The new *x* coordinate of the window rectangle.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetXpos
//
// Move window 10 pixels.
//---------------------------------------------------------------------
void Sample83() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot move minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetXpos();
    Y = Metrics->GetYpos();
    Metrics->SetXpos(X+10);
    Metrics->SetYpos(Y+10);
  }

  delete Metrics;
}
```

```
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetYpos

The GetYpos method returns the *y* position of the upper left point of the connection window rectangle.

Prototype

long GetYpos()

Parameters

None

Return Value

long

y position of the connection window.

Example

```
a//---------------------------------------------------------------------
// ECLWinMetrics::GetYpos
//
// Move window 10 pixels.
//---------------------------------------------------------------------
void Sample82() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot move minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetXpos();
    Y = Metrics->GetYpos();
    Metrics->SetXpos(X+10);
    Metrics->SetYpos(Y+10);
  }

  delete Metrics;
}
```

```
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetYpos

The SetYpos method sets the *y* position of the upper left point of the connection window rectangle.

Prototype

void SetYpos(long NewYpos)

Parameters

long NewYpos

New *y* coordinate of the window rectangle.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetYpos
//
// Move window 10 pixels.
//---------------------------------------------------------------------
void Sample84() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot move minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetXpos();
    Y = Metrics->GetYpos();
    Metrics->SetXpos(X+10);
    Metrics->SetYpos(Y+10);
  }

  delete Metrics;
}
```

```
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetWidth

This method returns the width of the connection window rectangle.

Prototype

long GetWidth()

Parameters

None

Return Value

long

Width of the connection window.

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::GetWidth
//
// Make window 1/2 its current size.  Depending on display settings
// (Appearance->Display Setup menu) it may snap to a font that is
// not exactly the 1/2 size we specify.
//---------------------------------------------------------------------
void Sample85() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot size minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetWidth();
    Y = Metrics->GetHeight();
    Metrics->SetWidth(X/2);
    Metrics->SetHeight(Y/2);
  }
```

```
  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetWidth

The SetWidth method sets the width of the connection window rectangle.

Prototype

void SetWidth(long NewWidth)

Parameters

long NewWidth

New width of the window rectangle.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetWidth
//
// Make window 1/2 its current size.  Depending on display settings
// (Appearance->Display Setup menu) it may snap to a font that is
// not exactly the 1/2 size we specify.
//---------------------------------------------------------------------
void Sample87() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot size minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetWidth();
    Y = Metrics->GetHeight();
    Metrics->SetWidth(X/2);
    Metrics->SetHeight(Y/2);
  }
```

```
  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

GetHeight

The GetHeight method returns the height of the connection window rectangle.

Prototype

long GetHeight()

Parameters

None

Return Value

long

Height of the connection window.

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::GetHeight
//
// Make window 1/2 its current size.  Depending on display settings
// (Appearance->Display Setup menu) it may snap to a font that is
// not exactly the 1/2 size we specify.
//---------------------------------------------------------------------
void Sample86() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot size minimized or maximized window.\n");
  }
  else {
    X = Metrics->GetWidth();
    Y = Metrics->GetHeight();
    Metrics->SetWidth(X/2);
    Metrics->SetHeight(Y/2);
```

```
  }

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetHeight

This method sets the height of the connection window rectangle.

Prototype

void SetHeight(Long NewHeight)

Parameters

long NewHeight

New height of the window rectangle.

Return Value

None

Example

The following example shows how to use the SetHeight method to set the height of the connection window rectangle.

```
ECLWinMetrics   *pWM;
ECLConnList  ConnList();

// Create using connection handle of first connection in the list of
// active connections
try {
  if ( ConnList.Count() != 0 ) {
    pWM = new ECLWinMetrics(ConnList.GetFirstSession()->GetHandle());

    // Set the height
    pWM->SetHeight(6081);
  }
}
catch (ECLErr ErrObj) {
  // Just report the error text in a message box
  MessageBox( NULL, ErrObj.GetMsgText(), "Error!", MB_OK );
}
```

GetWindowRect

This method returns the bounding points of the connection window rectangle.

Prototype

void GetWindowRect(Long *left, Long *top, Long *right, Long *bottom)

Parameters

long *left

This output parameter is set to the left coordinate of the window rectangle.

long *top

This output parameter is set to the top coordinate of the window rectangle.

long *right

This output parameter is set to the right coordinate of the window rectangle.

long *bottom

This output parameter is set to the bottom coordinate of the window rectangle.

Return Value

None

Example

```
//-------------------------------------------------------------------
// ECLWinMetrics::GetWindowRect
//
// Make window 1/2 its current size.  Depending on display settings
// (Appearance->Display Setup menu) it may snap to a font that is
// not exactly the 1/2 size we specify.  Also move the window.
//-------------------------------------------------------------------
void Sample88() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y, Width, Height;

try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot size/move minimized or maximized window.\n");
  }
  else {
    Metrics->GetWindowRect(&X, &Y, &Width, &Height);
    Metrics->SetWindowRect(X+10, Y+10,         // Move window
                           Width/2, Height/2); // Size window
```

```
  }

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SetWindowRect

This method sets the bounding points of the connection window rectangle.

Prototype

void SetWindowRect(long left, long top, long right, long bottom)

Parameters

long left

The left coordinate of the window rectangle.

long top

The top coordinate of the window rectangle.

long right

The right coordinate of the window rectangle.

long bottom

The bottom coordinate of the window rectangle.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetWindowRect
//
// Make window 1/2 its current size.  Depending on display settings
// (Appearance->Display Setup menu) it may snap to a font that is
// not exactly the 1/2 size we specify.  Also move the window.
//---------------------------------------------------------------------
void Sample89() {

ECLWinMetrics *Metrics;    // Ptr to object
long X, Y, Width, Height;
```

```
try {
  Metrics = new ECLWinMetrics('A');  // Create for connection A

  if (Metrics->IsMinimized() || Metrics->IsMaximized()) {
    printf("Cannot size/move minimized or maximized window.\n");
  }
  else {
    Metrics->GetWindowRect(&X, &Y, &Width, &Height);
    Metrics->SetWindowRect(X+10, Y+10,         // Move window
                           Width/2, Height/2); // Size window
  }

  delete Metrics;
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

IsVisible

This method returns the visibility state of the connection window.

Prototype

BOOL IsVisible()

Parameters

None

Return Value

Visibility state. TRUE value if the window is visible, FALSE value if the window is not visible.

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::IsVisible
//
// Get current state of window, and then toggle it.
//---------------------------------------------------------------------
void Sample90() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsVisible(); // Get state
Metrics.SetVisible(!CurrState);  // Set state
```

```
} // end sample
```

SetVisible

This method sets the visibility state of the connection window.

Prototype

void SetVisible(BOOL SetFlag)

Parameters

BOOL SetFlag

TRUE for visible, FALSE for invisible.

Return Value

None

Example

```
//-------------------------------------------------------------------
// ECLWinMetrics::SetVisible
//
// Get current state of window, and then toggle it.
//-------------------------------------------------------------------
void Sample91() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsVisible(); // Get state
Metrics.SetVisible(!CurrState);  // Set state

} // end sample

//-------------------------------------------------------------------
```

IsActive

This method returns the focus state of the connection window.

Prototype

BOOL Active()

Parameters

None

Return Value

BOOL

Focus state. TRUE if active, FALSE if not active.

Example

```
// ECLWinMetrics::IsActive
//
// Get current state of window, and then toggle it.
//-----------------------------------------------------------------------
void Sample92() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsActive();  // Get state
Metrics.SetActive(!CurrState);   // Set state

} // end sample
```

SetActive

This method sets the focus state of the connection window.

Prototype

void SetActive(BOOL SetFlag)

Parameters

Bool SetFlag

New state. TRUE for active, FALSE for inactive.

Return Value

None

Example

The following is an example of the SetActive method.

```
ECLWinMetrics *pWM;
ECLConnList  ConnList();

// Create using connection handle of first connection in the list of
// active connections
try {
  if ( ConnList.Count() != 0 ) {
    pWM = new ECLWinMetrics(ConnList.GetFirstSession()->GetHandle());

    // Set to inactive if active
    if ( pWM->Active() )
   pWM->SetActive(FALSE);
  }
}
catch (ECLErr ErrObj) {
  // Just report the error text in a message box
  MessageBox( NULL, ErrObj.GetMsgText(), "Error!", MB_OK );
}
```

IsMinimized

This method returns the minimize state of the connection window.

Prototype

BOOL IsMinimized()

Parameters

None

Return Value

BOOL

Minimize state. TRUE value returned if the window is minimized; FALSE value returned if the window is not minimized.

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::IsMinimized
//
// Get current state of window, and then toggle it.
//---------------------------------------------------------------------
void Sample93() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsMinimized();  // Get state
if (!CurrState)
  Metrics.SetMinimized();           // Set state
```

```
else
  Metrics.SetRestored();

} // end sample
```

SetMinimized

This method sets the connection window to minimized

Prototype

void SetMinimized()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetMinimized
//
// Get current state of window, and then toggle it.
//---------------------------------------------------------------------
void Sample94() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsMinimized();  // Get state
if (!CurrState)
  Metrics.SetMinimized();           // Set state
else
  Metrics.SetRestored();

} // end sample
```

IsMaximized

This method returns the maximize state of the connection window.

Prototype

BOOL IsMaximized()

Parameters

None

Return Value

BOOL

Maximize state. TRUE value if the window is maximized; FALSE value if the window is not maximized.

Example

```
// ECLWinMetrics::IsMaximized
//
// Get current state of window, and then toggle it.
//-------------------------------------------------------------------
void Sample97() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsMaximized();  // Get state
if (!CurrState)
  Metrics.SetMaximized();           // Set state
else
  Metrics.SetMinimized();

} // end sample
```

SetMaximized

This method sets the connection window to maximized.

Prototype

void SetMaximized()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetMaximized
//
// Get current state of window, and then toggle it.
//---------------------------------------------------------------------
void Sample98() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsMaximized();  // Get state
if (!CurrState)
  Metrics.SetMaximized();           // Set state
else
  Metrics.SetMinimized();

} // end sample
```

IsRestored

This method returns the restore state of the connection window.

Prototype

BOOL IsRestored()

Parameters

None

Return Value

BOOL

Restore state. TRUE value if the window is restored; FALSE value if the window is not restored.

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::IsRestored
//
// Get current state of window, and then toggle it.
//---------------------------------------------------------------------
void Sample95() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;
```

```
CurrState = Metrics.IsRestored();  // Get state
if (!CurrState)
  Metrics.SetRestored();           // Set state
else
  Metrics.SetMinimized();

} // end sample
```

SetRestored

The SetRestored method sets the connection window to restored.

Prototype

void SetRestored()

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLWinMetrics::SetRestored
//
// Get current state of window, and then toggle it.
//---------------------------------------------------------------------
void Sample96() {

ECLWinMetrics Metrics('A');      // Window metrics class
BOOL  CurrState;

CurrState = Metrics.IsRestored();  // Get state
if (!CurrState)
  Metrics.SetRestored();           // Set state
else
  Metrics.SetMinimized();

} // end sample

//---------------------------------------------------------------------
```

ECLXfer Class

ECLXfer provides file transfer services.

Derivation

ECLBase > ECLConnection > ECLXfer

Properties

None

Usage Notes

Because ECLXfer is derived from ECLConnection, you can obtain all the information contained in an ECLConnection object. See ECLConnection Class on page 24 for more information.

The ECLXfer object is created for the connection identified upon construction. You may create an ECLXfer object by passing either the connection ID (a single, alphabetic character from A-Z or a-z) or the connection handle, which is usually obtained from the ECLConnList object. There can be only one Z and I Emulator for Windows connection with a given name or handle open at a time.

Note: There is a pointer to the ECLXfer object in the ECLSession class. If you only want to manipulate the connection window, create an ECLXfer object on its own. If you want to do more, you may want to create an ECLSession object.

ECLXfer Methods

The following section describes the methods that are valid for the ECLXfer class:

ECLXfer(char Name)
ECLXfer(long Handle)
~ECLXfer()
int SendFile(char *PCFile, char *HostFile, char *Options)
int ReceiveFile(char *PCFile, char *HostFile, char *Options)

ECLXfer Constructor

This method creates an ECLXfer object from a connection ID (a single, alphabetic character from A-Z or a-z) or a connection handle. There can be only one Z and I Emulator for Windows connection open with a given ID. For example, there can be only one connection “A” open at a time.

Prototype

ECLXfer(char Name)

ECLXfer(long Handle)

Parameters

char Name

One-character short name of the connection (A-Z or a-z).

long Handle

Handle of an ECL connection.

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLXfer::ECLXfer          (Constructor)
//
// Build ECLXfer object from a connection name.
//---------------------------------------------------------------------
void Sample99() {

ECLXfer  *Xfer;             // Pointer to Xfer object

try {
  Xfer = new ECLXfer('A');  // Create object for connection A
  printf("Created ECLXfer for connection %c.\n", Xfer->GetName());

  delete Xfer;              // Delete Xfer object
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

ECLXfer Destructor

This method destroys an ECLXfer object.

Prototype

~ECLXfer();

Parameters

None

Return Value

None

Example

```
//---------------------------------------------------------------------
// ECLXfer::~ECLXfer          (Destructor)
//
// Build ECLXfer object from a connection name.
//---------------------------------------------------------------------
void Sample100() {

ECLXfer  *Xfer;             // Pointer to Xfer object

try {
  Xfer = new ECLXfer('A');  // Create object for connection A
  printf("Created ECLXfer for connection %c.\n", Xfer->GetName());

  delete Xfer;              // Delete Xfer object
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

SendFile

This method sends a file from the workstation to the host.

Prototype

int SendFile(char *PCFile, char *HostFile, char *Options)

Parameters

char *PCFile

Pointer to a string containing the workstation file name to be sent to the host.

char *HostFile

Pointer to a string containing the host file name to be created or updated on the host.

char *Options

Pointer to a string containing the options to be used during the transfer.

Return Value

int

EHLLAPI return code as documented in *Emulator Programming* for the SendFile EHLLAPI function.

Example

```
//-------------------------------------------------------------------
// ECLXfer::SendFile
//
// Send a file to a VM/CMS host with ASCII translation.
//-------------------------------------------------------------------
void Sample101() {

ECLXfer  *Xfer;             // Pointer to Xfer object
int Rc;

try {
  Xfer = new ECLXfer('A');  // Create object for connection A

  printf("Sending file...\n");
  Rc = Xfer->SendFile("c:\\autoexec.bat", "autoexec bat a", "(ASCII CRLF QUIET");
  switch (Rc) {
  case 2:
    printf("File transfer failed, error in parameters.\n", Rc);
    break;
  case 3:
    printf("File transfer sucessfull.\n");
    break;
  case 4:
    printf("File transfer sucessfull, some records were segmented.\n");
    break;
  case 5:
    printf("File transfer failed, workstation file not found.\n");
    break;
  case 27:
    printf("File transfer cancelled or timed out.\n");
    break;
  default:
    printf("File transfer failed, code %u.\n", Rc);
    break;
  } // case

  delete Xfer;              // Delete Xfer object
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

Usage Notes

File transfer options are host-dependent. The following is a list of some of the valid host options for a VM/CMS host:

ASCII
CRLF
APPEND
LRECL
RECFM
CLEAR/NOCLEAR
PROGRESS
QUIET

Refer to *Emulator Programming* for the list of supported hosts and associated file transfer options.

ReceiveFile

This method receives a file from the host and sends the file to the workstation.

Prototype

int ReceiveFile(char *PCFile, char *HostFile, char *Options)

Parameters

char *PCFile

Pointer to a string containing the workstation file name to be sent to the host.

char *HostFile

Pointer to a string containing the host file name to be created or updated on the host.

char *Options

Pointer to a string containing the options to be used during the transfer.

Return Value

int

EHLLAPI return code as documented in *Emulator Programming* for the ReceiveFile EHLLAPI function.

Example

```
//---------------------------------------------------------------------
// ECLXfer::ReceiveFile
```

```
//
// Receive file from a VM/CMS host with ASCII translation.
//-------------------------------------------------------------------
void Sample102() {

ECLXfer  *Xfer;             // Pointer to Xfer object
int Rc;

try {
  Xfer = new ECLXfer('A');  // Create object for connection A

  printf("Receiving file...\n");
  Rc = Xfer->ReceiveFile("c:\\temp.txt", "temp text a", "(ASCII CRLF QUIET");
  switch (Rc) {
  case 2:
    printf("File transfer failed, error in parameters.\n", Rc);
    break;
  case 3:
    printf("File transfer sucessfull.\n");
    break;
  case 4:
    printf("File transfer sucessfull, some records were segmented.\n");
    break;
  case 27:
    printf("File transfer cancelled or timed out.\n");
    break;
  default:
    printf("File transfer failed, code %u.\n", Rc);
    break;
  } // case

  delete Xfer;              // Delete Xfer object
}
catch (ECLErr Err) {
  printf("ECL Error: %s\n", Err.GetMsgText());
}

} // end sample
```

Usage Notes

File transfer options are host-dependent. The following is a list of some of the valid host options for a VM/CMS host:

- ASCII
- CRLF
- APPEND
- LRECL
- RECFM
- CLEAR/NOCLEAR
- PROGRESS
- QUIET

Refer to *Emulator Programming* for the list of supported hosts and associated file transfer options.

ECLPageSettings Class

The ECLPageSettings class performs operations on the session page settings. It enables you to retrieve and configure the **File → Page Setup** dialog settings, such as CPI, LPI, and Face Name. Only the settings in the **Text** tab of the dialog are supported.

Derivation

ECLBase > ECLConnection > ECLPageSettings

Properties

None

Restrictions

The connection associated with each method must be in a particular state for the method to succeed. If the restrictions are not met, an appropriate exception is raised.

The following restrictions apply when any method of the ECLPageSettings class is invoked. If the restrictions are not met, an exception is thrown.

- The connection **Page Setup** and **Printer Setup** dialogs must not be in use.
- The connection must not be printing.
- The associated connection must not be in PDT mode.

Additional restrictions might apply for each specific method.

Usage Notes

Because ECLPageSettings is derived from ECLConnection, you can obtain all the information contained in an ECLConnection object. See ECLConnection Class on page 24 for more information.

The ECLPageSettings object is created for the connection identified upon construction. You can create an ECLPageSettings object by passing the connection ID (a single alphabetical character from **A** to **Z**) or the connection handle (usually obtained from the ECLConnection object). There can be only one Z and I Emulator for Windows connection with a given name or handle open at one time.

The ECLSession class creates an instance of this object. If the application does not need other services provided by ECLSession, you can create this object independently. Otherwise, consider creating an ECLSession object and use the objects created by ECLSession. See ECLSession Class on page 183 for more information.

Each method supports only certain connection types of the connection associated with the ECLPageSettings object. The supported connection types are provided in each method section. If a method is called on an unsupported connection, an exception is thrown. Use the method GetConnType to determine the connection type.

CPI, LPI and FontSize are dependent on the property FaceName. Therefore, if CPI, LPI, and FontSize are set before the FaceName is set, and if the values are not valid for the FaceName property, then different CPI, LPI, or FontSize values might be reconfigured in the connection. You should set the FaceName value before setting the CPI, LPI, or FontSize. Or you can query CPI, LPI, and FontSize each time you set FaceName to ensure that they use the desired values.

ECLPageSettings Methods

The following sections describe the methods that are valid for the ECLPageSettings class.

```
ECLPageSettings(char Name)
ECLPageSettings(long Handle)
~ECLPageSettings()
void SetCPI(ULONG CPI=FONT_CPI)
ULONG GetCPI() const
BOOL  IsFontCPI()
void SetLPI(ULONG LPI=FONT_LPI)
ULONG GetLPI() const
BOOL  IsFontLPI()
void SetFontFaceName(const char *const FaceName)
const char *GetFontFaceName() const
void SetFontSize(ULONG FontSize)
ULONG GetFontSize()
void SetMaxLinesPerPage(ULONG MPL)
ULONG GetMaxLinesPerPage() const
void SetMaxCharsPerLine(ULONG MPP)
ULONG GetMaxCharsPerLine() const
void RestoreDefaults(ULONG Tabs=PAGE_TEXT) const
```

Connection types

The valid connection types for the ECLPageSettings methods are as follows:

Connection Type	**String Value**
3270 display	HOSTTYPE_3270DISPLAY
5250 display	HOSTTYPE_5250DISPLAY
3270 printer	HOSTTYPE_3270PRINTER
VT (ASCII) emulation	HOSTTYPE_VT

ECLPageSettings Constructor

This method uses a connection name or handle to create an ECLPageSettings object.

Prototype

ECLPageSettings(char Name)

ECLPageSettings(long Handle)

Parameters

char Name

One-character short name of the connection. Valid values are A–Z.

long Handle

Handle of an ECL connection.

Return Value

None

Example

The following example shows how to create an ECLPageSettings object using the connection name and the connection handle.

```
void Sample108() {

   ECLPageSettings *PgSet1, *PgSet2; // Pointer to ECLPageSettings objects
   ECLConnList ConnList; // Connection list object

   try {
      // Create ECLPageSettings object for connection 'A'
      PgSet1 = new ECLPageSettings('A');
      // Create ECLPageSettings object for first connection in conn list
      ECLConnection *Connection = ConnList.GetFirstConnection();
      if (Connection != NULL) {
         PgSet2 = new ECLPageSettings(Connection->GetHandle());
         printf("PgSet#1 is for connection %c, PgSet #2 is for connection %c.\n",
                 PgSet1->GetName(), PgSet2->GetName());
         delete PgSet1;
         delete PgSet2;
      }
      else
         printf("No connections to create PageSettings object.\n");
   } catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

SetCPI

This method sets the CPI (characters per inch) value in the connection. If this method is called without any arguments, it sets the Font CPI in the connection.

Prototype

void SetCPI(ULONG CPI=FONT_CPI);

Parameters

ULONG CPI

Characters per inch. This parameter is optional. The default value is FONT_CPI.

Return Value

None

Example

```
void Sample109() {

   ECLPageSettings PgSet('A');

   PgSet.SetCPI(10);
   ULONG cpi = PgSet.GetCPI();
   printf("CPI = %ld\n", cpi);
   if (PgSet.IsFontCPI())
      printf("FontCPI\n");
   else
      printf("Not FontCPI\n");
} // end sample
```

GetCPI

This method returns the CPI (characters per inch) value of the connection. Even if **Font CPI** is selected in the associated connection, this method returns the value of the CPI selected for the font in the associated connection.

If **Font CPI** is configured in the connection, this method does not return the constant FONT_CPI . Use the IsFontCPI method to determine whether **Font CPI** is set in the connection.

Prototype

ULONG GetCPI() const;

Parameters

None

Return Value

ULONG CPI

Characters per inch.

Example

```
void Sample109() {

   ECLPageSettings PgSet('A');

   PgSet.SetCPI(10);
   ULONG cpi = PgSet.GetCPI();
   printf("CPI = %ld\n", cpi);
   if (PgSet.IsFontCPI())
      printf("FontCPI\n");
   else
      printf("Not FontCPI\n");
} // end sample
```

IsFontCPI

This method returns an indication of whether **Font CPI** is set in the connection.

Prototype

BOOL IsFontCPI();

Parameters

None

Return Value

BOOL

Possible values are as follows:

- TRUE if **Font CPI** is set in the connection.
- FALSE if **Font CPI** is not set in the connection.

Example

```
void Sample109() {

   ECLPageSettings PgSet('A');

   PgSet.SetCPI(10);
   ULONG cpi = PgSet.GetCPI();
```

```
   printf("CPI = %ld\n", cpi);
   if (PgSet.IsFontCPI())
      printf("FontCPI\n");
   else
      printf("Not FontCPI\n");
} // end sample
```

SetLPI

This method sets the LPI (lines per inch) value in the connection. If this method is called without any arguments, it sets the Font LPI in the connection.

Prototype

void SetLPI(ULONG LPI=FONT_LPI);

Parameters

ULONG LPI

Lines per inch. This parameter is optional. The default value is FONT_LPI.

Return Value

None

Example

```
void Sample110() {

   ECLPageSettings PgSet('A');

   PgSet.SetLPI(10);
   ULONG lpi = PgSet.GetLPI();
   printf("LPI = %ld\n", lpi);
   if (PgSet.IsFontLPI())
      printf("FontLPI\n");
   else
      printf("Not FontLPI\n");
} // end sample
```

GetLPI

This method returns the LPI (lines per inch) value of the connection. Even if **Font LPI** is selected in the associated connection, this method returns the value of the LPI selected for the font in the associated connection.

If **Font LPI** is configured in the connection, this method does not return the constant FONT_LPI. Use the IsFontLPI method to determine whether **Font LPI** is set in the connection.

Prototype

ULONG GetLPI() const;

Parameters

None

Return Value

ULONG LPI

Lines per inch.

Example

```
void Sample110() {

   ECLPageSettings PgSet('A');

   PgSet.SetLPI(10);
   ULONG lpi = PgSet.GetLPI();
   printf("LPI = %ld\n", lpi);
   if (PgSet.IsFontLPI())
      printf("FontLPI\n");
   else
      printf("Not FontLPI\n");
} // end sample
```

IsFontLPI

This method returns an indication of whether **Font LPI** is set in the associated connection.

Prototype

BOOL IsFontLPI();

Parameters

None

Return Value

BOOL

Possible values are as follows:

- TRUE if **Font LPI** is set in the connection.
- FALSE if **Font LPI** is not set in the connection.

Example

