

Service Graph Connector Integration



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Chapter 1. Service Graph Connector Integration

The **Service Graph Connector** allows you to integrate the **BigFix Inventory** with the **CMDB**. The connector is designed to support common use cases and requires additional customizations to meet your specific business process requirements. Successful implementation of the connector requires thorough assessment and due diligence, and could involve modifications to input fields or the implementation of specialized reconciliation processes to align with your internal workflows.

For information on integrations API, refer to [REST API](#).

System requirements

This topic provides detailed information about the system requirements.

- Recommended BigFix Inventory Version is 10.0.6 and higher
- Plugins required:
 - `com.snc.itom.vis.license`
 - `com.snc.itom.license`
 - `sn_cmdb_int_util(2.3.1)`
 - `com.glide.system_import_set`
- Plugins recommended:
 - IntegrationHub ETL
 - Integration Commons for CMDB
 - Service Graph Data Visualizer
- Type of table permissions required:
 - Read
- Important BigFix Inventory configurations
 - Hardware Status of all computers should be reported as "OK" on the *Hardware Inventory* report. Status "No VM Manager Data" or "Outdated VM Manager Data" will be displayed if your computer is missing virtualization data from VM Manager. Please review below article for more information, including the section "Troubleshooting Outdated VM Manager Data":
https://help.hcl-software.com/bigfix/11.0/inventory/Inventory/admin/r_vm_manager_statuses.html
 - Make sure that capacity scan is scheduled on all endpoints and results are uploaded, otherwise Hardware Status of the computer will show "No Scan Data". Capacity data is required for software and hardware data imports to ServiceNow.
https://help.hcl-software.com/bigfix/11.0/inventory/Inventory/planinconf/c_collecting_capacity_data.html

- Detailed Hardware scan must be executed on all endpoints to retrieve computers' unique BIOS serial numbers. For more information, you can check the following link: https://help.hcl-software.com/bigfix/11.0/inventory/Inventory/planinconf/c_detailed_hw_scan.html

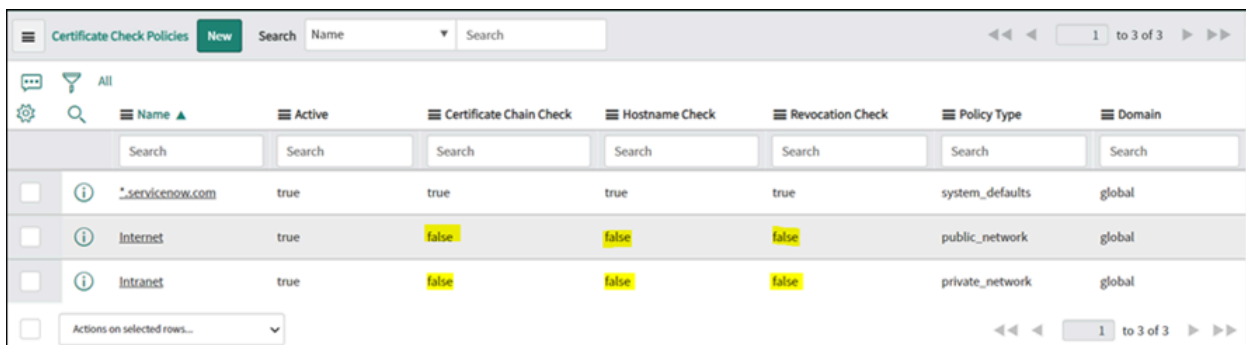
Use the latest BigFix Scanner with the latest bug fixes and enhancements on all endpoints. https://help.hcl-software.com/bigfix/11.0/BigFix_Scanner/index.html

Configuration Instructions

Beginning with Rome, the out of the box MID Server security policy checks for certificates for communicating with mid server. For more information on MID Server certificate check policies, refer to [ServiceNow documentation](#).

Customers see certificate errors while using the Service Graph Connector for HCL BigFix if BigFix Inventory does not use valid certificates that are trusted by the MID Server. To avoid these issues, leverage trusted certificates with BigFix Inventory ([Configuring secure communication](#)), or disable the checks within ServiceNow by setting the flags to be false for the Internet/Intranet depending on how the MID server communicates with the

instance.



	Name	Active	Certificate Chain Check	Hostname Check	Revocation Check	Policy Type	Domain
<input type="checkbox"/>	*.servicenow.com	true	true	true	true	system_defaults	global
<input type="checkbox"/>	Internet	true	false	false	false	public_network	global
<input type="checkbox"/>	Intranet	true	false	false	false	private_network	global

You may need to update Application Access Permissions to the CMDB tables to enable the Service Graph Connector for BigFix to remove software records from CMDB that no longer exist on endpoints. For details and reference, refer to [ServiceNow Table design and runtime settings](#).

tables

System Clone

▼ Clone Definition

Exclude Tables

System Definition

Tables

Tables & Columns

Decision Tables

▼ Remote Tables

Tables

Definitions

System Diagnostics

Table Software Installation

A table is a collection of records in the database. Each record corresponds to a row in a table, and each row corresponds to a record in the table.

* Label Software Installation

* Name cmdb_sam_sw_install

Columns Controls Application Access

Accessible from All application scopes

Can read ☒

Can create ☒

Can update ☒

Can delete ☐

Follow steps through 'Service Graph Connector for BigFix' guided setup for setting up the application.

1. Configure the API:

- Login to the BigFix Inventory user interface.
- In the Header, on the right-hand side, click Profile:
- Click on Show Token.
- Copy the token and place it in the API Key of ServiceNow setup.
- Click Update.
- Go back to the setup page and mark the action as complete.

