HCLSoftware

HCL IntelliOps
Event Management

Configuration Guide

Version 1.3



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Document Revision History

This guide is updated with each release of the product or when necessary.

This table provides the revision history of this Configuration Guide.

Version Date	Description
January, 2024	HCL_IEM_v1.0_Configuration Guide
February, 2025	HCL_IEM_v1.1_Configuration Guide
February, 2025	HCL_IEM_v1.2_Configuration Guide
July,2025	HCL_IEM_v1.3_Configuration Guide

1 Preface

This section provides information about the HCL IntelliOps Event Management (IEM) Configuration Guide and includes the following topics:

- Intended Audience
- About This Guide
- Related Documents
- Conventions

1.1 Intended Audiences

This guide is intended for users for IEM configuration working towards resolution tickets generated by correlating similar alerts to create correct actionable.

It's good to have basic knowledge of <u>Java</u>, Data ingestion, transformation, and <u>ETL</u> to work with Apache NiFi.

1.2 About this Guide

This guide introduces us to the key concepts of HCL IEM and describes how to use the product. It provides an overview of configurations and instructions to perform different tasks.

This document includes the following topics:

- Introduction
- Getting Started
- IEM Collector
- IMM Interface
- IEM Configuration
- IEM Interface
- Integration
- Glossary of Terms

1.3 Related Documents

The following documents can be referred to in addition to this guide for further information on the IEM platform:

- Introduction to HCL IEM Guide

1.4 Conventions

The following typographic conventions are used in this document:

Table 1 – Conventions

Convention	Element
Boldface	Indicates graphical user interface elements associated with an action, or terms defined in text or the glossary
<u>Underlined blue face</u>	Indicates cross-reference and links
Numbered lists	Indicates steps in a procedure to be followed in a sequence
Bulleted lists	Indicates a list of items that is not necessarily meant to be followed in a sequence

2 Introduction

2.1 Overview of IEM

HCL IntelliOps Event Management is an Al-powered IT event management platform on the cloud that transforms IT operations by incorporating AlOps capabilities into the system. Its machine learning-based advanced features, such as topology correlation, anomaly detection, and noise reduction, not only help reduce Mean Time to Detect (MTTD) and Mean Time to Recover (MTTR) of incidents but also proactively detect potential issues, prevent outages, and ensure service continuity for businesses.

- This intelligent platform provides integrations with various monitoring tools and custom code within an ecosystem to ingest a vast volume of heterogeneous data in the form of events, metrics, performance, and configuration information.
- Its client-side component IEM- (IMM) Integration Management Module collects raw events from various monitoring systems and send it to IEM, it also offers a unique feature of continuous service delivery in the case of connectivity loss with IEM Cloud, minimizing the impact of outages on IT operations.
- IEM also fosters efficient collaboration across teams, ultimately improving system performance and agility. Its integration with ITSM tools packages industry is best practice, significantly reducing duplicate incidents and enhancing the Root Cause Analysis process by automatically correlating incidents with Change Management.

2.2 Key Features

- Early Anomaly Detection: Utilizes metrics for early identification of true anomalies in the lifecycle. Metric anomaly system is available to identify anomalous metric point for outlier detection based on metric data being ingested.
- Topology Based Alert Correlation: OOB correlation rules available for Correlation of alerts based on relationships between entities defined in the system.
- Temporal-Based Alert Correlation: Leverages a robust correlation engine and condition-based correlation for automatic grouping and mapping of alerts with an efficient Feedback System to avoid irrelevant alert to actionable grouping.
- OOB NiFi Connector Management via IMM (Integration Management Module) Portal: Topology, Entity and Service data ingestion via NiFi in real-time.
- Automated Noise Reduction: Filters out irrelevant data to reduce noise and focus on meaningful events. There is Noise Rule Configuration with maintenance windows support.
- Related Problems and Changes view of Actionable for Effective Diagnosis: Helps in addressing impact assessment for continuous improvement and prioritize actionable based on their potential impact.
- Real-Time Interactive Visualization: Provides user-friendly dashboards for real-time interaction with Metric View, Service View, and Topology View. A timeline view is also available for events, alerts, and action.
- Quick User's Collaboration: Enables quick chat and collaboration with the team for efficient communication thereby
 reducing MTTR along with automated notifications to operators for assigned actionable.

_	Cost Saving View: Significantly benefits by optimizing resources, improving operational efficiency, and reducing
	unnecessary expenditures on actionable resolution and reviving the degraded services.

3 Getting Started

The Following flow diagram displays the onboarding process of IEM:

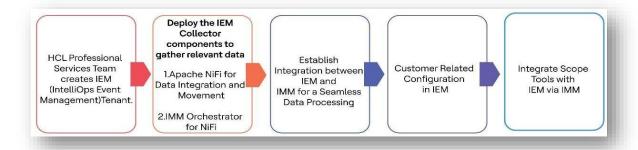


Figure 1 - IEM Onboarding Flow

4 IEM Collector

IEM Collector refers to effectively gathering data from diverse sources, providing a wide range of single clicks, custom integrations compliant with the industry standards for connectors and APIs.

The events, data and performance connectors are developed in Apache NiFi. These OOB NiFi connectors can be leveraged for data ingestion very quickly via IMM (Integration Management Module) Portal.

4.1 Overview for NiFi

Apache NiFi is an open-source dataflow system based on the concepts of flow-based programming. It supports powerful and scalable directed graphs of data routing, transformation, and system mediation logic.

4.1.1 NiFi Architecture

Apache NiFi has a processor, flow controller, and web server that executes on the JVM machine. Additionally, it also includes three repositories, as shown in the figure, which are FlowFile repository, Content and Provenance repository.

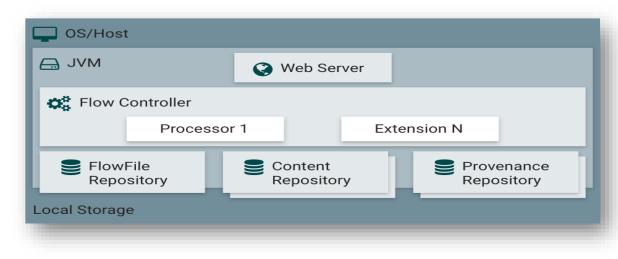


Figure 2 - Content and Provenance Repository

- NiFi executes within a JVM on a host operating system. The primary components of NiFi on the JVM are as follows:
 - Web Server: The purpose of the web server is to host NiFi's HTTP-based command and control API.
 - Flow Controller: The flow controller is the brain of the operation. It provides threads for extensions to run on and manages the schedule of when extensions receive resources to execute.
 - Extensions: There are various types of NiFi extensions which are described in other documents. The key point here is that extensions operate and execute within the JVM.
 - FlowFile Repository: The FlowFile Repository is where NiFi keeps track of the state of what it knows about a given FlowFile that is presently active in the flow. The implementation of the repository is pluggable. The default approach is a persistent Write-Ahead Log located on a specified disk partition.
 - Content Repository: The Content Repository is where the actual content bytes of a given FlowFile live. The
 implementation of the repository is pluggable. The default approach is a simple mechanism, which stores
 blocks of data in the file system. More than one file system storage location can be specified to get different
 physical partitions engaged to reduce contention on any single volume.

- Provenance Repository: The Provenance Repository is where all provenance event data is stored. The
 repository construction is pluggable with the default implementation being to use one or more physical disk
 volumes. Within each location data is indexed and searchable.
- NiFi is also able to operate within a cluster.

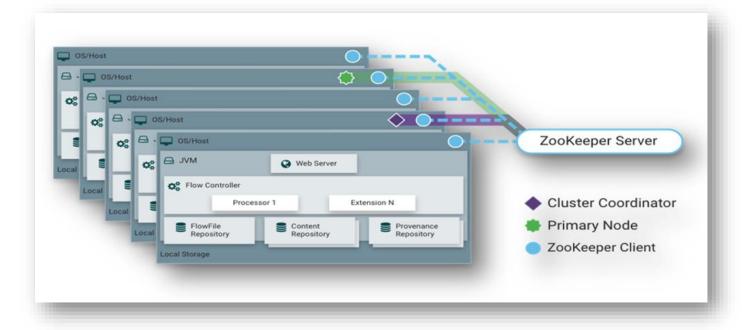


Figure 3 - Repositories.

- Starting with the NiFi 1.0 release, a Zero-Leader Clustering paradigm is employed. Each node in a NiFi cluster performs the same tasks on the data, but each operates on a different set of data.
- Apache ZooKeeper elects a single node as the Cluster Coordinator, and failover is handled automatically by ZooKeeper. All cluster nodes report heartbeat and status information to the Cluster Coordinator. The Cluster Coordinator is responsible for disconnecting and connecting nodes.
- Additionally, every cluster has one Primary Node, also elected by ZooKeeper. As a DataFlow manager, you can interact with the NiFi cluster through the user interface (UI) of any node. Any change you make is replicated to all nodes in the cluster, allowing for multiple entry points.

4.2 Prerequisites

Prerequisites are specific conditions that need to be met before initiating the configuration. Hence, mentioned below are pre-requisites for NiFi:

4.2.1 System Requirements for NiFi

 Apache NiFi can run on something as simple as a laptop, but it can also be clustered across many enterprise-class servers. Therefore, the amount of hardware and memory needed will depend on the size and nature of the dataflow involved. - The data is stored on disk while NiFi is processing it. So NiFi needs to have sufficient disk space allocated for its various repositories, particularly the content repository, flowfile repository, and provenance repository. NiFi needs to be configured according to the following system requirements:

4.2.2 Supported OS for NiFi

- Linux (Recommended)
- Unix
- Windows
- macOS

Requires Java 8 or Java 11

4.2.3 Supported Web Browsers

- Microsoft Edge: Current & (Current 1)
- Mozilla FireFox: Current & (Current 1)
- Google Chrome: Current & (Current 1)
- Safari: Current & (Current 1)

4.2.4 Hardware Sizing Recommendation

NiFi is designed to take advantage of:

- all the cores on a machine
- all the network capacity
- all the disk speed
- many gigabytes of RAM (although usually not all) on a system

Hence, it is important that NiFi should be running on dedicated nodes. The following are the recommended server and sizing specifications for NiFi:

- Minimum of 3 nodes
- 8+ core per node (more is better)
- At least 8 GB
- 6+ disks per node (SSD or spinning)

4.2.5 Port Requirement for NiFi

Required Sustained Throughput	Minimum Hardware Requirement
	- 1 or 2 nodes
50 MB and thousands of events per second	- 8 or more cores per node
	- 6 or more disks per node (SSD or spinning)
	- 2 GB memory per node
	- 1 GB bonded NICs
	- 3 or 4 nodes
100 MB and tens of thousands of events per	- 16 or more cores per node
second	- 6 or more disks per node (SSD or spinning)
	- 2 GB of memory per node
	- 1 GB bonded NICs
	- 5 to 7 nodes
200 MB and hundreds of thousands of events per	- 24 or more cores per node (effective CPUs)
second	- 12 or more disks per node (SSD or spinning)
	- 4 GB of memory per node
	- 10 GB bonded NICs
	- 7 - 10 nodes
400 to 500 MB/sec and hundreds of thousands of	- 24 or more cores per node (effective CPUs)
events per second	- 12 or more disks per node (SSD or spinning)
	- 6 GB of memory per node
	- B bonded NICs

The following ports are required for internal communication:

- NiFi remote socket port = 10443
- NiFi web https port = 9443
- NiFi cluster port = 11443
- NiFi cluster load balance port = 6342
- NiFi zookeeper connect port=2181, 2888, 3888

4.3 Overview of IMM

- Integration Management Module (IMM) is a component of IntelliOps Event Management which is used for 3rd party tools integration and ingesting events, metric, performance, and configuration data into IntelliOps Event Management for performing event management functions.
- Using IMM, we can reduce the implementation timeline significantly, allowing you to quickly get the NiFi connectors onboard and take control of the event management ecosystem.

4.4 Prerequisite for IMM

- Prerequisites are specific conditions that need to be met before initiating the configuration. Hence, mentioned below are pre-requisites for IMM:

4.4.1 Supported OS for IMM

- Linux RHEL 9.x

4.4.2 Supported Web Browsers

Microsoft Edge: Current or previous version

- Mozilla FireFox: Current or previous version

Google Chrome: Current or previous version

Safari: Current or previous version

4.4.3 Hardware Sizing Recommendation

2 Web servers & 2 DB servers are required with the below configuration:

WebServer: 2CPU, 4GBDB Server: 4CPU, 8GB

4.4.4 Port Requirement for IMM

- IMM KRS Service -4000

- IMM API Service - 4100

- IMM Web Portal - 4200

- IMM Orchestrator Service - 4300

5 IMM Interface

Integration Management Module (IMM) is a component of IntelliOps Event Management which is used for 3rd party tools integration and ingesting events, metric, performance, and configuration data into IntelliOps Event Management for performing event management functions.

For detailed information on how to work with IMM Interface, please refer to the *HCL IMM User Guide*.

6 IEM Configuration

The section provides detailed processes of Customer Onboarding and configuration.

6.1 Customer Creation

Customer Creation" refers to the process of establishing a new customer profile or record within the event management system. This section enables us to create multiple customers to cater to a multi-tenant environment.

- The following are the actions a logged in user can perform based on the role.
- Please refer to the Managing Roles section to understand more about role-based access control.
 - a. Onboarded Customer
 - b. In-progress Customer

Onboarded Customer:

- Onboarded View displays the customers that have gone through the onboarding process and certain actions
 can be performed that are displayed under Actions.
- The goal of customer onboarding in Event Management AlOps is to facilitate efficient introduction to the platform, ensuring that customers can quickly and effectively utilize the features of the system for managing events with the support of Al-driven capabilities.
- In the top navigation bar, click Customer. Customer Grid will be displayed. This displays a list of all customers configured in the environment. When users come here for the first time, only the default customer will be listed with Edit option next to it.

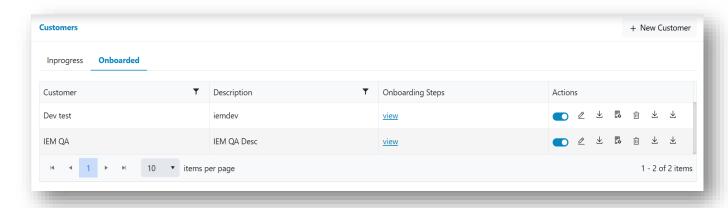


Figure 4 - Customer Page

- Add New Customer
- Onboarding Steps View
- Enable/Disable State
- Edit Customer
- Delete Customer
- Download Published API
- Download Installer
- Download License

Renew License

6.1.1 Add New Customer

Customer Addition refers to the process of integrating and introducing a new customer into our event management system. This encompasses the activities and procedures aimed at getting a customer started, providing necessary information, and ensuring a smooth transition into using the Event Management platform. The addition process in this context may involve both manual and automated tasks.

1. Users can create a new customer by clicking on the New Customer button.

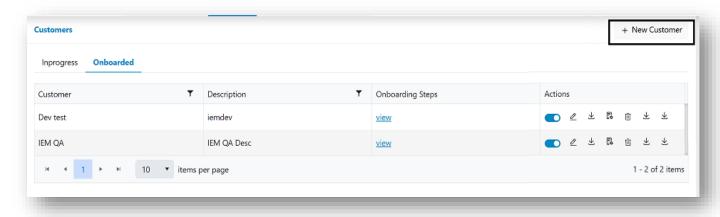


Figure 5 - Navigation for Create New Customer

2. Clicking on add customer a popup is displayed with an input option.

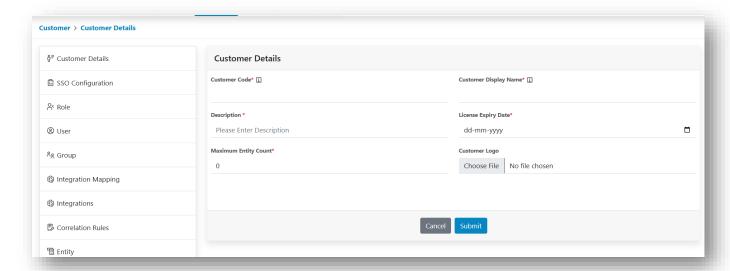


Figure 6 - Customer Creation

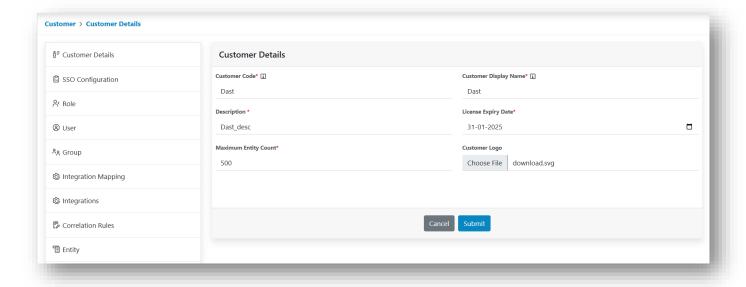


Figure 7 - Customer Details

3. Specify the name, description, license expiry date and maximum entity count and the customer logo with .svg file format with max of 200kb image and click Submit.



Figure 8 - Customer Creation Process

- 4. On successful creation, the customer will be listed on the main grid.
- 5. Click on the View Progress button that will show about process flow with completion status of the customer based on the configurations done.
- 6. The process flow with completion status will be shown like the image below for a particular customer in progress.



Figure 9 - Customer Creation Onboarding Steps

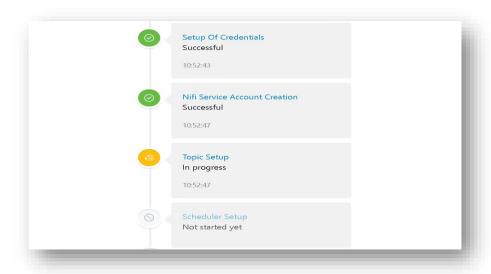


Figure 10 - Customer Creation Onboarding Steps (Cont.)

- 7. All the processes that are completed will be marked as complete status in green.
- 8. Hence the division of in-progress and onboard shows the process flow completion for a particular customer. If the customer onboard processes are complete, then the customer will be put in the on-boarded grid like shown below.