```
void Sample110() {

   ECLPageSettings PgSet('A');

   PgSet.SetLPI(10);
   ULONG lpi = PgSet.GetLPI();
   printf("LPI = %ld\n", lpi);
   if (PgSet.IsFontLPI())
      printf("FontLPI\n");
   else
      printf("Not FontLPI\n");
} // end sample
```

SetFontFaceName

This method sets the font face in the connection.

Prototype

void SetFontFaceName(const char *const FaceName);

Parameters

char *FaceName

A null-terminated string that contains the font face name.

Return Value

None

Example

```
void Sample111() {

   ECLPageSettings PgSet('A');
   const char *Face;

   PgSet.SetFontFaceName("Courier New");
   Face = PgSet.GetFontFaceName();
   printf("FaceName = %s\n", Face);
} // end sample
```

GetFontFaceName

This method returns a pointer to a null-terminated string. The string contains the face name of the font that is currently chosen in the page settings for the connection that is associated with the ECLPageSettings object. The method might not return the same string each time.

The string is valid only for the lifetime of the object. You must either make a copy of the string or make a call to this method each time you need it.

Prototype

const char *GetFontFaceName() const;

Parameters

None

Return Value

char *

A pointer to a null-terminated string that contains the face name of the font.

Example

```
void Sample111() {

   ECLPageSettings PgSet('A');
   const char *Face;

   PgSet.SetFontFaceName("Courier New");
   Face = PgSet.GetFontFaceName();
   printf("FaceName = %s\n", Face);
} // end sample
```

SetFontSize

This method sets the size of the font.

Prototype

void SetFontSize(ULONG FontSize);

Parameters

ULONG FontSize

Size of the font to set in the connection.

Return Value

None

SetMaxLinesPerPage

This method sets the maximum number of lines that can be printed per page.

Prototype

void SetMaxLinesPerPage(ULONG MPL);

Parameters

ULONG MPL

The maximum lines per page (Maximum Print Lines). Valid values are in the range 1–255.

Return Value

None

Example

```
void Sample113() {

   ECLPageSettings PgSet('A');

   PgSet.SetMaxLinesPerPage(40);
   ULONG MPL = PgSet.GetMaxLinesPerPage();
   printf("MaxLinesPerPage = %ld\n", MPL);
} // end sample
```

GetMaxLinesPerPage

This method returns the maximum number of lines that can be printed per page.

Prototype

ULONG GetMaxLinesPerPage() const;

Parameters

None

Return Value

ULONG

The maximum lines per page (Maximum Print Lines).

Example

```
void Sample113() {

   ECLPageSettings PgSet('A');

   PgSet.SetMaxLinesPerPage(40);
   ULONG MPL = PgSet.GetMaxLinesPerPage();
   printf("MaxLinesPerPage = %ld\n", MPL);
} // end sample
```

SetMaxCharsPerLine

This method sets the maximum number of characters that can be printed per line.

Prototype

void SetMaxCharsPerLine(ULONG MPP);

Parameters

ULONG MPP

The maximum number of characters that can be printed per line (Maximum Print Position). Valid values are in the range 1–255.

Return Value

None

Example

```
void Sample114() {

   ECLPageSettings PgSet('A');

   PgSet.SetMaxCharsPerLine(50);
   ULONG MPP = PgSet.GetMaxCharsPerLine();
   printf("MaxCharsPerLine=%ld\n", MPP);
} // end sample
```

GetMaxCharsPerLine

This method returns the maximum number of characters that can be printed per line.

Prototype

ULONG GetMaxCharsPerLine() const;

Parameters

None

Return Value

ULONG

The maximum number of characters that can be printed per line (Maximum Print Position).

Example

```
void Sample114() {

   ECLPageSettings PgSet('A');

   PgSet.SetMaxCharsPerLine(50);
   ULONG MPP = PgSet.GetMaxCharsPerLine();
   printf("MaxCharsPerLine=%ld\n", MPP);
} // end sample
```

RestoreDefaults

This method restores the system default values of the property pages specified in the nFlags field of the PageSetup panel. This is equivalent to clicking the **Default** button in the connection **Page Setup** dialog property pages.

Prototype

void RestoreDefaults(ULONG Flags=PAGE_TEXT) const;

Parameters

ULONG Flags

This parameter is optional. The following flag describes the name of the specified **Page Setup** dialog property page. This flag can be bitwise ORed to restore the property page (defined in PCSAPI32.H).

PAGE_TEXT

This flag describes the Text property page. This is the only property page currently supported.

Return Value

None

Example

```
void Sample115() {
```

```
   ECLPageSettings PgSet('A');

   PgSet.RestoreDefaults(PAGE_TEXT);
} // end sample
```

ECLPrinterSettings Class

The ECLPrinterSettings class performs operations on the printer settings of the Z and I Emulator for Windows connection. It enables you to retrieve and configure the **File → Printer Setup** dialog settings, such as Printer and PDT Mode.

Derivation

ECLBase > ECLConnection > ECLPrinterSettings

Properties

None

Restrictions

The connection associated with each method must be in a particular state for the method to succeed. If the restrictions are not met, an appropriate exception is raised.

The following restrictions apply when any method of the ECLPrinterSettings class is invoked. If the restrictions are not met, an exception is thrown.

- The connection **Page Setup** and **Printer Setup** dialogs must not be in use.
- The connection must not be printing.

Additional restrictions might apply for each specific method.

Usage Notes

Because ECLPrinterSettings is derived from ECLConnection, you can obtain all the information contained in an ECLConnection object. See ECLConnection Class on page 24 for more information.

The ECLPrinterSettings object is created for the connection identified upon construction. You can create an ECLPrinterSettings object by passing either the connection ID (a single alphabetical character from **A** to **Z**) or the connection handle (usually obtained from the ECLConnection object). There can be only one Z and I Emulator for Windows connection with a given name or handle open at one time.

The ECLSession class creates an instance of this object. If the application does not need other services provided by ECLSession, you can create this object independently. Otherwise, consider creating an ECLSession object and use the objects created by ECLSession. See ECLSession Class on page 183 for more information.

ECLPrinterSettings Methods

The following sections describe the methods that are valid for the ECLPrinterSettings class.

```
ECLPrinterSettings(char Name)
ECLPrinterSettings(long Handle)
~ECLPrinterSettings()
void SetPDTMode(BOOL PDTMode=TRUE, const char*const PDTFile = NULL)
const char *GetPDTFile() const
BOOL IsPDTMode() const
ECLPrinterSettings::PrintMode GetPrintMode() const
void SetPrtToDskAppend(const char *const FileName = NULL)
const char *GetPrtToDskAppendFile()
void SetPrtToDskSeparate(const char *const FileName = NULL)
const char *GetPrtToDskSeparateFile()
void SetSpecificPrinter(const char *const PrinterName)
void SetWinDefaultPrinter()
const char*GetPrinterName()
void SetPromptDialog(BOOL Prompt=TRUE)
BOOL IsPromptDialogEnabled()
```

ECLPrinterSettings Constructor

This method uses a connection name or handle to create an ECLPrinterSettings object.

Prototype

ECLPrinterSettings(char Name)

ECLPrinterSettings(long Handle)

Parameters

char Name

One-character short name of the connection. Valid values are A–Z.

long Handle

Handle of an ECL connection.

Return Value

None

Example

The following example shows how to create an ECLPrinterSettings object using the connection name and the connection handle.

```
void Sample116() {
   ECLPrinterSettings *PrSet1, *PrSet2; // Pointer to ECLPrinterSettings objects
   ECLConnList ConnList; // Connection list object

   try {
      // Create ECLPrinterSettings object for connection 'A'
      PrSet1 = new ECLPrinterSettings('A');
      // Create ECLPrinterSettings object for first connection in conn list
      ECLConnection *Connection = ConnList.GetFirstConnection();
      if (Connection != NULL) {
         PrSet2 = new ECLPrinterSettings(Connection->GetHandle());
         printf("PrSet#1 is for connection %c, PrSet #2 is for connection %c.\n",
            PrSet1->GetName(), PrSet2->GetName());
      delete PrSet1;
      delete PrSet2;
   } else
      printf("No connections to create PageSettings object.\n");
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

SetPDTMode

This method sets the connection in PDT mode with the given PDT file, or it sets the connection in non-PDT mode (GDI mode).

Note: If this method is called with PDTMode set to FALSE, PrintMode of the associated connection must already be SpecificPrinter or WinDefaultPrinter.

Prototype

void SetPDTMode(BOOL PDTMode=TRUE, const char *const PDTFile = NULL);

Parameters

BOOL PDTMode

This parameter is optional. Possible values are as follows:

- **TRUE** to set the connection to PDT mode. This is the default value.
- **FALSE** to set the connection in non-PDT mode.

char *PDTFile

Null-terminated string containing the name of the PDT file.

This parameter is optional. It is used only if PDTMode is TRUE. The parameter is ignored if PDTMode is FALSE.

Possible values are as follows:

- NULL

  The PDT file configured in the connection is used. If there is no PDT file already configured in the connection, this method fails with an exception. This is the default value.

- File name without the path

  PDTFile in the PDFPDT subfolder in the Z and I Emulator for Windows installation path is used.

- Fully qualified path name of the file

  If PDTFile does not exist, this method fails with an exception.

Return Value

None

Example

```
void Sample117() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPDTMode(TRUE, "epson.pdt");
      const char *PDTFile = PrSet.GetPDTFile();
      printf("PDT File = %s\n", PDTFile);
      if (PrSet.IsPDTMode())
         printf("PDTMode\n");
      else
         printf("Not PDTMode\n");
      PrSet.SetPDTMode(FALSE);
      PrSet.SetPDTMode(TRUE);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

GetPDTFile

This method returns the PDT file configured in the connection. The method might not return the same string each time.

The string is valid only for the lifetime of the object. You must either make a copy of the string or make a call to this method each time you need it.

Prototype

const char *GetPDTFile() const;

Parameters

None

Return Value

char *

Possible values are as follows:

- A null-terminated string containing the fully qualified path name of the PDT file of the connection.
- **NULL** if no PDT file is configured in the connection.

Example

```
void Sample117() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPDTMode(TRUE, "epson.pdt");
      const char *PDTFile = PrSet.GetPDTFile();
      printf("PDT File = %s\n", PDTFile);
      if (PrSet.IsPDTMode())
         printf("PDTMode\n");
      else
         printf("Not PDTMode\n");
      PrSet.SetPDTMode(FALSE);
      PrSet.SetPDTMode(TRUE);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

IsPDTMode

This method returns the state of the PDT mode of the connection.

Prototype

BOOL IsPDTMode() const;

Parameters

None

Return Value

BOOL

Possible values are as follows:

- TRUE if the connection is in PDT mode.
- FALSE if the connection is not in PDT mode.

Example

```
void Sample117() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPDTMode(TRUE, "epson.pdt");
      const char *PDTFile = PrSet.GetPDTFile();
      printf("PDT File = %s\n", PDTFile);
      if (PrSet.IsPDTMode())
         printf("PDTMode\n");
      else
         printf("Not PDTMode\n");
      PrSet.SetPDTMode(FALSE);
      PrSet.SetPDTMode(TRUE);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

GetPrintMode

This method returns an enumerated value that indicates the PrintMode of the connection. The enum data type ECLPrinterSettings::PrintMode is defined in ECLPRSET.HPP.

PrintMode can be one of the following:

- **PrtToDskAppend** (**Print to Disk-Append** mode)

  This is equivalent to selecting the **Append** option in the host session **Printer Setup → Printer → Print to Disk** dialog.

- **PrtToDskSeparate** (**Print to Disk-Separate** mode)

This is equivalent to selecting the **Separate** option in the host session **Printer Setup → Printer → Print to Disk** dialog.

- **WinDefaultPrinter** (**Windows Default Printer** mode)

  This is equivalent to selecting the **Use Windows Default Printer** option in the host session **Printer Setup** dialog.

- **SpecificPrinter** (**Specific Printer** mode)

  This is equivalent to selecting a printer in the host session **Printer Setup** dialog, while leaving **Use Windows Default Printer** unchecked.

Prototype

ECLPrinterSettings::PrintMode GetPrintMode() const;

Parameters

None

Return Value

ECLPrinterSettings::PrintMode

One of the PrintMode values defined in ECLPRSET.HPP.

Example

```
void Sample118() {

   ECLPrinterSettings PrSet('A');

   ECLPrinterSettings::PrintMode PrtMode;
   PrtMode = PrSet.GetPrintMode();
   switch (PrtMode) {
   case ECLPrinterSettings::PrtToDskAppend:
      printf("PrtToDskAppend mode\n");
      break;
   case ECLPrinterSettings::PrtToDskSeparate:
      printf("PrtToDskSeparate mode\n");
      break;
   case ECLPrinterSettings::SpecificPrinter:
      printf("SpecificPrinter mode\n");
      break;
   case ECLPrinterSettings::WinDefaultPrinter:
      printf("WinDefaultPrinter mode\n");
      break;
   }
} // end sample
```

SetPrtToDskAppend

This method sets the PrintMode to **Print to Disk-Append** mode and sets the appropriate file for this mode.

Note:

1. The associated connection must be in PDT mode.
2. The folder where this file is to be set must have write access. If it does not, this method fails with an exception.
3. If the file exists, it will be used. Otherwise, it will be created when printing is complete.

Prototype

void SetPrtToDskAppend(const char *const FileName = NULL);

Parameters

char *FileName

Null-terminated string containing the name of the **Print to Disk-Append** file. This parameter is optional.

Possible values are as follows:

- NULL

  The file that is currently configured for this PrintMode in the connection is used. If there is no file already configured in the connection, the method fails with an exception. This is the default value.

- File name, without the path

  The user-class application data directory path will be used to locate the file.

- Fully qualified path name of the file

  The directory must exist in the path, or the method will fail with an exception. It is not necessary that the file exist in the path.

Return Value

None

Example

```
void Sample119() {
```

```
   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPrtToDskAppend("dskapp.txt");
      const char *DskAppFile = PrSet.GetPrtToDskAppendFile();
      printf("Print to Disk-Append File = %s\n", DskAppFile);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

GetPrtToDskAppendFile

This method returns the file configured for **Print to Disk-Append** mode. This file is called the ***Print to Disk-Append*** file. The method might not return the same string each time.

The string is valid only for the lifetime of the object. You must either make a copy of the string or make a call to this method each time you need it.

Prototype

const char *GetPrtToDskAppendFile();

Parameters

None

Return Value

char *

Possible values are as follows:

- A null-terminated string that contains the fully qualified path name of the **Print to Disk-Append** file of the connection.
- NULL if the **Print to Disk-Append** file is not configured in the connection.

Example

```
void Sample119() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPrtToDskAppend("dskapp.txt");
      const char *DskAppFile = PrSet.GetPrtToDskAppendFile();
      printf("Print to Disk-Append File = %s\n", DskAppFile);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
```

```
    }
} // end sample
```

SetPrtToDskSeparate

This method sets the connection in **Print to Disk-Separate** mode and sets the appropriate file for this mode.

Note:

1. The associated connection must be in PDT mode.
2. The folder where this file is to be set must have write access. If it does not, this method fails with an exception.
3. The file name must not contain an extension. If it contains an extension, the method fails with an exception.

Prototype

void SetPrtToDskSeparate(const char *const FileName = NULL);

Parameters

char *FileName

Null-terminated string containing the name of the **Print to Disk-Separate** file. This parameter is optional.

Possible values are as follows:

- NULL

  The file that is currently configured for this PrintMode in the connection is used. If there is no file already configured in the connection, the method fails with an exception. This is the default value.

- File name, without the path

  The user-class application data directory path will be used to locate the file.

- Fully qualified path name of the file

  The directory must exist in the path, or the method will fail with an exception. It is not necessary that the file exist in the path.

Return Value

None

Example

```
void Sample120() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPrtToDskSeparate("dsksep");
      const char *DskSepFile = PrSet.GetPrtToDskSeparateFile();
      printf("Print to Disk-Separate File = %s\n", DskSepFile);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

GetPrtToDskSeparateFile

This method returns the file configured for **Print to Disk-Separate** mode. This file is called the ***Print to Disk-Separate*** file. The method might not return the same string each time.

The string is valid only for the lifetime of the object. You must either make a copy of the string or make a call to this method each time you need it.

Prototype

const char *GetPrtToDskSeparateFile();

Parameters

None

Return Value

char *

Possible values are as follows:

- A null-terminated string that contains the fully qualified path name of the **Print to Disk-Separate** file.
- NULL, if no **Print to Disk-Separate** file is configured in the connection.

Example

```
void Sample120() {

   ECLPrinterSettings PrSet('A');

   try {
```

```
      PrSet.SetPrtToDskSeparate("dsksep");
      const char *DskSepFile = PrSet.GetPrtToDskSeparateFile();
      printf("Print to Disk-Separate File = %s\n", DskSepFile);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

SetSpecificPrinter

This method sets the connection in SpecificPrinter mode with the printer specified in the Printer parameter.

Prototype

void SetSpecificPrinter(const char *const Printer);

Parameters

char *Printer

A null-terminated string that contains the printer name and the port name. If the printer does not exist, this method fails with an exception.

The value must have the following format:

```
<Printer name> on <Port Name>
```

For example:

- `HP LaserJet 4050 Series PCL 6 on LPT1`

Return Value

None

Example

```
void Sample121() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetSpecificPrinter("HCL InfoPrint 40 PS on Network Port");
      const char *Printer = PrSet.GetPrinterName();
      printf("Printer = %s\n", Printer);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

SetWinDefaultPrinter

This method sets the connection in WinDefaultPrinter mode—that is, the connection is made to use the Windows® default printer. If no Windows default printer is configured in the machine, the method fails with an exception.

Prototype

void SetWinDefaultPrinter();

Parameters

None

Return Value

None

Example

```
void Sample122() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetWinDefaultPrinter();
      const char *Printer = PrSet.GetPrinterName();
   printf("Windows Default Printer = %s\n", Printer);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

GetPrinterName

This method returns NULL or the name of the printer configured in the connection. The method might not return the same string each time.

The string is valid only for the lifetime of the object. You must either make a copy of the string or make a call to this method each time you need it.

PrinterName must have the following format:

```
<Printer name> on <Port Name>
```

For example:

- `HP LaserJet 4050 Series PCL 6 on LPT1`

Prototype

const char *GetPrinterName();

Parameters

None

Return Value

char *

Possible values are as follows:

- A null-terminated string that contains the name of the specific printer, if the PrintMode of the connection is SpecificPrinter.
- A null-terminated string that contains the name of the Windows default printer, if the PrintMode of the connection is WinDefaultPrinter.
- NULL if no Printer is configured in the connection, or if the PrintMode of the connection is PrtToDskAppend or PrtToDskSeparate.

Example

```
void Sample122() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetWinDefaultPrinter();
      const char *Printer = PrSet.GetPrinterName();
   printf("Windows Default Printer = %s\n", Printer);
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

SetPromptDialog

This method sets or resets the option to show the Printer Setup dialog before printing.

Prototype

void SetPromptDialog(BOOL bPrompt=TRUE);

Parameters

BOOL bPrompt

This parameter is optional. Possible values are as follows:

- TRUE to show the Printer Setup dialog before printing. This is the default value.
- FALSE to not show the Printer Setup dialog before printing.

Return Value

None

Example

```
void Sample123() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPromptDialog();
      if (PrSet.IsPromptDialogEnabled())
         printf("Prompt Dialog before Printing - Enabled\n");
      else
         printf("Prompt Dialog before Printing - Disabled\n");
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

IsPromptDialogEnabled

This method checks whether the Printer Setup dialog is shown before printing or not.

Prototype

BOOL IsPromptDialogEnabled();

Parameters

None

Return Value

BOOL

Possible values are as follows:

- TRUE if the Printer Setup dialog is shown before printing.
- FALSE if the Printer Setup dialog is not shown before printing.

Example

```
void Sample123() {

   ECLPrinterSettings PrSet('A');

   try {
      PrSet.SetPromptDialog();
      if (PrSet.IsPromptDialogEnabled())
         printf("Prompt Dialog before Printing - Enabled\n");
      else
         printf("Prompt Dialog before Printing - Disabled\n");
   }
   catch (ECLErr Err) {
      printf("ECL Error: %s\n", Err.GetMsgText());
   }
} // end sample
```

Chapter 3. Host Access Class Library Automation Objects

The Host Access Class Library Automation Objects allow the Z and I Emulator for Windows product to support Microsoft® COM-based automation technology (formerly known as OLE automation). The ECL Automation Objects are a series of automation servers that allow automation controllers, for example, Microsoft® Visual Basic®, to programmatically access Z and I Emulator for Windows data and functionality.

An example of this would be sending keys to Z and I Emulator for Windows presentation space. This can be accomplished by manually typing keys in the Z and I Emulator for Windows window, but it can also be automated through the appropriate Z and I Emulator for Windows automation server (autECLPS in this case). Using Visual Basic® you can create the autECLPS object and then call the SendKeys method in that object with the string that is to be placed in the presentation space.

In other words, applications that are enabled for controlling the automation protocol (automation controller) can control some Z and I Emulator for Windows operations (automation server). Z and I Emulator for Windows supports Visual Basic® Script, which uses ECL Automation objects. Refer to the Z and I Emulator for Windows Macro/Script support for more details.

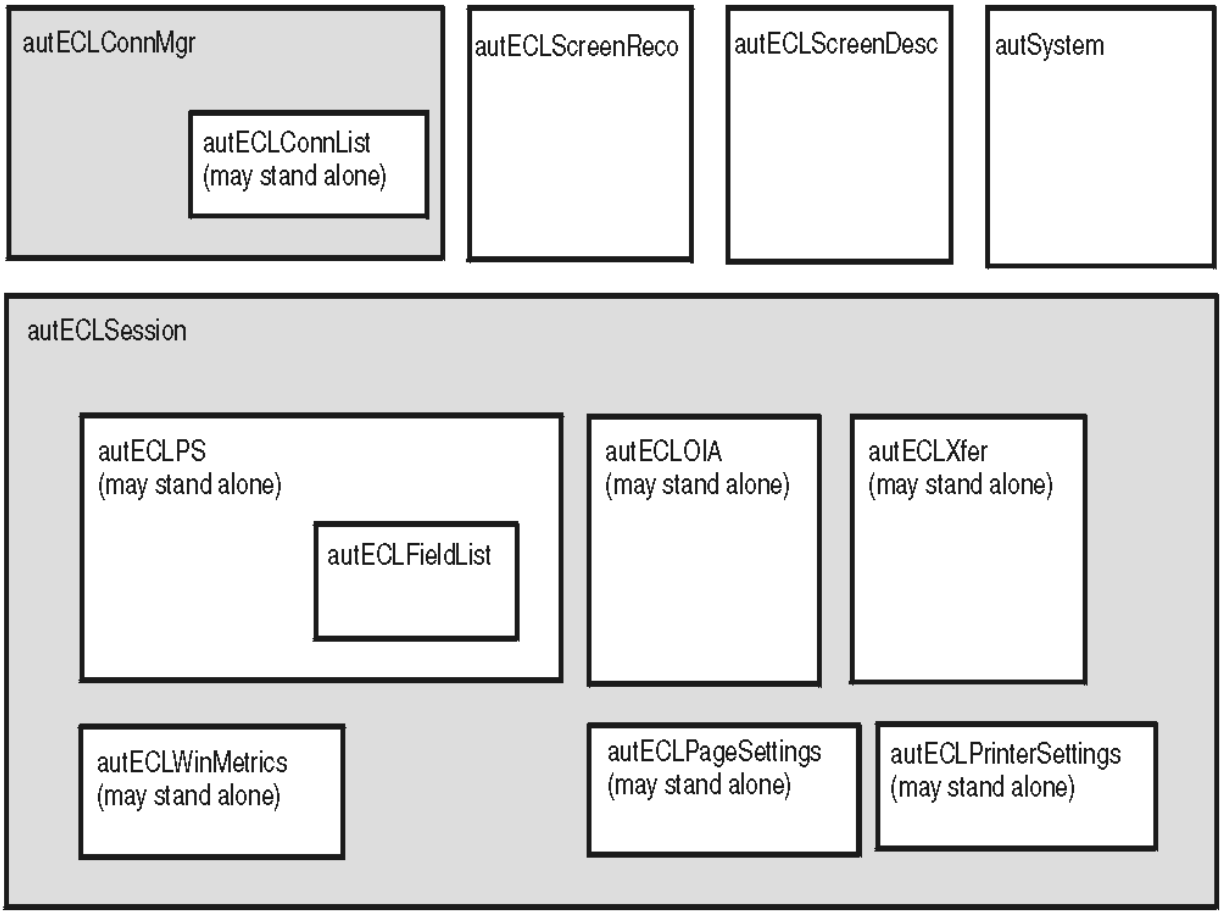
Z and I Emulator for Windows offers several automation servers to accomplish this. These servers are implemented as real-world, intuitive objects with methods and properties that control Z and I Emulator for Windows operability. Each object begins with autECL, for automation Host Access Class Library. The objects are as follows:

- autECLConnList, Connection List, on page autECLConnList Class on page 256, contains a list of Z and I Emulator for Windows connections for a given system. This is contained by autECLConnMgr, but may be created independently of autECLConnMgr.
- autECLConnMgr, Connection Manager, on page autECLConnMgr Class on page 264, provides methods and properties to manage Z and I Emulator for Windows connections for a given system. A connection in this context is a Z and I Emulator for Windows window.
- autECLFieldList, Field List, on page autECLFieldList Class on page 270, performs operations on fields in an emulator presentation space.
- autECLOIA, Operator Information Area, on page autECLOIA Class on page 281, provides methods and properties to query and manipulate the Operator Information Area. This is contained by autECLSession, but may be created independently of autECLSession.
- autECLPS, Presentation Space, on page autECLPS Class on page 298, provides methods and properties to query and manipulate the presentation space for the related Z and I Emulator for Windows connection. This contains a list of all the fields in the presentation space. It is contained by autECLSession, but may be created independently of autECLSession.
- autECLScreenDesc, Screen Description, on page autECLScreenDesc Class on page 339, provides methods and properties to describe a screen. This may be used to wait for screens on the autECLPS object or the autECLScreenReco object.
- autECLScreenReco, Screen Recognition, on page autECLScreenReco Class on page 347, provides the engine of the HACL screen recognition system.