2. Configure https connection:

- In the Host Section, provide IP/Domain name of the BigFix Inventory server
- Click on Mid server for your integration and select the appropriate field as shown:

HTTP(s) Connection
BigFix_API

URL builder ☒

Connection URL

Mutual authentication ☐

* Protocol

Use MID server ☒

* Host

Override default port

Base path

Advanced MID Server Configuration

MID Selection

This is an advanced feature for System Administrators to narrow down MID Server Selection Criterion. [More Info](#)

Capabilities

MID Applications are a higher level grouping beyond Capabilities. Use 'ALL' by default. [More Info](#)

MID Application

Make sure to have 'Capabilities' selected and MID Application as 'ALL'

i. Click Update

ii. Back to Setup Page-Mark as complete

3. Test connection:

a. Click Configure

b. Click Test Load 20 Records

4. Adding Discovery Source:

a. In the left navigator-Fix Scripts

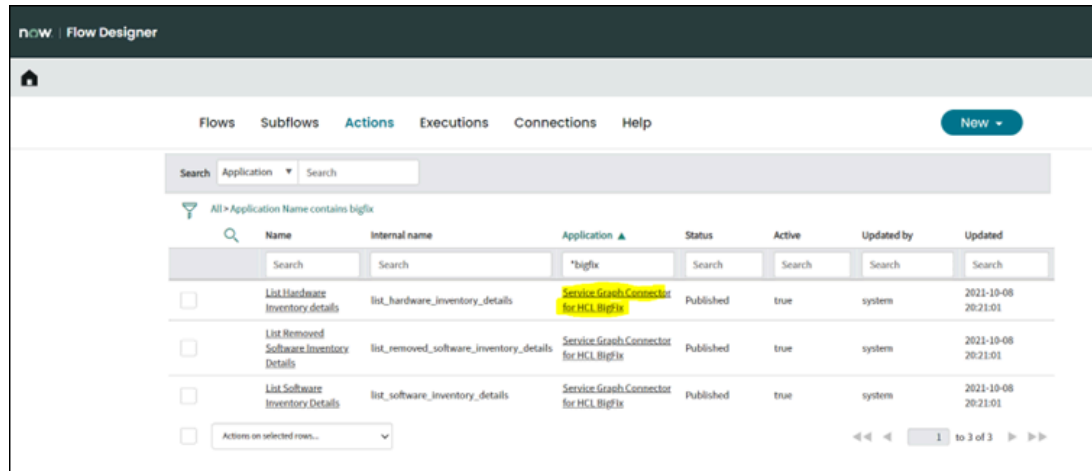
b. In the Fix Script list, look for Register BigFix Discovery Source

c. Open that record and click "Run Fix Script"

5. Confirming Test Connection:

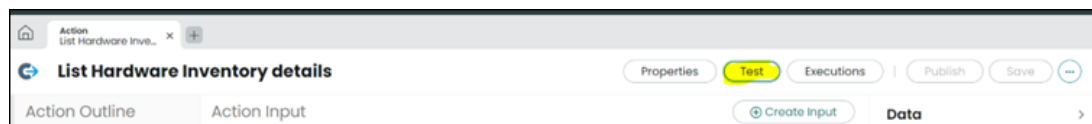
a. Go to Flow Designer

b. Under Actions: Look for Actions under Application 'Service Graph Connector for HCL BigFix':



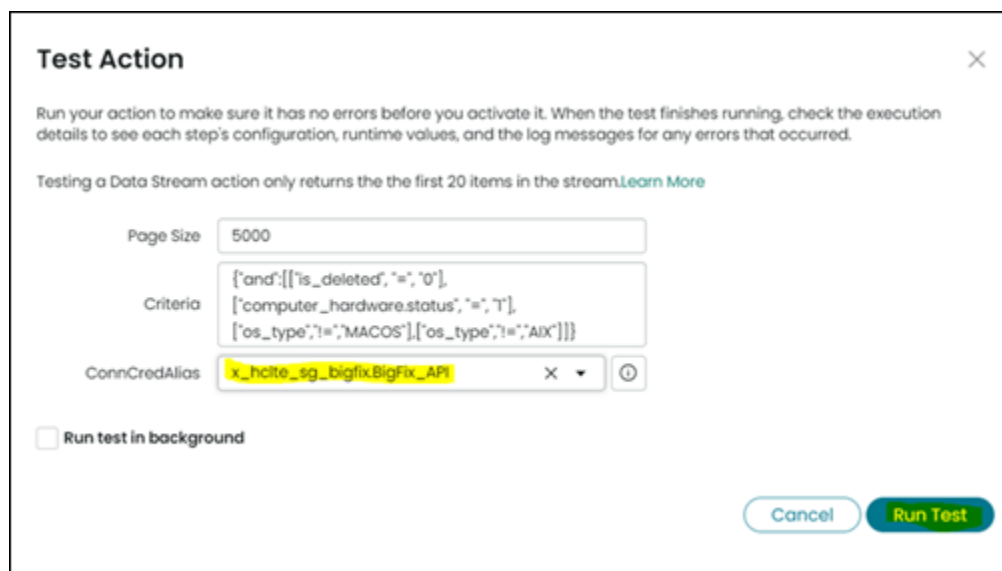
c. Open Any action Action. For e.g.: 'List hardware Inventory Details'

d. Click on 'test' button:



e. Select the Connection Alias and click on "Run Test":

Run test and see if the data is being populated. If yes, connections are good and we are good to move with next steps.



f. Selecting the flags for 'Criteria' shown above:

We have below system properties:

- `x_hclte_sg_bigfix.include_aix_computers` – false [by default]- **exclude** AIX computers from graph connector integration. Can be flipped to 'true' from `sys_properties` table.
- `x_hclte_sg_bigfix.include_computers_with_no_bios_serial_number` - true [by default] - **Include** computers with no bios number
- `x_hclte_sg_bigfix.include_macos_computers` - false [by default] - **exclude** macos computers from graph connector integration as currently we don't have a way to pull serial number from Inventory