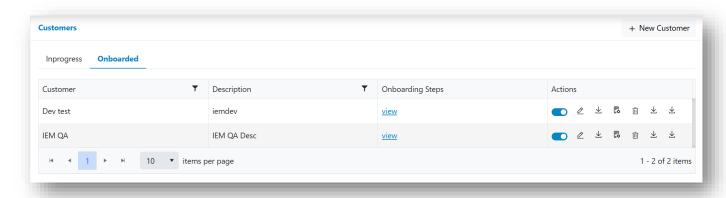


Figure 11 - Customer Page

6.1.2 Onboarding Steps View

If the customer onboard processes are completed, then the customer will be put in the Onboarded grid as shown below.

1. Click on the Onboarding Steps view button.

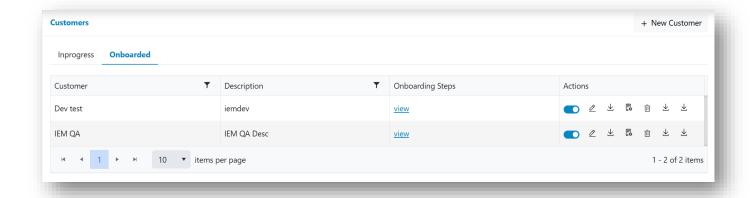


Figure 12 - Onboarding Steps View

2. Onboard shows the process flow completion for a particular customer.

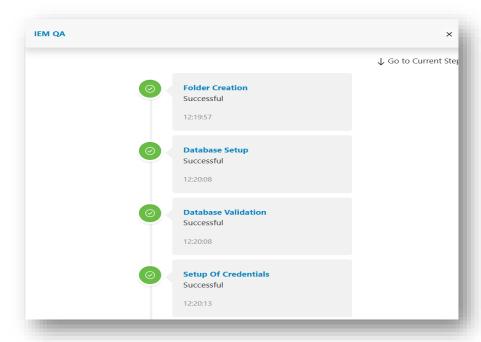


Figure 13 - Customer Creation Onboarding Steps

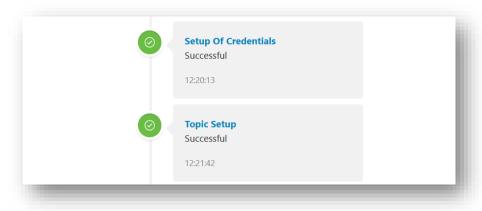


Figure 14 - Customer Creation Onboarding Steps (Cont.)

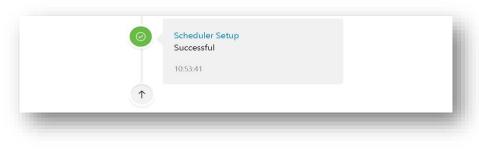


Figure 15 - Customer Creation Onboarding Steps (Cont.)

6.1.3 Enable/Disable State

To enable or disable a customer in an environment, there is provision of toggle switches to easily perform the required actions.

- 1. Click on the Enable/Disable toggle button next to the customer which needs to be Enabled/Disabled
- 2. Click on Enable/Disable icon, on success a confirmation pop-up message will be displayed.

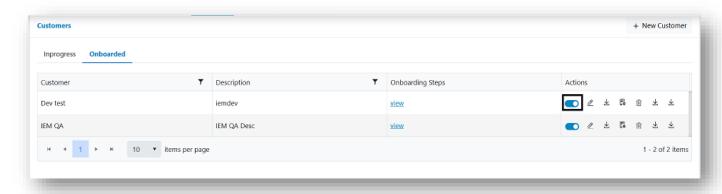


Figure 16 - Enable/Disable Customer

6.1.4 Edit Customer

1. Click on the edit icon next to the customer whose details are to be modified.

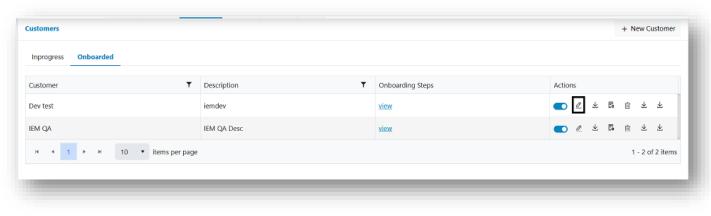


Figure 17 - Edit Customer

2. The form will appear with the saved details as shown.

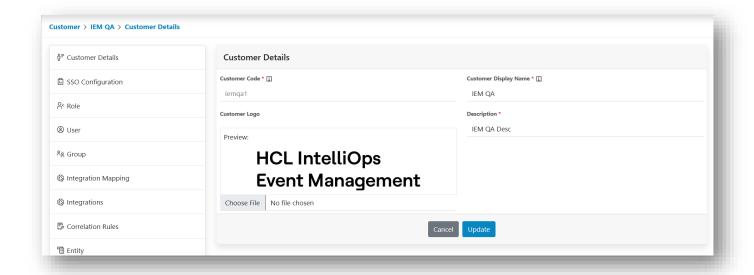


Figure 18 - Customer Edit Screen

3. Click Update to update the description and customer logo and after a successful update it will navigate to an Onboarded customer page.

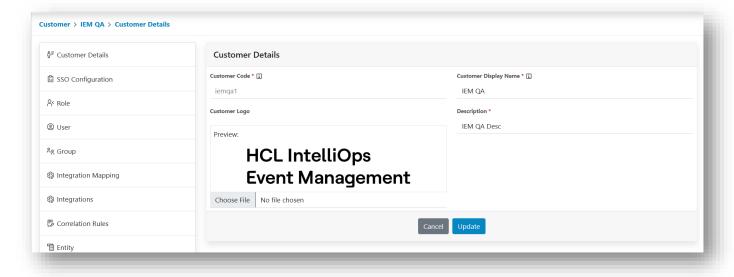


Figure 19 - Customer Details

6.1.5 Delete Customer

1. Click on the delete icon next to the customer which is to be deleted.

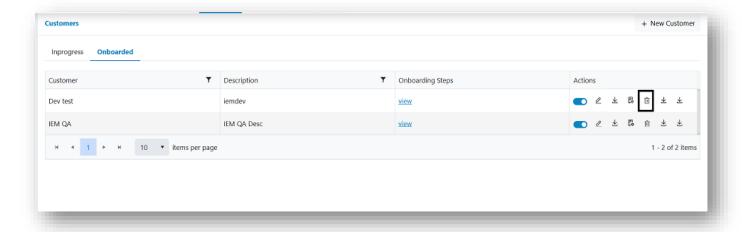


Figure 20 - Delete Customer

2. A confirmation box will be prompted.

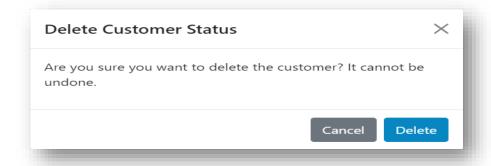


Figure 21 - Confirmation pop-up.

3. Clicking Delete, deletes the customer permanently.

6.1.6 Download Published API

This action enables customer administrator/Superadmin to download Publish API for NiFi.

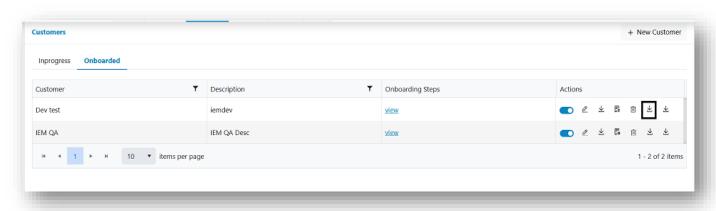


Figure 22 - Download Publish API

6.1.7 Download Installer

This action enables customer administrator/Super admin to download Installer for Integration Management Module (IMM)

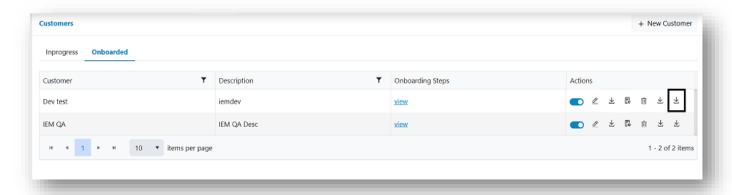


Figure 23 - Download Installer

6.1.8 Download License

This action enables customer administrator/Super admin to download IEM License

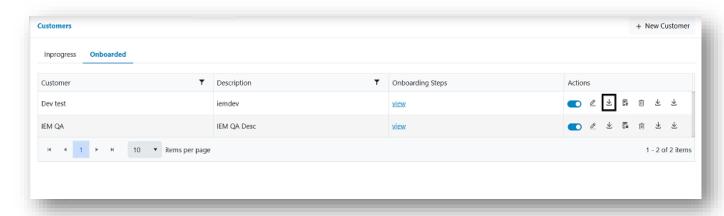


Figure 24 - Download License

6.1.9 Renew License

This action enables customer administrator/Super admin to Renew IEM License

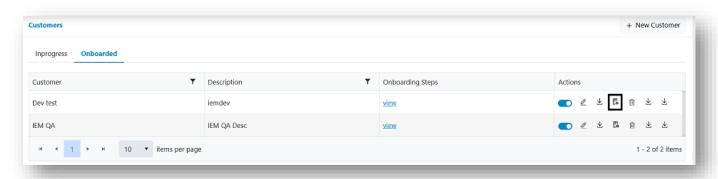


Figure 25 - Renew License

In-Progress:

- The In-progress customer list contains the customers whose configuration processes are in line of completion.
- In case of any step failure the administrator/Super admin can raise the concern to team and once the issue is rectified the process can be resumed from the point of failure.

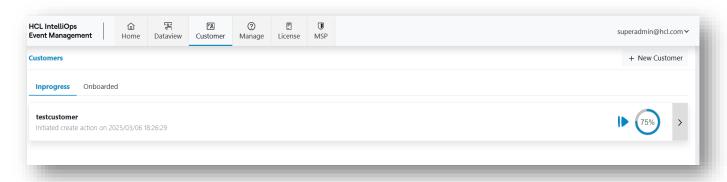


Figure 26 - Status of Customer

Nifi Service Account Creation
Successful
07:50:54

Scheduler Setup
Successful
07:51:03

Figure 27 - Customer Creation Onboarding Steps

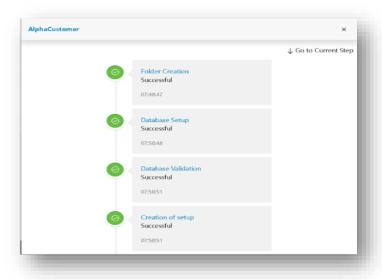


Figure 28 - Customer Creation Onboarding Steps (Cont.)

6.1.10 Manage Onboarded Customer

The section provides detailed steps on how to Manage the Onboarded customer in IEM.

6.1.10.1 Customer Details

The section provides details of the customers configured in the environment. The following details are displayed:

- 1. Name
- 2. Description
- 3. Customer logo
- 4. Code

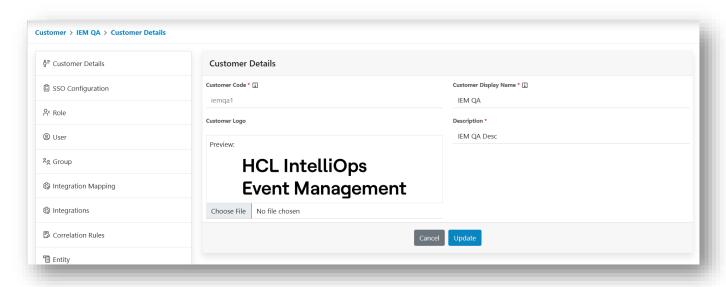


Figure 29 - Customer Details

6.1.10.2 SSO Configuration

Single Sign-On (SSO) configuration in IEM refers to the setup and integration of a Single Sign-On solution within the platform. SSO is a mechanism that enables users to access multiple applications or services with a single set of credentials, eliminating the need to remember separate usernames and passwords for each system. With SSO, users can establish a secure method for authenticating users when they access IEM. Here, it is mainly used for SAML Authentication for a customer.

- 1. When you click SSO Configuration, the new form will appear.
- 2. In that form users need to add the relevant data required in the fields.
- 3. Click on update. A confirmation message "Data updated successfully" is prompted to user.
- 4. Click on the close button. Clicking on Skip takes the user to the Role screen.

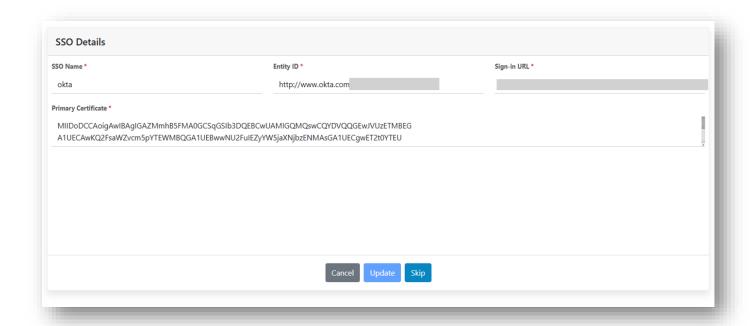


Figure 30 - SSO Configuration Page

6.1.10.3 Roles

Role screen has four roles by default and allows user to create custom roles according to the requirements and if any new user is created "viewer" role has been assigned by default.

6.1.10.3.1 Add New Role

A user can perform an action on the page based on its role. A role is a named collection of privileges determining the tasks user can perform. Pairing a user or group with a role grants the user or groups certain rights to the system. The following table outlines the predefined system roles.

Table 2 – Predefined System Roles

Role	Description
Customer Admin	 All privileges for the administrative features in IEM environment for a particular customer Access to all the configurations over console Full operational and management control
Super Admin	 All Administrative privileges for all the customers configured in IEM environment. Access to all the configurations over console Full operational and management control
Operations User-Viewer	Access to view Data View Page and Home over console but cannot make any changes

Role	Description
Operations User-Resolver	- Access to view all the data over Data View screen and mark the
	actionable as resolved over IEM.
	- Access Home Metric View
Operations User-	- Access to view all the data over Data View screen and perform various
Actionable user	actions over actionable.
	 Any view can be saved post adding additional columns.
	- Access Home Metric View
Operations	
Operator	- Access to view all the data over Data View screen and perform actions
	like resolve actionable or create actionable.
	- Define and edit noise maintenance rule.
	- Access Home Metric View
	- View Entity data

This action enables us to create custom roles in the environment. Adding new roles involves the creation of additional user roles or profiles that grant specific permissions and access levels to the platform user. There are four default roles configured with pre-defined set of permissions.

- 1. Click on "Customer"→" Customer Name"→" Role."
- 2. Click on "+ New Role".

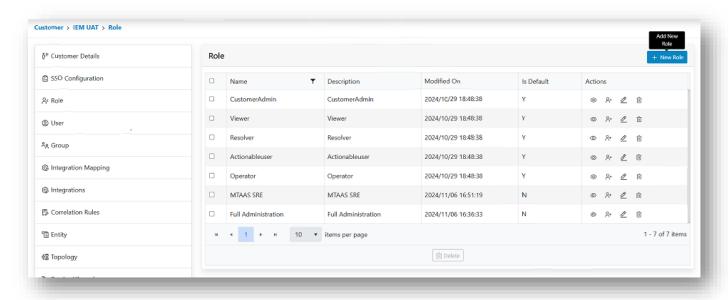


Figure 31 - New Role

3. After clicking the "+New Role" the following form is displayed.

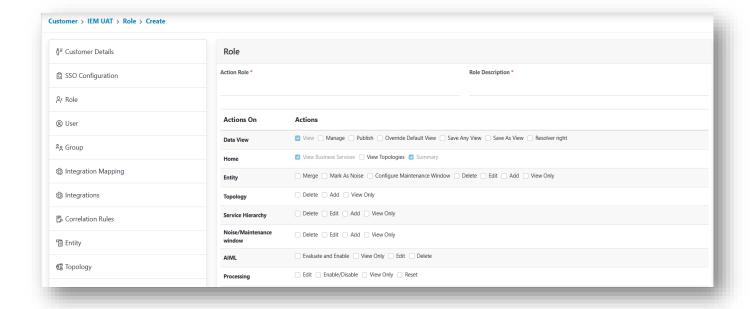


Figure 32 - Role Creation

4. Enter the Role Name. For example, let's name the role as 'customadminrole'.

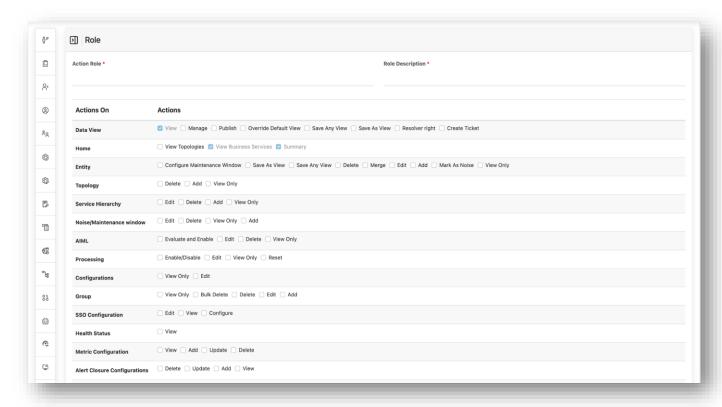


Figure 33 - Navigation Page for Assigning an Action to a Role

5. A list of all the actions that can be taken would be available on the same page.

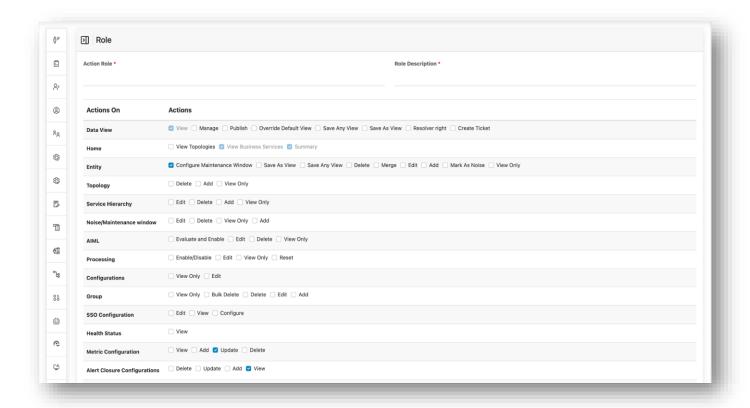


Figure 34 - Assigning Actions for a Role

- 6. All the actions that's intended to be enabled for the role on this page can be selected in one go. Users can select Add, Edit, Delete for the actions.
- 7. Add as many actions as required. For this example, the user will just keep the single page role.
- 8. Once all the actions are selected for the newly created role and the mapping is done, click on the Submit button.
- 9. On successful creation of the role with action the following pop-up message is prompted.