- autECLSession, Session, on page autECLSession Class on page 352, provides general session-related functionality and information. For convenience, it contains the autECLPS, autECLOIA, autECLXfer, autECLWinMetrics, autECLPageSettings, and autECLPrinterSettings objects.
- autECLWinMetrics, Window Metrics, on page autECLWinMetrics Class on page 365, provides methods to query the window metrics of the Z and I Emulator for Windows session associated with this object. For example, use this object to minimize or maximize a Z and I Emulator for Windows window. This is contained by autECLSession, but may be created independently of autECLSession.
- autECLXfer, File Transfer, on page autECLXfer Class on page 381, provides methods and properties to transfer files between the host and the workstation over the Z and I Emulator for Windows connection associated with this file transfer object. This is contained by autECLSession, but may be created independently of autECLsession.
- autECLPageSettings, Page Settings, on page autECLPageSettings Class on page 395, provides methods and properties to query and manipulate commonly used settings such as CPI, LPI, and Face Name of the session Page Setup dialog. This is contained by autECLSession, but may be created independently of autECLSession.
- autECLPrinterSettings, Printer Settings, on page autECLPrinterSettings Class on page 406, provides methods and properties to query and manipulate settings such as the Printer and PDT modes of the session Printer Setup dialog. This is contained by autECLSession, but may be created independently of autECLSession.

Figure 3: Host Access Class Library Automation Objects on page 256 is a graphical representation of the autECL objects:

Figure 3. Host Access Class Library Automation Objects



This chapter describes each object's methods and properties in detail and is intended to cover all potential users of the automation object. Because the most common way to use the object is through a scripting application such as Visual Basic®, all examples are shown using a Visual Basic® format.

autSystem Class

The autSystem Class provides two utility functions that may be useful for use with some programming languages. See autSystem Class on page 393 for more information.

autECLConnList Class

autECLConnList contains information about all started connections. Its name in the registry is ZIEWin.autECLConnList.

The autECLConnList object contains a collection of information about connections to a host. Each element of the collection represents a single connection (emulator window). A connection in this list may be in any state (for

example, stopped or disconnected). All started connections appear in this list. The list element contains the state of the connection.

An autECLConnList object provides a static snapshot of current connections. The list is not dynamically updated as connections are started and stopped. The Refresh method is automatically called upon construction of the autECLConnList object. If you use the autECLConnList object right after its construction, your list of connections is current. However, you should call the Refresh method in the autECLConnList object before accessing its other methods if some time has passed since its construction to ensure that you have current data. Once you have called Refresh you may begin walking through the collection

Properties

This section describes the properties for the autECLConnList object.

Type	Name	Attributes
Long	Count	Read-only

The following table shows Collection Element Properties, which are valid for each item in the list.

Type	Name	Attributes
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only

Count

This is the number of connections present in the autECLConnList collection for the last call to the Refresh method. The Count property is a Long data type and is read-only. The following example uses the Count property.

```
Dim autECLConnList as Object
Dim Num as Long

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

autECLConnList.Refresh
Num = autECLConnList.Count
```

Name

This collection element property is the connection name string of the connection. Z and I Emulator for Windows only returns the short character ID (A-Z or a-z) in the string. There can be only one Z and I Emulator for Windows

connection open with a given name. For example, there can be only one connection “A” open at a time. Name is a String data type and is read-only. The following example uses the Name collection element property.

```
Dim  Str as String
Dim autECLConnList as Object
Dim Num as Long

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

autECLConnList.Refresh
Str = autECLConnList(1).Name
```

Handle

This collection element property is the handle of the connection. There can be only one Z and I Emulator for Windows connection open with a given handle. Handle is a Long data type and is read-only. The following example uses the Handle property.

```
Dim autECLConnList as Object
Dim Hand as Long

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

autECLConnList.Refresh
Hand = autECLConnList(1).Handle
```

ConnType

This collection element property is the connection type. This type may change over time. ConnType is a String data type and is read-only. The following example shows the ConnType property.

```
Dim  Type as String
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

autECLConnList.Refresh
Type = autECLConnList(1).ConnType
```

Connection types for the ConnType property are:

String Returned	Meaning
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

CodePage

This collection element property is the code page of the connection. This code page may change over time. CodePage is a Long data type and is read-only. The following example shows the CodePage property.

```
Dim  CodePage as Long
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

autECLConnList.Refresh
CodePage = autECLConnList(1).CodePage
```

Started

This collection element property indicates whether the emulator window is started. The value is True if the window is open; otherwise, it is False. Started is a Boolean data type and is read-only. The following example shows the Started property.

```
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
autECLConnList.Refresh

' This code segment checks to see if is started.
' The results are sent to a text box called Result.
If Not autECLConnList(1).Started Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

CommStarted

This collection element property indicates the status of the connection to the host. The value is True if the host is connected; otherwise, it is False. CommStarted is a Boolean data type and is read-only. The following example shows the CommStarted property.

```
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
autECLConnList.Refresh

' This code segment checks to see if communications are connected
' The results are sent to a text box called CommConn.
If Not autECLConnList(1).CommStarted Then
    CommConn.Text = "No"
Else
    CommConn.Text = "Yes"
End If
```

APIEnabled

This collection element property indicates whether the emulator is API-enabled. A connection may be enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, choose **File -> API Settings**). The value is True if the emulator is enabled; otherwise, it is False. APIEnabled is a Boolean data type and is read-only. The following example shows the APIEnabled property.

```
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
autECLConnList.Refresh

' This code segment checks to see if API is enabled.
' The results are sent to a text box called Result.
If Not autECLConnList(1).APIEnabled Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

Ready

This collection element property indicates whether the emulator window is started, API-enabled, and connected. This property checks for all three properties. The value is True if the emulator is ready; otherwise, it is False. Ready is a Boolean data type and is read-only. The following example shows the Ready property.

```
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
autECLConnList.Refresh

' This code segment checks to see if X is ready.
' The results are sent to a text box called Result.
If Not autECLConnList(1).Ready Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

autECLConnList Methods

The following section describes the methods that are valid for the autECLConnList object.

void Refresh()
Object FindConnectionByHandle(Long Hand)
Object FindConnectionByName(String Name)

Collection Element Methods

The following collection element methods are valid for each item in the list.

void StartCommunication()
void StopCommunication()

Refresh

The Refresh method gets a snapshot of all the started connections.

Note: You should call this method before accessing the autECLConnList collection to ensure that you have current data.

Prototype

void Refresh()

Parameters

None

Return Value

None

Example

The following example shows how to use the Refresh method to get a snapshot of all the started connections.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
```

FindConnectionByHandle

This method finds an element in the autECLConnList object for the handle passed in the **Hand** parameter. This method is commonly used to see if a given connection is alive in the system.

Prototype

Object FindConnectionByHandle(Long Hand)

Parameters

Long Hand

Handle to search for in the list.

Return Value

Object

Collection element dispatch object.

Example

The following example shows how to find an element by the connection handle.

```
Dim Hand as Long
Dim autECLConnList as Object
Dim ConnObj as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the collection
autECLConnList.Refresh
' Assume Hand obtained earlier
Set ConnObj = autECLConnList.FindConnectionByHandle(Hand)
Hand = ConnObj.Handle
```

FindConnectionByName

This method finds an element in the autECLConnList object for the name passed in the **Name** parameter. This method is commonly used to see if a given connection is alive in the system.

Prototype

Object FindConnectionByName(String Name)

Parameters

String Name

Name to search for in the list.

Return Value

Object

Collection element dispatch object.

Example

The following example shows how to find an element in the autECLConnList object by the connection name.

```
Dim Hand as Long
Dim autECLConnList as Object
Dim ConnObj as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the collection
autECLConnList.Refresh
' Assume Hand obtained earlier
Set ConnObj = autECLConnList.FindConnectionByName("A")
Hand = ConnObj.Handle
```

StartCommunication

The StartCommunication collection element method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Connect**.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

'Start the first session
autECLConnList.Refresh
autECLConnList(1).StartCommunication()
```

StopCommunication

The StopCommunication collection element method disconnects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Disconnect**.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to disconnect a ZIEWin emulator session from the host.

```
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

'Start the first session
autECLConnList.Refresh
autECLConnList(1).StartCommunication()
'
'Interact programmatically with host
'
autECLConnList.Refresh
'Stop the first session
autECLConnList(1).StartCommunication()
```

autECLConnMgr Class

autECLConnMgr manages all Z and I Emulator for Windows connections on a given machine. It contains methods relating to the connection management such as starting and stopping connections. It also creates an autECLConnList object to enumerate the list of all known connections on the system (see autECLConnList Class on page 256). Its name in the registry is ZIEWin.autECLConnMgr.

Properties

This section describes the properties for the autECLConnMgr object.

Type	Name	Attributes
autECLConnList Object	autECLConnList	Read-only

autECLConnList

The autECLConnMgr object contains an autECLConnList object. See autECLConnList Class on page 256 for details on its methods and properties. The property has a value of autECLConnList, which is an autECLConnList dispatch object. The following example shows this property.

```
Dim Mgr as Object
Dim Num as Long

Set Mgr = CreateObject("ZIEWin.autECLConnMgr ")

Mgr.autECLConnList.Refresh
Num = Mgr.autECLConnList.Count
```

autECLConnMgr Methods

The following section describes the methods that are valid for autECLConnMgr.

void RegisterStartEvent()
void UnregisterStartEvent()
void StartConnection(String ConfigParms)
void StopConnection(Variant Connection, [optional] String StopParms)

RegisterStartEvent

This method registers an autECLConnMgr object to receive notification of start events in sessions.

Prototype

void RegisterStartEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 270 for an example.

UnregisterStartEvent

Ends Start Event Processing

Prototype

void UnregisterStartEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 270 for an example.

StartConnection

This member function starts a new Z and I Emulator for Windows emulator window. The ConfigParms string contains connection configuration information as explained under Usage Notes on page 266.

Prototype

void StartConnection(String ConfigParms)

Parameters

String ConfigParms

Configuration string.

Return Value

None

Usage Notes

The configuration string is implementation-specific. Different implementations of the autECL objects may require different formats or information in the configuration string. The new emulator is started upon return from this call, but it may or may not be connected to the host.

For Z and I Emulator for Windows, the configuration string has the following format:

```
PROFILE=['']<filename>['] [CONNNAME=<c>] [WINSTATE=<MAX|MIN|RESTORE|HIDE>]
```

Optional parameters are enclosed in square brackets []. The parameters are separated by at least one blank. Parameters may be in upper, lower, or mixed case and may appear in any order. The meaning of each parameter is as follows:

- PROFILE=<filename>: Names the Z and I Emulator for Windows workstation profile (.WS file), which contains the configuration information. This parameter is not optional; a profile name must be supplied. If the file name contains blanks the name must be enclosed in single quotation marks. The <filename> value may be either the profile name with no extension, the profile name with the .WS extension, or the fully qualified profile name path.
- CONNNAME=<c> specifies the short ID of the new connection. This value must be a single, alphabetic character (A-Z or a-z). If this value is not specified, the next available connection ID is assigned automatically.
- WINSTATE=<MAX|MIN|RESTORE|HIDE> specifies the initial state of the emulator window. The default if this parameter is not specified is RESTORE.

Example

The following example shows how to start a new Z and I Emulator for Windows emulator window.

```
Dim Mgr as Object
Dim Obj as Object
Dim Hand as Long

Set Mgr = CreateObject("ZIEWin.autECLConnMgr ")
Mgr.StartConnection("profile=coax connname=e")
```

StopConnection

The StopConnection method stops (terminates) the emulator window identified by the connection handle. See Usage Notes on page 268 for contents of the StopParms string.

Prototype

void StopConnection(Variant Connection, [optional] String StopParms)

Parameters

Variant Connection

Connection name or handle. Legal types for this variant are short, long, BSTR, short by reference, long by reference, and BSTR by reference.

String StopParms

Stop parameters string. See usage notes for format of string. This parameter is optional.

Return Value

None

Usage Notes

The stop parameter string is implementation-specific. Different implementations of the autECL objects may require a different format and contents of the parameter string. For Z and I Emulator for Windows, the string has the following format:

```
[SAVEPROFILE=<YES|NO|DEFAULT>]
```

Optional parameters are enclosed in square brackets []. The parameters are separated by at least one blank. Parameters may be in upper, lower, or mixed case and may appear in any order. The meaning of each parameter is as follows:

- SAVEPROFILE=<YES|NO|DEFAULT> controls the saving of the current configuration back to the workstation profile (.WS file). This causes the profile to be updated with any configuration changes you may have made. If NO is specified, the connection is stopped and the profile is not updated. If YES is specified, the connection is stopped and the profile is updated with the current (possibly changed) configuration. If DEFAULT is specified, the update option is controlled by the **File->Save On Exit** emulator menu option. If this parameter is not specified, DEFAULT is used.

Example

The following example shows how to stop the emulator window identified by the connection handle.

```
Dim Mgr as Object
Dim Hand as Long

Set Mgr = CreateObject("ZIEWin.autECLConnMgr ")

' Assume we've got connections open and the Hand parm was obtained earlier
Mgr.StopConnection Hand, "saveprofile=no"
'or
Mgr.StopConnection "B", "saveprofile=no"
```

autECLConnMgr Events

The following events are valid for autECLConnMgr:

void NotifyStartEvent(By Val Handle As Variant, By Val Started As Boolean)
NotifyStartError(By Val ConnHandle As Variant)
void NotifyStartStop(Long Reason)

NotifyStartEvent

A Session has started or stopped.

Prototype

void NotifyStartEvent(By Val Handle As Variant, By Val Started As Boolean)

Note: Visual Basic will create this subroutine correctly.

Parameters

By Val Handle As Variant

Handle of the Session that started or stopped.

By Val Started As Boolean

True if the Session is started, False otherwise.

Example

See Event Processing Example on page 270 for an example.

NotifyStartError

This event occurs when an error occurs in Event Processing.

Prototype

NotifyStartError(By Val ConnHandle As Variant)

Note: Visual Basic will create this subroutine correctly.

Parameters

None

Example

See Event Processing Example on page 270 for an example.

NotifyStartStop

This event occurs when event processing stops.

Prototype

void NotifyStartStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently, this will always be 0.

Event Processing Example

The following is a short example of how to implement Start Events:

```
Option Explicit
Private WithEvents mCmgr As autECLConnMgr 'AutConnMgr added as reference
dim mSess as object

sub main()
'Create Objects
Set mCmgr = New autECLConnMgr
Set mSess = CreateObject("ZIEWin.autECLSession")
mCmgr.RegisterStartEvent 'register for PS Updates

' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
call DisplayGUI()
mCmgr.UnregisterStartEvent
set mCmgr = Nothing
set mSess = Nothing
End Sub

'This sub will get called when a session is started or stopped
Private Sub mCmgr_NotifyStartEvent(Handle as long, bStarted as Boolean)
' do your processing here
if (bStarted) then
mSess.SetConnectionByHandle Handle
end if
End Sub

'This event occurs if an error happens
Private Sub mCmgr_NotifyStartError()
'Do any error processing here
End Sub

Private Sub mCmgr_NotifyStartStop(Reason As Long)
'Do any stop processing here
End Sub
```

autECLFieldList Class

autECLFieldList performs operations on fields in an emulator presentation space. This object does not stand on its own. It is contained by autECLPS, and can only be accessed through an autECLPS object. autECLPS can stand alone or be contained by autECLSession.

autECLFieldList contains a collection of all the fields on a given presentation space. Each element of the collection contains the elements shown in Collection Element Properties on page 271.

An autECLFieldList object provides a static snapshot of what the presentation space contained when the Refresh method was called.

Note: You should call the Refresh method in the autECLFieldList object before accessing its elements to ensure that you have current field data. Once you have called Refresh, you may begin walking through the collection.

Properties

This section describes the properties and the collection element properties for the autECLFieldList object.

Type	Name	Attributes
Long	Count	Read-only

The following properties are collection element properties and are valid for each item in the list.

Type	Name	Attributes
Long	StartRow	Read-only
Long	StartCol	Read-only
Long	EndRow	Read-only
Long	EndCol	Read-only
Long	Length	Read-only
Boolean	Modified	Read-only
Boolean	Protected	Read-only
Boolean	Numeric	Read-only
Boolean	HighIntensity	Read-only
Boolean	PenDetectable	Read-only
Boolean	Display	Read-only

Count

This property is the number of fields present in the autECLFieldList collection for the last call to the Refresh method. Count is a Long data type and is read-only. The following example shows this property.

```
Dim NumFields as long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
```

```
autECLPSObj.autECLFieldList.Refresh(1)
NumFields = autECLPSObj.autECLFieldList.Count
```

StartRow

This collection element property is the row position of the first character in a given field in the autECLFieldList collection. StartRow is a Long data type and is read-only. The following example shows this property.

```
Dim StartRow as Long
Dim StartCol as Long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  StartRow = autECLPSObj.autECLFieldList(1).StartRow
  StartCol = autECLPSObj.autECLFieldList(1).StartCol
Endif
```

StartCol

This collection element property is the column position of the first character in a given field in the autECLFieldList collection. StartCol is a Long data type and is read-only. The following example shows this property.

```
Dim StartRow as Long
Dim StartCol as Long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  StartRow = autECLPSObj.autECLFieldList(1).StartRow
  StartCol = autECLPSObj.autECLFieldList(1).StartCol
Endif
```

EndRow

This collection element property is the row position of the last character in a given field in the autECLFieldList collection. EndRow is a Long data type and is read-only. The following example shows this property.

```
Dim EndRow as Long
Dim EndCol as Long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  EndRow = autECLPSObj.autECLFieldList(1).EndRow
  EndCol = autECLPSObj.autECLFieldList(1).EndCol
Endif
```

EndCol

This collection element property is the column position of the last character in a given field in the autECLFieldList collection. EndCol is a Long data type and is read-only. The following example shows this property.

```
Dim EndRow as Long
Dim EndCol as Long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  EndRow = autECLPSObj.autECLFieldList(1).EndRow
  EndCol = autECLPSObj.autECLFieldList(1).EndCol
Endif
```

Length

This collection element property is the length of a given field in the autECLFieldList collection. Length is a Long data type and is read-only. The following example shows this property.

```
Dim Len as Long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
```

```
' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  Len = autECLPSObj.autECLFieldList(1).Length
Endif
```

Modified

This collection element property indicates if a given field in the autECLFieldList collection has a modified attribute. Modified is a Boolean data type and is read-only. The following example shows this property.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  If ( autECLPSObj.autECLFieldList(1).Modified ) Then
    ' do whatever
  Endif
Endif
```

Protected

This collection element property indicates if a given field in the autECLFieldList collection has a protected attribute. Protected is a Boolean data type and is read-only. The following example shows this property.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  If ( autECLPSObj.autECLFieldList(1).Protected ) Then
    ' do whatever
  Endif
Endif
```

Numeric

This collection element property indicates if a given field in the autECLFieldList collection has a numeric input only attribute. Numeric is a Boolean data type and is read-only. The following example shows this property.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  If ( autECLPSObj.autECLFieldList(1).Numeric ) Then
    ' do whatever
  Endif
Endif
```

HighIntensity

This collection element property indicates if a given field in the autECLFieldList collection has a high intensity attribute. HighIntensity is a Boolean data type and is read-only. The following example shows this property.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  If ( autECLPSObj.autECLFieldList(1).HighIntensity ) Then
    ' do whatever
  Endif
Endif
```

PenDetectable

This collection element property indicates if a given field in the autECLFieldList collection has a pen detectable attribute. PenDetectable is a Boolean data type and is read-only. The following example shows this property.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
```

```
' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  If ( autECLPSObj.autECLFieldList(1).PenDetectable ) Then
    ' do whatever
  Endif
Endif
```

Display

This collection element property indicates whether a given field in the autECLFieldList collection has a display attribute. Display is a Boolean data type and is read-only. The following example shows this property.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh(1)
If (Not autECLPSObj.autECLFieldList.Count = 0 ) Then
  If ( autECLPSObj.autECLFieldList(1).Display ) Then
    ' do whatever
  Endif
Endif
```

autECLFieldList Methods

The following section describes the methods that are valid for the autECLFieldList object.

void Refresh()
Object FindFieldByRowCol(Long Row, Long Col)
Object FindFieldByText(String text, [optional] Long Direction, [optional] Long StartRow,
[optional] Long StartCol)

Collection Element Methods

The following collection element methods are valid for each item in the list.

String GetText()
void SetText(String Text)

Refresh

The Refresh method gets a snapshot of all the fields.

Note: You should call the Refresh method before accessing the field collection to ensure that you have current field data.

Prototype

void Refresh()

Parameters

None

Return Value

None

Example

The following example shows how to get a snapshot of all the fields for a given presentation space.

```
Dim NumFields as long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and get the number of fields
autECLPSObj.autECLFieldList.Refresh()
NumFields = autECLPSObj.autECLFieldList.Count
```

FindFieldByRowCol

This method searches the autECLFieldList object for a field containing the given row and column coordinates. The value returned is a collection element object in the autECLFieldList collection.

Prototype

Object FindFieldByRowCol(Long Row, Long Col)

Parameters

Long Row

Field row to search for.

Long Col

Field column to search for.

Return Value

Object

Dispatch object for the autECLFieldList collection item.

Example

The following example shows how to search the autECLFieldList object for a field containing the given row and column coordinates.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Dim FieldElement as Object

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList)

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and search for field at row 2 col 1
autECLPSObj.autECLFieldList.Refresh(1)
Set FieldElement = autECLPSObj.autECLFieldList.FindFieldByRowCol( 2, 1 )
FieldElement.SetText("HCL")
```

FindFieldByText

This method searches the autECLFieldList object for a field containing the string passed in as **Text**. The value returned is a collection element object in the autECLFieldList collection.

Prototype

Object FindFieldByText(String Text, [optional] Long Direction, [optional] Long StartRow, [optional] Long StartCol)

Parameters

String Text

The text string to search for.

Long StartRow

Row position in the presentation space at which to begin the search.

Long StartCol

Column position in the presentation space at which to begin the search.

Long Direction

Direction in which to search. Values are **1** for search forward, **2** for search backward

Return Value

Object

Dispatch object for the autECLFieldList collection item.

Example

The following example shows how to search the autECLFieldList object for a field containing the string passed in as text.

```
Dim autECLPSObj as Object
Dim autECLConnList as Object
Dim FieldElement as Object

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and search for field with text
autECLPSObj.autECLFieldList.Refresh(1)
set FieldElement = autECLPSObj.autECLFieldList.FindFieldByText "HCL"

' Or... search starting at row 2 col 1
set FieldElement = autECLPSObj.autECLFieldList.FindFieldByText "HCL", 2, 1
' Or... search starting at row 2 col 1 going backwards
set FieldElement = autECLPSObj.autECLFieldList.FindFieldByText "HCL", 2, 2, 1

FieldElement.SetText("Hello.")
```

GetText

The collection element method GetText retrieves the characters of a given field in an autECLFieldList item.

Prototype

String GetText()

Parameters

None

Return Value

String

Field text.

Example

The following example shows how to use the GetText method.

```
Dim autECLPSObj as Object
Dim TextStr as String

' Initialize the connection
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

autECLPSObj.autECLFieldList.Refresh()
TextStr = autECLPSObj.autECLFieldList(1).GetText()
```

SetText

This method populates a given field in an autECLFieldList item with the character string passed in as text. If the text exceeds the length of the field, the text is truncated.

Prototype

void SetText(String Text)

Parameters

String text

String to set in field

Return Value

None

Example

The following example shows how to populate the field in an autECLFieldList item with the character string passed in as text.

```
Dim NumFields as Long
Dim autECLPSObj as Object
Dim autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the list and set the first field with some text
autECLPSObj.autECLFieldList.Refresh(1)
autECLPSObj.autECLFieldList(1).SetText("HCL is a cool company")
```

autECLOIA Class

The autECLOIA object retrieves status from the Host Operator Information Area. Its name in the registry is ZIEWin.autECLOIA.

You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection may be set only once. After the connection is set, any further calls to the set connection methods cause an exception. If you do not set the connection and try to access a property or method, an exception is also raised.

Note: The autECLOIA object in the autECLSession object is set by the autECLSession object.

The following example shows how to create and set the autECLOIA object in Visual Basic.

```
DIM  autECLOIA as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
autECLOIA.SetConnectionByName("A")
```

Properties

This section describes the properties for the autECLOIA object.