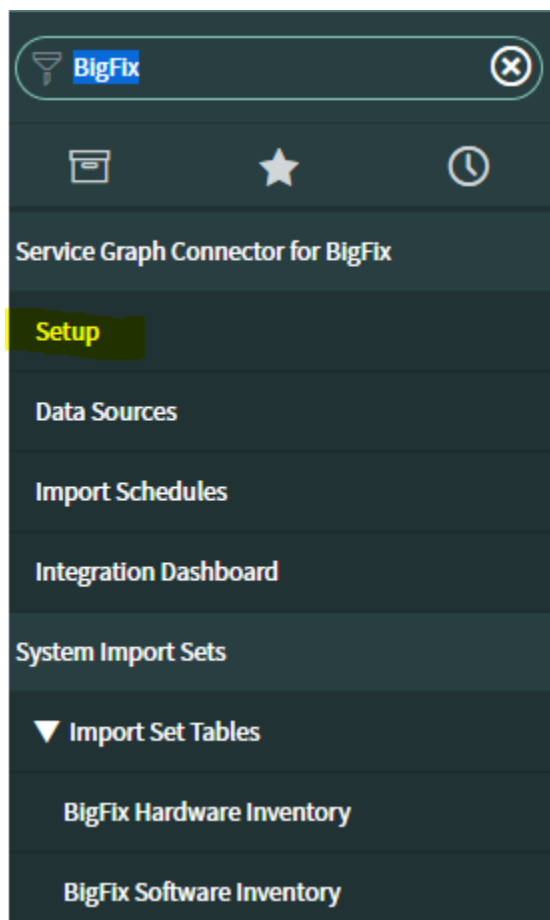


Note: The properties can be changed as per customer's requirements.

External systems connection

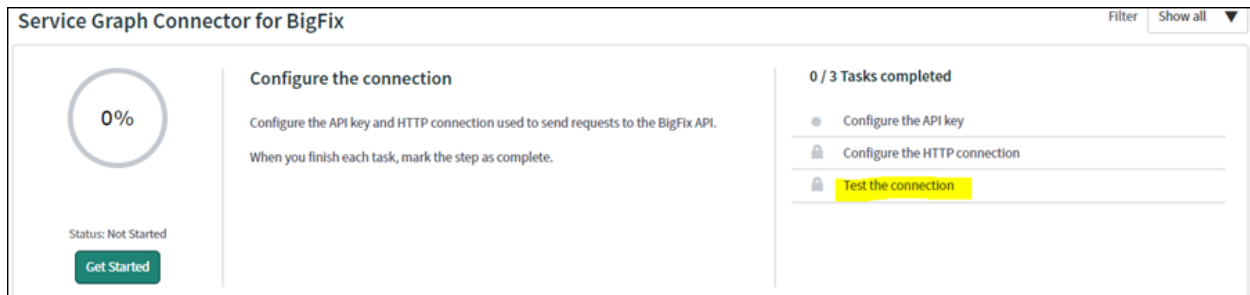
If your application contains integration components, clearly outlined them here and provide integration user creation instructions:

- Integration components required: `<API token,Http connection,credentials, data sources, etc.>`
- Follow the steps under the guided setup:



Testing the configuration

Setup guide provides the option to test the connection after the necessary connection details have been configured.



Service Graph Connector for BigFix Filter Show all ▼

Status: Not Started

Get Started

Configure the connection

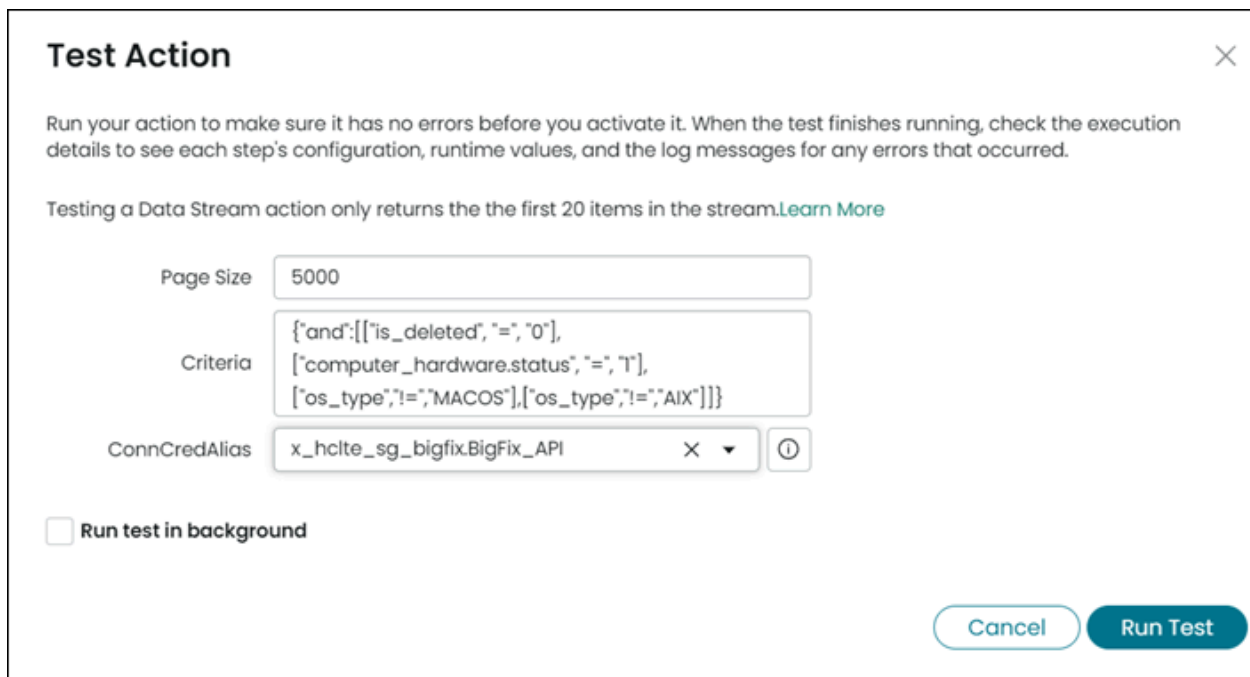
Configure the API key and HTTP connection used to send requests to the BigFix API.