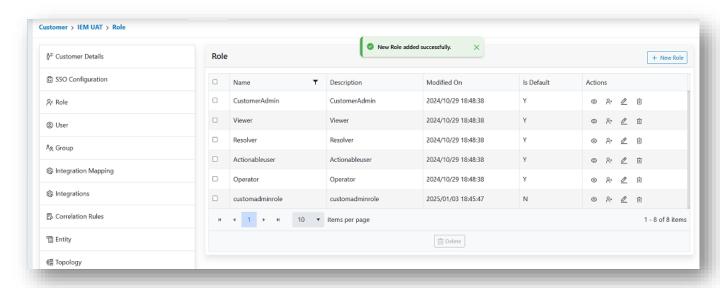


Figure 35 - Alert Message

10. The control will be redirected to the Grid view page and the new role will appear in the grid as shown above.

6.1.10.3.2 Managing Roles

This customization ensures that customer administrators have the necessary permissions to effectively access various configurations within their specific customer context.

- 1. This section enables user to Manage roles within the environment.
- 2. Click the "Customer" → "Customer Name" → "Role".
- 3. Click on the Role Tab, the following page would be available.

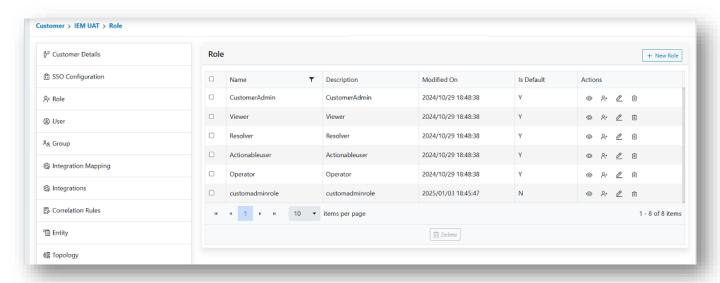


Figure 36 - Role Page

4. When a user accesses the IEM console for the first time, only the default roles would be visible to the user.

The Default Roles cannot be edited.

- 5. By default, IEM has the following default roles enabled:
- 6. Customer Admin A role with full access to the environment. (User can Add\Delete\Edit)
- 7. View user, Actionable User and Resolver are Operational user roles. These roles are accessed only on the Data View and Home page.
 - View user Has view only access.
 - Actionable user They can take actions on the actionable created in the environment but will not be able to mark them as resolved.
 - Resolver They have full access on the actionable, they can work upon actionable and even mark them as resolved.

Roles control the action that users perform on the page. The data visible to user is controlled by the customer and the group assigned to user.

Please Refer Users and Group sections to understand how the data is controlled.

6.1.10.3.2.1 Edit Role

This action enables users to edit the custom roles created in the environment.

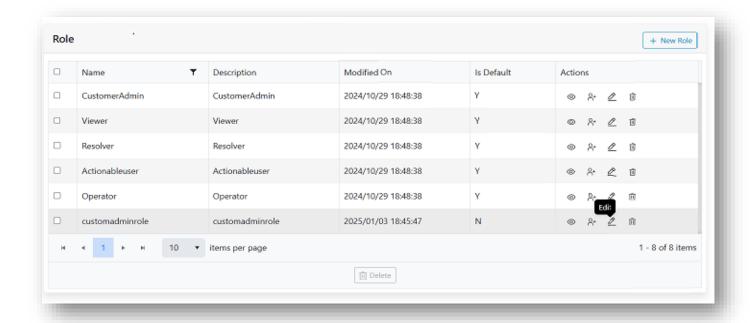


Figure 37 - Edit Roles

- 1. Click on the Edit icon next to the role.
- 2. The form will appear filled up with the saved data.

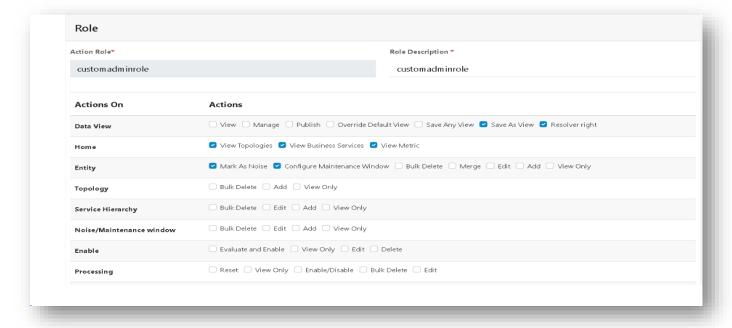


Figure 38 - Edit a Role Description

3. Users can rename the role, add/remove more pages or add/remove actions that are mapped.

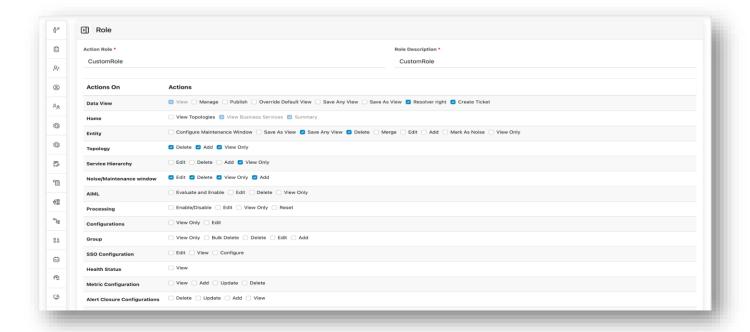


Figure 39 - Selecting Actions for a Role

4. And add a new *User* with *full actions* enabled. With all modifications the page looks like the image below.

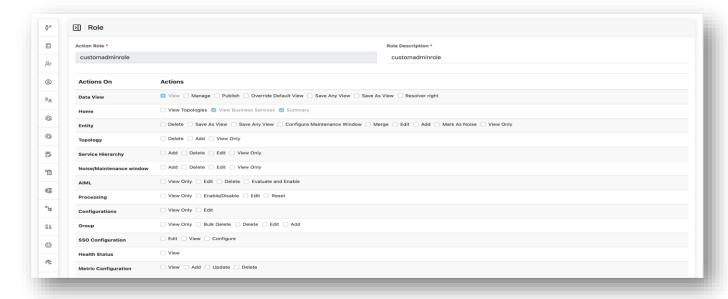


Figure 40 - Selecting Actions for a Role

- 5. Post the changes are made, Click on the Update button.
- 6. On successful update the following message is displayed, post that the user will be redirected back to the grid view page.

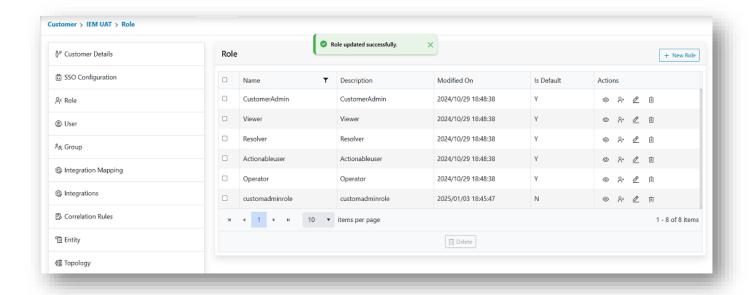


Figure 41 - Alert Message

6.1.10.3.2.2 Delete Role

This action enables us to delete the customs created in the environment.

- 1. For admin pages, select the roles that are to be deleted.
- 2. Click on the delete icon corresponding to the role that s to be deleted.
- 3. For Bulk delete, select the multiple roles, and click on the "Delete" icon at the bottom.

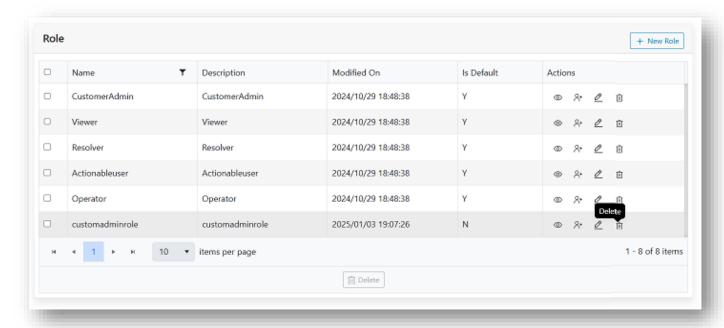


Figure 42 - Delete Role

4. Users will be prompted for confirmation pop-up as shown.

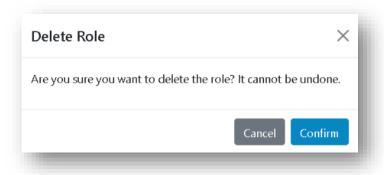


Figure 43 - Confirmation pop-up.

5. Click Confirm. On successful deletion a confirmation message will be prompted

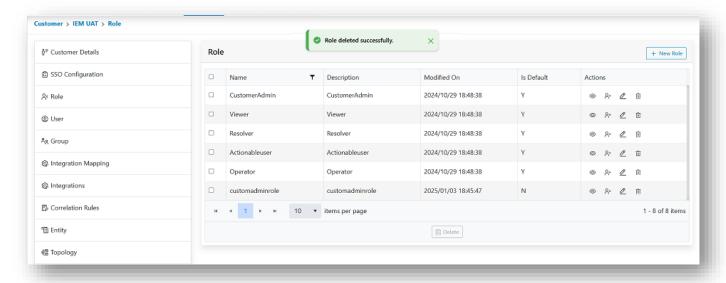


Figure 44 - Alert Message

6. The role will no longer be visible in the grid.

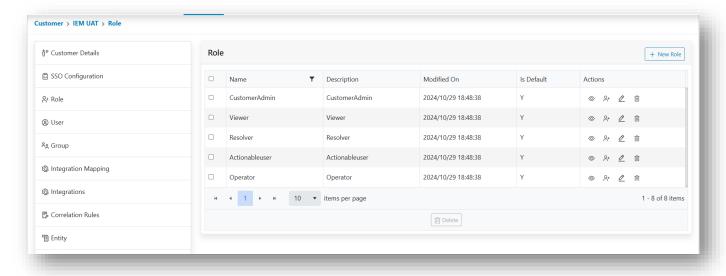


Figure 45 - Updated Grid

6.1.10.3.2.3 View Role

This action enables the users to view the custom roles created in the environment.

1. The Action tab contains a view option, click on the view icon to view the roles that are created.

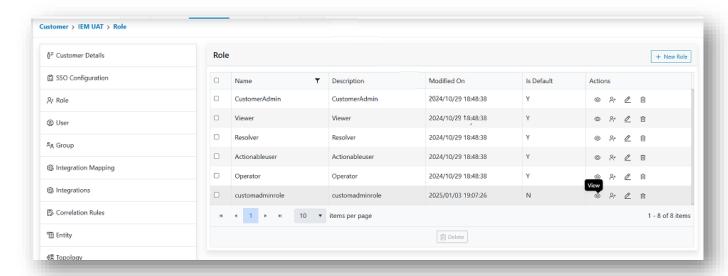


Figure 46 - View Role

- 2. Click on View for the "customadmin" role and the actions for the role will be displayed.
- 3. Users cannot edit the role details via View option. Only the actions that are selected for the role will be displayed.

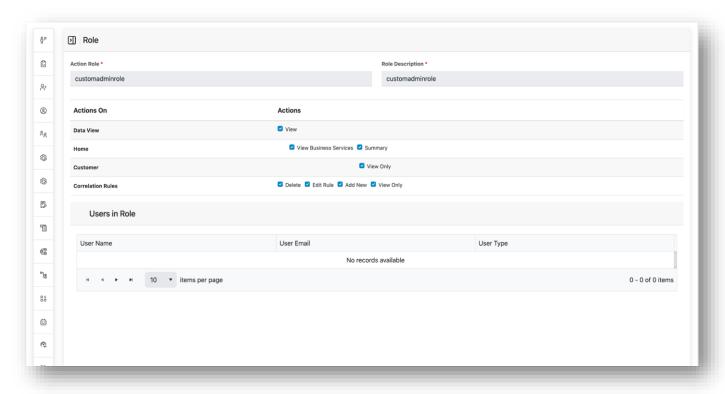


Figure 47 - Viewed Role

6.1.10.3.2.4 Assign User

This action enables users to assign users to the roles created in the environment.

1. The Action tab contains Assign User option, click on the Assign User icon to assign the roles to a particular user in the environment.

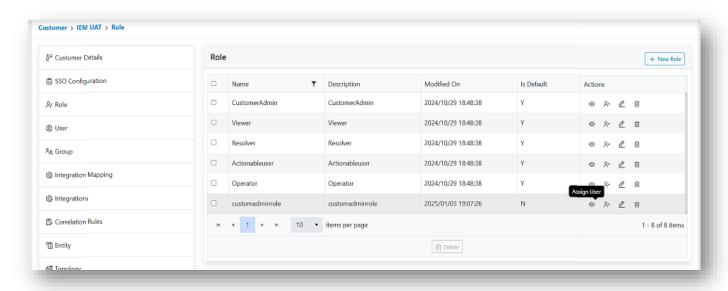


Figure 48 - Assign User

2. After clicking on the Assign User option, a pop up will be opened which will ask for User Email ID input.

Users can only be assigned by adding the User Email ID.

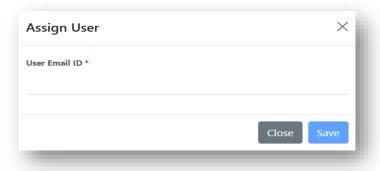


Figure 49 - Assign user Email ID

3. After adding the required User Email ID, click on the Save Button.

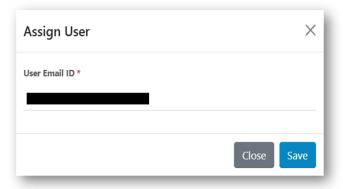


Figure 50 - User Email ID

4. On successful assignation, confirmation pop-up is displayed as shown below. Users will be assigned successfully to that role.

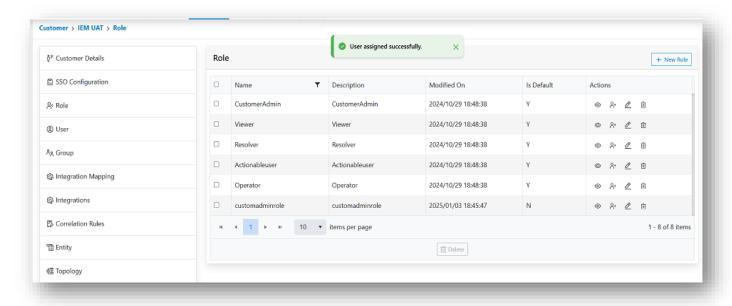


Figure 51 - Alert Message

6.1.10.3.2.5 Apply Filters

This action enables the users to apply filters on the roles created in the environment. The steps explain how to Apply filters for the Role Data:

1. Click on the Apply filter available action button present at the header of the console.

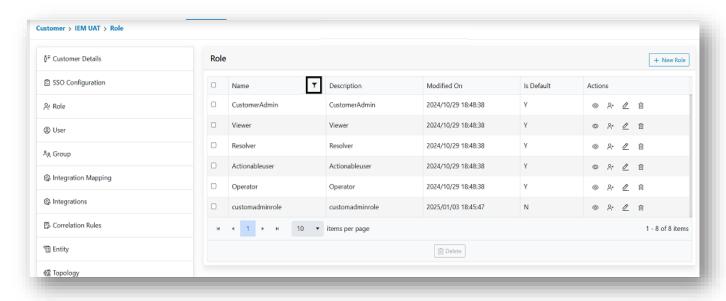


Figure 52 - Apply Filter Operation

2. The form will be appearing. From there user can select Field and Operator from drop down list and provide Value (The name of the Role). Then click on the Apply button.

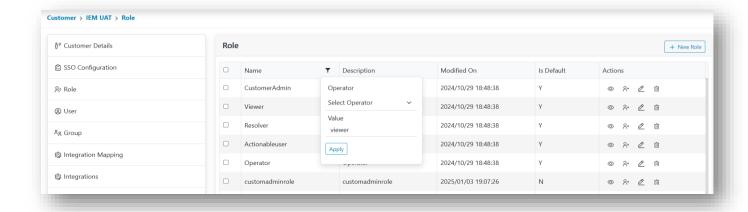


Figure 53 - Apply Filter Operation

3. Users can see the result of applied filter.

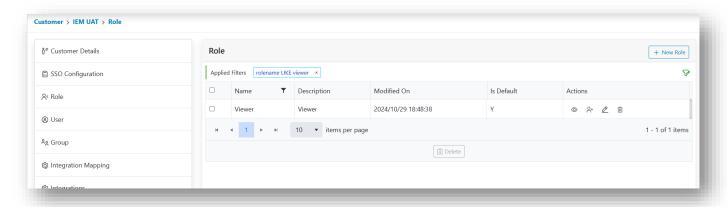


Figure 54 - Apply Filter Result

6.1.10.4 Users

"User" refers to an individual or entity within an organization who interacts with the platform to monitor, manage, and respond to events in the IT environment. Users in IEM have various roles and responsibilities, and their interactions with the system could include tasks such as configuring rules, analyzing alerts, and taking actions based on the insights provided by IEM.

6.1.10.4.1 Add New User

This action enables us to add new users to the environment.

- 1. Go to the "User" option.
- 2. Click on "+New User" icon.