Type	Name	Attributes
Boolean	Alphanumeric	Read-only
Boolean	APL	Read-only
Boolean	UpperShift	Read-only
Boolean	Numeric	Read-only
Boolean	CapsLock	Read-only
Boolean	InsertMode	Read-only
Boolean	CommErrorReminder	Read-only
Boolean	MessageWaiting	Read-only
Long	InputInhibited	Read-only

Type	Name	Attributes
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only
Boolean	NumLock	Read-only

Alphanumeric

This property queries the operator information area to determine whether the field at the cursor location is alphanumeric. Alphanumeric is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

If autECLOIA.Alphanumeric Then...
```

APL

This property queries the operator information area to determine whether the keyboard is in APL mode. APL is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if the keyboard is in APL mode
if autECLOIA.APL Then...
```

Katakana

This property queries the operator information area to determine whether Katakana characters are enabled. Katakana is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if Katakana characters are available
if autECLOIA.Katakana Then...
```

Hiragana

This property queries the operator information area to determine whether Hiragana characters are enabled. Hiragana is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if Hiragana characters are available
if autECLOIA.Hiragana Then...
```

UpperShift

This property queries the operator information area to determine whether the keyboard is in uppershift mode. Uppershift is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)
```

```
' Check if the keyboard is in uppershift mode
If autECLOIA.UpperShift then...
```

Numeric

This property queries the operator information area to determine whether the field at the cursor location is numeric. Numeric is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if the cursor location is a numeric field
If autECLOIA.Numeric Then...
```

CapsLock

This property queries the operator information area to determine if the keyboard CapsLock key is on. CapsLock is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if the caps lock
If autECLOIA.CapsLock Then...
```

InsertMode

This property queries the operator information area to determine whether if the keyboard is in insert mode. InsertMode is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)
```

```
' Check if in insert mode
If autECLOIA.InsertMode Then...
```

CommErrorReminder

This property queries the operator information area to determine whether a communications error reminder condition exists. CommErrorReminder is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if comm error
If autECLOIA.CommErrorReminder Then...
```

MessageWaiting

This property queries the operator information area to determine whether the message waiting indicator is on. This can only occur for 5250 connections. MessageWaiting is a Boolean data type and is read-only. The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object
Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if message waiting
If autECLOIA.MessageWaiting Then...
```

InputInhibited

This property queries the operator information area to determine whether keyboard input is inhibited. InputInhibited is a Long data type and is read-only. The following table shows valid values for InputInhibited.

Name	Value
Not Inhibited	0
System Wait	1
Communication Check	2
Program Check	3

Name	Value
Machine Check	4
Other Inhibit	5

The following example shows this property.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object
Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)

' Check if input inhibited
If not autECLOIA.InputInhibited = 0 Then...
```

Name

This property is the connection name string of the connection for which autECLOIA was set. Z and I Emulator for Windows only returns the short character ID (A-Z or a-z) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time. Name is a String data type and is read-only. The following example shows this property.

```
DIM  Name as String
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the name
Name = Obj.Name
```

Handle

This is the handle of the connection for which the autECLOIA object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time. Handle is a Long data type and is read-only. The following example shows this property.

```
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the handle
Hand = Obj.Handle
```

ConnType

This is the connection type for which autECLOIA was set. This type may change over time. ConnType is a String data type and is read-only. The following example shows this property.

```
DIM  Type as String
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the type
Type = Obj.ConnType
```

Connection types for the ConnType property are:

String Returned	Meaning
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

CodePage

This is the code page of the connection for which autECLOIA was set. This code page may change over time. CodePage is a Long data type and is read-only. The following example shows this property.

```
DIM  CodePage as Long
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the code page
CodePage = Obj.CodePage
```

Started

This indicates whether the emulator window is started. The value is True if the window is open; otherwise, it is False. Started is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
```

```
Obj.SetConnectionByName("A")

' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If Obj.Started = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

CommStarted

This indicates the status of the connection to the host. The value is True if the host is connected; otherwise, it is False. CommStarted is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if communications are connected
' for A.  The results are sent to a text box called
' CommConn.
If Obj.CommStarted = False Then
    CommConn.Text = "No"
Else
    CommConn.Text = "Yes"
End If
```

APIEnabled

This indicates whether the emulator is API-enabled. A connection may be enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, choose **File -> API Settings**). The value is True if the emulator is enabled; otherwise, it is False. APIEnabled is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is API enabled.
' The results are sent to a text box called Result.
If Obj.APIEnabled = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

Ready

This indicates whether the emulator window is started, API-enabled, and connected. This property checks for all three properties. The value is True if the emulator is ready; otherwise, it is False. Ready is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
If Obj.Ready = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

NumLock

This property queries the operator information area to determine if the keyboard NumLock key is on. NumLock is a Boolean data type and is read-only. The following example shows this property.

```
DIM autECLOIA as Object
    DIM autECLConnList as Object

    Set autECLOIA = CreateObject ("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject ("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByFHandle (autECLConnList (1) .Handle)

' Check if the num lock is on
If autECLOIA.NumLock Then . . .
```

autECLOIA Methods

The following section describes the methods that are valid for autECLOIA.

void RegisterOIAEvent()
void UnregisterOIAEvent()
void SetConnectionByName (String Name)
void SetConnectionByHandle (Long Handle)
void StartCommunication()
void StopCommunication()

Boolean WaitForInputReady([optional] Variant TimeOut)
Boolean WaitForSystemAvailable([optional] Variant TimeOut)
Boolean WaitForAppAvailable([optional] Variant TimeOut)
Boolean WaitForTransition([optional] Variant Index, [optional] Variant timeout)
void CancelWaits()

RegisterOIAEvent

This method registers an object to receive notification of all OIA events.

Prototype

void RegisterOIAEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 298 for an example.

UnregisterOIAEvent

Ends OIA event processing.

Prototype

void UnregisterOIAEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 298 for an example.

SetConnectionByName

The SetConnectionByName method uses the connection name to set the connection for a newly created autECLOIA object. In Z and I Emulator for Windows this connection name is the short connection ID (character A-Z or a-z). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLOIA object in autECLSession.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection (A-Z or a-z).

Return Value

None

Example

The following example shows how to use the connection name to set the connection for a newly created autECLOIA object.

```
DIM  autECLOIA as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")

' Initialize the connection
autECLOIA.SetConnectionByName("A")
' For example, see if its num lock is on
If ( autECLOIA.NumLock = True ) Then
  'your logic here...
Endif
```

SetConnectionByHandle

The SetConnectionByHandle method uses the connection handle to set the connection for a newly created autECLOIA object. In Z and I Emulator for Windows this connection handle is a Long integer. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLOIA object in autECLSession.

```
DIM  autECLOIA as Object
DIM  autECLConnList as Object

Set autECLOIA = CreateObject("ZIEWin.autECLOIA")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLOIA.SetConnectionByHandle(autECLConnList(1).Handle)
' For example, see if its num lock is on
If ( autECLOIA.NumLock = True ) Then
  'your logic here...
Endif
```

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

Long integer value of the connection to be set for the object.

Return Value

None

Example

The following example shows how to use the connection handle to set the connection for a newly created autELCOIA object.

StartCommunication

The StartCommunication collection element method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Connect**.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

None

```
Dim OIAObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set OIAObj = CreateObject("ZIEWin.autECLOIA")

' Initialize the session
autECLConnList.Refresh
OIAObj.SetConnectionByHandle(autECLConnList(1).Handle)

OIAObj.StartCommunication()
```

StopCommunication

The StopCommunication collection element method disconnects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Disconnect**.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim OIAObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set OIAObj = CreateObject("ZIEWin.autECLOIA")

' Initialize the session
autECLConnList.Refresh
OIAObj.SetConnectionByHandle(autECLConnList(1).Handle)
```

```
OIAObj.StopCommunication()
```

WaitForInputReady

The WaitForInputReady method waits until the OIA of the connection associated with the autECLOIA object indicates that the connection is able to accept keyboard input.

Prototype

Boolean WaitForInputReady([optional] Variant TimeOut)

Parameters

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLOIAObj as Object

Set autECLOIAObj = CreateObject("ZIEWin.autECLOIA")
autECLOIAObj.SetConnectionByName("A")

if (autECLOIAObj.WaitForInputReady(10000)) then
msgbox "Ready for input"
else
msgbox "Timeout Occurred"
end if
```

WaitForSystemAvailable

The WaitForSystemAvailable method waits until the OIA of the connection associated with the autECLOIA object indicates that the connection is connected to a host system.

Prototype

Boolean WaitForSystemAvailable([optional] Variant TimeOut)

Parameters

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLOIAObj as Object

Set autECLOIAObj = CreateObject("ZIEWin.autECLOIA")
autECLOIAObj.SetConnectionByName("A")

if (autECLOIAObj.WaitForSystemAvailable(10000)) then
msgbox "System Available"
else
msgbox "Timeout Occurred"
end if
```

WaitForAppAvailable

The WaitForAppAvailable method waits while the OIA of the connection associated with the autECLOIA object indicates that the application is being worked with.

Prototype

Boolean WaitForAppAvailable([optional] Variant TimeOut)

Parameters

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLOIAObj as Object

Set autECLOIAObj = CreateObject("ZIEWin.autECLOIA")
autECLOIAObj.SetConnectionByName("A")

if (autECLOIAObj.WaitForAppAvailable (10000)) then
msgbox "Application is available"
else
msgbox "Timeout Occurred"
end if
```

WaitForTransition

The WaitForTransition method waits for the OIA position specified of the connection associated with the autECLOIA object to change.

Prototype

Boolean WaitForTransition([optional] Variant Index, [optional] Variant timeout)

Parameters

Variant Index

The 1 byte Hex position of the OIA to monitor. This parameter is optional. The default is 3.

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLOIAObj as Object
Dim Index

Index = 03h

Set autECLOIAObj = CreateObject("ZIEWin.autECLOIA")
autECLOIAObj.SetConnectionByName("A")

if (autECLOIAObj.WaitForTransition(Index,10000)) then
    msgbox "Position " " Index " " of the OIA Changed"
else
    msgbox "Timeout Occurred"
end if
```

CancelWaits

Cancels any currently active wait methods.

Prototype

void CancelWaits()

Parameters

None

Return Value

None

autECLOIA Events

The following events are valid for autECLOIA:

void NotifyOIAEvent()
void NotifyOIAError()
void NotifyOIAStop(Long Reason)

NotifyOIAEvent

A given OIA has occurred.

Prototype

void NotifyOIAEvent()

Parameters

None

Example

See Event Processing Example on page 298 for an example.

NotifyOIAError

This event occurs when an error occurs in the OIA.

Prototype

void NotifyOIAError()

Parameters

None

Example

See Event Processing Example on page 298 for an example.

NotifyOIAStop

This event occurs when event processing stops.

Prototype

void NotifyOIAStop(Long Reason)

Parameters

Long Reason

Long Reason code for the stop. Currently, this will always be 0.

Event Processing Example

The following is a short example of how to implement OIA Events

```
Option Explicit
Private WithEvents myOIA As autECLOIA 'AutOIA added as reference

sub main()
'Create Objects
Set myOIA = New AutOIA

Set myConnMgr = New AutConnMgr

myOIA.SetConnectionByName ("B") 'Monitor Session B for OIA Updates

myOIA.RegisterOIAEvent 'register for OIA Notifications

' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
call DisplayGUI()

'Clean up
myOIA.UnregisterOIAEvent

Private Sub myOIA_NotifyOIAEvent()
' do your processing here
End Sub
Private Sub myOIA_NotifyOIAError()
' do your processing here
End Sub
 'This event occurs when Communications Status Notification ends
Private Sub myOIA_NotifyOIAStop(Reason As Long)
'Do any stop processing here
End Sub
```

autECLPS Class

autECLPS performs operations on a presentation space. Its name in the registry is ZIEWin.autECLPS.

You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection may be set only once. After the connection is set, any further calls to the SetConnection methods cause an exception. If you do not set the connection and try to access a property or method, an exception is also raised.

Note:

1. In the presentation space, the first row coordinate is row 1 and the first column coordinate is column 1. Therefore, the top, left position has a coordinate of row 1, column 1.
2. The autECLPS object in the autECLSession object is set by the autECLSession object.

The following is an example of how to create and set the autECLPS object in Visual Basic.

```
DIM  autECLPSObj as Object
DIM  NumRows as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
' Initialize the connection
autECLPSObj .SetConnectionByName("A")
' For example, get the number of rows in the PS
NumRows = autECLPSObj.NumRows
```

Properties

This section describes the properties of the autECLPS object.

Type	Name	Attributes
Object	autECLFieldList	Read-only
Long	NumRows	Read-only
Long	NumCols	Read-only
Long	CursorPosRow	Read-only
Long	CursorPosCol	Read-only
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only

autECLFieldList

This is the field collection object for the connection associated with the autECLPS object. See autECLFieldList Class on page 270 for details. The following example shows this object.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

' Build the field list
CurPosCol = autECLPSObj.autECLFieldList.Refresh(1)
```

NumRows

This is the number of rows in the presentation space for the connection associated with the autECLPS object. NumRows is a Long data type and is read-only. The following example shows this property.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Dim  Rows as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
Rows = autECLPSObj.NumRows
```

NumCols

This is the number of columns in the presentation space for the connection associated with the autECLPS object. NumCols is a Long data type and is read-only. The following example shows this property.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Dim  Cols as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
Cols = autECLPSObj.NumCols
```

CursorPosRow

This is the current row position of the cursor in the presentation space for the connection associated with the autECLPS object. CursorPosRow is a Long data type and is read-only. The following example shows this property.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Dim  CurPosRow as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
```

```
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
CurPosRow = autECLPSObj.CursorPosRow
```

CursorPosCol

This is the current column position of the cursor in the presentation space for the connection associated with the autECLPS object. CursorPosCol is a Long data type and is read-only. The following example shows this property.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Dim  CurPosCol as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
CurPosCol = autECLPSObj.CursorPosCol
```

Name

This is the connection name string of the connection for which autECLPS was set. Z and I Emulator for Windows only returns the short character ID (A-Z or a-z) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time. Name is a String data type and is read-only. The following example shows this property.

```
DIM  Name as String
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the name
Name = Obj.Name
```

Handle

This is the handle of the connection for which the autECLPS object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time. Handle is a Long data type and is read-only. The following example shows this property.

```
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")
```

```
' Save the connection handle
Hand = Obj.Handle
```

ConnType

This is the connection type for which autECLPS was set. This connection type may change over time. ConnType is a String data type and is read-only. The following example shows this property.

```
DIM  Type as String
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the type
Type = Obj.ConnType
```

Connection types for the ConnType property are:

String Returned	**Meaning**
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

CodePage

This is the code page of the connection for which autECLPS was set. This code page may change over time. CodePage is a Long data type and is read-only. The following example shows this property.

```
DIM  CodePage as Long
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the code page
CodePage = Obj.CodePage
```

Started

This indicates if the connection emulator window is started. The value is True if the window is open; otherwise, it is False. Started is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLPS")
```

```
' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If Obj.Started = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

CommStarted

This indicates the status of the connection to the host. The value is True if the host is connected; otherwise, it is False. CommStarted is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if communications are connected
' for A.  The results are sent to a text box called
' CommConn.
If Obj.CommStarted = False Then
    CommConn.Text = "No"
Else
    CommConn.Text = "Yes"
End If
```

APIEnabled

This indicates if the emulator is API-enabled. A connection may be enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, choose **File -> API Settings**). The value is True if API is enabled; otherwise, it is False. APIEnabled is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is API enabled.
' The results are sent to a text box called Result.
If Obj.APIEnabled = False Then
  Result.Text = "No"
Else
```

```
  Result.Text = "Yes"
End If
```

Ready

This indicates whether the emulator window is started, API enabled and connected. This checks for all three properties. The value is True if the emulator is ready; otherwise, it is False. Ready is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
If Obj.Ready = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

autECLPS Methods

The following section describes the methods that are valid for the autECLPS object.

```
void RegisterPSEvent()
void RegisterKeyEvent()
void RegisterCommEvent()
void UnregisterPSEvent()
void UnregisterKeyEvent()
void UnregisterCommEvent()
void SetConnectionByName (String Name)
void SetConnectionByHandle (Long Handle)
void SetCursorPos(Long Row, Long Col)
void SendKeys(String text, [optional] Long row, [optional] Long col)
Boolean SearchText(String text, [optional] Long Dir, [optional] Long row,
    [optional] Long col)
String GetText([optional] Long row, [optional] Long col, [optional] Long lenToGet)
void SetText(String Text, [optional] Long Row, [optional] Long Col)
void CopyText([optional] Long Row, [optional] Long Col, [optional] Long LenToGet)
void PasteText([optional] Long Row, [optional] Long Col, [optional] Long LenToGet)
String GetTextRect(Long StartRow, Long StartCol, Long EndRow, Long EndCol )
void StartCommunication()
```

```
void StopCommunication()
void StartMacro(String MacroName)
void Wait(milliseconds as Long)
Boolean WaitForCursor(Variant Row, Variant Col, [optional]Variant TimeOut,
    [optional] Boolean bWaitForIr)
Boolean WaitWhileCursor(Variant Row, Variant Col, [optional]Variant TimeOut,
    [optional] Boolean bWaitForIr)
Boolean WaitForString(Variant WaitString, [optional] Variant Row,
    [optional] Variant Col, [optional] Variant TimeOut, [optional] Boolean bWaitForIr,
    [optional] Boolean bCaseSens)
Boolean WaitWhileString(Variant WaitString, [optional] Variant Row,
    [optional] Variant Col, [optional] Variant TimeOut, [optional] Boolean bWaitForIr,
    [optional] Boolean bCaseSens)
Boolean WaitForStringInRect(Variant WaitString, Variant sRow, Variant sCol,
    Variant eRow, Variant eCol, [optional] Variant nTimeOut,
    [optional] Boolean bWaitForIr, [optional] Boolean bCaseSens)
Boolean WaitWhileStringInRect(Variant WaitString, Variant sRow, Variant sCol,
    Variant eRow, Variant eCol, [optional] Variant nTimeOut,
    [optional] Boolean bWaitForIr, [optional] Boolean bCaseSens)
Boolean WaitForAttrib(Variant Row, Variant Col, Variant WaitData,
    [optional] Variant MaskData, [optional] Variant plane, [optional] Variant TimeOut,
    [optional] Boolean bWaitForIr)
Boolean WaitWhileAttrib(Variant Row, Variant Col, Variant WaitData,
    [optional] Variant MaskData, [optional] Variant plane,
    [optional] Variant TimeOut, [optional] Boolean bWaitForIr)
Boolean WaitForScreen(Object screenDesc, [optional] Variant TimeOut)
Boolean WaitWhileScreen(Object screenDesc, [optional] Variant TimeOut)
void CancelWaits()
```

RegisterPSEvent

This method registers an autECLPS object to receive notification of all changes to the PS of the connected session.

Prototype

```
void RegisterPSEvent()
```

Parameters

None

Return Value

None

Example

See Event Processing Example on page 337 for an example.

RegisterKeyEvent

Begins Keystroke Event Processing.

Prototype

void RegisterKeyEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 337 for an example.

RegisterCommEvent

This method registers an object to receive notification of all communication link connect/disconnect events.

Prototype

void RegisterCommEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 337 for an example.

UnregisterPSEvent

Ends PS Event Processing.

Prototype

void UnregisterPSEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 337 for an example.

UnregisterKeyEvent

Ends Keystroke Event Processing.

Prototype

void UnregisterKeyEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 337 for an example.

UnregisterCommEvent

Ends Communications Link Event Processing.

Prototype

void UnregisterCommEvent()

Parameters

None

Return Value

None

SetConnectionByName

This method uses the connection name to set the connection for a newly created autECLPS object. In Z and I Emulator for Windows this connection name is the short ID (character A-Z or a-z). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLPS object in autECLSession.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection (A-Z or a-z).

Return Value

None

Example

The following example shows how to set the connection for a newly created autECLPS object using the connection name.

```
DIM  autECLPSObj as Object
DIM  NumRows as Long
```

```
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")

' Initialize the connection
autECLPSObj.SetConnectionByName("A")
' For example, get the number of rows in the PS
NumRows = autECLPSObj.NumRows
```

SetConnectionByHandle

This method uses the connection handle to set the connection for a newly created autECLPS object. In Z and I Emulator for Windows this connection handle is a Long integer. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLPS object in autECLSession.

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

Long integer value of the connection to be set for the object.

Return Value

None

Example

The following example shows how to set the connection for a newly created autECLPS object using the connection handle.

```
DIM  autECLPSObj as Object
DIM  autECLConnList as Object
DIM  NumRows as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection with the first in the list
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
' For example, get the number of rows in the PS
NumRows = autECLPSObj.NumRows
```

SetCursorPos

The SetCursorPos method sets the position of the cursor in the presentation space for the connection associated with the autECLPS object. The position set is in row and column units.

Prototype

void SetCursorPos(Long Row, Long Col)

Parameters

Long Row

The row position of the cursor in the presentation space.

Long Col

The column position of the cursor in the presentation space.

Return Value

None

Example

The following example shows how to set the position of the cursor in the presentation space for the connection associated with the autECLPS object.

```
DIM  autECLPSObj as Object
DIM  autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection with the first in the list
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
autECLPSObj.SetCursorPos 2, 1
```

SendKeys

The SendKeys method sends a string of keys to the presentation space for the connection associated with the autECLPS object. This method allows you to send mnemonic keystrokes to the presentation space. See Sendkeys Mnemonic Keywords on page 426 for a list of these keystrokes.

Prototype

void SendKeys(String text, [optional] Long row, [optional] Long col)

Parameters

String text

String of keys to send to the presentation space.

Long Row

Row position to send keys to the presentation space. This parameter is optional. The default is the current cursor row position. If row is specified, col must also be specified.

Long Col

Column position to send keys to the presentation space. This parameter is optional. The default is the current cursor column position. If col is specified, row must also be specified.

Return Value

None

Example

The following example shows how to use the SendKeys method to send a string of keys to the presentation space for the connection associated with the autECLPS object.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
autECLPSObj.SendKeys "HCL is a really cool company", 3, 1
```

SearchText

The SearchText method searches for the first occurrence of text in the presentation space for the connection associated with the autECLPS object. The search is case-sensitive. If text is found, the method returns a TRUE value. It returns a FALSE value if no text is found. If the optional row and column parameters are used, **row** and **col** are also returned, indicating the position of the text if it was found.

Prototype

boolean SearchText(String text, [optional] Long Dir, [optional] Long Row, [optional] Long Col)

Parameters

String text

String to search for.

Long Dir

Direction in which to search. Must either be **1** for search forward or **2** for search backward. This parameter is optional. The default is 1 for Forward.

Long Row

Row position at which to start the search in the presentation space. The row of found text is returned if the search is successful. This parameter is optional. If row is specified, col must also be specified.

Long Col

Column position at which to start the search in the presentation space. The column of found text is returned if the search is successful. This parameter is optional. If col is specified, row must also be specified.

Return Value

TRUE if text is found, FALSE if text is not found.

Example

The following example shows how to search for text in the presentation space for the connection associated with the autECLPS object.

```
Dim  autECLPSObj as Object
Dim  autECLConnList as Object
Dim  Row as Long
Dim  Col as Long
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)

// Search forward in the PS from the start of the PS.  If found
// then call a hypothetical found routine, if not found, call a hypothetical

// not found routine.
row = 3
col = 1
If ( autECLPSObj.SearchText "HCL", 1, row, col) Then
  Call FoundFunc (row, col)
Else
  Call NotFoundFunc
Endif
```

GetText

The GetText method retrieves characters from the presentation space for the connection associated with the autECLPS object.

Prototype

String GetText([optional] Long Row, [optional] Long Col, [optional] Long LenToGet)

Parameters

Long Row

Row position at which to start the retrieval in the presentation space. This parameter is optional.

Long Col

Column position at which to start the retrieval in the presentation space. This parameter is optional.

Long LenToGet

Number of characters to retrieve from the presentation space. This parameter is optional. The default is the length of the array passed in as BuffLen.

Return Value

String

Text from the PS.

Example

The following example shows how to retrieve a string from the presentation space for the connection associated with the autECLPS object.

```
Dim  autECLPSObj as Object
Dim  PSText as String

' Initialize the connection
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

PSText = autECLPSObj.GetText(2,1,50)
```

SetText

The SetText method sends a string to the presentation space for the connection associated with the autECLPS object. Although this method is similar to the SendKeys method, this method does not send mnemonic keystrokes (for example, [enter] or [pf1]).

Prototype

void SetText(String Text, [optional] Long Row, [optional] Long Col)

Parameters

String Text

Character array to send.

Long Row

The row at which to begin the retrieval from the presentation space. This parameter is optional. The default is the current cursor row position.

Long Col

The column position at which to begin the retrieval from the presentation space. This parameter is optional. The default is the current cursor column position.

Return Value

None

Example

The following example shows how to search for text in the presentation space for the connection associated with the autECLPS object.

```
Dim autECLPSObj as Object

'Initialize the connection
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")
autECLPSObj.SetText"HCL is great", 2, 1
```

CopyText

This method copies the text from a given location in presentation space of a specified length to clipboard. The length of the text copied will be the length specified, if no length is specified the text till the end of presentation space is copied. If the location is not specified, the text copied is from the current cursor position in presentation space. In case of no parameters, whole presentation space is copied to clipboard.

Prototype

void CopyText([optional] Long Row, [optional] Long Col, [optional] Long LenToGet)

Parameters

Long LenToGet

Number of characters to copy from the presentation space. This parameter is optional. The default is the length of the array passed in as BuffLen.

Long Row

The row at which to begin the copy from the presentation space. This parameter is optional. The default is the current cursor row position.

Long Col

The column position at which to begin the copy from the presentation space. This parameter is optional. The default is the current cursor column.

Return Value

None

Example

The following example shows how to copy text in the presentation space to clipboard for the connection associated with the autECLPS object.