When you finish each task, mark the step as complete.

0 / 3 Tasks completed

- Configure the API key
- Configure the HTTP connection
- Test the connection**

Configuration must also be tested from FLOW Designer view for any of the **actions** under Application 'Service Graph Connector for BigFix':



Test Action ✕

Run your action to make sure it has no errors before you activate it. When the test finishes running, check the execution details to see each step's configuration, runtime values, and the log messages for any errors that occurred.

Testing a Data Stream action only returns the the first 20 items in the stream.[Learn More](#)

Page Size

Criteria

ConnCredAlias ✕ ⓘ

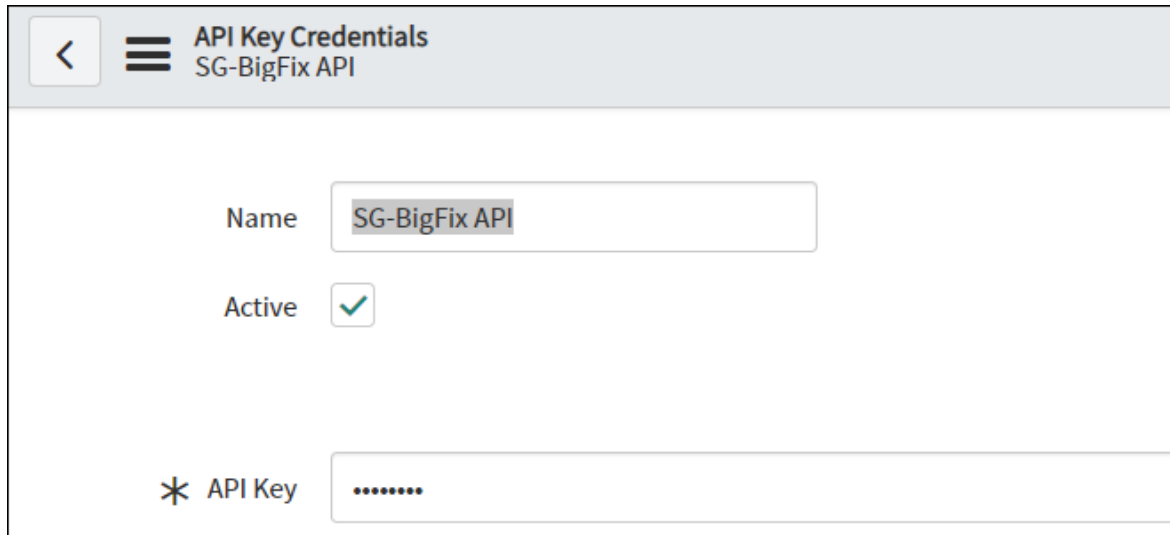
☐ Run test in background

Cancel Run Test

Demo Data

This Integration has 2 demo data records:

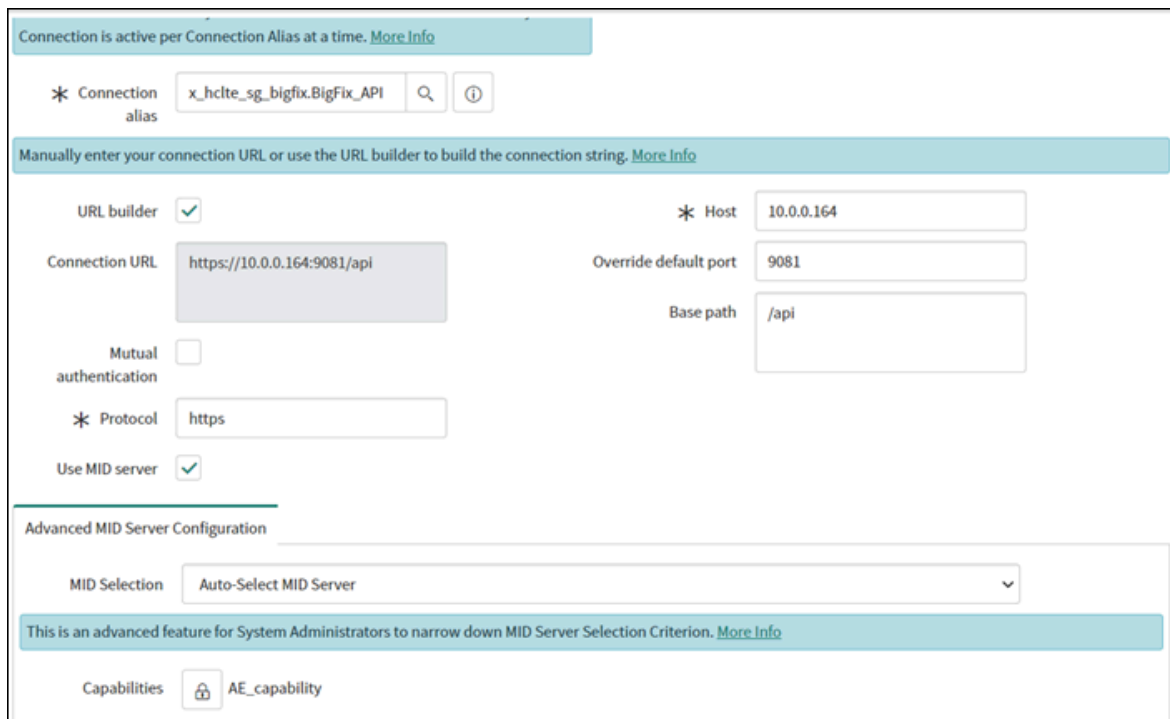
1. Under the SETUP and 'Configure the API Key' option:



The screenshot shows the 'API Key Credentials' configuration page for 'SG-BigFix API'. The page has a header with a back arrow, a menu icon, and the title 'API Key Credentials SG-BigFix API'. Below the header, there are three main sections: 'Name' with a text input field containing 'SG-BigFix API', 'Active' with a checked checkbox, and 'API Key' with a masked text input field showing eight dots.