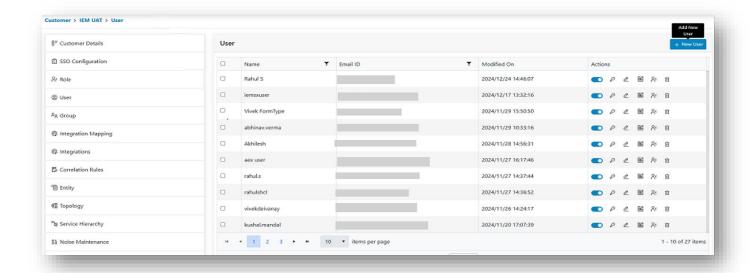


Figure 55 - Navigation for Add New User

3. The following form is displayed.

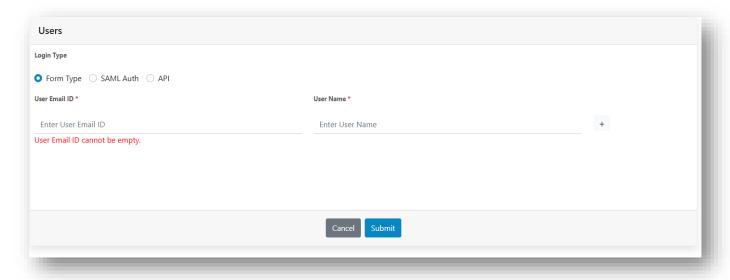


Figure 56 - Create a User

4. Users need to select the login type and enter a valid User Email ID and the Username.

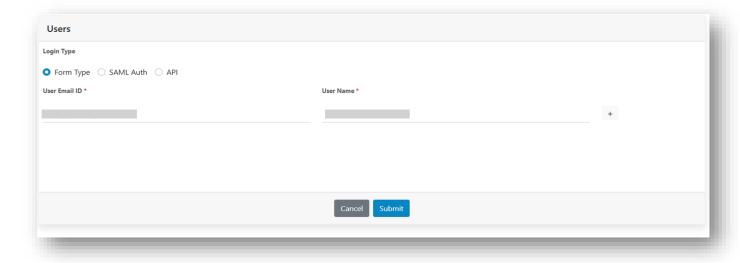
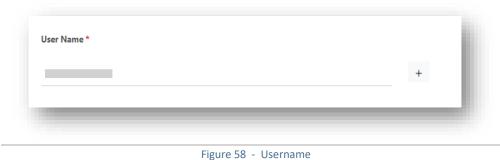


Figure 57 - User Email Id

Follow the validation check prompts to ensure that the email id provided is valid.

5. Provide the full name for the user.



6. Click on Submit.

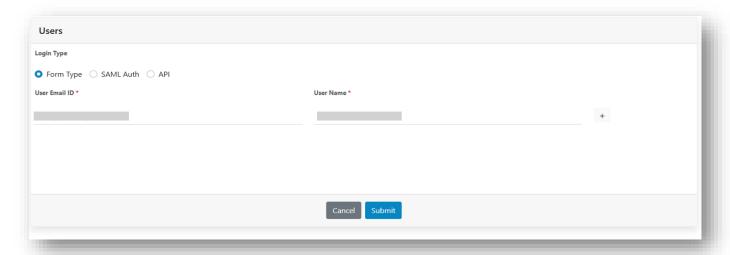


Figure 59 - Submit Button

7. On successful creation, a confirmation pop-up is displayed as shown in the following figure:

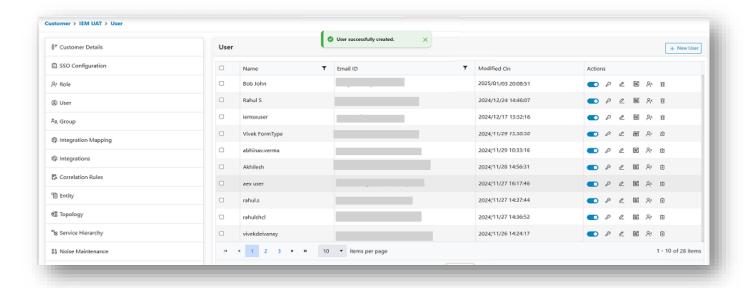


Figure 60 - Alert Message

6.1.10.4.2 Generate Password

This step enables users to create passwords for the user.

1. Click on Generate Password icon next to the user for whom the password is to be generated.

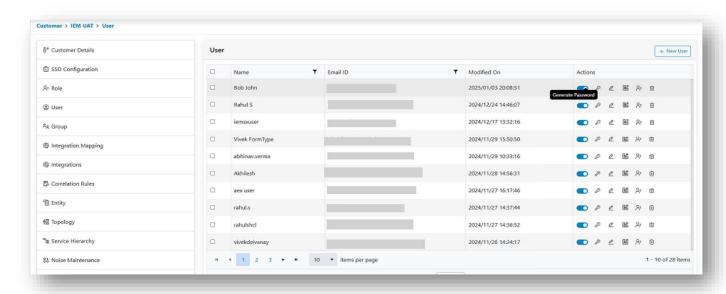


Figure 61 - Generate Password for User

2. The following pop up is displayed.

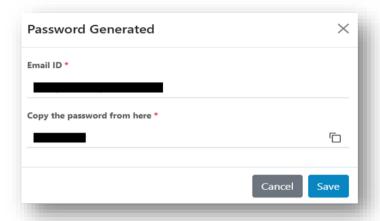


Figure 62 - Copy Password

- 3. A system generated random password is displayed. Change it if required else copy it by clicking on the Copy icon next to the password.
- 4. Click on Save to update the new password for the user.
- 5. On successful update the following confirmation is displayed.

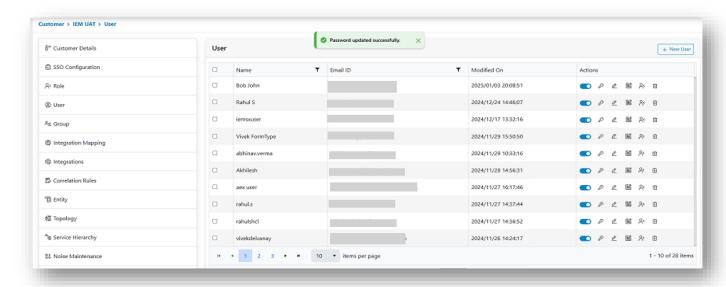


Figure 63 - Alert Message

6. Now the password can be shared with the user one on one.

6.1.10.4.3 Manage Users

This section contains the steps to Manage users.

- 1. Click on "Customer" → "Customer Name" → "Users"
- 2. A navigation bar on the left side will be visible. Click on the "User" Tab.
- 3. On clicking on the User from the menu the following form is opened:

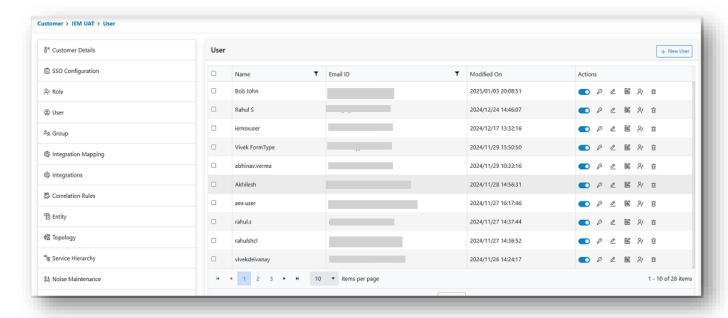


Figure 64 - User Page

4. All the available users created in the environment are listed in the grid view.

When the user screen is accessed for the very first time only the super admin user will be displayed. Like with the other pages, users can perform action on the page based on the role assigned.

6.1.10.4.3.1 Edit User

This action enables users to edit an existing user in the environment.

1. Click on the edit icon next to the user whose details are to be modified.

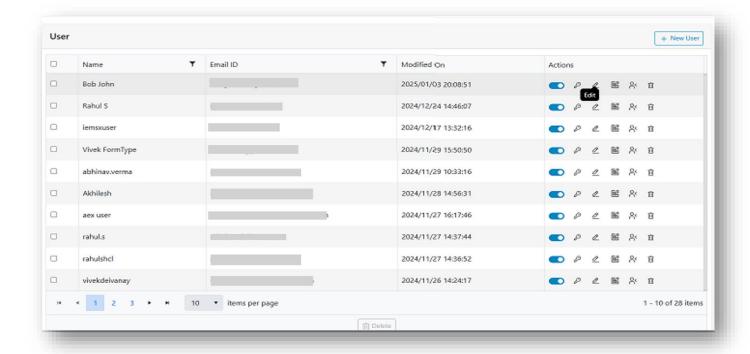


Figure 65 - Edit User

2. The form will appear with the saved details as shown.

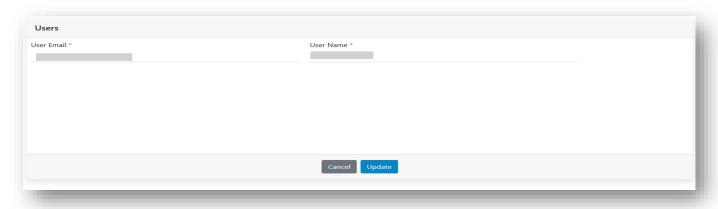


Figure 66 - Edit Details

- 3. Except for the email id, remaining details can be modified the way it was done while adding a new user.
- 4. After editing click on the update button.

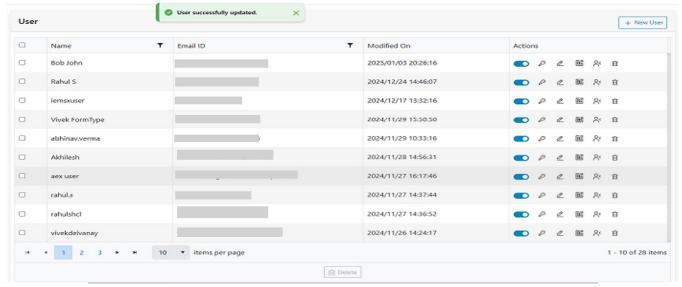


Figure 67 - Alert Message

5. On successful update a pop-up message is prompted as shown in the above image.

6.1.10.4.3.2 Delete User

- 1. Go to the User Tab.
- 2. Users can select one or more users and delete the users. Select all the users to be deleted from the system. After selecting the users click on Delete button shown below the data table.

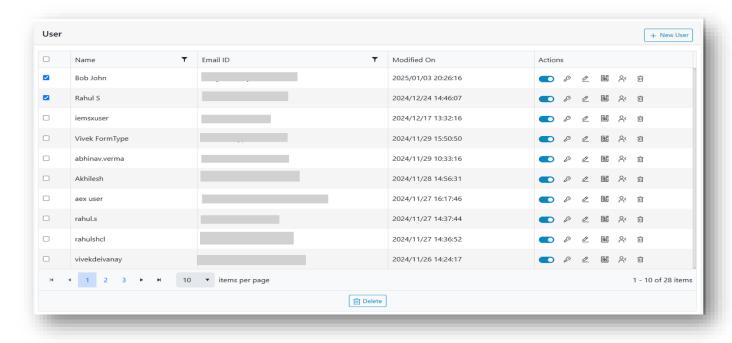


Figure 68 - Delete User

3. Users can also delete the user by clicking on the delete icon shown next to the user.

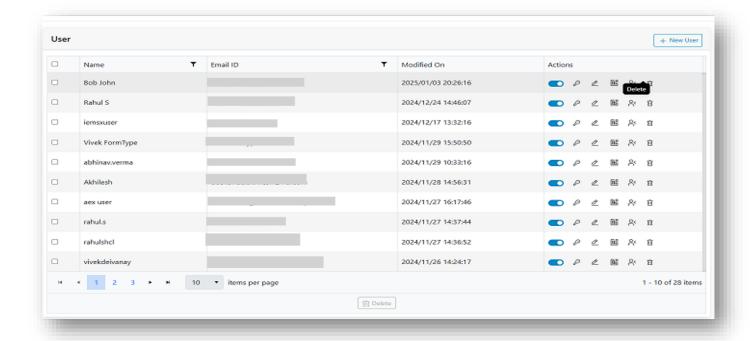


Figure 69 - Delete User

 ${\bf 4.} \quad \hbox{User will be prompted to confirm the deletion. Click on the confirm button.}$

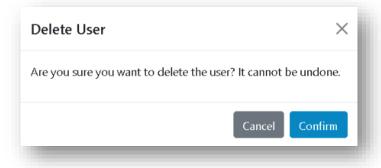


Figure 70 - Confirmation pop-up.

5. On success a confirmation pop-up message will be displayed.

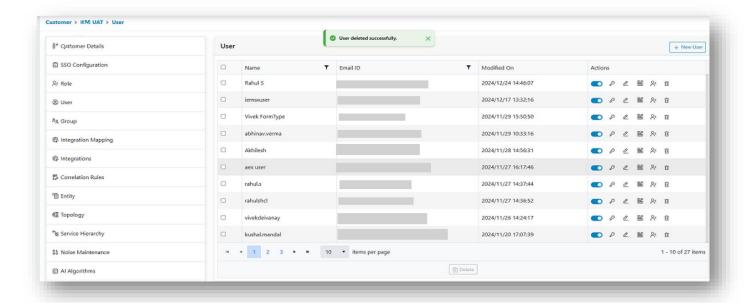


Figure 71 - Alert Message

6.1.10.4.3.3 Assign Group

1. Click on the Group icon next to the user to assign the Group.

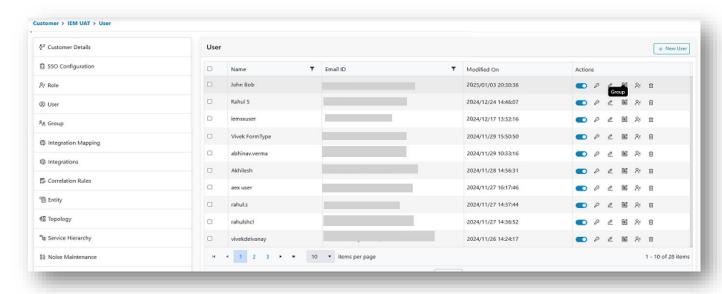


Figure 72 - Assign Group to a user.

2. The form will appear with the saved details as shown.

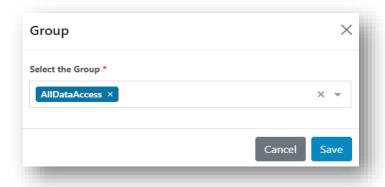


Figure 73 - Group Dropdown

- 3. Users can select one or more groups from the dropdown. Click on the Save button.
- 4. On successful assignments for groups the following pop-up message is prompted.

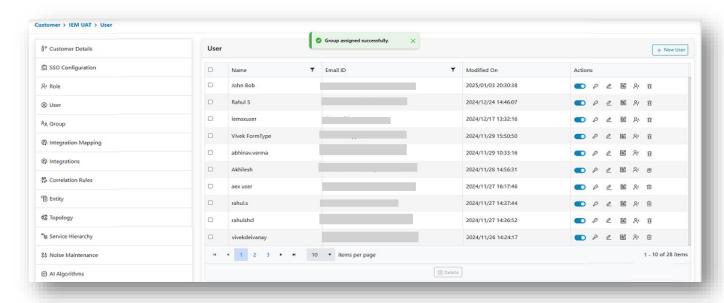


Figure 74 - Alert Message

6.1.10.4.3.4 Assign Role

1. Click on the User Role icon next to the user to Assign Role.

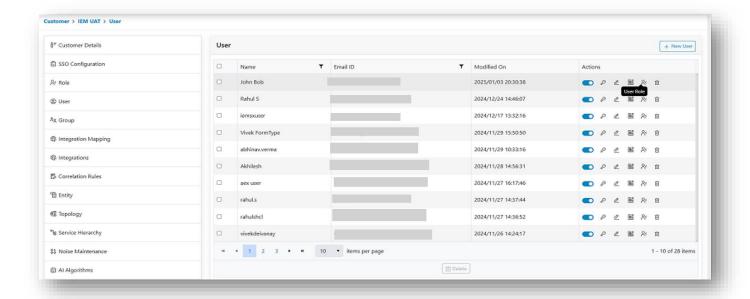


Figure 75 - Assign role.

2. The form will appear with the saved details as shown.

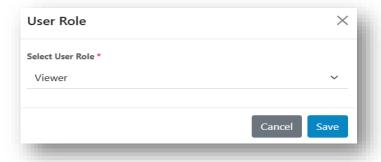


Figure 76 - Role Dropdown

3. Users need to select User Role from the dropdown. Click on the Save button.

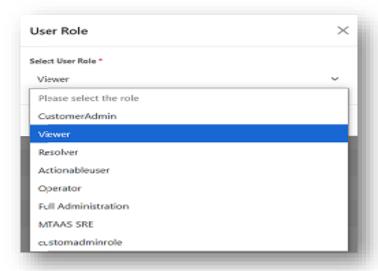


Figure 77 -- Selecting User Role Dropdown to a User

4. On successfully assigning the role, the following pop-up message would be prompted.

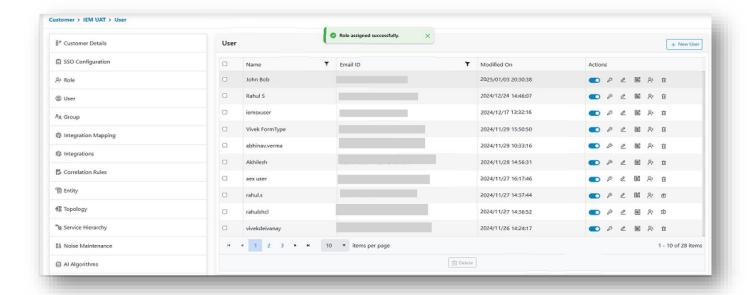


Figure 78 - Alert Message

6.1.10.4.3.5 Enable/Disable User

1. Click on the User Tab.

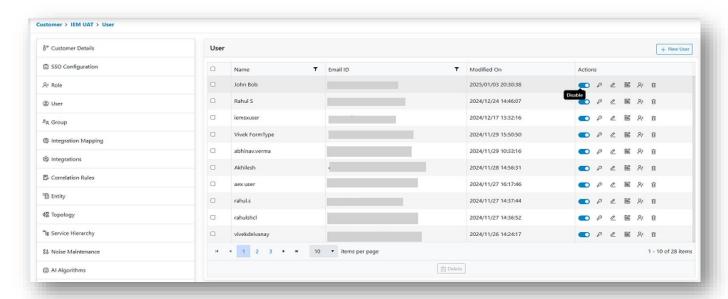


Figure 79 - Enable / Disable User

- 2. Click on the Enable/Disable toggle button next to the user that needs to be Enabled/Disabled.
- 3. On success, a confirmation pop-up message will be displayed.