```
Dim autECLPSObj as Object
'Initialize the connection

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")

autECLPSObj.SetConnectionByName("A")
autECLPSObj.CopyText 6, 53, 10
```

PasteText

This method pastes the text of specified length from clipboard to a given location in presentation space. The length of the text pasted is the length specified, if no length is specified the whole text in clipboard is pasted until it reaches the end of presentation space. If the location is not specified, the text is pasted at the current cursor position in presentation space. If the presentation space is field formatted and while pasting the clipboard content, when there is a tab character '\t,' the remaining paste content is moved to the next writable field.

Prototype

void PasteText([optional] Long Row, [optional] Long Col, [optional] Long LenToGet)

Parameters

Long LenToGet

Number of characters to paste from clipboard to the presentation space. This parameter is optional. The default is the length of the text in clipboard.

Long Row

The row at which to begin the paste from clipboard to the presentation space. This parameter is optional. The default is the current cursor row position.

Long Col

The column position at which to begin the paste from clipboard to the presentation space. This parameter is optional. The default is the current cursor column position.

Return Value

None

Example

The following example shows how to paste text from clipboard to presentation space the connection associated with the autECLPS object.

```
Dim autECLPSObj as Object
'Initialize the connection

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")

autECLPSObj.SetConnectionByName("A")
autECLPSObj.PasteText 8, 53, 10
```

GetTextRect

The GetTextRect method retrieves characters from a rectangular area in the presentation space for the connection associated with the autECLPS object. No wrapping takes place in the text retrieval; only the rectangular area is retrieved.

Prototype

String GetTextRect(Long StartRow, Long StartCol, Long EndRow, Long EndCol)

Parameters

Long StartRow

Row at which to begin the retrieval in the presentation space.

Long StartCol

Column at which to begin the retrieval in the presentation space.

Long EndRow

Row at which to end the retrieval in the presentation space.

Long EndCol

Column at which to end the retrieval in the presentation space.

Return Value

String

PS Text.

Example

The following example shows how to retrieve characters from a rectangular area in the presentation space for the connection associated with the autECLPS object.

```
Dim  autECLPSObj as Object
Dim  PSText String

' Initialize the connection
Set autECLPSObj = CreateObject ("ZIEWin.autELCPS")
autECLPSObj.SetConnectionByName("A")

PSText = GetTextRect(1,1,2,80)
```

SetTextRect

The SetTextRect method sets characters to a rectangular area in the presentation space for the connection associated with the autECLPS object. No wrapping takes place in the text setting; only the rectangular area is set.

Prototype

SetTextRect(String Text, Long StartRow, Long StartCol, Long EndRow, Long EndCol)

Parameters

String Text

Character array to set on presentation space.

Long StartRow

Row at which to begin the setting in the presentation space.

Long StartCol

Column at which to begin the setting in the presentation space.

Long EndRow

Row at which to end the setting in the presentation space.

Long EndCol

Column at which to end the setting in the presentation space.

Return Value

None

Example

The following example shows how to set characters to a rectangular area in the presentation space for the connection associated with the autECLPS object.

```
Dim autECLPSObj as Object
Dim PSText String

’ Initialize the connection
Set autECLPSObj = CreateObject ("ZIEWin.autELCPS")
autECLPSObj.SetConnectionByName("A")

SetTextRect "HCL is great company to collaborate with", 1, 1, 4, 8
```

If we want to use parentheses then we can use SetTextRect as

```
call SetTextRect("HCL is great company to collaborate with", 1, 1, 4, 8)
```

StartCommunication

The StartCommunication collection element method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Connect**.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim PSObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set PSObj = CreateObject("ZIEWin.autECLPS")

' Initialize the session
```

```
autECLConnList.Refresh
PSObj.SetConnectionByHandle(autECLConnList(1).Handle)

PSObj.StartCommunication()
```

StopCommunication

The StopCommunication collection element method disconnects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Disconnect**.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim PSObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set PSObj = CreateObject("ZIEWin.autECLPS")

' Initialize the session
autECLConnList.Refresh
PSObj.SetConnectionByHandle(autECLConnList(1).Handle)

PSObj.StopCommunication()
```

StartMacro

The StartMacro method runs the Z and I Emulator for Windows macro file indicated by the MacroName parameter.

Prototype

void StartMacro(String MacroName)

Parameters

String MacroName

Name of macro file located in the Z and I Emulator for Windows user-class application data directory (specified at installation), without the file extension. This method does not support long file names.

Return Value

None

Usage Notes

You must use the short file name for the macro name. This method does not support long file names.

Example

The following example shows how to start a macro.

```
Dim PS as Object

Set PS = CreateObject("ZIEWin.autECLPS")
PS.StartMacro "mymacro"
```

Wait

The Wait method waits for the number of milliseconds specified by the milliseconds parameter

Prototype

void Wait(milliseconds as Long)

Parameters

Long milliseconds

The number of milliseconds to wait.

Return Value

None

Example

```
Dim autECLPSObj as Object

Set autECLPSObj = CreateObject ("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName ("A")
```

```
' Wait for 10 seconds
autECLPSObj.Wait(10000)
```

WaitForCursor

The WaitForCursor method waits for the cursor in the presentation space of the connection associated with the autECLPS object to be located at a specified position.

Prototype

Boolean WaitForCursor(Variant Row, Variant Col, [optional]Variant TimeOut,
[optional] Boolean bWaitForIr)

Parameters

Variant Row

Row position of the cursor.

Variant Col

Column position of the cursor.

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim Row, Col

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

Row = 20
Col = 16

if (autECLPSObj.WaitForCursor(Row,Col,10000)) then
    msgbox "Cursor is at " " Row " "," " Col
else
    msgbox "Timeout Occurred"
end if
```

WaitWhileCursor

The WaitWhileCursor method waits while the cursor in the presentation space of the connection associated with the autECLPS object is located at a specified position.

Prototype

Boolean WaitWhileCursor(Variant Row, Variant Col, [optional]Variant TimeOut,
[optional] Boolean bWaitForIr)

Parameters

Variant Row

Row position of the cursor.

Variant Col

Column position of the cursor.

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim Row, Col

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

Row = 20
Col = 16

if (autECLPSObj.WaitWhileCursor(Row,Col,10000)) then
     msgbox "Cursor is no longer at " " Row " "," " Col
else
     msgbox "Timeout Occurred"
end if
```

WaitForString

The WaitForString method waits for the specified string to appear in the presentation space of the connection associated with the autECLPS object. If the optional Row and Column parameters are used, the string must begin at the specified position. If 0,0 are passed for Row,Col the method searches the entire PS.

Prototype

```
Boolean WaitForString(Variant WaitString, [optional] Variant Row,
    [optional] Variant Col, [optional] Variant TimeOut, [optional] Boolean bWaitForIr,
    [optional] Boolean bCaseSens)
```

Parameters

Variant WaitString

The string for which to wait.

Variant Row

Row position that the string will begin. This parameter is optional. The default is 0.

Variant Col

Column position that the string will begin. This parameter is optional. The default is 0.

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Boolean bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim Row, Col, WaitString

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")
```

```
WaitString = "Enter USERID"
Row = 20
Col = 16

if (autECLPSObj.WaitForString(WaitString,Row,Col,10000))  then
    msgbox WaitString " " found at " " Row " "," " Col
else
    msgbox "Timeout Occurred"
end if
```

WaitWhileString

The WaitWhileString method waits while the specified string appears in the presentation space of the connection associated with the autECLPS object. If the optional Row and Column parameters are used, the string must begin at the specified position. If 0,0 are passed for Row,Col the method searches the entire PS.

Prototype

```
Boolean WaitWhileString(Variant WaitString, [optional] Variant Row,
    [optional] Variant Col, [optional] Variant TimeOut, [optional] Boolean bWaitForIr,
    [optional] Boolean bCaseSens)
```

Parameters

Variant WaitString

The method waits while this string value exists.

Variant Row

Row position that the string will begin. This parameter is optional. The default is 0.

Variant Col

Column position that the string will begin. This parameter is optional. The default is 0.

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Boolean bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim Row, Col, WaitString

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

WaitString = "Enter USERID"
Row = 20
Col = 16

if (autECLPSObj.WaitWhileString(WaitString,Row,Col,10000))  then
    msgbox WaitString " " was found at " " Row " "," " Col
else
    msgbox "Timeout Occurred"
end if
```

WaitForStringInRect

The WaitForStringInRect method waits for the specified string to appear in the presentation space of the connection associated with the autECLPS object in the specified rectangle.

Prototype

Boolean WaitForStringInRect(Variant WaitString, Variant sRow, Variant sCol,
Variant eRow, Variant eCol, [optional] Variant nTimeOut,
[optional] Boolean bWaitForIr, [optional] Boolean bCaseSens)

Parameters

Variant WaitString

The string for which to wait.

Variant sRow

Starting row position of the search rectangle.

Variant sCol

Starting column position of the search rectangle.

Variant eRow

Ending row position of the search rectangle.

Variant eCol

Ending column position of the search rectangle

Variant nTimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Boolean bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim sRow, sCol, eRow, eCol, WaitString

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

WaitString = "Enter USERID"
sRow = 20
sCol = 16
eRow = 21
eCol = 31

if (autECLPSObj.WaitForStringInRect(WaitString,sRow,sCol,eRow,eCol,10000))  then
    msgbox WaitString " " found in rectangle"
else
    msgbox "Timeout Occurred"
end if
```

WaitWhileStringInRect

The WaitWhileStringInRect method waits while the specified string appears in the presentation space of the connection associated with the autECLPS object in the specified rectangle.

Prototype

Boolean WaitWhileStringInRect(Variant WaitString, Variant sRow, Variant sCol,
Variant eRow, Variant eCol, [optional] Variant nTimeOut,
[optional] Boolean bWaitForIr, [optional] Boolean bCaseSens)

Parameters

Variant WaitString

The method waits while this string value exists.

Variant sRow

Starting row position of the search rectangle.

Variant sCol

Starting column position of the search rectangle.

Variant eRow

Ending row position of the search rectangle.

Variant eCol

Ending column position of the search rectangle.

Variant nTimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Boolean bCaseSens

If this value is True, the wait condition is verified as case-sensitive. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim sRow, sCol, eRow, eCol, WaitString

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

WaitString = "Enter USERID"
sRow = 20
sCol = 16
eRow = 21
eCol = 31

if (autECLPSObj.WaitWhileStringInRect(WaitString,sRow,sCol,eRow,eCol,10000))  then
    msgbox WaitString " " no longer in rectangle"
else
```

```
    msgbox "Timeout Occurred"
end if
```

WaitForAttrib

The WaitForAttrib method will wait until the specified Attribute value appears in the presentation space of the connection associated with the autECLPS object at the specified Row/Column position. The optional MaskData parameter can be used to control which values of the attribute you are looking for. The optional plane parameter allows you to select any of the four PS planes.

Prototype

```
Boolean WaitForAttrib(Variant Row, Variant Col, Variant WaitData,
    [optional] Variant MaskData, [optional] Variant plane, [optional] Variant TimeOut,
    [optional] Boolean bWaitForIr)
```

Parameters

Variant Row

Row position of the attribute.

Variant Col

Column position of the attribute.

Variant WaitData

The 1-byte HEX value of the attribute to wait for.

Variant MaskData

The 1-byte HEX value to use as a mask with the attribute. This parameter is optional. The default value is 0xFF.

Variant plane

The plane of the attribute to get. The plane can have the following values:

1

Text Plane

2

Color Plane

3

Field Plane (default)

4

Extended Field Plane

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim Row, Col, WaitData, MaskData, plane

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

Row = 20
Col = 16
WaitData = E8h
MaskData = FFh
plane = 3

if (autECLPSObj.WaitForAttrib(Row, Col, WaitData, MaskData, plane, 10000))  then
    msgbox "Attribute " " WaitData " " found"
else
    msgbox "Timeout Occurred"
end if
```

WaitWhileAttrib

The WaitWhileAttrib method waits while the specified Attribute value appears in the presentation space of the connection associated with the autECLPS object at the specified Row/Column position. The optional MaskData parameter can be used to control which values of the attribute you are looking for. The optional plane parameter allows you to select any of the four PS planes.

Prototype

```
Boolean WaitWhileAttrib(Variant Row, Variant Col, Variant WaitData,
    [optional] Variant MaskData, [optional] Variant plane, [optional] Variant TimeOut,
    [optional] Boolean bWaitForIr)
```

Parameters

Variant Row

Row position of the attribute.

Variant Col

Column position of the attribute.

Variant WaitData

The 1 byte HEX value of the attribute to wait for.

Variant MaskData

The 1 byte HEX value to use as a mask with the attribute. This parameter is optional. The default value is 0xFF.

Variant plane

The plane of the attribute to get. The plane can have the following values:

1

Text Plane

2

Color Plane

3

Field Plane (default)

4

Extended Field Plane

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Boolean bWaitForIr

If this value is true, after meeting the wait condition the function will wait until the OIA is ready to accept input. This parameter is optional. The default is False.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim Row, Col, WaitData, MaskData, plane

Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
```

```
autECLPSObj.SetConnectionByName("A")

Row = 20
Col = 16
WaitData = E8h
MaskData = FFh
plane = 3

if (autECLPSObj.WaitWhileAttrib(Row, Col, WaitData, MaskData, plane, 10000))  then
         msgbox "Attribute " " WaitData " " No longer exists"
else
         msgbox "Timeout Occurred"
end if
```

WaitForScreen

Synchronously waits for the screen described by the autECLScreenDesc parameter to appear in the Presentation Space.

Note: The wait for OIA input flag is set on the autECLScreenDesc object, it is not passed as a parameter to the wait method.

Prototype

Boolean WaitForScreen(Object screenDesc, [optional] Variant TimeOut)

Parameters

Object screenDesc

autECLScreenDesc object that describes the screen (see autECLScreenDesc Class on page 339).

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

autECLScreenDesObj.AddCursorPos 23, 1
```

```
if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000))  then
    msgbox "Screen found"
else
    msgbox "Timeout Occurred"
end if
```

WaitWhileScreen

Synchronously waits until the screen described by the autECLScreenDesc parameter is no longer in the Presentation Space.

Note: The wait for OIA input flag is set on the autECLScreenDesc object, it is not passed as a parameter to the wait method.

Prototype

Boolean WaitWhileScreen(Object screenDesc, [optional] Variant TimeOut)

Parameters

Object ScreenDesc

autECLScreenDesc object that describes the screen (see autECLScreenDesc Class on page 339).

Variant TimeOut

The maximum length of time in milliseconds to wait, this parameter is optional. The default is Infinite.

Return Value

The method returns True if the condition is met, or False if the Timeout value is exceeded.

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName("A")

autECLScreenDesObj.AddCursorPos 23, 1

if (autECLPSObj.WaitWhileScreen(autECLScreenDesObj, 10000))  then
    msgbox "Screen exited"
else
    msgbox "Timeout Occurred"
end if
```

CancelWaits

Cancels any currently active wait methods.

Prototype

void CancelWaits()

Parameters

None

Return Value

None

autECLPS Events

The following events are valid for autECLPS:

void NotifyPSEvent()
void NotifyKeyEvent(string KeyType, string KeyString, PassItOn as Boolean)
void NotifyCommEvent(boolean bConnected)
void NotifyPSError()
void NotifyKeyError()
void NotifyCommError()
void NotifyPSStop(Long Reason)
void NotifyKeyStop(Long Reason)
void NotifyCommStop(Long Reason)

NotifyPSEvent

A given PS has been updated.

Prototype

void NotifyPSEvent()

Parameters

None

Example

See Event Processing Example on page 337 for an example.

NotifyKeyEvent

A keystroke event has occurred and the key information has been supplied. This function can be used to intercept keystrokes to a given PS. The Key information is passed to the event handler and can be passed on, or another action can be performed.

Note: Only one object can have keystroke event handling registered to a given PS at a time.

Prototype

void NotifyKeyEvent(string KeyType, string KeyString, PassItOn as Boolean)

Parameters

String KeyType

Type of key intercepted.

M

Mnemonic keystroke

A

ASCII

String KeyString

Intercepted keystroke

Boolean PassItOn

Flag to indicate if the keystroke should be echoed to the PS.

TRUE

Allows the keystroke to be passed on to the PS.

FALSE

Prevents the keystroke from being passed to the PS.

Example

See Event Processing Example on page 337 for an example.

NotifyCommEvent

A given communications link as been connected or disconnected.

Prototype

void NotifyCommEvent(boolean bConnected)

Parameters

boolean bConnected

True if Communications Link is currently Connected, False otherwise.

Example

See Event Processing Example on page 337 for an example.

NotifyPSError

This event occurs when an error occurs in event processing.

Prototype

void NotifyPSError()

Parameters

None

Example

See Event Processing Example on page 337 for an example.

NotifyKeyError

This event occurs when an error occurs in event processing.

Prototype

void NotifyKeyError()

Parameters

None

Example

See Event Processing Example on page 337 for an example.

NotifyCommError

This event occurs when an error occurs in event processing.

Prototype

void NotifyCommError()

Parameters

None

Example

See Event Processing Example on page 337 for an example.

NotifyPSStop

This event occurs when event processing stops.

Prototype

void NotifyPSStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently this will always be 0.

Example

See Event Processing Example on page 337 for an example.

NotifyKeyStop

This event occurs when event processing stops.

Prototype

void NotifyKeyStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently this will always be 0.

Example

See Event Processing Example on page 337 for an example.

NotifyCommStop

This event occurs when event processing stops.

Prototype

void NotifyCommStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently this will always be 0.

Event Processing Example

The following is a short example of how to implement PS Events

```
Option Explicit
Private WithEvents mPS As autECLPS 'AutPS added as reference
Private WithEvents Mkey as autECLPS

sub main()
'Create Objects
Set mPS = New autECLPS
Set mkey = New autECLPS
mPS.SetConnectionByName "A" 'Monitor Session A for PS Updates
mPS.SetConnectionByName "B" 'Intercept Keystrokes intended for Session B

mPS.RegisterPSEvent 'register for PS Updates
mPS.RegisterCommEvent ' register for Communications Link updates for session A
mkey.RegisterKeyEvent 'register for Key stroke intercept

' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
call DisplayGUI()

mPS.UnregisterPSEvent
mPS.UnregisterCommEvent
mkey.UnregisterKeyEvent
```

```

set mPS = Nothing
set mKey = Nothing
End Sub

'This sub will get called when the PS of the Session registered
'above changes
Private Sub mPS_NotifyPSEvent()
' do your processing here
```

```
End Sub

'This sub will get called when Keystrokes are entered into Session B
Private Sub mkey_NotifyKeyEvent(string KeyType, string KeyString, PassItOn as Boolean)
' do your keystroke filtering here
If (KeyType = "M") Then
'handle mnemonics here
if (KeyString = "[PF1]" then 'intercept PF1 and send PF2 instead
mkey.SendKeys "[PF2]"
set PassItOn = false
end if
end if
```

```
End Sub

'This event occurs if an error happens in PS event processing
Private Sub mPS_NotifyPSError()
'Do any error processing here
End Sub

'This event occurs when PS Event handling ends
Private Sub mPS_NotifyPSStop(Reason As Long)
'Do any stop processing here
End Sub

'This event occurs if an error happens in Keystroke processing
Private Sub mkey_NotifyKeyError()
'Do any error processing here
End Sub

'This event occurs when key stroke event handling ends
Private Sub mkey_NotifyKeyStop(Reason As Long)
'Do any stop processing here
End Sub
```

```
'This sub will get called when the Communication Link Status of the registered
'connection changes
Private Sub mPS_NotifyCommEvent()
' do your processing here
End Sub
```

```
'This event occurs if an error happens in Communications Link event processing
Private Sub mPS_NotifyCommError()
'Do any error processing here
End Sub

'This event occurs when Communications Status Notification ends
Private Sub mPS_NotifyCommStop()
'Do any stop processing here
End Sub
```

autECLScreenDesc Class

autECLScreenDesc is the class that is used to describe a screen for HCL's Host Access Class Library Screen Recognition Technology. It uses all four major planes of the presentation space to describe it (text, field, extended field, and color planes), as well as the cursor position.

Using the methods provided on this object, the programmer can set up a detailed description of what a given screen looks like in a host side application. Once an autECLScreenDesc object is created and set, it may be passed to either the synchronous WaitFor... methods provided on autECLPS, or it may be passed to autECLScreenReco, which fires an asynchronous event if the screen matching the autECLScreenDesc object appears in the PS.

autECLScreenDesc Methods

The following section describes the methods that are valid for autECLScreenDesc.

```
void AddAttrib(Variant attrib, Variant row, Variant col, Variant plane)
void AddCursorPos(Variant row, Variant col)
void AddNumFields(Variant num)
void AddNumInputFields(Variant num)
void AddOIAInhibitStatus(Variant type)
void AddString(String str, Variant row, Variant col, [optional] Boolean caseSense)
void AddStringInRect(String str,  Variant sRow,  Variant sCol,
      Variant eRow,  Variant eCol, [optional] Variant caseSense)
void Clear()
```

AddAttrib

Adds an attribute value at the given position to the screen description.

Prototype

void AddAttrib(Variant attrib, Variant row, Variant col, Variant plane)

Parameters

Variant attrib

The 1 byte HEX value of the attribute.

Variant row

Row position.

Variant col

Column position.

Variant plane

The plane of the attribute to get. The plane can have the following values:

0. All Planes
1. Text Plane
2. Color Plane
3. Field Plane
4. Extended Field Plane

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
     msgbox "Screen reached"
 else
     msgbox "Timeout Occurred"
end if
```

AddCursorPos

Sets the cursor position for the screen description to the given position.

Prototype

void AddCursorPos(Variant row, Variant col)

Parameters

Variant row

Row position.

Variant col

Column position.

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
     msgbox "Screen reached"
else
     msgbox "Timeout Occurred"
end if
```

AddNumFields

Adds the number of fields to the screen description.

Prototype

void AddNumFields(Variant num)

Parameters

Variant num

Number of fields.

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
    msgbox "Screen reached"
else
    msgbox "Timeout Occurred"
end if
```

AddNumInputFields

Adds the number of fields to the screen description.

Prototype

void AddNumInputFields(Variant num)

Parameters

Variant num

Number of input fields.

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
```

```
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
msgbox "Screen reached"
else
    msgbox "Timeout Occurred"
end if
```

AddOIAInhibitStatus

Sets the type of OIA monitoring for the screen description.

Prototype

void AddOIAInhibitStatus(Variant type)

Parameters

Variant type

Type of OIA status. Valid values are as follows:

0. Don't Care
1. Not Inhibited

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False
```

```
if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
    msgbox "Screen reached"
else
    msgbox "Timeout Occurred"
end if
```

AddString

Adds a string at the given location to the screen description.

Prototype

void AddString(String str, Variant row, Variant col, [optional] Boolean caseSense)

Parameters

String str

String to add.

Variant row

Row position.

Variant col

Column position.

Boolean caseSense

If this value is True, the strings are added as case-sensitive. This parameter is optional. The default is True.

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
```

```
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
    msgbox "Screen reached"
else
    msgbox "Timeout Occurred"
end if
```

AddStringInRect

Adds a string in the given rectangle to the screen description.

Prototype

void AddStringInRect(String str, Variant sRow, Variant sCol,
Variant eRow, Variant eCol, [optional] Variant caseSense)

Parameters

String str

String to add

Variant sRow

Upper left row position.

Variant sCol

Upper left column position.

Variant eRow

Lower right row position.

Variant eCol

Lower right column position.

Variant caseSense

If this value is True, the strings are added as case-sensitive. This parameter is optional. The default is True.

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
```

```
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
    msgbox "Screen reached"
else
    msgbox "Timeout Occurred"
end if
```

Clear

Removes all description elements from the screen description.

Prototype

void Clear()

Parameters

None

Return Value

None

Example

```
Dim autECLPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autECLPSObj = CreateObject("ZIEWin.autECLPS")
autECLPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddCursorPos 23,1
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLPSObj.WaitForScreen(autECLScreenDesObj, 10000)) then
    msgbox "Screen reached"
```

```
else
    msgbox "Timeout Occurred"
end if

autECLScreenDesObj.Clear // start over for a new screen
```

autECLScreenReco Class

The autECLScreenReco class is the engine for the Host Access Class Library screen recognition system. It contains the methods for adding and removing descriptions of screens. It also contains the logic for recognizing those screens and for asynchronously calling back to your event handler code for those screens.

Think of an object of the autECLScreenReco class as a unique recognition set. The object can have multiple autECLPS objects that it watches for screens, and multiple screens to look for, and when it sees a registered screen in any of the added autECLPS objects it will fire event handling code defined in your application.

All you need to do is set up your autECLScreenReco objects at the start of your application, and when any screen appears in any autECLPS that you want to monitor, your event code will get called by autECLScreenReco. You do absolutely no legwork in monitoring screens.

See Event Processing Example on page 351 for an example.

autECLScreenReco Methods

The following section describes the methods that are valid for autECLScreenReco.

void AddPS(autECLPS ps)
Boolean IsMatch(autECLPS ps, AutECLScreenDesc sd)
void RegisterScreen(AutECLScreenDesc sd)
void RemovePS(autECLPS ps)
void UnregisterScreen(AutECLScreenDesc sd)

AddPS

Adds an autECLPS object to monitor to the autECLScreenReco Object.