The default value is a dummy value which needs to be updated to the API key fetched from Inventory UI.

2. Under the SETUP and 'Configure the HTTP Connection' option:



The screenshot shows the 'Configure the HTTP Connection' configuration page. It features a teal header bar with the text 'Connection is active per Connection Alias at a time. [More Info](#)'. Below this, there is a 'Connection alias' field with the value 'x_hclte_sg_bigfix.BigFix_API'. A teal bar below the alias field contains the text 'Manually enter your connection URL or use the URL builder to build the connection string. [More Info](#)'. The main configuration area includes: 'URL builder' (checked), 'Connection URL' (https://10.0.0.164:9081/api), 'Mutual authentication' (unchecked), 'Protocol' (https), 'Use MID server' (checked), 'Host' (10.0.0.164), 'Override default port' (9081), and 'Base path' (/api). An 'Advanced MID Server Configuration' section follows, with 'MID Selection' set to 'Auto-Select MID Server'. A teal bar below this section states 'This is an advanced feature for System Administrators to narrow down MID Server Selection Criterion. [More Info](#)'. At the bottom, the 'Capabilities' section shows 'AE_capability' selected.

The default value is a dummy value which needs to be updated as per customer's Inventory server details.

Rest API and existing mappings

Learn how to integrate and interact with ServiceNow using REST APIs, including configuring existing data mappings for seamless data exchange.

Computers

Refer to the [REST API for hardware \(v2\)](#) to know about the BigFix Inventory computers (hardware) API v2.

Example of API request URL used to transfer computers data to ServiceNow:

```
[BFI_URL]/api/sam/v2/computers?token=[FILTERED]&offset=0&limit=50000&order[ ]=id&criteria={ "and": [ [ "is_deleted", "=", "0" ], [ "computer_hardware.status", "=", "1" ], [ "os_type", "!=", "MACOS" ], [ "os_type", "!=", "AIX" ] ] }&columns[ ]=id&columns[ ]=bigfix_id&columns[ ]=computer_group_id&columns[ ]=name&columns[ ]=dns_name&columns[ ]=os&columns[ ]=os_type&columns[ ]=first_seen&columns[ ]=last_seen&columns[ ]=is_deleted&columns[ ]=deletion_date&columns[ ]=is_managed_by_vm_manager&columns[ ]=detailed_hw_smbios.system_serial_number&columns[ ]=detailed_hw_ip_addresses.permanent_mac_address&columns[ ]=detailed_hw_ip_addresses.id&columns[ ]=detailed_hw_ip_addresses.address&columns[ ]=detailed_hw_storages.total_size&columns[ ]=detailed_hw_storages.id&columns[ ]=detailed_hw_memories.total_physical&columns[ ]=detailed_hw_memories.id&columns[ ]=detailed_hw_storages.device&columns[ ]=detailed_hw_network_adapters.type&columns[ ]=detailed_hw_network_adapters.permanent_address&columns[ ]=detailed_hw_network_adapters.current_address&columns[ ]=detailed_hw_network_adapters.model&columns[ ]=computer_hardware.status&columns[ ]=computer_hardware.server_serial_number&columns[ ]=computer_hardware.computer_type&columns[ ]=computer_hardware.server_type&columns[ ]=computer_hardware.server_model&columns[ ]=computer_hardware.server_vendor&columns[ ]=detailed_hw_ip_addresses.ipv6_address
```



Note: The actual URL is different as it is the URI encoded and it follows the ServiceNow formatting. Review logs of API calls with their URLs in BigFix Inventory's [tema.log](#).

Example of API JSON response:

```
{
  "total": 25644,
  "rows": [
    {
      "id": 3,
      "bigfix_id": 10000000,
      "computer_group_id": 0,
      "name": "BFI-T-WIN19",
      "dns_name": "BFI-t-Win19",
      "os": "Win2019 10.0.17763.107 (1809)",
      "os_type": "WINDOWS",
      "first_seen": "2024-10-31T16:05:05Z",
      "last_seen": "2025-01-25T00:10:53Z",
      "is_deleted": 0,

```



```
{
  "type": "Ethernet Adapter",
  "permanent_address": "00:00:00:00:00:00",
  "current_address": "00:00:00:00:00:00",
  "model": "Intel(R) 82574L Gigabit Network Connection"
}
```

API data availability in BigFix Inventory report columns

BigFix Inventory Computers API	BigFix Inventory UI
id	Internal Computer ID
bigfix_id	Data Source Computer ID
computer_group_id	<i>not available - it will always be equal to 0, which represents the "All computers" group</i>
name	Computer Name
dns_name	DNS Name
os	Operating System
os_type	<i>(not available)</i>
first_seen	First Seen
last_seen	Last Seen
is_deleted	<i>(not available)</i>
deletion_date	<i>(not available)</i>
is_managed_by_vm_manager	<i>(not available)</i>
computer_hardware.status	Status
computer_hardware.server_serial_number	Server Serial Number
computer_hardware.computer_type	Computer Type
computer_hardware.server_type	Server Type
computer_hardware.server_model	Server Model
computer_hardware.server_vendor	Server Vendor
detailed_hw_smbios.system_serial_number	System Serial Number
detailed_hw_ip_addresses.permanent_mac_address	<i>(not available)</i>
detailed_hw_ip_addresses.id	<i>(not available)</i>