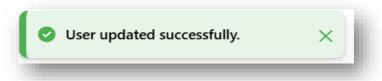


Figure 81 - Confirmation of User Enabled

6.1.10.4.3.6 Apply Filters

This action enables users to apply filters to search for users created in the environment. The steps explain how to Apply filters for the User Data:

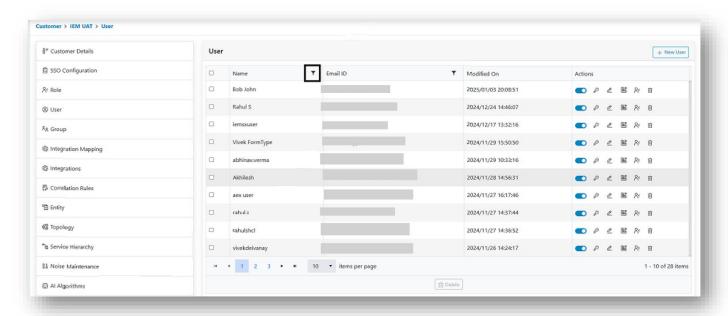


Figure 82 - Apply Filter Operation

1. Click on the Apply Filter action button presents at the header of the console.

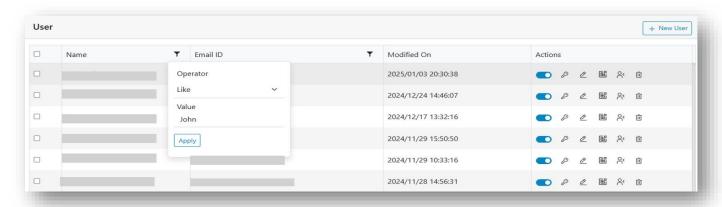


Figure 83 - Applying Filter Operations

- 2. The Users form that appears. Select Field and Operator from drop down list and provide Value. Then click on the Apply button.
- 3. Users can view the result of the applied filter once the user clicks the Apply button.

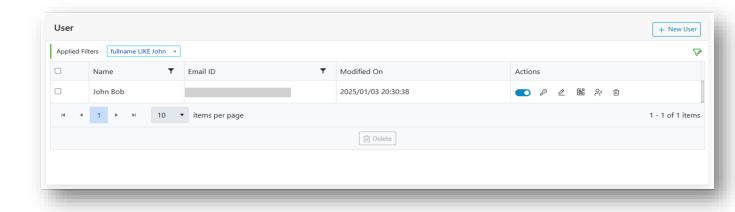


Figure 84 - Apply Filter Result

6.1.10.5 Group

This section enables to Manage groups. Groups are primarily used for controlling data access on the main user view i.e., Data View. In addition to the customer checks if user needs to restrict further the data visible to user based on other fields, then group menu is used for achieving the same.

- 1. Click the customer onboard section (Please refer to the hyperlink given below), for customer, click on customer action edit section.
- 2. Click on the Group page, Group menu item to access this page. As the user clicks on the menu the following form is opened.

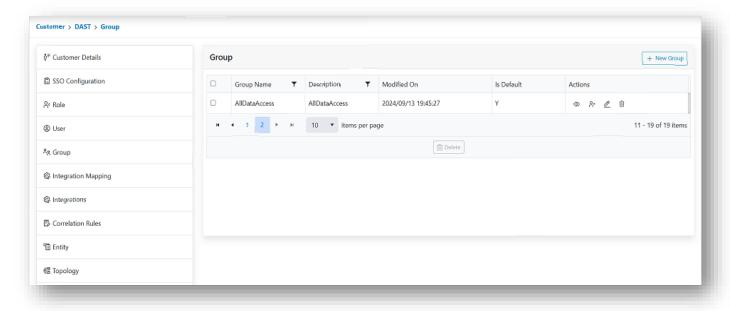


Figure 85 - Group Page

3. Groups created in the environment will be listed in the grid view.

When users access it for the first time, no group is displayed.

6.1.10.5.1 Add New Group

- 1. Click on the Customer Tab and then the Customer Name (In this case "AlphaCustomer")
- 2. Click on the Group Tab.
- 3. At the right side on the top Click on + New Group icon.

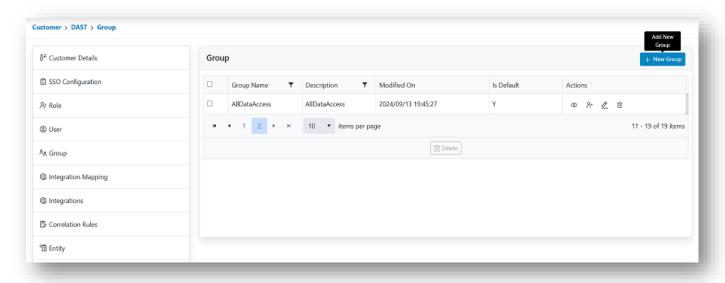


Figure 86 - Navigation Page for Group

4. A new form will appear.

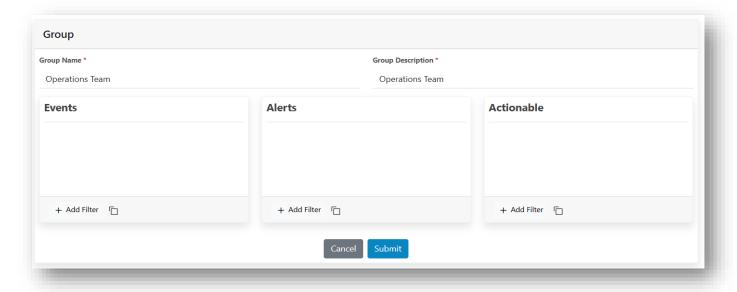


Figure 87 - Create a Group

5. On the above page, the Group Name specifies.

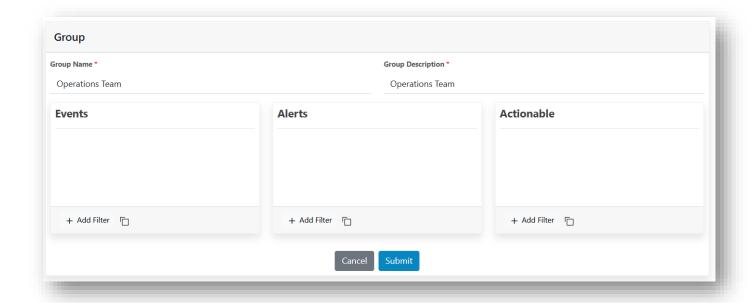


Figure 88 - Add Filter

- 6. Next, the user can specify the data filter. Click on the Edit icon next to the Dataset for which the data restriction is to be enabled.
- 7. A Data filter is used as a condition to limit the data view into a group for which it was specifically created, the filter conditions will be shown in the below steps.
- 8. Click on the Add icon. The following pop-up will be enabled.

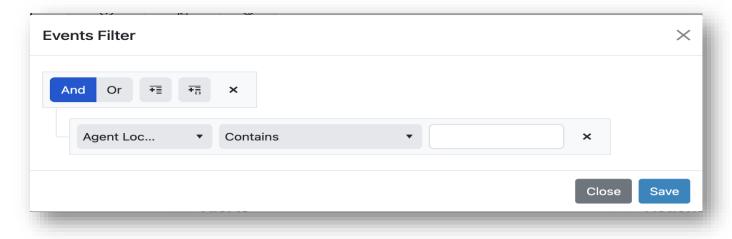


Figure 89 - Filter for Group

9. The field dropdown lists all the available fields of the selected dataset.

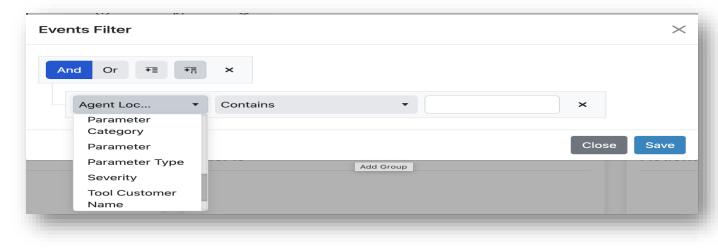


Figure 90 - Dropdown for fields.

10. As the field is selected, the operator dropdown is populated based on the field data type.

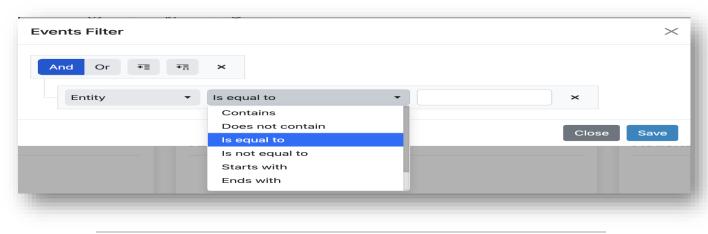


Figure 91 - Dropdown for Operator

11. Based on selected Field and Operator, provide the Value in the Value field.

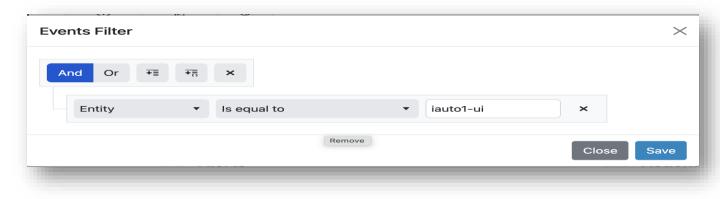


Figure 92 - Add Base Filters

12. In the above example, the user has added "Entity" like "iauto", which means the events of the "iauto" console only will be forwarded to this group, rest events would be dropped off.

13. Users can also add more conditions for adding more conditions by clicking on +Add button. Once the button is clicked a new row appears as shown in figure below or option to add sub condition also available which

+≣

can be availed by clicking on button and sub condition will appear as shown in the figure below

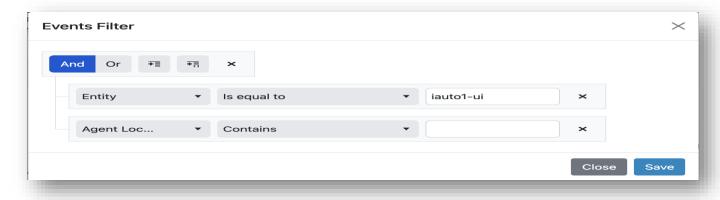


Figure 93 - Add Filters (Cont.)

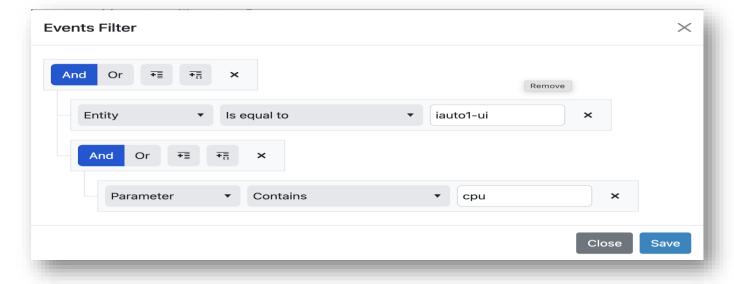


Figure 94 - Add Filters (Cont.)

14. Once all the conditions are specified, click on Save. On success the following pop-up message will be prompted.

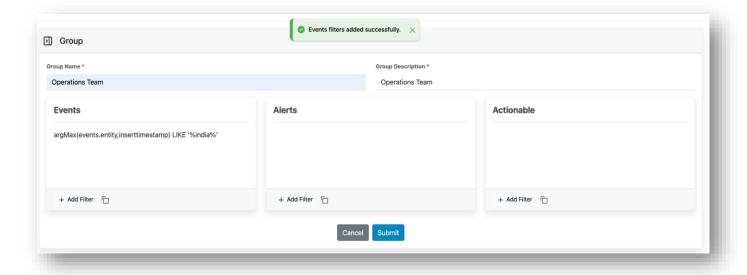


Figure 95 - Alert Message

15. Close the success message. The condition will start appearing next to the dataset as shown:

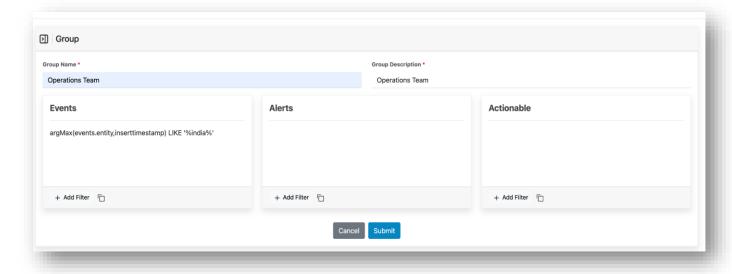


Figure 96 - Add New Group

16. For the other datasets as well, users can use the same method to create the conditions. However, users do have copy action available, if the same criteria are to be applied across datasets, click on copy icon next to the dataset for which condition is to be copied as shown in the below image.

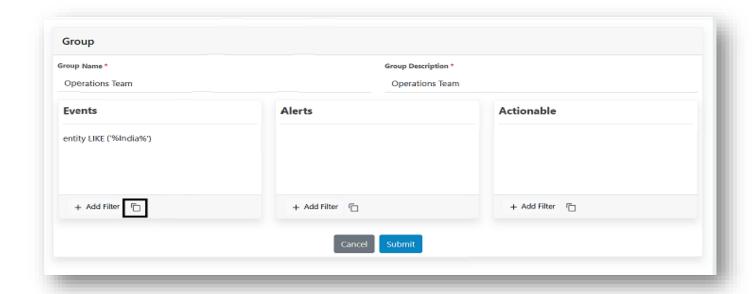


Figure 97 - Copy Event Filter

17. On clicking copy, the following popup is displayed, select the filter where the data is to be copied.

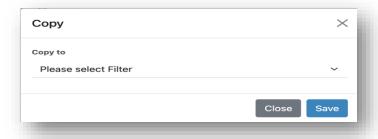


Figure 98 - Copy Expression

18. After specifying the filter, click on the Save button.

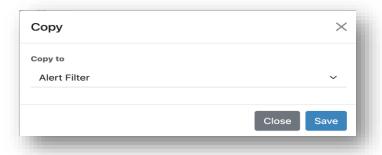


Figure 99 - Selecting Copy Expression

19. On success the following pop-up message is prompted.

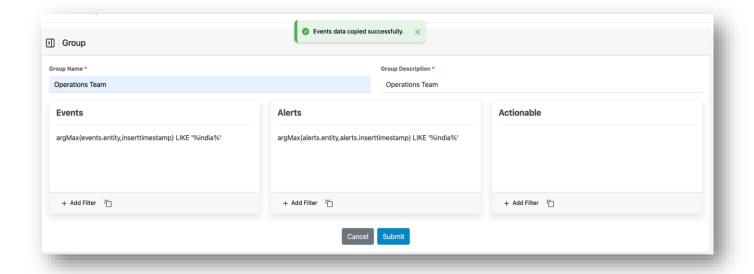


Figure 100 - Alert message.

20. The filter criteria can be copied to the next dataset filter as well.

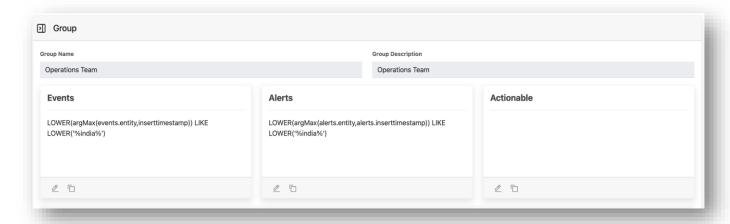


Figure 101 - Alerts Filter

- 21. Once all the data filters are applied, click on Submit.
- 22. On successful creation the following message is prompted to user.

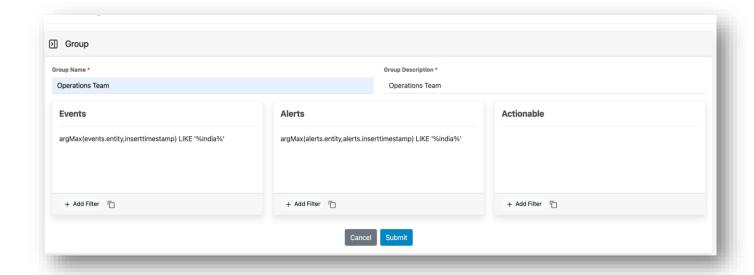


Figure 102 - Alert Message

23. The control will be redirected to the grid view with the new group listed.

6.1.10.5.2 Edit Group

- 1. Click on the edit icon next to the group to be edited as shown below:
- 2. The form will appear prefilled with the saved data.

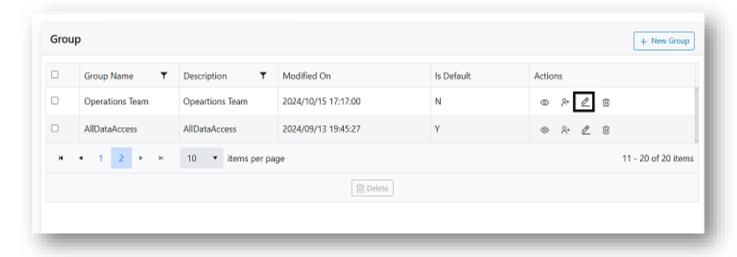


Figure 103 - Edit Group

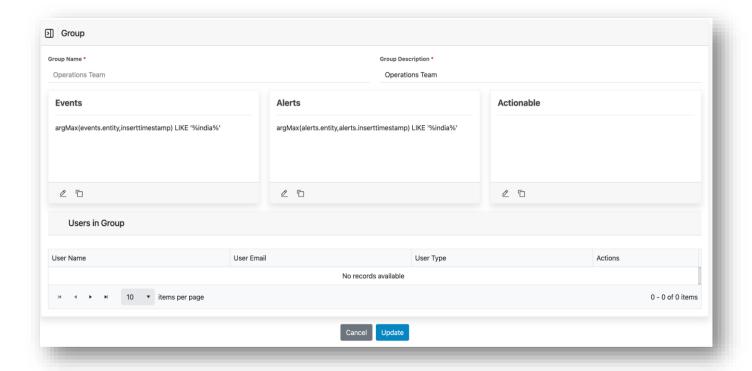


Figure 104 - Edit Filter

3. Users can edit the description or update the filter criteria's the way user did while adding new group.

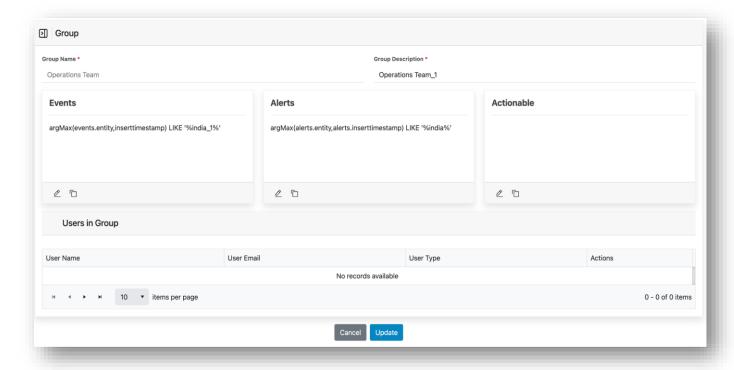


Figure 105 - Figure 104 - Update Group Name and Filter

- 4. In the above figure, the Group Description is updated to OperationsTeam_1. There is additional filter updated under Events filter from india to india_1.
- 5. Once all the fields are updated, click on Update.
- 6. On successful update, the following confirmation pop-up message is displayed.