Prototype

void AddPS(autECLPS ps)

Parameters

autECLPS ps

PS object to monitor.

Return Value

None

Example

See Event Processing Example on page 351 for an example.

IsMatch

Allows for passing an autECLPS object and an AutECLScreenDesc object and determining if the screen description matches the current state of the PS. The screen recognition engine uses this logic, but is provided so any routine can call it.

Prototype

Boolean IsMatch(autECLPS ps, AutECLScreenDesc sd)

Parameters

autECLPS ps

autPS object to compare.

AutECLScreenDesc sd

autECLScreenDesc object to compare.

Return Value

True if the AutECLScreenDesc object matches the current screen in the PS, False otherwise.

Example

```
Dim autPSObj as Object
Dim autECLScreenDescObj as Object

Set autECLScreenDescObj = CreateObject("ZIEWin.autECLScreenDesc")
Set autPSObj = CreateObject("ZIEWin.autECLPS")
autPSObj.SetConnectionByName "A"

autECLScreenDesObj.AddCursorPos 23, 1
autECLScreenDesObj.AddAttrib E8h, 1, 1, 2
autECLScreenDesObj.AddNumFields 45
autECLScreenDesObj.AddNumInputFields 17
autECLScreenDesObj.AddOIAInhibitStatus 1
autECLScreenDesObj.AddString "LOGON", 23, 11, True
autECLScreenDesObj.AddStringInRect "PASSWORD", 23, 1, 24, 80, False

if (autECLScreenReco.IsMatch(autPSObj, autECLScreenDesObj)) then
    msgbox "matched"
```

```
else
    msgbox "no match"
end if
```

RegisterScreen

Begins monitoring all autECLPS objects added to the screen recognition object for the given screen description. If the screen appears in the PS, a NotifyRecoEvent will occur.

Prototype

void RegisterScreen(AutECLScreenDesc sd)

Parameters

AutECLScreenDesc sd

Screen description object to register.

Return Value

None

Example

See Event Processing Example on page 351 for an example.

RemovePS

Removes the autECLPS object from screen recognition monitoring.

Prototype

void RemovePS(autECLPS ps)

Parameters

autECLPS ps

autECLPS object to remove.

Return Value

None

Example

See Event Processing Example on page 351 for an example.

UnregisterScreen

Removes the screen description from screen recognition monitoring.

Prototype

void UnregisterScreen(AutECLScreenDesc sd)

Parameters

AutECLScreenDesc sd

Screen description object to remove.

Return Value

None

Example

See Event Processing Example on page 351 for an example.

autECLScreenReco Events

The following events are valid for autECLScreenReco:

void NotifyRecoEvent(AutECLScreenDesc sd, autECLPS ps)
void NotifyRecoError()
void NotifyRecoStop(Long Reason)

NotifyRecoEvent

This event occurs when a Registered Screen Description appears in a PS that was added to the autECLScreenReco object.

Prototype

void NotifyRecoEvent(AutECLScreenDesc sd, autECLPS ps)

Parameters

AutECLScreenDesc sd

Screen Description object that had its criteria met.

autECLPS ps

PS object in which the match occurred.

Example

See Event Processing Example on page 351 for an example.

NotifyRecoError

This event occurs when an error occurs in Event Processing.

Prototype

void NotifyRecoError()

Parameters

None

Example

See Event Processing Example on page 351 for an example.

NotifyRecoStop

This event occurs when event processing stops.

Prototype

void NotifyRecoStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently this will always be 0.

Event Processing Example

The following is a short example of how to implement Screen Recognition Events:

```
Dim myPS as Object
Dim myScreenDesc as Object
Dim WithEvents reco as autECLScreenReco  'autECLScreenReco added as reference

Sub Main()
  ' Create the objects
  Set reco= new autECLScreenReco
  myScreenDesc = CreateObject("ZIEWin.autECLScreenDesc")
  Set myPS = CreateObject("ZIEWin.autECLPS")
  myPS.SetConnectionByName "A"

  ' Set up the screen description
  myScreenDesc.AddCursorPos 23, 1
```

```
  myScreenDesc.AddString "LOGON"
  myScreenDesc.AddNumFields 59

  ' Add the PS to the reco object (can add multiple PS's)
  reco.addPS myPS

  ' Register the screen (can add multiple screen descriptions)
  reco.RegisterScreen myScreenDesc

  ' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
  call DisplayGUI()

  ' Clean up
  reco.UnregisterScreen myScreenDesc
  reco.RemovePS myPS
  set myPS = Nothing
  set myScreenDesc = Nothing
  set reco = Nothing
End Sub

'This sub will get called when the screen Description registered above appears in
'Session A.  If multiple PS objects or screen descriptions were added,  you can
'determine which screen and which PS via the parameters.

Sub reco_NotifyRecoEvent(autECLScreenDesc SD, autECLPS PS)
  If (reco.IsMatch(PS,myScreenDesc)) Then
    ' do your processing for your screen here
  End If
End Sub

Sub reco_NotifyRecoError
   'do your error handling here
End sub

Sub reco_NotifyRecoStop(Reason as Long)
    'Do any stop processing here
End sub
```

autECLSession Class

The autECLSession object provides general emulator related services and contains pointers to other key objects in the Host Access Class Library. Its name in the registry is ZIEWin.autECLSession.

Although the objects that autECLSession contains are capable of standing on their own, pointers to them exist in the autECLSession class. When an autECLSession object is created, autECLPS, autECLOIA, autECLXfer, autECLWindowMetrics, autECLPageSettings, and autECLPrinterSettings objects are also created. Refer to them as you would any other property.

Note:

1. The current version of this object is 1.2. There are two versions of this object; their ProgIDs in the registry are ZIEWin.autECLSession.1 and ZIEWin.autECLSession.2. The version-independent ProgID is ZIEWin.autECLSession. The ZIEWin.autECLSession.1 object does not support the properties autECLPageSettings and autECLPrinterSettings.

2. You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection can be set only once. After the connection is set, any further calls to the SetConnection methods cause an exception. If you do not set the connection and try to access an autECLSession property or method, an exception is also raised.

The following example shows how to create and set the autECLSession object in Visual Basic.

```
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' For example, set the host window to minimized
SessObj.autECLWinMetrics.Minimized = True
```

Properties

This section describes the properties for the autECLSession object.

Type	Name	Attributes
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only
Object	autECLPS	Read-only
Object	autECLOIA	Read-only
Object	autECLXfer	Read-only
Object	autECLWinMetrics	Read-only
Object	autECLPageSettings	Read-only
Object	autECLPrinterSettings	Read-only

Name

This property is the connection name string of the connection for which autECLSession was set. Z and I Emulator for Windows only returns the short character ID (A-Z or a-z) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time. Name is a String data type and is read-only. The following example shows this property.

```
DIM  Name as String
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")

' Save the name
Name = SessObj.Name
```

Handle

This is the handle of the connection for which the autECLSession object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time. Handle is a Long data type and is read-only. The following example shows this property.

```
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")

' Save the session handle
Hand = SessObj.Handle
```

ConnType

This is the connection type for which autECLXfer was set. This type may change over time. ConnType is a String data type and is read-only. The following example shows this property.

```
DIM  Type as String
DIM  SessObj as Object

Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' Save the type
Type = SessObj.ConnType
```

Connection types for the ConnType property are:

String Returned	**Meaning**
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

CodePage

This is the code page of the connection for which autECLXfer was set. This code page may change over time. CodePage is a Long data type and is read-only. The following example shows this property.

```
DIM  CodePage as Long
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' Save the code page
CodePage = SessObj.CodePage
```

Started

This indicates whether the emulator window is started. The value is True if the window is open; otherwise, it is False. Started is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  SessObj as Object

Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If SessObj.Started = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

CommStarted

This indicates the status of the connection to the host. The value is True if the host is connected; otherwise, it is False. CommStarted is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  SessObj as Object

Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")

' This code segment checks to see if communications are connected
' for session A.  The results are sent to a text box called
' CommConn.
If SessObj.CommStarted = False Then
    CommConn.Text = "No"
Else
```

```
    CommConn.Text = "Yes"
End If
```

APIEnabled

This indicates whether the emulator is API-enabled. A connection may be enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, choose **File -> API Settings**). The value is True if the emulator is enabled; otherwise, it is False. APIEnabled is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  SessObj as Object

Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")

' This code segment checks to see if A is API enabled.
' The results are sent to a text box called Result.
If SessObj.APIEnabled = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

Ready

This indicates whether the emulator window is started, API-enabled, and connected. This property checks for all three properties. The value is True if the emulator is ready; otherwise, it is False. Ready is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  SessObj as Object

Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")

' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
If SessObj.Ready = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

autECLPS object

The autECLPS object allows you to access the methods contained in the ZIEWin.autECLPS class. See autECLPS Class on page 298 for more information. The following example shows this object.

```
DIM  SessObj as Object
DIM  PSSize as Long
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' For example, get the PS size
PSSize = SessObj.autECLPS.GetSize()
```

autECLOIA object

The autECLOIA object allows you to access the methods contained in the ZIEWin.autECLOIA class. See autECLOIA Class on page 281 for more information. The following example shows this object.

```
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' For example, set the host window to minimized
If (SessObj.autECLOIA.Katakana) Then
 'whatever
Endif
```

autECLXfer object

The autECLXfer object allows you to access the methods contained in the ZIEWin.autECLXfer class. See autECLXfer Class on page 381 for more information. The following example shows this object.

```
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' For example
SessObj.Xfer.Sendfile "c:\temp\filename.txt",
       "filename text a0",
       "CRLF ASCII"
```

autECLWinMetrics object

The autECLWinMetrics object allows you to access the methods contained in the ZIEWin.autECLWinMetrics class. See autECLWinMetrics Class on page 365 for more information. The following example shows this object.

```
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' For example, set the host window to minimized
SessObj.autECLWinMetrics.Minimized = True
```

autECLPageSettings object

The autECLPageSettings object enables you to access the methods contained in the ZIEWin.autECLPageSettings class. See autECLPageSettings Class on page 395 for more information.

The following example shows the autECLPageSettings object.

```
DIM SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")
'Initialize the session
SessObj.SetConnectionByName("A")

'For example, set the FaceName
SessObj.autECLPageSettings.FaceName = "Courier New"
```

The autECLPageSettings object is also supported in VBSCRIPT. The following example shows how to use VBSCRIPT.

```
sub test_()
  autECLSession.SetConnectionByName(ThisSessionName)
  autECLSession.autECLPageSettings.FaceName="Courier"
 end sub
```

autECLPrinterSettings object

The autECLPrinterSettings object enables you to access the methods contained in the ZIEWin.autECLPrinterSettings class. See autECLPageSettings Class on page 395 for more information.

The following example shows the autECLPageSettings object.

```
DIM SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")
' Initialize the session
SessObj.SetConnectionByName("A")

'For example, set the Windows default printer
SessObj.autECLPrinterSettings.SetWinDefaultPrinter
```

The autECLPrinterSettings object is also supported in VBSCRIPT. The following example shows how to use VBSCRIPT.

```
sub test_()
  autECLSession.SetConnectionByName(ThisSessionName)
  autECLSession.autECLPrinterSettings.SetWinDefaultPrinter
end sub
```

autECLSession Methods

The following section describes the methods that are valid for the autECLSession object.

void RegisterSessionEvent(Long updateType)

void RegisterCommEvent()

void UnregisterSessionEvent()

void UnregisterCommEvent()
void SetConnectionByName (String Name)
void SetConnectionByHandle (Long Handle)
void StartCommunication()
void StopCommunication()

RegisterSessionEvent

This method registers an autECLSession object to receive notification of specified Session events.

Note: This method is not supported and is not recommended for use.

Prototype

void RegisterSessionEvent(Long updateType)

Parameters

Long updateType

Type of update to monitor for:

1. PS Update
2. OIA Update
3. PS or OIA Update

Return Value

None

Example

See Event Processing Example on page 365 for an example.

RegisterCommEvent

This method registers an object to receive notification of all communication link connect/disconnect events.

Prototype

void RegisterCommEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 365 for an example.

UnregisterSessionEvent

Ends Session Event processing.

Note: This method is not supported and is not recommended for use.

Prototype

void UnregisterSessionEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 365 for an example.

UnregisterCommEvent

Ends Communications Link Event processing.

Prototype

void UnregisterCommEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 365 for an example.

SetConnectionByName

This method uses the connection name to set the connection for a newly created autECLSession object. In Z and I Emulator for Windows this connection name is the short ID (character A-Z or a-z). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection (A-Z or a-z).

Return Value

None

Example

The following example shows how to use the connection name to set the connection for a newly created autECLSession object.

```
DIM  SessObj as Object
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
SessObj.SetConnectionByName("A")
' For example, set the host window to minimized
SessObj.autECLWinMetrics.Minimized = True
```

SetConnectionByHandle

This method uses the connection handle to set the connection for a newly created autECLSession object. In Z and I Emulator for Windows this connection handle is a long integer. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time.

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

Long integer value of the connection to be set for the object.

Return Value

None

Example

The following example shows how to use the connection handle to set the connection for a newly created autECLSession object.

```
Dim  SessObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
autECLConnList.Refresh
autECLPSObj.SetConnectionByHandle(autECLConnList(1).Handle)
```

StartCommunication

The StartCommunication collection element method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Connect**.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim SessObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
```

```
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
autECLConnList.Refresh
SessObj.SetConnectionByHandle(autECLConnList(1).Handle)

SessObj.StartCommunication()
```

StopCommunication

The StopCommunication collection element method disconnects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Disconnect**.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim SessObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set SessObj = CreateObject("ZIEWin.autECLSession")

' Initialize the session
autECLConnList.Refresh
SessObj.SetConnectionByHandle(autECLConnList(1).Handle)

SessObj.StopCommunication()
```

autECLSession Events

The following events are valid for autECLSession:

void NotifyCommEvent(boolean bConnected)
void NotifyCommError()
void NotifyCommStop(Long Reason)

NotifyCommEvent

A given communications link has been connected or disconnected.

Prototype

void NotifyCommEvent(boolean bConnected)

Parameters

boolean bConnected

TRUE if communications link is currently connected. FALSE otherwise.

Example

See Event Processing Example on page 365 for an example.

NotifyCommError

This event occurs when an error occurs in event processing.

Prototype

void NotifyCommError()

Parameters

None

Example

See Event Processing Example on page 365 for an example.

NotifyCommStop

This event occurs when event processing stops.

Prototype

void NotifyCommStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently, this will always be 0.

Event Processing Example

The following is a short example of how to implement Session Events

```
Option Explicit
Private WithEvents mSess As autECLSession   'AutSess added as reference

sub main()
   'Create Objects
   Set mSess = New autECLSession
   mSess.SetConnectionByName "A"
    mSess.RegisterCommEvent          'register for communication link notifications
   ' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
   call DisplayGUI()
   mSess.UnregisterCommEvent
   set mSess = Nothing
End Sub

'This sub will get called when the Communication Link Status of the registered
'connection changes
Private Sub mSess_NotifyCommEvent()
    ' do your processing here
End Sub

'This event occurs if an error happens in Communications Link event processing
Private Sub mSess_NotifyCommError()
   'Do any error processing here
End Sub

'This event occurs when Communications Status Notification ends
Private Sub mSess_NotifyCommStop()
   'Do any stop processing here
End Sub
```

autECLWinMetrics Class

The autECLWinMetrics object performs operations on an emulator window. It allows you to perform window rectangle and position manipulation (for example, SetWindowRect, Ypos and Width), as well as window state manipulation (for example, Visible or Restored). Its name in the registry is ZIEWin.autECLWinMetrics.

You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection may be set only once. After the connection is set, any further calls to the set connection methods cause an exception. If you do not set the connection and try to access a property or method, an exception is also raised.

Note: The autECLSession object in the autECL object is set by the autECL object.

The following example shows how to create and set the autECLWinMetrics object in Visual Basic.

```
DIM  autECLWinObj as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
autECLWinObj.SetConnectionByName("A")
```

```
' For example, set the host window to minimized
autECLWinObj.Minimized = True
```

Properties

This section describes the properties for the autECLWinMetrics object.

Type	Name	Attributes
String	WindowTitle	Read/Write
Long	Xpos	Read/Write
Long	Ypos	Read/Write
Long	Width	Read/Write
Long	Height	Read/Write
Boolean	Visible	Read/Write
Boolean	Active	Read/Write
Boolean	Minimized	Read/Write
Boolean	Maximized	Read/Write
Boolean	Restored	Read/Write
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only

WindowTitle

This is the title that is currently in the title bar for the connection associated with the autECLWinMetrics object. This property may be both changed and retrieved. WindowTitle is a String data type and is read/write enabled. The following example shows this process. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Dim  WinTitle as String
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

WinTitle = autECLWinObj.WindowTitle 'get the window title

' or...
```

```
autECLWinObj.WindowTitle = "Flibberdeejibbet" 'set the window title
```

Usage Notes

If WindowTitle is set to blank, the window title of the connection is restored to its original setting.

Xpos

This is the *x* position of the upper left point of the emulator window rectangle. This property may be both changed and retrieved. Xpos is a Long data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Dim  x as Long
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

x = autECLWinObj.Xpos 'get the x position

' or...

autECLWinObj.Xpos = 6081 'set the x position
```

Ypos

This is the *y* position of the upper left point of the emulator window rectangle. This property may be both changed and retrieved. Ypos is a Long data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Dim  y as Long
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

y = autECLWinObj.Ypos 'get the y position

' or...

autECLWinObj.Ypos = 6081 'set the y position
```

Width

This is the width of the emulator window rectangle. This property may be both changed and retrieved. Width is a Long data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Dim  cx as Long
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

cx = autECLWinObj.Width 'get the width

' or...

autECLWinObj.Width = 6081 'set the width
```

Height

This is the height of the emulator window rectangle. This property may be both changed and retrieved. Height is a Long data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Dim  cy as Long
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

cy = autECLWinObj.Height 'get the height

' or...

autECLWinObj.Height = 6081 'set the height
```

Visible

This is the visibility state of the emulator window. This property may be both changed and retrieved. Visible is a Boolean data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

' Set to Visible if not, and vice versa
If ( autECLWinObj.Visible) Then
 autECLWinObj.Visible = False
Else
 autECLWinObj.Visible = True
End If
```

Active

This is the focus state of the emulator window. This property may be both changed and retrieved. Active is a Boolean data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

' Set to Active if not, and vice versa
If ( autECLWinObj.Active) Then
 autECLWinObj.Active = False
Else
 autECLWinObj.Active = True
End If
```

Minimized

This is the minimize state of the emulator window. This property may be both changed and retrieved. Minimized is a Boolean data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

' Set to minimized if not, if minimized set to maximized
```

```
If ( autECLWinObj.Minimized) Then
 autECLWinObj.Maximized = True
Else
 autECLWinObj.Minimized = True
End If
```

Maximized

This is the maximize state of the emulator window. This property may be both changed and retrieved. Maximized is a Boolean data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)

' Set to maximized if not, if maximized set to minimized
If ( autECLWinObj.Maximized) Then
 autECLWinObj.Minimized = False
Else
 autECLWinObj.Maximized = True
End If
```

Restored

This is the restore state of the emulator window. Restored is a Boolean data type and is read/write enabled. However, if the connection you are attached to is an inplace, embedded object, this property is read-only. The following example shows this property.

```
Dim  autECLWinObj as Object
Dim  SessList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set SessList = CreateObject("ZIEWin.autECLConnList")

' Initialize the session
SessList.Refresh
autECLWinObj.SetSessionByHandle(SessList(1).Handle)

' Set to restored if not, if restored set to minimized
If ( autECLWinObj.Restored) Then
 autECLWinObj.Minimized = False
Else
 autECLWinObj.Restored = True
End If
```

Name

This property is the connection name string of the connection for which autECLWinMetrics was set. Currently, Z and I Emulator for Windows only returns the short character ID (A-Z or a-z) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time. Name is a String data type and is read-only. The following example shows this property.

```
DIM  Name as String
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the name
Name = Obj.Name
```

Handle

This is the handle of the connection for which the autECLWinMetrics object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time. Handle is a Long data type and is read-only. The following example shows this property.

```
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the handle
Hand = Obj.Handle
```

ConnType

This is the connection type for which autECLWinMetrics was set. This type may change over time. ConnType is a String data type and is read-only. The following example shows this property.

```
DIM  Type as String
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the type
Type = Obj.ConnType
```

Connection types for the ConnType property are:

String Returned	Meaning
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

CodePage

This is the code page of the connection for which autECLWinMetrics was set. This code page may change over time. CodePage is a Long data type and is read-only. The following example shows this property.

```
DIM  CodePage as Long
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the code page
CodePage = Obj.CodePage
```

Started

This indicates whether the emulator window is started. The value is True if the window is open; otherwise, it is False. Started is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWinZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If Obj.Started = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

CommStarted

This indicates the status of the connection to the host. The value is True if the host is connected; otherwise, it is False. CommStarted is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object
```

```
Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if communications are connected
' for A.  The results are sent to a text box called
' CommConn.
If Obj.CommStarted = False Then
    CommConn.Text = "No"
Else
    CommConn.Text = "Yes"
End If
```

APIEnabled

This indicates whether the emulator is API-enabled. A connection may be enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, choose **File ->API Settings**). The value is True if the emulator is enabled; otherwise, it is False. APIEnabled is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is API enabled.
' The results are sent to a text box called Result.
If Obj.APIEnabled = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

Ready

This indicates whether the emulator window is started, API enabled, and connected. This property checks for all three properties. The value is True if the emulator is ready; otherwise, it is False. Ready is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
```

```
If Obj.Ready = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

autECLWinMetrics Methods

The following section describes the methods that are valid for the autECLWinMetrics object.

void RegisterCommEvent()
void UnregisterCommEvent()
void SetConnectionByName(String Name)
void SetConnectionByHandle(Long Handle)
void GetWindowRect(Variant Left, Variant Top, Variant Right, Variant Bottom)
void SetWindowRect(Long Left, Long Top, Long Right, Long Bottom)
void StartCommunication()
void StopCommunication()

RegisterCommEvent

This method registers an object to receive notification of all communication link connect/disconnect events.

Prototype

void RegisterCommEvent()

Parameters

None

Return Value

None

Example

See Event Processing Example on page 380 for an example.

UnregisterCommEvent

Ends Communications Link Event Processing.

Prototype

void UnregisterCommEvent()

Parameters

None

Return Value

None

SetConnectionByName

This method uses the connection name to set the connection for a newly created autECLWinMetrics object. In Z and I Emulator for Windows this connection name is the short ID (character A-Z or a-z). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLWinMetrics object in autECLSession.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection (A-Z or a-z).

Return Value

None

Example

The following example shows how to use the connection name to set the connection for a newly created autECLWinMetrics object.

```
DIM  autECLWinObj as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the connection
autECLWinObj.SetConnectionByName("A")
' For example, set the host window to minimized
autECLWinObj.Minimized = True
```

SetConnectionByHandle

This method uses the connection handle to set the connection for a newly created autECLWinMetrics object. In Z and I Emulator for Windows this connection handle is a long integer. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLWinMetrics object in autECLSession.

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

Long integer value of the connection to be set for the object.

Return Value

None

Example

The following example shows how to use the connection handle to set the connection for a newly created autECLWinMetrics object.

```
DIM  autECLWinObj as Object
DIM  ConnList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)
' For example, set the host window to minimized
autECLWinObj.Minimized = True
```

GetWindowRect

The GetWindowRect method returns the bounding points of the emulator window rectangle.

Prototype

void GetWindowRect(Variant Left, Variant Top, Variant Right, Variant Bottom)

Parameters

Variant Left, Top, Right, Bottom

Bounding points of the emulator window.

Return Value

None

Example

The following example shows how to return the bounding points of the emulator window rectangle.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Dim  left
Dim  top
Dim  right
Dim  bottom
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)
autECLWinObj.GetWindowRect left, top, right, bottom
```

SetWindowRect

The SetWindowRect method sets the bounding points of the emulator window rectangle.

Prototype

void SetWindowRect(Long Left, Long Top, Long Right, Long Bottom)

Parameters

Long Left, Top, Right, Bottom

Bounding points of the emulator window.

Return Value

None

Example

The following example shows how to set the bounding points of the emulator window rectangle.

```
Dim  autECLWinObj as Object
Dim  ConnList as Object
Set autECLWinObj = CreateObject("ZIEWin.autECLWinMetrics")
Set ConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection
ConnList.Refresh
autECLWinObj.SetConnectionByHandle(ConnList(1).Handle)
autECLWinObj.SetWindowRect 0, 0, 6081, 6081
```

StartCommunication

The StartCommunication collection element method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Connect**.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim WinObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set WinObj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the session
autECLConnList.Refresh
WinObj.SetConnectionByHandle(autECLConnList(1).Handle)

WinObj.StartCommunication()
```

StopCommunication

The StopCommunication collection element method disconnects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Disconnect**.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim WinObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set WinObj = CreateObject("ZIEWin.autECLWinMetrics")

' Initialize the session
autECLConnList.Refresh
WinObj.SetConnectionByHandle(autECLConnList(1).Handle)

WinObj.StopCommunication()
```

autECL WinMetrics Events

The following events are valid for autECL WinMetrics:

void NotifyCommEvent(boolean bConnected)

NotifyCommError()

void NotifyCommStop(Long Reason)

NotifyCommEvent

A given communications link as been connected or disconnected.

Prototype

void NotifyCommEvent(boolean bConnected)

Parameters

boolean bConnected

True if Communications Link is currently Connected, False otherwise.