BigFix Inventory Computers API	BigFix Inventory UI
detailed_hw_ip_addresses.address	(not available)
detailed_hw_ip_addresses.ipv6_address	(not available)
detailed_hw_storages.total_size	(not available)
detailed_hw_storages.id	(not available)
detailed_hw_storages.device	(not available)
detailed_hw_memories.total_physical	(not available)
detailed_hw_memories.id	(not available)
detailed_hw_network_adapters.type	(not available)
detailed_hw_network_adapters.permanent-address	(not available)
detailed_hw_network_adapters.current-address	(not available)
detailed_hw_network_adapters.model	(not available)

Existing mappings

Computer (cmdb_ci_computer)

CMDB field name	API field name	ETL transform
DNS Domain	dns_name	
First Discovered	first_seen	
Is virtual	is_managed_by_vm_manager	
Manufacturer	server_model, server_vendor	✓
Model ID	server_model, server_vendor	✓
Most recent discovery	last_seen	
Name	name	✓
Operating System	os	
RAM	detailed_hw_memories.total_physical	✓
Serial Number	detailed_hw_smbios.system_serial_number	

Serial Number (cmdb_ci_serial_number)



Note: There are 2 types of Serial Numbers synchronized: the BIOS and System serial number.

CMDB field name	API field name	ETL trans-forme
Serial Number	detailed_hw_smbios.system_serial_number	
Serial Number Type	(hardcoded to "bios")	✓
Valid	detailed_hw_smbios.system_serial_number	✓

CMDB field name	API field name	ETL trans-forme
Serial Number	computer_hardware.server_serial_number	
Serial Number Type	(hardcoded to "system")	✓
Valid	computer_hardware.server_serial_number	✓

Disk (cmdb_ci_disk)

CMDB field name	API field name	ETL trans-forme
Device ID	detailed_hw_storages.device	✓
Name	detailed_hw_storages.device	✓
Disk space (GB)	detailed_hw_storages.total_size	✓
Size bytes	detailed_hw_storages.total_size	✓

IP Address (cmdb_ci_ip_address)

CMDB field name	API field name	ETL trans-forme
IP Address	detailed_hw_ip_addresses.address	
Name	detailed_hw_ip_addresses.address	
Mac Address	detailed_hw_network_adapters.permanent_address	
Nic	(not available)	

Network Adapter (cmdb_ci_network_adapter)

CMDB field name	API field name	ETL trans- forme
Configuration Item	(not available)	
Mac Address	detailed_hw_network_adapters.permanent_ad- dress	
Name	detailed_hw_network_adapters.permanent_ad- dress	

Software

Refer to the [Retrieval of software inventory \(v2\)](#) to know about the BigFix Inventory computers (hardware) API v2.

Example of API request URL used to transfer computers data to ServiceNow:

```
[BFI_URL]/api/sam/v2/software_instances?token=[FILTERED]&offset=0&limit=100000&order[]=computer_id&criteria={
  "and": [{"is_present", "=", "1"}, {"is_suppressed", "=", "0"}, {"computer_hardware.status", "=", "1"}, {"computer_os_ty
  pe", "!=", "MACOS"}, {"computer_os_type", "!=", "AIX"}]}&columns[]=instance_id&columns[]=computer_bigfix_id&column
s[]=component_name&columns[]=component_release&columns[]=component_detailed_version&columns[]=component_publi
sher_name&columns[]=is_present&columns[]=discovery_start&columns[]=discovery_end&columns[]=discovery_path&col
umns[]=computer_id&columns[]=computer_name&columns[]=is_suppressed&columns[]=usage_data.has_usage&columns[]=u
sage_data.last_used&columns[]=usage_data.total_runs&columns[]=computer_hardware.status&columns[]=computer_har
dware.server_model&columns[]=computer_os&columns[]=computer_os_type&columns[]=product_name&columns[]=product_
publisher_name&columns[]=product_release_name&columns[]=product_release&columns[]=computer_details.last_seen
```



Note: The actual URL will be slightly different as it will be URI encoded and it will follow ServiceNow formatting. You can review logs of API calls with their URLs in BigFix Inventory's `tema.log`.

Example of API JSON response:

```
{
  "total": 25644,
  "rows": [
    {
      "id": 3,
      "bigfix_id": 10000000,
      "computer_group_id": 0,
      "name": "BFI-T-WIN19",
      "dns_name": "BFI-t-Win19",
      "os": "Win2019 10.0.17763.107 (1809)",
```



```

"os_type": "WINDOWS",
"first_seen": "2024-10-31T16:05:05Z",
"last_seen": "2025-01-25T00:10:53Z",
"is_deleted": 0,
"deletion_date": null,
"is_managed_by_vm_manager": 1,
"computer_hardware": {
  "status": "1",
  "server_serial_number": "XXXXXXXXXXXXXXXXXX",
  "computer_type": 1,
  "server_type": null,
  "server_model": "PowerEdge M640",
  "server_vendor": "Dell Inc."
},
"detailed_hw_smbios": [
  {
    "system_serial_number": "VMware-XX XX XX XX XX XX XX XX-XX XX XX XX XX XX XX XX"
  }
],
"detailed_hw_ip_addresses": [
  {
    "permanent_mac_address": "00:00:00:00:00:00",
    "id": 3,
    "address": "10.100.100.100",
    "ipv6_address": "0000:0000:0000:0000:0000:0000:00000000"
  }
],
"detailed_hw_storages": [
  {
    "total_size": "102398",
    "id": 5,
    "device": "\\.\.\.\.\PHYSICALDRIVE0"
  },
  {
    "total_size": "0",
    "id": 6,
    "device": ""
  }
],
"detailed_hw_memories": [
  {
    "total_physical": "8388084",