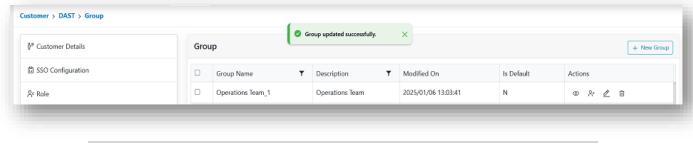


Figure 106 - Alert Message

7. Close the success message. The control will be redirected back to the grid view.

6.1.10.5.3 Delete Group

Users can delete the group individually or use the bulk delete option. Let's look at the individual delete option first.

1. Click on the delete icon next to the group that is to be deleted.

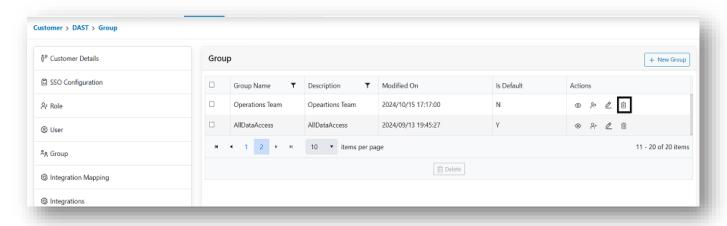


Figure 107 - Delete Group

2. Confirmation pop-up appears.

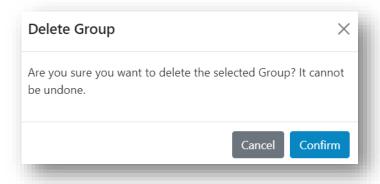


Figure 108 - Confirmation pop-up.

3. Click Confirm. A confirmation pop-up is displayed. Refreshes the grid with the group removed.

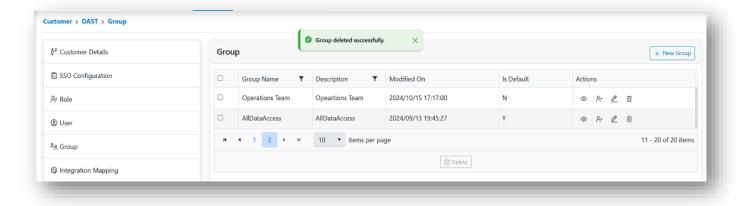


Figure 109 - Alert Message

Below is the **bulk deletion** option.

- 1. Select the groups that are to be deleted. As the groups are selected, the icons in the footer will be enabled.
- 2. Click on the Delete icon. The steps will be same as in individual delete post that.
- 3. Confirmation will be requested, Click Confirm. On successful deletion confirmation will be displayed and the grid will be refreshed with the groups no longer displayed.

6.1.10.5.4 Assign User

This action enables us to assign users to roles created in the environment.

1. Click on Customer → Customer Name → Group.

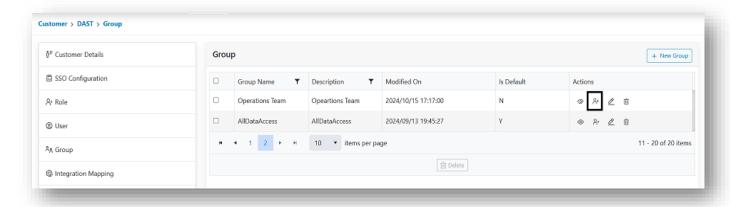


Figure 110 - Assign Users in a Group

- 2. The Action tab contains Assign User option, click on the Assign User option to assign the Group to a particular user in the environment.
- 3. After clicking on the Assign User option, a pop up will be opened which will ask for User Email ID input.

Users can only be assigned by adding the User Email ID.

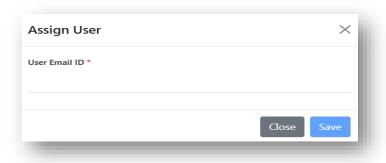


Figure 111 - Assign User Pop-up

4. After adding the required User Email ID, click on the Save Button.

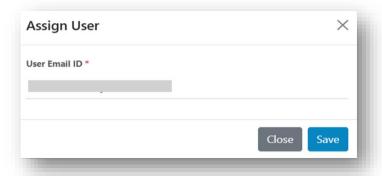


Figure 112 - Assign User Email ID

5. On successful assignation, a confirmation pop-up is displayed as shown in the following figure. The user will be assigned successfully to that group.

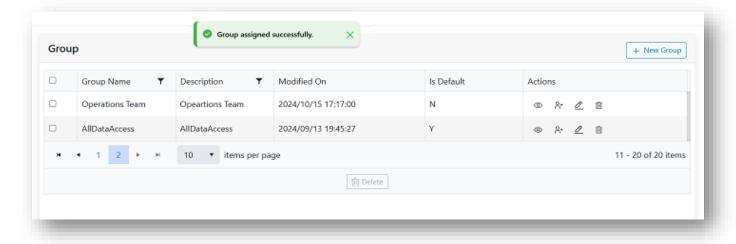


Figure 113 - Confirmation Pop-up Message

6.1.10.5.5 View Group

This action enables the users to view Groups created in the environment.

1. The action tab contains a view option, click on the view icon to view the groups that are created.

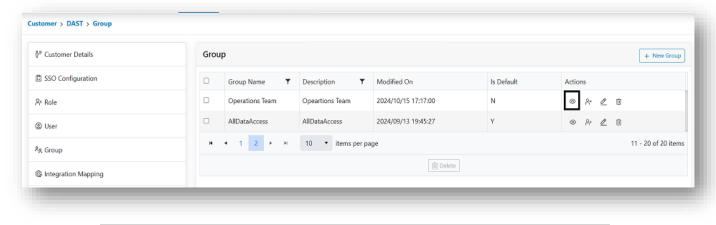


Figure 114 - View Role

- 2. Click on view for the "customeradmin" role and the actions for the group will be displayed.
- 3. User cannot edit the group details via View option. Only the actions that are selected for the Group.

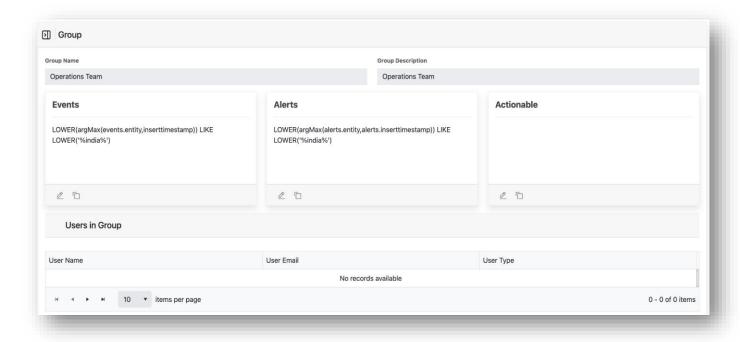


Figure 115 - Viewed Group

6.1.10.5.6 Apply Filters

The steps provide information on how to Apply filter to the Group Data.

1. Click on Customer → Customer Name → Group.

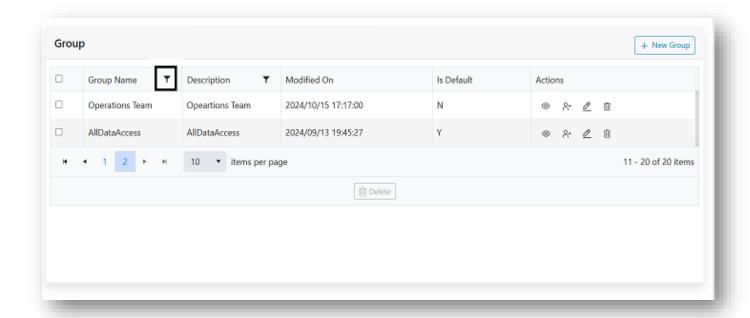


Figure 116 - Apply Filter Operation

- 2. Click on the Apply filter action button present at the header of the console.
- 3. The form will appear where the user can select Field and Operator from drop down list and user must provide the Value.
- 4. Then click on the Apply button.

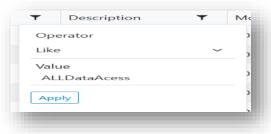


Figure 117 - Apply Filter Operation

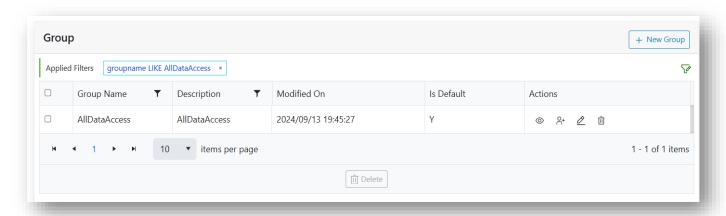


Figure 118 - Apply Filter Result

5. Users can see the result of applied filter.

6.1.10.6 Entity

An Entity in IEM can be referred to any configuration item (CI) against which the event has been triggered or received in IEM.

The section enables us to provide details associated with the entity, enabling enriching the events, alerts, and actionable data within the system based on its mapped entity. This enriched data can be further used while defining correlation rules or while working on the data view screen. Example, providing details such as location, data center, applications (primary, secondary etc.) while defining the entities.

As these details are added, it becomes available in the correlation rule configuration page as well as additional columns in the data view page, which can be then used accordingly by the respective users.

This page allows users to save multiple views, enabling them to choose which columns are displayed in addition to the mandatory columns. Users can also save views with specific filters applied, so that only filtered data is shown in a particular view.

Likewise, with other screens the users can perform actions based on their assigned roles.

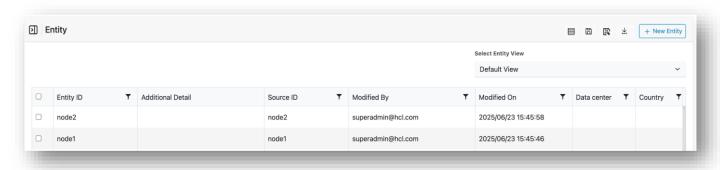
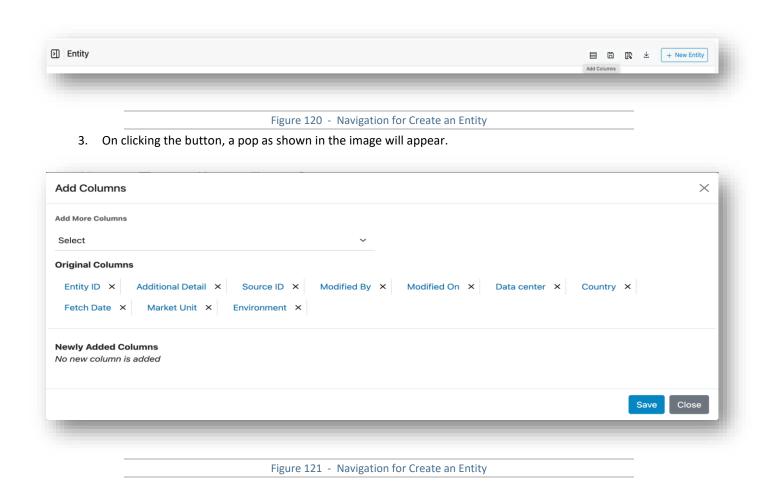


Figure 119 - Entity Page

- 1. Click the customer onboard section. For a specific customer, click on Customer edit section. Click on the Entity page, where Entity records for the selected customer will be displayed in the grid view once new entities have been created by the user.
- The following actions can be performed on the page:
 - Add Columns
 - Save (View)
 - Save as (View)
 - Add New
 - Edit Existing
 - Delete
 - Define Maintenance Schedule
 - Merge
 - Apply Filters

6.1.10.6.1 Add Columns

- 1. Users can customize the grid view by adding or removing columns according to their preferences. However, mandatory columns cannot be removed.
- 2. To add or remove columns, click the "Add Column" button the first button from the left



4. Where user can use to select and add more columns to the grid by choosing option from the "Add More Column" dropdown

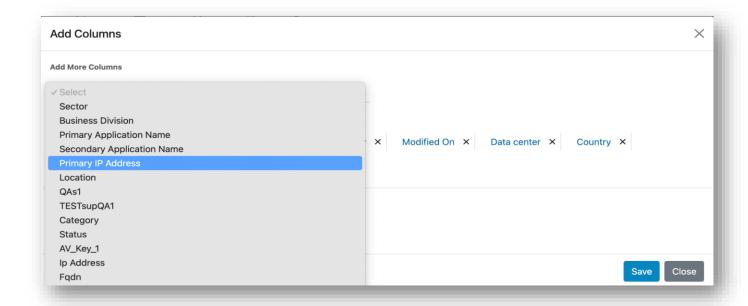


Figure 122 - Navigation for Create an Entity

- 5. Once options are selected from the dropdown, they will appear under the "Newly Added Columns" section, as shown in the image below.
- 6. To remove a column from this section, simply click the "X" icon next to the column name.

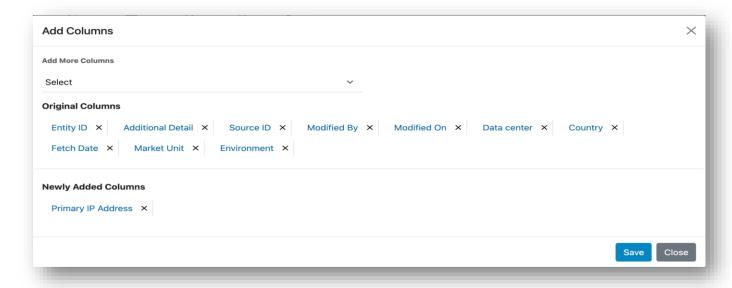


Figure 123 - Navigation for Create an Entity

7. After finalizing the column selection, the user must click the "Save" button. Once clicked, the popup will close, and a green confirmation message will appear stating as Columns updated successfully.

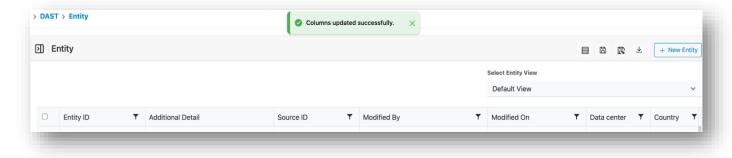


Figure 124 - Navigation for Create an Entity

8. To remove a column from the grid, click the "Add Column" button.
Under the "Original Columns" section, click the "X" icon next to the column name you wish to remove.
Then, click the "Save" button.

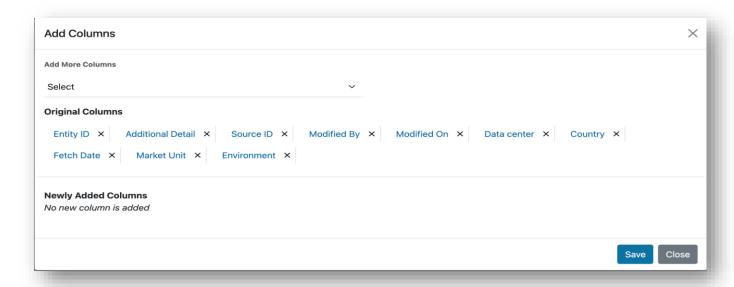


Figure 125 - Navigation for Create an Entity

9. A green confirmation message will appear stating:

"Columns updated successfully."

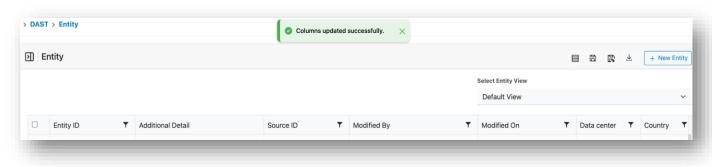


Figure 126 - Navigation for Create an Entity

6.1.10.6.2 Save (View)

- 1. Users can save changes made to the grid views such as selected columns and applied filters—by clicking the "Save" button.
- 2. This ensures that when the user returns to the page in the future, the grid will retain the previously saved column configuration and filter.



- 3. When the user clicks the "Save" button, a confirmation prompt will appear asking if they want to save the current view settings.
- 4. Please note: this action cannot be undone.

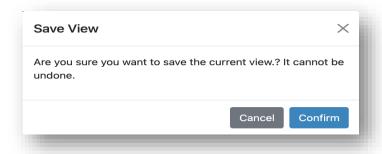


Figure 128 - Navigation for Create an Entity

5. Once the user clicks "Confirm", the changes will be saved, and a green confirmation message will be displayed: "View saved successfully."

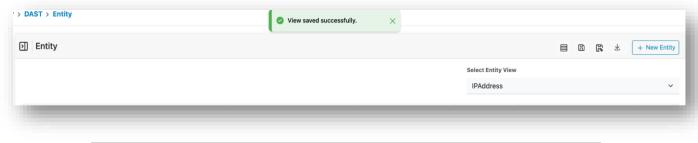


Figure 129 - Navigation for Create an Entity

Save As (View)

- 1. Users can also create a new custom view if they wish to save the current grid settings and applied filters without modifying the existing view by click on "Save As" button.
- 2. This allows users to preserve the original view while saving the current configuration as a separate, personalized view.