Example

See Event Processing Example on page 380 for an example.

NotifyCommError

This event occurs when an error occurs in Event Processing.

Prototype

NotifyCommError()

Parameters

None

Example

See Event Processing Example on page 380 for an example.

NotifyCommStop

This event occurs when event processing stops.

Prototype

void NotifyCommStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently this will always be 0.

Event Processing Example

The following is a short example of how to implement WinMetrics Events.

```
Option Explicit
Private WithEvents mWmet As autECLWinMetrics   'AutWinMetrics added as reference

sub main()
   'Create Objects
   Set mWmet = New autECLWinMetrics
   mWmet.SetConnectionByName "A"  'Monitor Session A

   mWmet.RegisterCommEvent ' register for Communications Link updates for session A

   ' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
```

```
   call DisplayGUI()

   mWmet.UnregisterCommEvent

   set mWmet = Nothing
End Sub

'This sub will get called when the Communication Link Status of the registered
'connection changes
Private Sub mWmet _NotifyCommEvent()
    ' do your processing here
End Sub

'This event occurs if an error happens in Communications Link event processing
Private Sub mWmet _NotifyCommError()
   'Do any error processing here
End Sub

'This event occurs when Communications Status Notification ends
Private Sub mWmet _NotifyCommStop()
   'Do any stop processing here
End Sub
```

autECLXfer Class

The autECLXfer object provides file transfer services. Its name in the registry is ZIEWin.autECLXfer.

You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection may be set only once. After the connection is set, any further calls to the SetConnection methods cause an exception. If you do not set the connection and try to access an autECLXfer property or method, an exception is also raised. The following shows how to create and set the autECLXfer object in Visual Basic.

```
DIM  XferObj as Object

Set XferObj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
XferObj.SetConnectionByName("A")
```

Properties

This section describes the properties for the autECLXfer object.

Type	Name	Attribute
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only

Type	Name	Attribute
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only

Name

This property is the connection name string of the connection for which autECLXfer was set. Z and I Emulator for Windows only returns the short character ID (A-Z or a-z) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time. Name is a String data type and is read-only. The following example shows this property.

```
DIM  Name as String
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the name
Name = Obj.Name
```

Handle

This is the handle of the connection for which the autECLXfer object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time. Handle is a Long data type and is read-only. The following example shows this property.

```
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")

' Save the handle
Hand = Obj.Handle
```

ConnType

This is the connection type for which autECLXfer was set. This type may change over time. Conntype is a String data type and is read-only. The following example shows this property.

```
DIM  Type as String
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")
```

```
' Save the type
Type = Obj.ConnType
```

Connection types for the ConnType property are:

String Returned	Meaning
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

CodePage

This is the code page of the connection for which autECLXfer was set. This code page may change over time. CodePage is a Long data type and is read-only. The following example shows this property.

```
DIM  CodePage as Long
DIM  Obj as Object
Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")
' Save the code page
CodePage = Obj.CodePage
```

Started

This indicates whether the emulator window is started. The value is True if the window is open; otherwise, it is False. Started is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If Obj.Started = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

CommStarted

This indicates the status of the connection to the host. The value is True if the host is connected; otherwise, it is False. CommStarted is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if communications are connected
' for A.  The results are sent to a text box called
' CommConn.
If Obj.CommStarted = False Then
    CommConn.Text = "No"
Else
    CommConn.Text = "Yes"
End If
```

APIEnabled

This indicates whether the emulator is API-enabled. A connection may be enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, choose **File -> API Settings**). The value is True if the emulator is enabled; otherwise, it is False. APIEnabled is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is API enabled.
' The results are sent to a text box called Result.
If Obj.APIEnabled = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

Ready

This indicates whether the emulator window is started, API enabled, and connected. This property checks for all three properties. The value is True if the emulator is ready; otherwise, it is False. Ready is a Boolean data type and is read-only. The following example shows this property.

```
DIM  Hand as Long
DIM  Obj as Object

Set Obj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
Obj.SetConnectionByName("A")

' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
If Obj.Ready = False Then
  Result.Text = "No"
Else
  Result.Text = "Yes"
End If
```

autECLXfer Methods

The following section describes the methods that are valid for the autECLXfer object.

void RegisterCommEvent()
void UnregisterCommEvent()
void SetConnectionByName(String Name)
void SetConnectionByHandle(Long Handle)
void SendFile(String PCFile, String HostFile, String Options)
void ReceiveFile(String PCFile, String HostFile, String Options)
void StartCommunication()
void StopCommunication()

RegisterCommEvent

This method registers an object to receive notification of all communication link connect/disconnect events.

Prototype

void RegisterCommEvent()

Parameters

None

Return Value

None

Example

SeeEvent Processing Example on page 392 for an example.

UnregisterCommEvent

Ends Communications Link Event Processing.

Prototype

void UnregisterCommEvent()

Parameters

None

Return Value

None

SetConnectionByName

The SetConnectionByName method uses the connection name to set the connection for a newly created autECLXfer object. In Z and I Emulator for Windows this connection name is the short ID (character A-Z or a-z). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLXfer object in autECLSession.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection (A-Z or a-z).

Return Value

None

Example

The following example shows how to use the connection name to set the connection for a newly created autECLXfer object.

```
DIM  XferObj as Object
```

```
Set XferObj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
XferObj.SetConnectionByName("A")
```

SetConnectionByHandle

The SetConnectionByHandle method uses the connection handle to set the connection for a newly created autECLXfer object. In Z and I Emulator for Windows this connection handle is a Long integer. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection “A” open at a time.

Note: Do not call this if using the autECLXfer object in autECLSession.

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

Long integer value of the connection to be set for the object.

Return Value

None

Example

The following example shows how to use the connection handle to set the connection for a newly created autECLXfer object.

```
DIM  XferObj as Object
DIM  autECLConnList as Object

Set XferObj = CreateObject("ZIEWin.autECLXfer")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection with the first connection in the list
autECLConnList.Refresh
XferObj.SetConnectionByHandle(autECLConnList(1).Handle)
```

SendFile

The SendFile method sends a file from the workstation to the host for the connection associated with the autECLXfer object.

Prototype

void SendFile(String PCFile, String HostFile, String Options)

Parameters

String PCFile

Name of the file on the workstation.

String HostFile

Name of the file on the host.

String Options

Host-dependent transfer options. See Usage Notes on page 388 for more information.

Return Value

None

Usage Notes

File transfer options are host-dependent. The following is a list of some of the valid host options for a VM/CMS host.

ASCII
CRLF
APPEND
LRECL
RECFM
CLEAR/NOCLEAR
PROGRESS
QUIET

Refer to *Emulator Programming* for the list of supported hosts and associated file transfer options.

Example

The following example shows how to send a file from the workstation to the host for the connection associated with the autECLXfer object.

```
DIM  XferObj as Object
DIM  autECLConnList as Object
DIM  NumRows as Long

Set XferObj = CreateObject("ZIEWin.autECLXfer")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection with the first connection in the autECLConnList
```

```
autECLConnList.Refresh
XferObj.SetConnectionByHandle(autECLConnList(1).Handle)

' For example, send the file to VM
XferObj.SendFile "c:\windows\temp\thefile.txt",
                     "THEFILE TEXT A0",
                     "CRLF ASCII"
```

ReceiveFile

The ReceiveFile method receives a file from the host to the workstation for the connection associated with the autECLXfer object.

Prototype

void ReceiveFile(String PCFile, String HostFile, String Options)

Parameters

String PCFile

Name of the file on the workstation.

String HostFile

Name of the file on the host.

String Options

Host-dependent transfer options. See Usage Notes on page 389 for more information.

Return Value

None

Usage Notes

File transfer options are host-dependent. The following is a list of some of the valid host options for a VM/CMS host:

ASCII
CRLF
APPEND
LRECL
RECFM
CLEAR/NOCLEAR
PROGRESS
QUIET

Refer to *Emulator Programming* manual for the list of supported hosts and associated file transfer options.

Example

The following example shows how to receive a file from the host and send it to the workstation for the connection associated with the autECLXfer object.

```
DIM  XferObj as Object
DIM  autECLConnList as Object
DIM  NumRows as Long

Set XferObj = CreateObject("ZIEWin.autECLXfer")
Set autECLConnList = CreateObject("ZIEWin.autECLConnList")

' Initialize the connection with the first connection in the list
autECLConnList.Refresh
XferObj.SetConnectionByHandle(autECLConnList(1).Handle)
' For example, send the file to VM
XferObj.ReceiveFile "c:\windows\temp\thefile.txt",
                      "THEFILE TEXT A0",
                      "CRLF ASCII"
```

StartCommunication

The StartCommunication collection element method connects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Connect**.

Prototype

void StartCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim XObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set XObj = CreateObject("ZIEWin.autECLXfer")

' Initialize the session
autECLConnList.Refresh
XObj.SetConnectionByHandle(autECLConnList(1).Handle)
```

```
XObj.StartCommunication()
```

StopCommunication

The StopCommunication collection element method disconnects the ZIEWin emulator to the host data stream. This has the same effect as going to the ZIEWin emulator **Communication** menu and choosing **Disconnect**.

Prototype

void StopCommunication()

Parameters

None

Return Value

None

Example

The following example shows how to connect a ZIEWin emulator session to the host.

```
Dim XObj as Object
Dim autECLConnList as Object

Set autECLConnList = CreateObject("ZIEWin.autECLConnList")
Set XObj = CreateObject("ZIEWin.autECLXfer")

' Initialize the session
autECLConnList.Refresh
XObj.SetConnectionByHandle(autECLConnList(1).Handle)

SessObj.StopCommunication()
```

autECLXfer Events

The following events are valid for autECLXfer:

void NotifyCommEvent(boolean bConnected)
NotifyCommError()
void NotifyCommStop(Long Reason)

NotifyCommEvent

A given communications link as been connected or disconnected.

Prototype

void NotifyCommEvent(boolean bConnected)

Parameters

boolean bConnected

True if Communications Link is currently Connected, False otherwise.

Example

See Event Processing Example on page 392 for an example.

NotifyCommError

This event occurs when an error occurs in event processing.

Prototype

NotifyCommError()

Parameters

None

Example

See Event Processing Example on page 392 for an example.

NotifyCommStop

This event occurs when event processing stops.

Prototype

void NotifyCommStop(Long Reason)

Parameters

Long Reason

Reason code for the stop. Currently this will always be 0.

Event Processing Example

The following is a short example of how to implement Xfer Events

```
Option Explicit
Private WithEvents mXfer As autECLXfer 'AutXfer added as reference

sub main()
'Create Objects
Set mXfer = New autECLXfer
mXfer.SetConnectionByName "A" 'Monitor Session A

mXfer.RegisterCommEvent ' register for Communications Link updates for session A

' Display your form or whatever here  (this should be a blocking call, otherwise sub just ends
call DisplayGUI()

mXfer.UnregisterCommEvent

set mXfer= Nothing
End Sub

'This sub will get called when the Communication Link Status of the registered
'connection changes
Private Sub mXfer _NotifyCommEvent()
' do your processing here
End Sub

'This event occurs if an error happens in Communications Link event processing
Private Sub mXfer _NotifyCommError()
'Do any error processing here
End Sub

'This event occurs when Communications Status Notification ends
Private Sub mXfer _NotifyCommStop()
'Do any stop processing here
End Sub
```

autSystem Class

The autSystem class is used to perform utility operations that are not present in some programming languages.

autSystem Methods

The following section describes the methods that are valid for the autSystem object.

Long Shell(VARIANT ExeName, VARIANT Parameters, VARIANT WindowStyle)

String Inputnd()

Shell

The shell function runs any executable file.

Prototype

Long Shell(VARIANT ExeName, VARIANT Parameters, VARIANT WindowStyle)

Parameters

VARIANT ExeName

Full path and file name of the executable file.

VARIANT Parameters

Any parameters to pass to the executable file. This parameter is optional.

VARIANT WindowStyle

The initial window style to show as executable. This parameter is optional and can have the following values:

1. Normal with focus (default)
2. Minimized with focus
3. Maximized
4. Normal without focus
5. Minimized without focus

Return Value

The method returns the Process ID if it is successful, or zero if it fails.

Example

```
Example autSystem - Shell()

'This example starts notepad with the file c:\test.txt loaded
dim ProcessID
dim SysObj as object

set SysObj = CreateObject("ZIEWin.autSystem")
ProcessID = SysObj.shell "Notepad.exe","C:\test.txt"
If ProcessID > 0 then
 Msgbox "Notepad Started, ProcessID = " + ProcessID
Else
 Msgbox "Notepad not started"
End if
```

Inputnd

The Inputnd method displays a popup input box to the user with a no-display text box so that when the user types in data only asterisks(*) are displayed.

Prototype

String Inputnd()

Parameters

None

Return Value

The characters typed into the input box, or "" if nothing was typed in.

Example

```
DIM strPassWord
dim SysObj as Object
dim PSObj as Object

set SysObj = CreateObject("ZIEWin.autSystem")
set PSObj = CreateObject("ZIEWin.autPS")

PSObj.SetConnectionByName("A")
'Prompt user for password
strPassWord = SysObj.Inputnd()
PSObj.SetText(strPasssWord)
DIM  XferObj as Object

Set XferObj = CreateObject("ZIEWin.autECLXfer")

' Initialize the connection
XferObj.SetConnectionByName("A")
```

autECLPageSettings Class

The autECLPageSettings object controls the page settings of a Z and I Emulator for Windows connection. Its name in the registry is ZIEWin.autECLPageSettings. This automation object can also be used in VB scripts.

The read-only property autECLPageSettings has been added to the autECLSession object. See autECLSession Class on page 352 for information about how to use this property.

Note: The autECLPageSettings object in the autECLSession object is set by the autECLSession object.

The following example shows how to create and set the autECLPageSettings object in Visual Basic.

```
DIM PgSet as Object
Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
PgSet.SetConnectionByName("A")
```

Usage Notes

You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection can be set only once. After the connection is set, any further calls to the set

connection methods cause an exception. If you do not set the connection and try to access a property or method, an exception is raised.

The properties CPI, LPI, and FontSize are dependent on the property FaceName. Therefore, if CPI, LPI, or FontSize are set before the FaceName is set, and if they are not valid for the new FaceName, different CPI, LPI, or FontSize values might be reconfigured in the connection. You should set the FaceName before setting the CPI, LPI, or FontSize. Otherwise, every time you set FaceName, query CPI, LPI, and FontSize and make sure that they have the desired values.

Restrictions

The connection associated with each method must be in a particular state for the method to succeed. If the restrictions are not met, an appropriate exception is raised.

The following restrictions must be satisfied while any property or method of the autECLPageSettings object is invoked.

- The host session should not be printing when this API is invoked.
- The **File → Page Setup** and **File → Printer Setup** dialogs must not be in use.
- The associated connection must not be in PDT mode.

Additional restrictions might apply for each specific property or method.

Connection types

The following connection types are valid for the methods in the autECLPageSettings class:

- 3270 display
- 3270 printer
- 5250 display
- VT (ASCII)

If a property or method is accessed or called on an unsupported connection, an exception is raised. Use the ConnType property to determine the connection type.

Properties

This section describes the properties for the autECLPageSettings object.

Type	Name	Attributes
Long	CPI	Read/Write
Boolean	FontCPI	Read-only
Long	LPI	Read/Write
Boolean	FontLPI	Read-only
String	FaceName	Read/Write

Type	Name	Attributes
Long	FontSize	Read/Write
Long	MaxLinesPerPage	Read/Write
Long	MaxCharsPerLine	Read/Write
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Long	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only

CPI

This property determines the number of characters printed per inch. This is a Long data type and is read/write enabled.

Set this property to the predefined constant pcFontCPI to select the Font CPI in Page Settings or set it to some specific CPI value. If this property is queried when FontCPI is configured in the connection, the actual CPI value is returned and the constant pcFontCPI is not returned.

To determine whether FontCPI is set in the connection, use the property FontCPI.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim CPI as Long

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

CPI = PgSet.CPI ' get the CPI value
' or...
PgSet.CPI = pcFontCPI 'set the connection to use Font CPI.
```

FontCPI

This determines whether Font CPI is set in the connection. FontCPI is a Boolean data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

'check if Font CPI is set
If PgSet.FontCPI Then
 ...
```

LPI

This property determines the number of lines printed per inch. This is a Long data type and is read/write enabled. Set it to the predefined constant pcFontLPI to select the Font LPI in Page Settings or set it to some specific LPI value. If this property is queried when FontLPI is configured in the connection, the actual LPI value is returned and the constant pcFontLPI is not returned. To determine whether FontLPI is set in the connection, use the property FontLPI.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim LPI as Long

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

LPI = PgSet.LPI ' get the LPI value
' or...
PgSet.LPI = pcFontLPI 'set the connection to use Font LPI.
```

FontLPI

This property determines whether Font LPI is set in the connection. FontLPI is a Boolean data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)
```

```
'check if Font LPI is set
If PgSet.FontLPI Then
 ...
```

FaceName

This is the Font Face Name of the Page Settings of the connection. FaceName is a String data type and is read/write enabled.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim FaceName as String

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)
FaceName = PgSet.FaceName ' get the FaceName
' or...
PgSet.FaceName = "Courier New" 'set the FaceName
```

MaxLinesPerPage

This property is the maximum number of lines that can be printed per page. This is also called *maximum print lines* or MPL. Valid values are in the range 1–255. This is a Long data type and is read/write enabled.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim MPL as Long

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

MPL = PgSet.MaxLinesPerPage ' get the MaxLinesPerPage
' or...
PgSet.MaxLinesPerPage = 20 'set the MaxLinesPerPage
```

MaxCharsPerLine

This property is the maximum number of characters that can be printed per line. This is also called *maximum print position* or MPP. Valid values are in the range 1–255. This is a Long data type and is read/write enabled.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim MPP as Long

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

MPP = PgSet.MaxCharsPerLine ' get the MaxCharsPerLine
' or...
PgSet.MaxCharsPerLine = 80 'set the MaxCharsPerLine
```

Name

This property is the connection name string of the connection for which autECLPageSettings was set. Z and I Emulator for Windows returns only the short character ID (a single alphabetical character from **A** to **Z**) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection **A** open at a time. Name is a String data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object
DIM Name as String

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

Name = PgSet.Name 'Save the name
```

Handle

This property is the handle of the connection for which the autECLPageSettings object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection **A** open at a time. Handle is a Long data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim Hand as Long

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
```

```
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

Hand = PgSet.Handle ' save the handle
```

ConnType

This property is the connection type for which autECLPageSettings was set. This type might change over time. ConnType is a String data type and is read-only.

String Value	Connection Type
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim Type as String

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

Type = PgSet.ConnType ' save the type
```

CodePage

This property is the connection type for which autECLPageSettings was set. This type might change over time. ConnType is a String data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Dim CodePage as Long

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

CodePage = PgSet.CodePage ' save the codepage
```

Started

This property indicates whether the emulator window is started. The value is TRUE if the window is open; otherwise, it is FALSE. Started is a Boolean data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If PgSet.Started = False Then
 Result.Text = "No"
Else
 Result.Text = "Yes"
End If
```

CommStarted

This property indicates the status of the connection to the host. The value is TRUE if the host is connected; otherwise, it is FALSE. CommStarted is a Boolean data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if communications are connected
' for A. The results are sent to a text box called
' CommConn.
If PgSet.CommStarted = False Then
 CommConn.Text = "No"
Else
 CommConn.Text = "Yes"
End If
```

APIEnabled

This property indicates whether the emulator is API-enabled. A connection can be API-enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, click **Settings → API**). The value is TRUE if the emulator is API-enabled; otherwise, it is FALSE. APIEnabled is a Boolean data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if A is API-enabled.
' The results are sent to a text box called Result.
If PgSet.APIEnabled = False Then
 Result.Text = "No"
Else
 Result.Text = "Yes"
End If
```

Ready

This property indicates whether the emulator window is started, API-enabled, and connected. This property checks for all three properties. The value is TRUE if the emulator is ready; otherwise, it is FALSE. Ready is a Boolean data type and is read-only.

Example

```
Dim PgSet as Object
Dim ConnList as Object
Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)
' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
If PgSet.Ready = False Then
 Result.Text = "No"
Else
 Result.Text = "Yes"
End If
```

autECLPageSettings Methods

The following section describes the methods that are valid for the autECLPageSettings object.

void RestoreTextDefaults()
void SetConnectionByName (String Name)
void SetConnectionByHandle (Long Handle)

RestoreTextDefaults

The RestoreTextDefaults method restores the system default values of the **Text** property page in the Page Setup dialog of the connection. This is equivalent to pressing the **Default** button on the **Text** property page of the Page Setup Dialog of the connection.

Prototype

void RestoreTextDefaults()

Parameters

None

Return Value

None

Example

The following example shows the RestoreTextDefaults method.

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

PgSet.RestoreTextDefaults 'Restores Text Default Settings
```

SetConnectionByName

The SetConnectionByName method uses the connection name to set the connection for a newly created autECLPageSettings object. This connection name is the short connection ID (a single alphabetical character from **A** to **Z**). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection **A** open at a time.

Note: Do not call this method if you are using the autECLPageSettings object contained in the autECLSession object.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection. Valid values are A–Z.

Return Value

None

Example

The following example shows how to use the connection name to set the connection for a newly created autECLPageSettings object.

```
Dim PgSet as Object
Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
' Initialize the connection
PgSet.SetConnectionByName("A")
' For example, see if Font CPI is set
If PgSet.FontCPI Then
'your logic here...
End If
```

SetConnectionByHandle

The SetConnectionByHandle method uses the connection handle to set the connection for a newly created autECLPageSettings object. In Z and I Emulator for Windows, this connection handle is a Long integer. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection **A** open at a time.

Note: Do not call this method if you are using the autECLPageSettings object contained in the autECLSession object.

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

Long integer value of the connection to be set for the object.

Return Value

None

Example

The following example shows how to use the connection handle to set the connection for a newly created autECLPageSettings object.

```
Dim PgSet as Object
Dim ConnList as Object

Set PgSet = CreateObject("ZIEWin.autECLPageSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PgSet.SetConnectionByHandle(ConnList(1).Handle)

' For example, see if Font CPI is set
If PgSet.FontCPI Then
'your logic here...
End If
```

autECLPrinterSettings Class

The autECLPrinterSettings object controls the Printer Settings of a Z and I Emulator for Windows connection. Its name in the registry is `ZIEWin.autECLPrinterSetting`s. This automation object can also be used in VB scripts.

The read-only property **autECLPrinterSettings** has been added to the autECLSession object. See autECLSession Class on page 352 for information about how to use this property.

Note: The autECLPrinterSettings object in the autECLSession object is set by the autECLSession object.

The following example shows how to create and set the autECLPrinterSettings object in Visual Basic.

```
DIM PrSet as Object
Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
PrSet.SetConnectionByName("A")
```

Usage Notes

You must initially set the connection for the object you create. Use SetConnectionByName or SetConnectionByHandle to initialize your object. The connection can be set only once. After the connection is set, any further calls to the set

connection methods cause an exception. If you do not set the connection and try to access a property or method, an exception is raised.

The properties CPI, LPI, and FontSize are dependent on the property FaceName. Therefore, if CPI, LPI, or FontSize are set before the FaceName is set, and if they are not valid for the new FaceName, different CPI, LPI, or FontSize values might be reconfigured in the connection. You should set the FaceName before setting the CPI, LPI, or FontSize. Otherwise, every time you set FaceName, query CPI, LPI, and FontSize and make sure that they have the desired values.

Restrictions

The connection associated with each method must be in a particular state for the method to succeed. If the restrictions are not met, an appropriate exception is raised.

The following restrictions must be satisfied while any property or method of the autECLPageSettings object is invoked.

- The host session should not be printing when this API is invoked.
- The **File → Page Setup** and **File → Printer Setup** dialogs should not be in use.

Additional restrictions might apply for each specific property or method.

Properties

This section describes the properties for the autECLPrinterSettings object.

Type	Name	Attributes
Boolean	PDTMode	Read-only
String	PDTFile	Read-only
Long	PrintMode	Read-only
String	Printer	Read-only
String	PrtToDskAppendFile	Read-only
String	PrtToDskSeparateFile	Read-only
Boolean	PrompDialogOption	Read/Write
String	Name	Read-only
Long	Handle	Read-only
String	ConnType	Read-only
Boolean	CodePage	Read-only
Boolean	Started	Read-only
Boolean	CommStarted	Read-only
Boolean	APIEnabled	Read-only
Boolean	Ready	Read-only

PDTMode

This property determines whether the connection is in PDT mode or not. PDTMode is a Boolean data type and is read/write enabled.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

'check if in PDT mode.
If PrSet.PDTMode Then
 ...
```

PDTFile

This property is the PDT file configured in the connection. This property gives a null string if the PDT file is not configured in the connection. Otherwise, this property gives the fully qualified path name of the PDT file. PDTFile is a String data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

If PrSet. PDTFile = vbNullString Then ' get the
  ...
Else
  ...
```

PrintMode

This property indicates the print mode of the connection. PrintMode is a Long data type and is read-only. This property returns one of the following four enumerated values:

Value	Name of the enum constant	Description
1	pcPrtToDskAppend	**Print to Disk-Append** mode. This means the **Print to Disk → Append** option is selected in the **Printer** listbox in the Printer Setup dialog of the connection.

Value	Name of the enum constant	Description
2	pcPrtToDskSeparate	**Print to Disk-Separate** mode. This means the **Print to Disk → Separate** option is selected in the **Printer** listbox in the Printer Setup dialog of the connection.
3	pcSpecificPrinter	**Specific Printer** mode. This means one of the printers is selected in the **Printer** listbox in the Printer Setup dialog of the connection and the **Use Windows Default Printer** checkbox is clear.
4	pcWinDefaultPrinter	**Windows® Default Printer** mode. This means that the **Use Windows Default Printer** checkbox is selected.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

If PrSet.PrintMode = pcPrtToDskAppend Then
  ...
ElseIf PrSet.PrintMode = pcPrtToDskSeparate Then
  ...
ElseIf PrSet.PrintMode = pcSpecificPrinter Then
  ...
ElseIf PrSet.PrintMode = pcWinDefaultPrinter Then
  ...
```

Printer

This property is the name of the printer. It contains one of the following:

- The name of the specific printer if the PrintMode of the connection is pcSpecificPrinter.
- The name of the Windows default printer if the PrintMode of the connection is pcWinDefaultPrinter.
- A null string if a printer is not configured in the connection or if the PrintMode of the connection is pcPrtToDskAppend or pcPrtToDskSeparate.