```

```
      "id": 3
    },
    ],
    "detailed_hw_network_adapters": [
      {
        "type": "Ethernet Adapter",
        "permanent_address": "00:00:00:00:00:00",
        "current_address": "00:00:00:00:00:00",
        "model": "Intel(R) 82574L Gigabit Network Connection"
      }
    ]
  }
}
```

API data availability in BigFix Inventory report columns

BigFix Inventory Computers API	BigFix Inventory UI
instance_id	(not available)
computer_bigfix_id	Data Source Computer ID
component_name	Component Name
component_release	Component Version
component_detailed_version	Component Detailed Ver- sion
component_publisher_name	Publisher Name
is_present	Present
discovery_start	Discovery Start
discovery_end	Discovery End
discovery_path	Installation Path
computer_id	Internal Computer ID
computer_name	Computer Name
is_suppressed	Suppressed
computer_os	Operating System
computer_os_type	(not available)
product_name	Product Name
product_publisher_name	Product Publisher Name
product_release_name	Product Name
product_release	Product Version

BigFix Inventory Computers API	BigFix Inventory UI
computer_hardware.status	Status
computer_hardware.server_model	Server Serial Number
usage_data.has_usage	Has Usage
usage_data.last_used	Last Used
usage_data.total_runs	Total Runs
computer_details.last_seen	Computer Last Seen

Software Packages (cmdb_ci_spkg)

CMDB field name	API field name	ETL trans-forme
Discovery source	<i>(value hard coded to SG-BigFix)</i>	
First discovered	discovery_start	
Key	component_name, component_release	✓
Manufacturer	component_name, component_release, component_publisher_name	✓
Name	component_name, component_release, component_publisher_name	✓
Version	component_name, component_release, component_publisher_name	✓

Software Instances (cmdb_software_instance)

CMDB field name	API field name	ETL trans-forme
Name	component_name, component_release, component_publisher_name, computer_name	✓
Installed on	<i>(internal computer reference)</i>	
Install date	discovery_start	✓

Software installation (cmdb_sam_sw_install)

CMDB field name	API field name	ETL trans-forme
Configuration Item	<i>(not available)</i>	
Mac Address	detailed_hw_network_adapters.permanent_address	
Discovery source	<i>(value hard coded to SG-BigFix)</i>	
Display name	component_name, component_release, component_publisher_name	✓
Publisher	component_name, component_release, component_publisher_name	✓
Version	component_name, component_release, component_publisher_name	✓
Installed on	installed_on	

Support and Troubleshooting

This section provides information on resolving common issues with the ServiceNow Graph Connector.

Service Level Agreement Definition

For technical support, contact your organization's integration provider. If a customer first contacts ServiceNow Customer Support, then ServiceNow Customer Support isolates the problem and instructs the customer to resolve the issue with your organization.

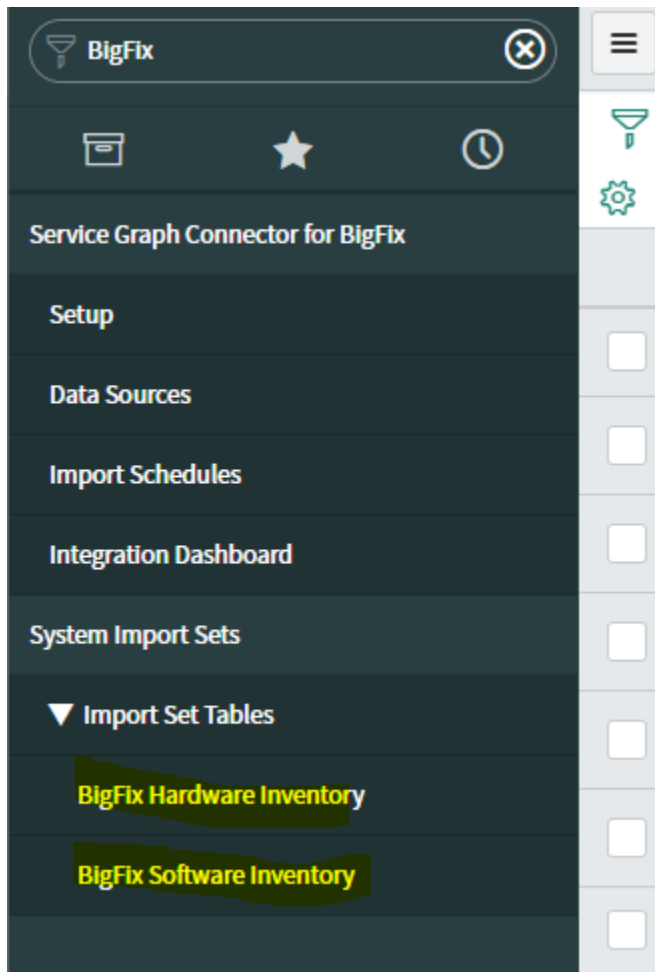
For more details, refer to the [support article](#).

Troubleshooting

One of the important issue is BigFix data in ServiceNow CMDB not being updated.

Troubleshooting steps:

1. Check if the scheduled import has run as per its configured time frequency.
2. Check if your ServiceNow instance can connect BigFix by clicking 'Test the connection' under setup guide.
3. Check if the import set can fetch data in staging tables by looking through import set tables under the 'Service Graph Connector for BigFix' Application.



4. Lastly you can see all the logs in System Logs for troubleshooting it further.

Working with different data sources

Data source integration is a user-led project. The user is responsible for data preparation and subsequent process determination. They have full autonomy and are accountable for aligning the data with their organization's requirements.