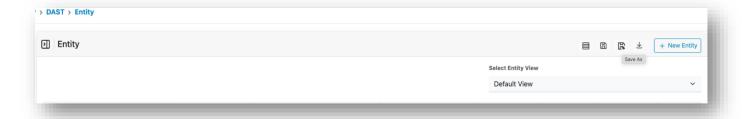


Figure 130 - Navigation for Create an Entity

- 3. When the user clicks the "Save As" button, a popup will appear, as shown in the image below. In this popup, the user must provide the following details:
 - View Name: A name for the custom view
 - Description: Additional details about the view
 - Show to: Choose whether the view should be visible only to the user or shared with other users

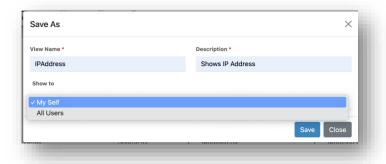


Figure 131 - Navigation for Create an Entity

4. Once the form is completed and saved, the new view will be created without affecting the existing one ans message will be displayed in green "View Saved Successfully".

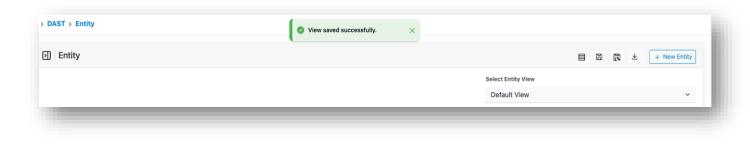


Figure 132 - Navigation for Create an Entity

5. You can access the view through the 'Select Entity View' dropdown".

6.1.10.6.3 Add New Entity

Entity Records can be added using two methods: -

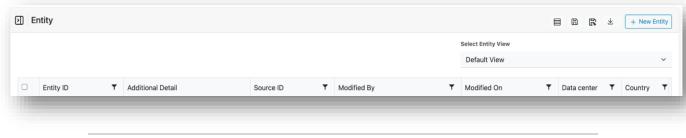


Figure 133 - Navigation for Create an Entity

- 1. Create New Entity by clicking on + New Entity Button
- 2. Bulk Insertion can be done using the upload CSV option.
- 3. Choose a file based on the template available and upload it. Click on Submit.

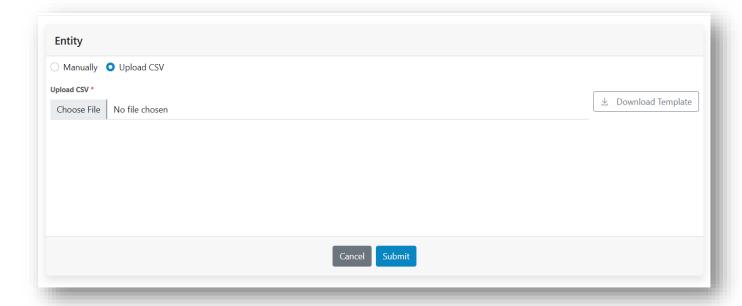


Figure 134 - Bulk Upload Entities

Prior to adding the records, ensure that CSV contains the proper data, as upload will enrich the records of the selected customer.

4. Let us look at each action.

6.1.10.6.3.1 Individual Record Addition

1. Click on +Entity button. This opens the following pop-up.

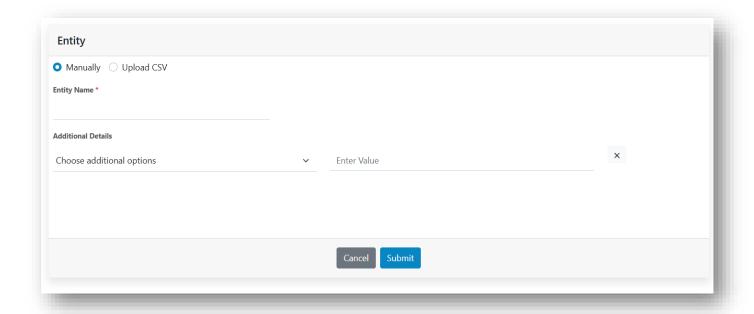


Figure 135 - Add Entity Name

- 2. Specify the Entity Name which is a mandatory column.
- 3. If required, other details can be added using, Choose additional options. As the dropdown is selected the existing keys created within the environment will be displayed with an option to add a new "custom key" as shown below.

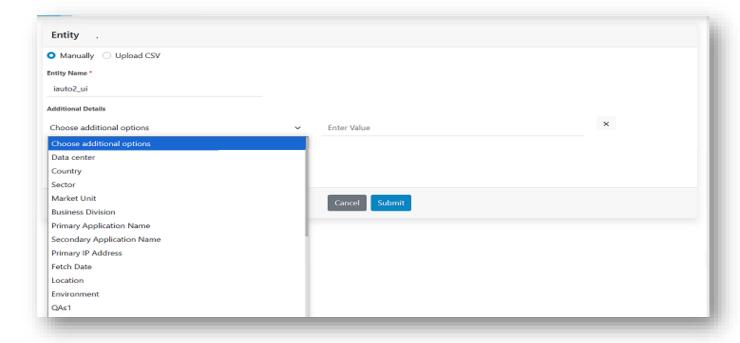


Figure 136 - Dropdown List for Column

Providing additional options is not mandatory and depends on the user's requirement of data enrichment.

4. Let's first select an existing key. Let's select 'Country'. As user selects country, the key will become populated in the first row enabling users to enter its value and a new record appears below it with the dropdown enabling user to add more details if required.

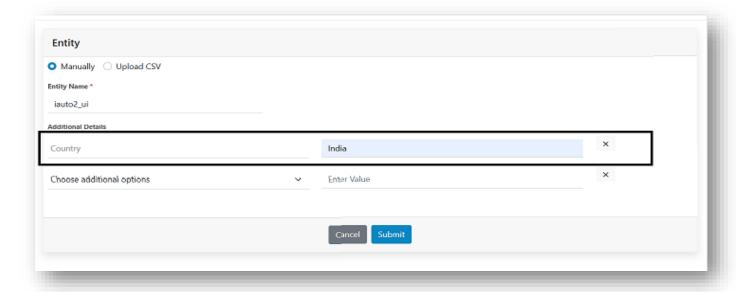


Figure 137 - Selected Column

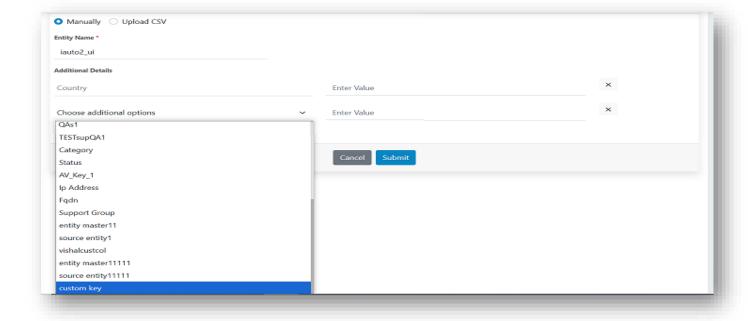


Figure 138 - Selecting Multiple Columns

5. Let's create a new detail next. Select "Custom key" from the dropdown.

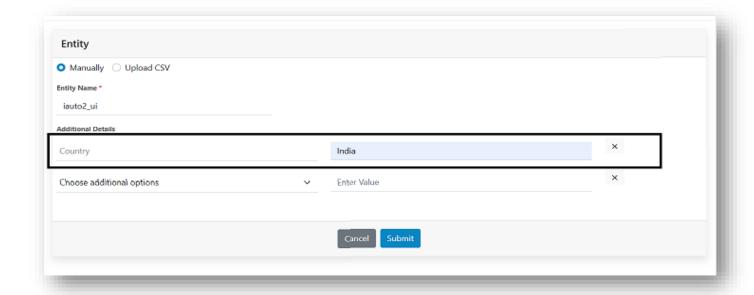


Figure 139 - Add New Column

6. As the option is selected, the dropdown is replaced with a text box enabling user to define the new key, and value appears next to it. A new row is added below it with the dropdown.

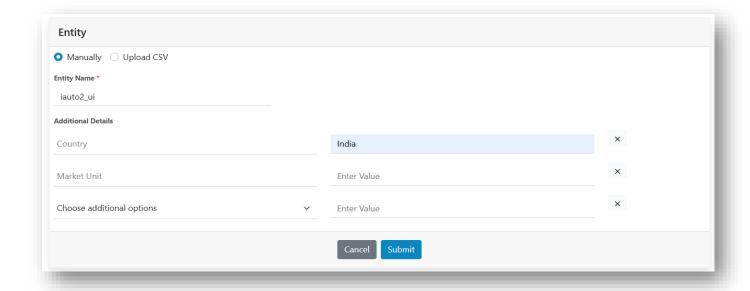


Figure 140 - Multiple Enter Value for Entity

- 7. In case more details need to be added, repeat step 1 to make use of an existing key or follow steps 2, 3 and 4 as mentioned above to add Custom details using Custom Keys.
- 8. Click on Submit once done. On successful addition a prompt is displayed as shown.

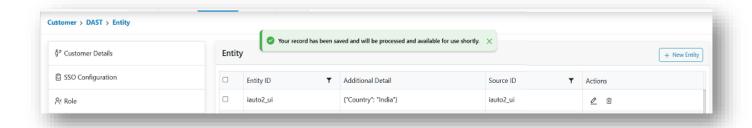


Figure 141 - Alert Message

9. The New Entity added will appear in the grid as shown above.

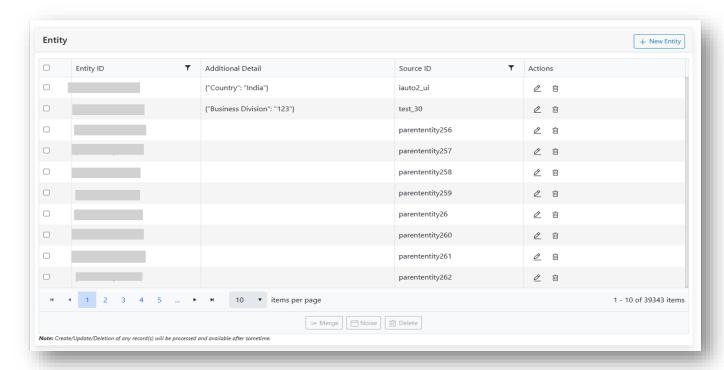


Figure 142 - Grid View for Entity

6.1.10.6.3.2 Bulk Record Addition

1. Click on New Entity and select Upload CSV radio button option as shown:

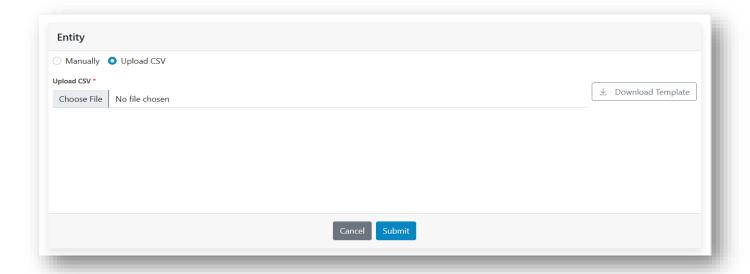


Figure 143 - Bulk Upload Entities

2. As user selects Upload CSV the following screen appears:

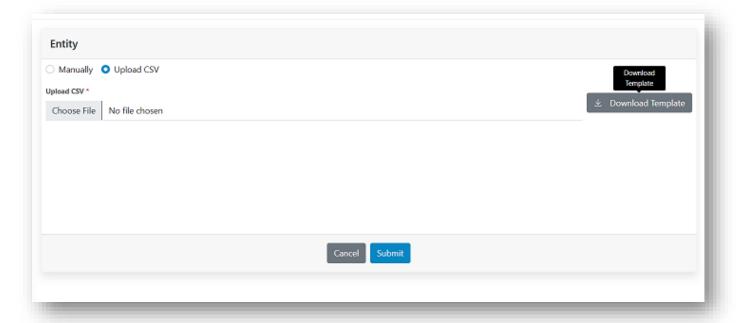


Figure 144 - Bulk Upload Entities

3. Click on the Download Template button. The following template is downloaded:

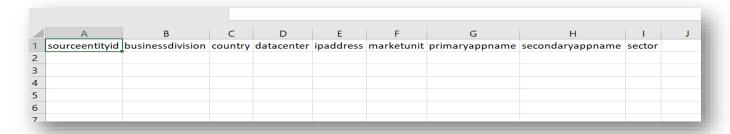


Figure 145 - Template Format of Bulk Entity

- "Source entity id" is the mandatory column, rest are the additional details available in the environment.
- 4. Users can choose to provide value for the additional details or can add more details as per Customer's requirements, by adding columns in the downloaded template as shown below.

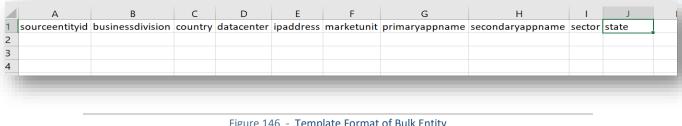


Figure 146 - Template Format of Bulk Entity

5. The new additional details will be added in the repository while the data is uploaded.

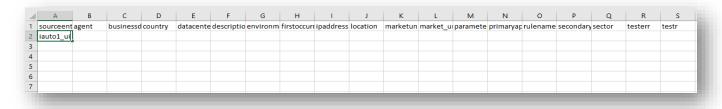


Figure 147 - Template with Entity Data

6. Add details in the excel and save the file as .CSV file. As user clicks on the upload CSV, the local directory browser appears as shown:

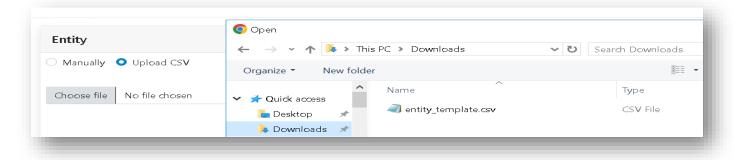


Figure 148 - Selecting file from local Directory.

7. Browse to the local directory where the data file is saved and select the file. As the file is selected, it appears as shown:

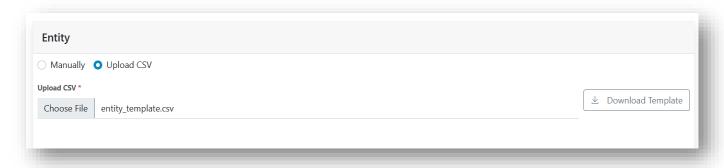


Figure 149 - Upload csv file.

8. Click Submit. If the data in the excel file is as per the downloaded template, it will get submitted and a success message is shown. Close the success message.

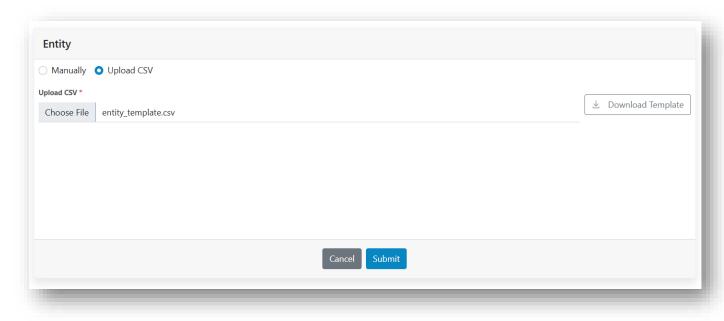


Figure 150 - Submit Button

In case Entity modification is required on MSP Tenant then BAU/Operations team should reach out to IEM PS team.

6.1.10.6.4 Edit Entity

Once the entities are added, the edit icon next to the entity record can be used to update its details.

1. Click on the Edit icon next to the entity record which is to be updated.

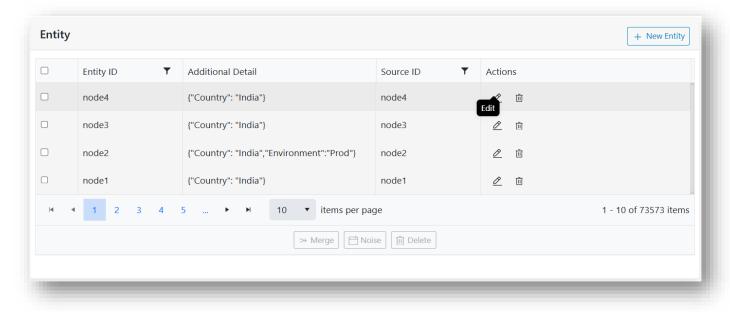


Figure 151 - Edit Entity

2. The form appears filled with details. Users can add/edit/remove the additional details options. For example, parse let's add details of primary application, remove the state and update country to UK. Post changes, the form appears as below:

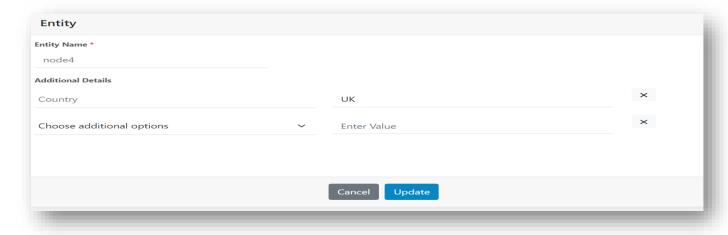


Figure 152 - Edit Details

3. Once complete click on Update. On successful update the following prompt is displayed.

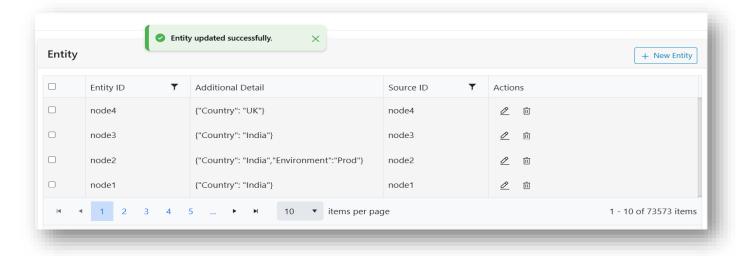


Figure 153 – Alert Message

4. Click on close, the updates will be visible in the grid view as shown below.

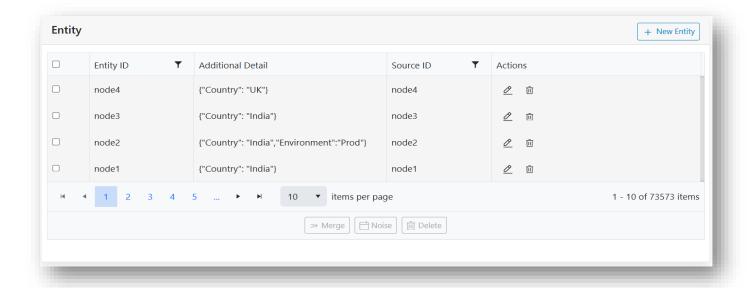


Figure 154 - Grid View for Entity

6.1.10.6.5 Delete Entity

If the entities are wrongly mapped or created, or need to be removed, provision of bulk delete is available on the page.