Printer is a String data type and is read-only.

The value must have the following format:

```
<Printer name> on <Port Name>
```

For example:

- `HP LaserJet 4050 Series PCL 6 on LPT1`

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim Printer as String

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

Printer = PrSet.Printer ' get the Printer Name
```

PrtToDskAppendFile

This property is the name of the file set for the **Print to Disk-Append** mode. This file is called the *Print to Disk-Append* file. This property contains one of the following:

- The fully qualified path name of the **Print to Disk-Append** file of the connection.
- A null string if the **Print to Disk-Append** file is not configured in the connection.

PrtToDskAppendFile is a String data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim DskAppFile as String

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

DskAppFile = PrSet. PrtToDskAppendFile ' get the Disk append file.
```

PrtToDskSeparateFile

This property is the name of the file set for the **Print to Disk-Separate** mode. This file is called the ***Print to Disk-Separate*** file. This property contains one of the following:

- The fully qualified path name of the **Print to Disk-Separate** file of the connection.
- A null string if the **Print to Disk-Separate** file is not configured in the connection.

PrtToDskSeparateFile is a String data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim DskSepFile as String

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

DskSepFile = PrSet. PrtToDskSeparateFile ' get the Disk separate file.
```

PromptDialogOption

This property indicates whether the option to show the Printer Setup dialog before printing is set or not. PromptDialogOption is a Boolean data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim PromptDialog as Boolean

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

PromptDialog = PrSet.PromptDialogOption ' get the Prompt Dialog option
' or...
PrSet.PromptDialogOption = True 'set the Prompt Dialog option
```

Name

This property is the connection name string of the connection for which autECLPrinterSettings was set. Z and I Emulator for Windows returns only the short character ID (a single alphabetical character from **A** to **Z**) in the string. There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection **A** open at a time. Name is a String data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object
DIM Name as String

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
```

```
PrSet.SetConnectionByHandle(ConnList(1).Handle)

Name = PrSet.Name 'Save the name
```

Handle

This property is the handle of the connection for which the autECLPrinterSettings object was set. There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection **A** open at a time. Handle is a Long data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim Hand as Long

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

Hand = PrSet.Handle ' save the handle
```

ConnType

This property is the connection type for which autECLPrinterSettings was set. This type might change over time. ConnType is a String data type and is read-only.

String Value	Connection Type
DISP3270	3270 display
DISP5250	5250 display
PRNT3270	3270 printer
PRNT5250	5250 printer
ASCII	VT emulation

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim Type as String

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

Type = PrSet.ConnType ' save the type
```

CodePage

This property is the code page of the connection for which autECLPrinterSettings was set. This code page might change over time. CodePage is a Long data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object
Dim CodePage as Long

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

CodePage = PrSet.CodePage ' save the codepage
```

Started

This property indicates whether the emulator window is started. The value is TRUE if the window is open; otherwise, it is FALSE. Started is a Boolean data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject(".autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if A is started.
' The results are sent to a text box called Result.
If PrSet.Started = False Then
 Result.Text = "No"
Else
 Result.Text = "Yes"
End If
```

CommStarted

This property indicates the status of the connection to the host. The value is TRUE if the host is connected; otherwise, it is FALSE. CommStarted is a Boolean data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if communications are connected
' for A. The results are sent to a text box called
' CommConn.
If PrSet.CommStarted = False Then
 CommConn.Text = "No"
Else
 CommConn.Text = "Yes"
End If
```

APIEnabled

This property indicates whether the emulator is API-enabled. A connection is API-enabled or disabled depending on the state of its API settings (in a Z and I Emulator for Windows window, click **Settings → API**).

The value is TRUE if the emulator is API-enabled; otherwise, it is FALSE. APIEnabled is a Boolean data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if A is API-enabled.
' The results are sent to a text box called Result.
If PrSet.APIEnabled = False Then
 Result.Text = "No"
Else
 Result.Text = "Yes"
End If
```

Ready

This property indicates whether the emulator window is started, API-enabled, and connected. This property checks for all three properties. The value is TRUE if the emulator is ready; otherwise, it is FALSE. Ready is a Boolean data type and is read-only.

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

' This code segment checks to see if A is ready.
' The results are sent to a text box called Result.
If PrSet.Ready = False Then
 Result.Text = "No"
Else
 Result.Text = "Yes"
End If
```

autECLPrinterSettings Methods

The following sections describe the methods that are valid for the autECLPrinterSettings object.

void SetPDTMode(Boolean bPDTMode, [optional] String PDTFile)
void SetPrtToDskAppend([optional] String FileName)
void SetPrtToDskSeparate([optional] String FileName)
void SetSpecificPrinter(String Printer)
void SetWinDefaultPrinter()
void SetConnectionByName (String Name)
void SetConnectionByHandle (Long Handle)

SetPDTMode

The SetPDTMode method sets the connection in PDT mode with the given PDT file or sets the connection in non-PDT mode (also called *GDI mode*).

Restriction

If this method is called with bPDTMode set to FALSE, PrintMode of the associated connection must already be set to SpecificPrinter or WinDefaultPrinter.

Prototype

void SetPDTMode(Boolean bPDTMode, [optional] String PDTFile)

Parameters

Boolean bPDTMode

Possible values are as follows:

- **TRUE** to set the connection to PDT mode.
- **FALSE** to set the connection to non-PDT mode (GDI mode).

String PDTFile

This optional parameter contains the PDT file name.

This parameter is used only if bPDTMode is TRUE. If this parameter is not specified and bPDTMode is set to TRUE, the PDT file configured in the connection is used. If there is no PDT file already configured in the connection, this method fails with an exception.

This parameter ignored if bPDTMode is FALSE.

Possible values are as follows:

- File name without path

  PDTFile in the PDFPDT subfolder in the Z and I Emulator for Windows installation path is used.
- Fully qualified path name of the file

  If PDTFile does not exist, this method fails with an exception.

Return Value

None

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

PrSet.SetPDTMode(True, "epson.pdt") 'Set PDT mode
PrSet.SetPDTMode(False) 'Set non-PDT mode (also called GDI mode)
```

SetPrtToDskAppend

This method sets the PrintMode of the connection to **Print to Disk-Append** mode. It also sets the appropriate file for this mode.

Note:

1. The folder where this file is to be set must have write access. Otherwise, this method fails with an exception.
2. The associated connection must be in PDT mode.

Prototype

void SetPrtToDskAppend([optional] String FileName)

Parameters

String FileName

This optional parameter contains the name of the **Print to Disk-Append** file.

If the file exists, it is used. Otherwise, it is created when printing is complete.

Possible values are as follows:

- File name, without the path

  The user-class application data directory path will be used to locate the file.

- Fully qualified path name of the file

  The directory must exist in the path, or the method will fail with an exception. It is not necessary that the file exist in the path.

If this parameter is not specified, the file configured for this PrintMode in the connection is used. If there is no file already configured in the connection, this method fails with an exception.

Return Value

None

Example

```
Dim PrSet as Object
Dim ConnList as Object
```

```
Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

'If PDTMode, set PrintMode to pcPrtToDskAppend
If PrSet.PDTMode Then
 PrSet.SetPrtToDskAppend("dskapp.txt")
```

SetPrtToDskSeparate

This method sets the PrintMode of the connection to **Print to Disk-Separate** mode. It also sets the appropriate file for this mode.

Note:

1. The folder where this file is to be set must have write access. Otherwise, this method fails with an exception.
2. The associated connection must be in PDT mode.

Prototype

void SetPrtToDskSeparate([optional] String FileName)

Parameters

String FileName

This optional parameter contains the name of the **Print to Disk-Separate** file.

If this parameter is not specified, the file configured for this PrintMode in the connection is used.

Possible values are:

- **NULL** (default)

  The file that is currently configured for this PrintMode in the connection is used. If there is no file already configured in the connection, the method fails with an exception.

- File name, without the path

  The user-class application data directory path will be used to locate the file.

- Fully qualified path name of the file

  The directory must exist in the path, or the method will fail with an exception. It is not necessary that the file exist in the path.

Note: The file name must not contain an extension. If it contains an extension, the method fails with an exception.

Return Value

None

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

'If PDTMode, set PrintMode to pcPrtToDskSeparate
If PrSet.PDTMode Then
 PrSet.SetPrtToDskSeparate("dsksep")
```

SetSpecificPrinter

This method sets the PrintMode of the connection to Specific Printer mode with the printer specified by the Printer parameter.

Prototype

void SetSpecificPrinter(String Printer)

Parameters

String Printer

Contains the name of the printer. If the printer does not exist, this method fails with an exception.

The value must have the following format:

```
<Printer name> on <Port Name>
```

For example:

- `HP LaserJet 4050 Series PCL 6 on LPT1`

Return Value

None

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

'Set PrintMode to pcSpecificPrinter
PrSet. SetSpecificPrinter("HCL InfoPrint 40 PS on Network Port")
```

SetWinDefaultPrinter

This method sets the PrintMode of the connection to Windows Default Printer mode (the connection will use the Windows default printer). If no Windows default printer is configured, this method fails with an exception.

Prototype

void SetWinDefaultPrinter()

Parameters

None

Return Value

None

Example

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

'Set PrintMode to pcWinDefaultPrinter
PrSet. SetWinDefaultPrinter
```

SetConnectionByName

The SetConnectionByName method uses the connection name to set the connection for a newly created autECLPrinterSettings object. In Z and I Emulator for Windows, this connection name is the short connection ID (a

single alphabetical character from **A** to **Z**). There can be only one Z and I Emulator for Windows connection open with a given name. For example, there can be only one connection **A** open at a time.

Note: Do not call this if you are using the autECLPrinterSettings object contained in the autECLSession object.

Prototype

void SetConnectionByName(String Name)

Parameters

String Name

One-character string short name of the connection. Valid values are A–Z.

Return Value

None

Example

The following example shows how to use the connection name to set the connection for a newly created autECLPrinterSettings object.

```
Dim PrSet as Object
Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
' Initialize the connection
PrSet.SetConnectionByName("A")
' For example, see if PDTMode
If PrSet.PDTMode Then
'your logic here...
End If
```

SetConnectionByHandle

The SetConnectionByHandle method uses the connection handle to set the connection for a newly created autECLPrinterSettings object. In Z and I Emulator for Windows, this connection handle is a Long integer.

There can be only one Z and I Emulator for Windows connection open with a given handle. For example, there can be only one connection **A** open at a time.

Note: Do not call this method if you are using the autECLPrinterSettings object contained in the autECLSession object.

Prototype

void SetConnectionByHandle(Long Handle)

Parameters

Long Handle

The Long integer value of the connection to set for the object.

Return Value

None

Example

The following example shows how to use the connection handle to set the connection for a newly created autECLPrinterSettings object.

```
Dim PrSet as Object
Dim ConnList as Object

Set PrSet = CreateObject("ZIEWin.autECLPrinterSettings")
Set ConnList = CreateObject("ZIEWin.autECLConnList")
' Initialize the connection
ConnList.Refresh
PrSet.SetConnectionByHandle(ConnList(1).Handle)

' For example, see if PDTMode
If PrSet.PDTMode Then
'your logic here...
End If
```

Support For Primary Interop Assemblies for Automation Objects

Automation objects exposed by HCL Z and I Emulator for Windows can be used by applications written in any language that targets the .NET framework. Managed .NET applications can program Z and I Emulator for Windows by using the Primary Interop Assemblies (PIA) that wrap the automation objects. Interop Assemblies are the mechanism with which managed (.NET) applications use COM-compliant objects. Interop Assemblies contain binding and metadata information, which enables the .NET framework (CLR) to load or marshall COM objects and wrap them for .NET applications. The PIA contains the official description of the COM types as defined by the publisher of those COM types. The PIA is always digitally signed by the publisher of the original COM type.

There are two ways a .NET application can reference an assembly.

- If it is a simple application or the only application that uses the assembly, Microsoft recommends that the assembly be copied in the same directory as the application.
- If multiple applications are referencing the assembly, you can install them in the Global Assembly Cache (GAC) and have all the solutions reference the assembly in the GAC.

The model for programming the types exposed by Interop Assemblies is very similar to COM. The methods, properties, and events exposed by the COM object can be accessed by any .NET language, using the syntax of the

language. A sample application (ECLSamps.net) written in C# is provided in the \samples directory in the Z and I Emulator for Windows installation image. The sample demonstrates the simple usage of various Interop Assembly types.

For Visual Basic 6.0, projects that use Z and I Emulator for Windows automation objects and have been migrated to Visual Basic .NET using the conversion assistant wizard, you only need to replace the references that the conversion assistant wizard implicitly generates with the corresponding Z and I Emulator for Windows Interop references (from the \Interops directory) and recompile. The way to replace the references is to delete all the references generated by the conversion assistant and use Visual Studio .NET to add the .NET interop references. If you have registered the assemblies in the GAC and want to use them, add the references and set the Copy Local property for the Z and I Emulator for Windows Interop references to **False**.

The PIAs for the Z and I Emulator for Windows emulator automation objects are installed in the \Interops directory in the Z and I Emulator for Windows installation image. If the Z and I Emulator for Windows product installer detects that the .NET framework is present, it gives you the additional option to register the types in the GAC. While installing the assemblies in the GAC, the PIAs will also be placed in the registry, under the registry key of the corresponding type library.

Table 2: Primary Interop Assemblies for Z and I Emulator for Windows Automation Objects on page 423 lists the PIAs supplied for the Z and I Emulator for Windows automation objects

Table 2. Primary Interop Assemblies for Z and I Emulator for Windows Automation Objects

Automation Object	Interop Assembly Dependency
autECLConnList	Interop.AutConnListTypeLibrary.dll
autECLConnMgr	Interop.AutConnMgrTypeLibrary.dll
autECLConnList	Interop.AutPSTypeLibrary.dll
autECLOIA	Interop.AutOIATypeLibrary.dll
autECLPS	Interop.AutPSTypeLibrary.dll
autECLScreenDesc	Interop.AutScreenDescTypeLibrary-.dll
autECLScreenReco	Interop.AutScreenRecoTypeLibrary-.dll
autECLSession	Interop.AutSessTypeLibrary.dll
autECLPageSettings	Interop.AutSettingsTypeLibrary.dll
autECLPrinterSettings	Interop.AutSettingsTypeLibrary.dll
autECLWinMetrics	Interop.AutWinMetricsTypeLibrary.dll
autECLXfer	Interop.AutXferTypeLibrary.dll
autSystem	Interop.AutSystemTypeLibrary.dll

Chapter 4. Host Access Class Library for Java

The Host Access Class Library (HACL) Java classes expose the Z and I Emulator for Windows HACL functions to the Java programming environment. This allows the creation of Java applets and applications that utilize the functions provided in the HACL classes.

The HACL Java HTML files can be found in the Docs_Admin_Aids zip folder delivered along with Z and I Emulator for Windows product documentation in the following path : *ZIEWin_3.0_Docs_Admin_Aids.zip\publications\en_US\doc \hacl* directory.

Chapter 5. Troubleshooting

You can use the following self-help information resources and tools to help you troubleshoot problems:

- Refer to the release information for your product for known issues, workaround, and troubleshooting information.
- Check if a download or fix is available to resolve your problem.
- Search the available knowledge bases to see if the resolution to your problem is already documented.
- If you still need help, contact HCL Software Support and report your problem.

HCL Z and I Emulator for Windows .NET Interop assemblies fail to trigger session OIA notifications

Problem

.NET applications which register for OIA event notifications are not notified of these events. Also several methods of corresponding COM type library are not shown by Visual studio's intellisense feature.

Cause

.NET Interop assemblies are derived from corresponding COM type library using the tool TlbImp.exe shipped with Microsoft SDK. The Type Library Importer converts the type definitions found within a COM type library into equivalent definitions in a common language runtime assembly. The runtime marshaler however cannot marshal all the data types. Therefore some COM type library definitions are not found in the resulting common language runtime assembly.

Resolution

This is a limitation of TlbImp.exe.

Appendix A. Sendkeys Mnemonic Keywords

Table 3: Mnemonic Keywords for the Sendkeys Method on page 426 contains the mnemonic keywords for the Sendkeys method.

Table 3. Mnemonic Keywords for the Sendkeys Method

Keyword	Description
[backtab]	Back tab
[clear]	Clear screen
[delete]	Delete
[enter]	Enter
[eraseeof]	Erase end of field
[help]	Help
[insert]	Insert
[jump]	Jump
[left]	Left
[newline]	New line
[space]	Space
[print]	Print
[reset]	Reset
[tab]	Tab
[up]	Up
[Down]	Down
[capslock]	CapsLock
[right]	Right
[home]	Home
[pf1]	PF2
[pf2]	PF2
[pf3]	PF3
[pf4]	PF4
[pf5]	PF5
[pf6]	PF6
[pf7]	PF7
[pf8]	PF8
[pf9]	PF9
[pf10]	PF10
[pf11]	PF11
[pf12]	PF12
[pf13]	PF13
[pf14]	PF14

Table 3. Mnemonic Keywords for the Sendkeys Method (continued)

Keyword	Description
[pf15]	PF15
[pf16]	PF16
[pf17]	PF17
[pf18]	PF18
[pf19]	PF19
[pf20]	PF20
[pf21]	PF21
[pf22]	PF22
[pf23]	PF23
[pf24]	PF24
[eof]	End of file
[scrlock]	Scroll Lock
[numlock]	Num Lock
[pageup]	Page Up
[pagedn]	Page Down
[pa1]	PA 1
[pa2]	PA 2
[pa3]	PA 3
[test]	Test
[worddel]	Word Delete
[fldext]	Field Exit
[erinp]	Erase Input
[sysreq]	System Request
[instog]	Insert Toggle
[crsel]	Cursor Select
[fastleft]	Cursor Left Fast
[attn]	Attention
[devcance]	Device Cancel
[printps]	Print Presentation Space
[fastup]	Cursor Up Fast
[fastdown]	Cursor Down Fast
[hex]	Hex
[fastright]	Cursor Right Fast
[revvideo]	Reverse Video
[underscr]	Underscore
[rstvideo]	Reset Reverse Video
[red]	Red

Table 3. Mnemonic Keywords for the Sendkeys Method (continued)

Keyword	Description
[pink]	Pink
[green]	Green
[yellow]	Yellow
[blue]	Blue
[turq]	Turquoise
[white]	White
[rstcolor]	Reset Host Color
[printpc]	Print (PC)
[wordright]	Forward Word Tab
[wordleft]	Backward Word Tab
[field-]	Field -
[field+]	Field +
[rcdbacksp]	Record Backspace
[printhost]	Print Presentation Space on Host
[dup]	Dup
[fieldmark]	Field Mark
[dispsosi]	Display SO/SI
[gensosi]	Generate SO/SI
[dispattr]	Display Attribute
[fwdchar]	Forward Character
[splitbar]	Split Vertical Bar
[altcsr]	Alternate Cursor
[backspace]	Backspace
[null]	Null

Appendix B. ECL Planes — Format and Content

This appendix describes the format and contents of the different data planes in the ECL presentation space model. Each plane represents a distinct aspect of the host presentation space, such as its character contents, color specifications, field attributes, and so on. The ECL::GetScreen methods and others return data from the different presentation space planes.

Each plane contains one byte per host presentation space character position. Each plane is described in the following sections in terms of its logical contents and data format. The plane types are enumerated in the ECLPS.HPP header file.

TextPlane

The text plane represents the visible characters of the presentation space. Non-display fields are shown in the text plane. The byte value of each element of the text plane corresponds to the ASCII value of the displayed character. The text plane does not contain any binary zero (null) character values. Any null characters in the presentation space (such as null-padded input fields) are represented as ASCII blank (0x20) characters.

FieldPlane

The field plane represents the field positions and their attributes in the presentation space. This plane is meaningful only for field-formatted presentation spaces. (For example, VT connections are not formatted).

This plane is a sparse-array of field attribute values. All values in this plane are binary zero except for where field attribute characters are present in the presentation space. At those positions, the values are the attributes of the field which starts at that location. The length of a field is the linear distance between the field attribute position and the next field attribute in the presentation space, not including the attribute position itself.

The value of the field attribute positions are as shown in the following tables.

Note: Attribute values are different for different types of connections.

Table 4. 3270 Field Attributes

Bit Position (0 is least significant bit)	Meaning
7	Always "1"
6	Always "1"
5	**0** Unprotected **1** Protected

Table 4. 3270 Field Attributes (continued)

Bit Position (0 is least significant bit)	Meaning
4	**0** Alphanumeric data **1** Numeric data only
3, 2	**0, 0** Normal intensity, not pen detectable **0, 1** Normal intensity, pen detectable **1, 0** High intensity, pen detectable **1, 1** Nondisplay, not pen detectable
1	Reserved
0	**0** Field has not been modified **1** Unprotected field has been modified

Table 5. 5250 Field Attributes

Bit Position (0 is least significant bit)	Meaning
7	Always "1"
6	**0** Nondisplay **1** Display
5	**0** Unprotected **1** Protected
4	**0** Normal intensity

Table 5. 5250 Field Attributes (continued)

Bit Position (0 is least significant bit)	Meaning
	1 High intensity
3, 2, 1	**0, 0, 0** Alphanumeric data **0, 0, 1** Alpha only **0, 1, 0** Numeric shift **0, 1, 1** Numeric data plus numeric specials **1, 0, 1** Numeric only **1, 1, 0** Magnetic stripe reading device data only **1, 1, 1** Signed numeric only
0	**0** Field has not been modified **1** Unprotected field has been modified

Table 6: Mask Values on page 431 defines the various mask values:

Table 6. Mask Values

Mnemonic	Mask	Description
FATTR_MDT	0x01	Modified field
FATTR_PEN_MASK	0x0C	Pen detectable field
FATTR_BRIGHT	0x08	Intensified field
FATTR_DISPLAY	0x0C	Visible field
FATTR_ALPHA	0x10	Alphanumeric field
FATTR_NUMERIC	0x10	Numeric only field
FATTR_PROTECTED	0x20	Protected field
FATTR_PRESENT	0x80	Field attribute present
FATTR_52_BRIGHT	0x10	5250 intensified field

Table 6. Mask Values (continued)

Mnemonic	Mask	Description
FATTR_52_DISP	0x40	5250 visible field

ColorPlane

The color plane contains color information for each character of the presentation space. The foreground and background color of each character is represented as it is specified in the host data stream. The colors in the color plane are not modified by any color display mapping of the emulator window. Each byte of the color plane contains the following color information.

Table 7. Color Plane Information

Bit Position (0 is least significant bit)	Meaning
7 - 4	**Background character color** **0x0** Blank **0x1** Blue **0x2** Green **0x3** Cyan **0x4** Red **0x5** Magenta **0x6** Brown (3270), Yellow (5250) **0x7** White
3-0	**Foreground character color** **0x0** Blank **0x1** Blue

Table 7. Color Plane Information (continued)

Bit Position (0 is least significant bit)	Meaning
	0x2 Green **0x3** Cyan **0x4** Red **0x5** Magenta **0x6** Brown (3270), Yellow (5250) **0x7** White (normal intensity) **0x8** Gray **0x9** Light blue **0xA** Light green **0xB** Light cyan **0xC** Light red **0xD** Light magenta **0xE** Yellow **0xF** White (high intensity)

ExfieldPlane

This plane contains extended character attribute data.

This plane is a sparse-array of extended character attribute values. All values in the array are binary zero except for character in the presentation space for which the host has specified extended character attributes. The meaning of the extended character attribute values are as follows.

Table 8. 3270 Extended Character Attributes

Bit Position (0 is least significant bit)	Meaning
7, 6	**Character highlighting** **0, 0** Normal **0, 1** Blink **1, 0** Reverse video **1, 1** Underline
5, 4, 3	**Character color** **0, 0, 0** Default **0, 0, 1** Blue **0, 1, 0** Red **0, 1, 1** Pink **1, 0, 0** Green **1, 0, 1** Turquoise **1, 1, 0** Yellow

Table 8. 3270 Extended Character Attributes (continued)

Bit Position (0 is least significant bit)	Meaning
	1, 1, 1 White
2, 1	**Character attribute** **00** Default **11** Double byte character
0	Reserved

Table 9. 5250 Extended Character Attributes

Bit Position (0 is least significant bit)	Meaning
7	**0** Normal image **1** Reverse image
6	**0** No underline **1** Underline
5	**0** No blink **1** Blink
4	**0** No column separator **1** Column separator
3, 2, 1, 0	Reserved

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