Reconciliation Rules

When integrating multiple data sources into the CMDB, ServiceNow recommends configuring [Reconciliation rules](#) to prevent data from being overwritten during each synchronization. It is essential to define which data source takes precedence for each field to maintain data consistency and accuracy.

Different values

Each data source may provide values in different formats or units. To ensure consistency, it's important to use [IntegrationHub ETL](#) to identify discrepancies and apply the necessary transformations to standardize the data. For example:

Field	BigFix	ServiceNow Discovery
Disk Name	\\.\PHYSICAL-DRIVE0	Disk #0

To standardize the Disk Name as 'Disk #0', a transformation logic must be created in IntegrationHub ETL, and the transformed field must be correctly mapped in the Disk mapping.

Questions or issues related to Reconciliation Rules or IntegrationHUB ETL are not supported by HCL. For assistance, please contact ServiceNow Support.

BigFix Inventory Service Graph Connector Troubleshooting

This topic provides information on troubleshooting ServiceNow which only data source is BigFix Inventory Service Graph Connector. In case other connectors, or data sources are present that import Computer and Software data into ServiceNow, this procedure will have discrepancies in number of Computers and Software.

Hardware

In case of discrepancy of number of Computers between ServiceNow and BigFix Inventory:

1. Verify the number of computers on ServiceNow and BigFix Inventory:
 - a. Go to the ServiceNow's Computers report: `<SN_INSTANCE> /cmdb_ci_computer_list.do`.
 - b. Go to the BigFix Inventory's computers report: `<BFI_INSTANCE> /sam/computers`.
 - c. Compare the number of computers.
2. If the number is off:
 - a. Verify the value of the ServiceNow's `x_hclte_sg_bigfix.include_computers_with_no_bios_serial_number` System Property:

Go to `<SN_INSTANCE> /sys_properties_list.do` and search for the System Property's name, note the value as it will be needed later.
 - b. Calculate the difference between number of computers:

SN_computers = number of computers seen in ServiceNow

BFI_computers = count returned from the following API call (open the URL in browser, after you've logged in to BigFix Inventory):

```
<BFI_INSTANCE>/api/sam/v2/computers?criteria={"and":[{"is_deleted","=","0"],["computer_
hardware.status","=","1"],["os_type","!=","MACOS"],["os_type","!=","AIX"]]}CcountSwitch=2
```

SN_computers_WO_SN =

- if `x_hclte_sg_bigfix.include_computers_with_no_bios_serial_number` is true = 0
- if `x_hclte_sg_bigfix.include_computers_with_no_bios_serial_number` is false = the count returned by following query (run on TEMADB):

```
select cd.id,cd.remote_id, cd.name, cd.os_name, cd.os,
bios.system_serial_number from dbo.computer_dimension cd left
join sam.deep_hw_smbios bios on bios.computer_id=cd.id where
os_name!='MACOS' and os_name !='AIX' and
bios.system_serial_number is null and cd.valid_to='9999-12-31
23:59:59.997'
```

Formula:

```
SN_computers = BFI_computers - SN_computers_WO_SN
```

3. If numbers calculated in step 2. are not matching, create a ticket, gather the following information:
 - a. ServiceNow Computers Report - `<SN_INSTANCE> /cmdb_ci_computer_list.do` - exported to csv or xlsx
 - b. In below URL replace `<BFI_INSTANCE>` and `<BFI_PORT>` with appropriate values, matching your BigFix Inventory configuration. Login to BigFix Inventory, then open the URL (it will take more time to load the results in large environments)

```
https://<BFI_INSTANCE>:<BFI_PORT>/api/sam/v2/computers?columns[]=id&columns[]=bigfix_id&columns[]=computer_group_id&columns[]=name&columns[]=dns_name&columns[]=os&columns[]=os_type&columns[]=first_seen&columns[]=last_seen&columns[]=is_deleted&columns[]=deletion_date&columns[]=is_managed_by_vm_manager&columns[]=detailed_hw_smbios.system_serial_number&columns[]=detailed_hw_ip_addresses.permanent_mac_address&columns[]=detailed_hw_ip_addresses.id&columns[]=detailed_hw_ip_addresses.address&columns[]=detailed_hw_storages.total_size&columns[]=detailed_hw_storages.id&columns[]=detailed_hw_memories.total_physical&columns[]=detailed_hw_memories.id&columns[]=detailed_hw_storages.device&columns[]=detailed_hw_network_adapters.type&columns[]=detailed_hw_network_adapters.permanent_address&columns[]=detailed_hw_network_adapters.current_address&columns[]=detailed_hw_network_adapters.model&columns[]=computer_hardware.status&columns[]=computer_hardware.server_serial_number&columns[]=computer_hardware.computer_type&columns[]=computer_hardware.server_type&columns[]=computer_hardware.server_model&columns[]=computer_hardware.server_vendor&columns[]=detailed_hw_ip_addresses.ipv6_address&criteria={"and":[{"is_deleted","=","0"},{"computer_hardware.status","=","1"},{"os_type","!=","MACOS"},{"os_type","!=","AIX"}]}
```

- c. Value of `x_hclte_sg_bigfix.include_computers_with_no_bios_serial_number` ServiceNow Server setting, which can be found at https://%3CSERVICE_NOW_URL%3E/now/nav/ui/classic/params/target/sys_properties_list.do.

If the value of this setting is false, gather the output of the following query run on BigFix Inventory TEMADB database:

```
select cd.id,cd.remote_id, cd.name, cd.os_name, cd.os,  
bios.system_serial_number from dbo.computer_dimension cd left  
join sam.deep_hw_smbios bios on bios.computer_id=cd.id where  
os_name!='MACOS' and os_name !='AIX' and  
bios.system_serial_number is null and cd.valid_to='9999-12-31  
23:59:59.997'
```