1. Click on the check boxes next to the entities to select the entity that is to be deleted.



Figure 155 - Entity Page

Clicking the checkbox in the header will select all the entities displayed on the page.

2. When the entities are selected, the available icons at the bottom of the grid get enabled.

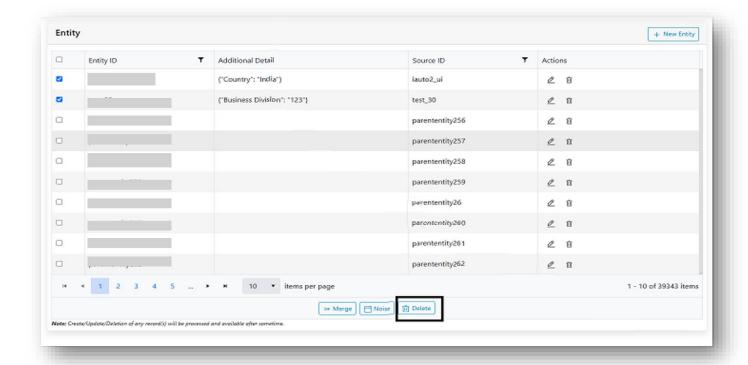


Figure 156 - Delete Entities

3. Click on the Delete button. A confirmation box appears:

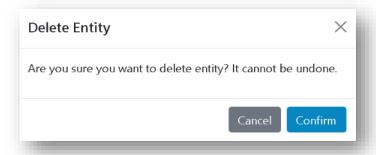
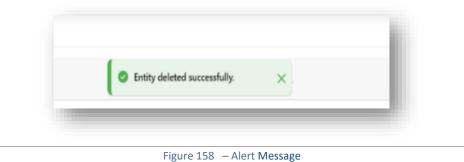


Figure 157 – Confirmation pop-up.

- 4. If sure of the selected entities' deletion, click Confirm else, click Cancel to revisit the selections made.
- 5. As Confirm is clicked, deletion process gets started. On successful deletion of the records, the rows are removed from the grid and a confirmation message box is prompted.
- 6. Click Close. The rows are no longer available in the grid.



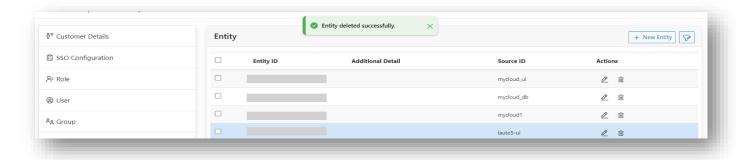


Figure 159 – Entity Removed from the Data Grid

6.1.10.6.6 Merge Entities

Mergers are a feature which is available to merge related entities. As data can be uploaded from different repositories, many a times the same entity is referred by different names across repository, so here those entities can be selected and merged and tagged by a common name, so that the details can be used while defining correlation rule to correlate data coming from different repository.

In that case if users use Entity (Master) from the fields list in the Group By field of the field of the correlation rule screen, all data associated to the entity across different data sources will be grouped together.

To know more about defining correlation rules refer to the **Correlation Rules** section.

1. Click on the check boxes next to the entities to be merged. Like while deleting, as entities are selected, all icons in the footer will be enabled.



Figure 160 – Select Entities for Operation

2. Click on the Merge button.

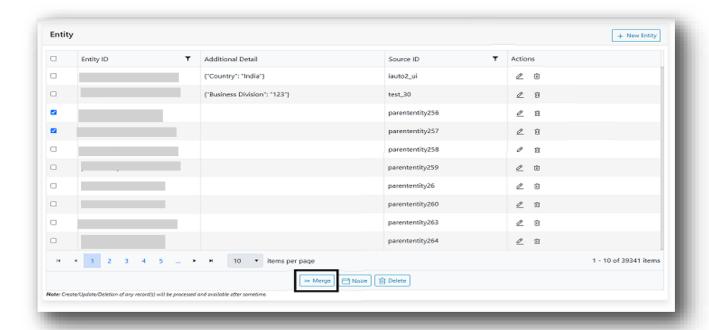


Figure 161 - Merged Entities

3. A pop up appears with the names of all selected entities appearing in the dropdown.

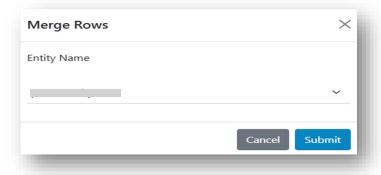


Figure 162 - Merge Rows

- 4. Select the name which will be primarily used for identifying these selected entities. For example, parse any one of the entity names from the dropdown, so that selected entity names will be changed to the entity name which is selected in the dropdown.
- 5. Click Submit, a confirmation box will be displayed.



Figure 163 - Figure 161 - Alert Message

6. Click Cancel and refresh the grid. All the entities, entity ID field will start appearing the same.

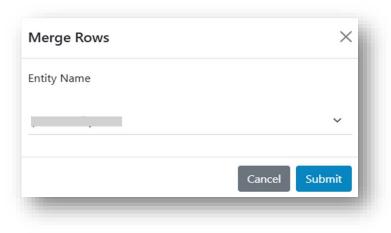


Figure 164 - Cancel Button

Source entity field is not changed, just the entity name changes to the referenced entity name.

6.1.10.6.7 Define Maintenance Window

This section enables the user to define a window (time range) for the selected entities during which any event data received from the entities can be filtered out.

This time range can belong to any planned activities such as backup, maintenance schedule, upgrade etc. where though the event generation is expected but no processing is required and can be dropped.

1. Select the entities for which the window needs to be defined by clicking on the corresponding check boxes. Once the entities are selected, the footer icons get enabled. Click on Define Maintenance window.

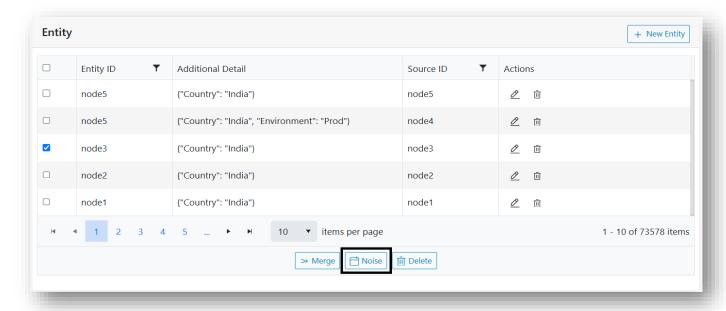


Figure 165 – Selected Entities as Maintenance Window

2. The following popup appears for configuration.

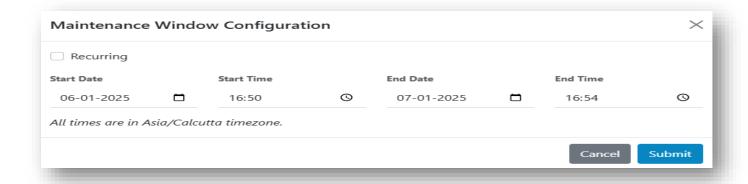


Figure 166 – Maintenance Window Configuration

- 3. By default, the current date will be selected. The following option for configuration exists:
- 4. Specify one-time duration. Here users need to select the Start Date and End Date and specify the Start Time and End Time duration. On clicking the Start Date, a calendar appears as shown below enabling users to select the date.

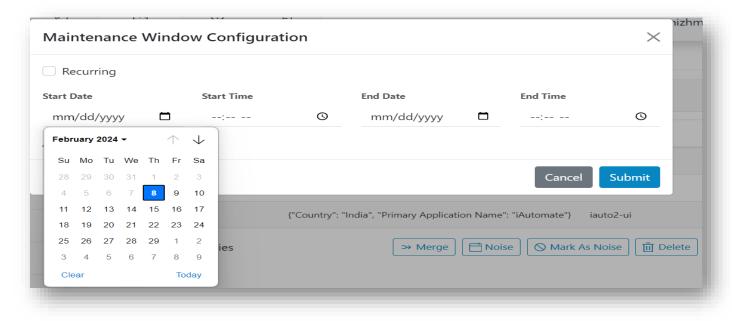
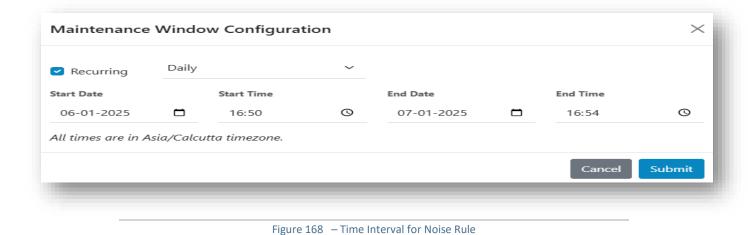


Figure 167 – Date selection for Noise Rule

5. Users can type in the time or use the clock icon next to the start time and the end time to specify the time range for the selected date. With the date and time selected the popul looks as below.



6. In the above image, the event data will be considered as noise from 16:50 PM to 16:54 PM on 07th Jan 2025.

The date and time are in the UTC time zone.

• Specify Recurring period. As recurring is selected, users have an option to define a daily, weekly, or monthly recurrence as shown below:

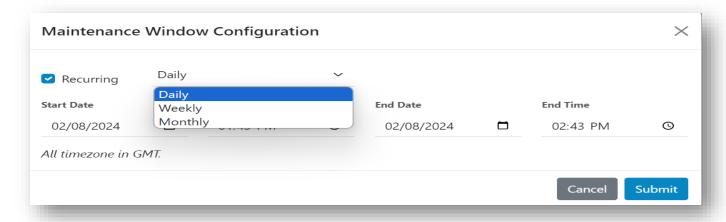


Figure 169 – Recurring for Noise Rule

- Let's select Daily. As daily is selected user need to specify the date range by specifying the start date and end date. As users select the start date, in both these cases as well as the date field is selected, a calendar is displayed.
- Choose the date range. Once the date range is selected specify the Start Time and End Time the way user did for One time.
- For this example, parse, let's select the date range from 2:00 AM to 2:43 PM on 08th February 2024.

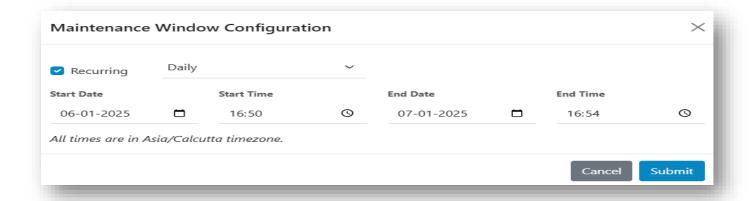


Figure 170 – Maintenance Window Configuration for Noise

- The selection implies that any event data generated for the selected entities daily during the date range between 2-3 AM will be filtered out.
- As the day header is selected, a dropdown appears seeking input of the day along with the remaining selections.

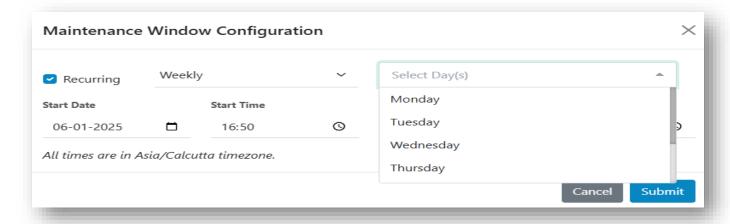


Figure 171 - Day Selection for Noise

7. For the example let's choose Wednesday. With the day selection the screen looks as below.

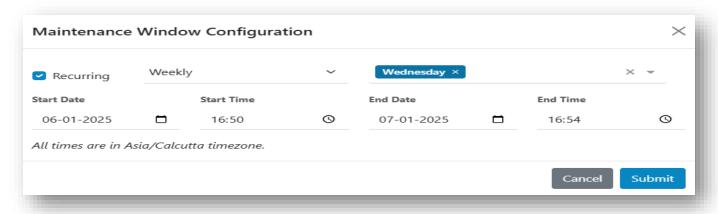


Figure 172 – Maintenance Window

- The selection implies that any event data generated between 2-3 AM every Wednesday for the selected entities will be filtered out starting from 06th Jan 2025 till 07th Jan 2025.
- Let's next look at the monthly recurring option. As Monthly is selected, a textbox appears enabling users to specify the day of the month as shown below.

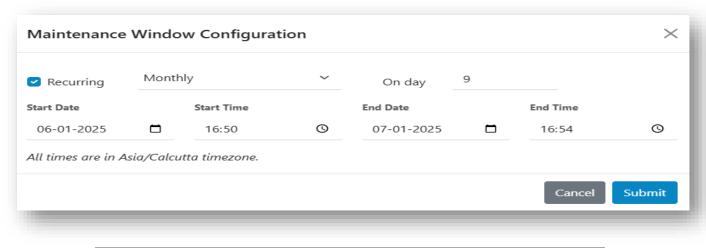


Figure 173 — On Day Selection for Recurring

8. For the example parse let's specify 9 as the day of the month. With the day input the screen looks as below:

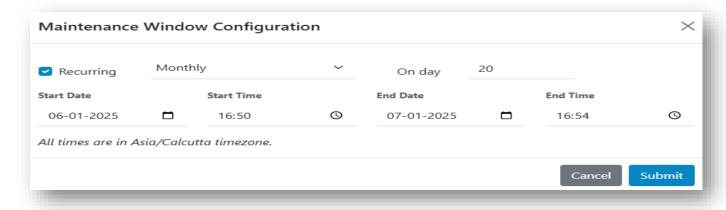


Figure 174 — On day and Time Interval

- The selection implies that the event data generated between 16:50 PM on 20th day of every month for the selected entities will be filtered out starting on 06th Jan 2024. Once the period is specified as per the requirement, click on Submit.
- 9. On successful updates, the details are saved, and a prompt of success is displayed as shown:



Figure 175 – Alert Message

The Number implies the number of entities whose data is updated. Since in this case user selected 2, both are updated so the count is displayed as 2.

- 10. Click Close.
- 11. Like noise the saved data will be visible on the noise/maintenance window, where rule name is prefixed with "Maintenance window defined for".

Once an entity is marked, redefining or remarking will not work.

6.1.10.6.8 Apply Filters

The steps explain how to Apply filters to the Entity Data.

1. Click on the Apply filter available action button present at the header below of the console:

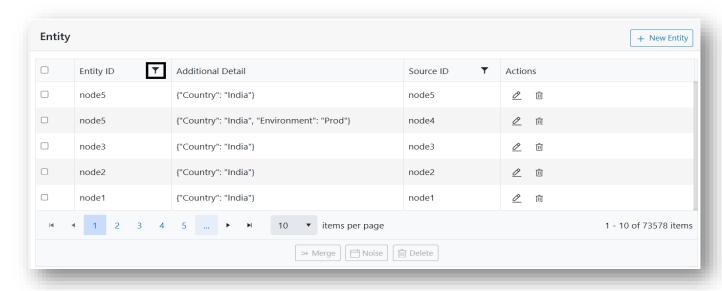


Figure 176 – Apply Filter Operation

2. The form will appear. From there the user can select Field and operator from drop down list and should assign a value. Then click on the apply button.

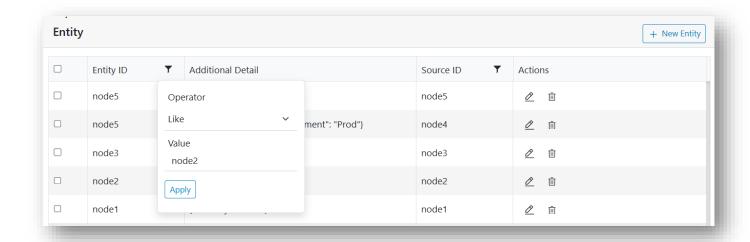


Figure 177 - Apply Filter Operation

3. Users can see the result of applied filter.

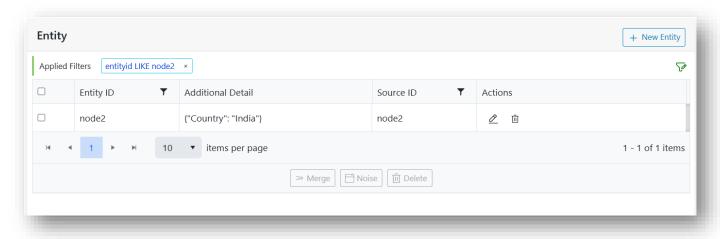


Figure 178 – Apply Filter Result

6.1.10.7 Topology

Topology helps to provide a comprehensive understanding of how different entities in the system are connected, allowing for effective monitoring, troubleshooting, and incident response.

Topology view illustrates the relationships and connections between different components, such as servers, applications, databases, network devices, and other IT infrastructure elements will be displayed once the Topology is established in the system.

This section enables us to define the entity relationship data. If a rule is defined with topology filter selection, then the data is referred while correlating based on the rule definition. Refer to correlation rules to learn more about defining topology filter rules.

Like other screens user can perform actions based on their role.

- 1. Click the customer onboard section, for customers click on customer action edit section.
- 2. Click on the Topology page, Records for the selected customer will be displayed in the grid view as shown.

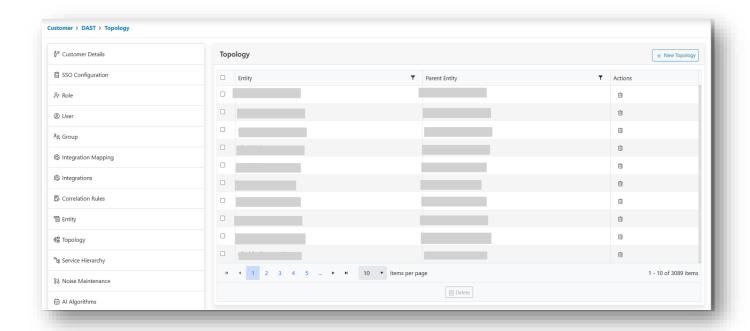


Figure 179 - Topology Page

- 3. Use the customer dropdown to change the customers and view data defined for it.
- 4. The following actions can be performed on the page:
 - Add New
 - Delete
 - Apply Filters

6.1.10.7.1 Add New Topology

Topology (Entity relationship) data can be added using the following two methods:

1. Create New by clicking on +New Topology Data Button.

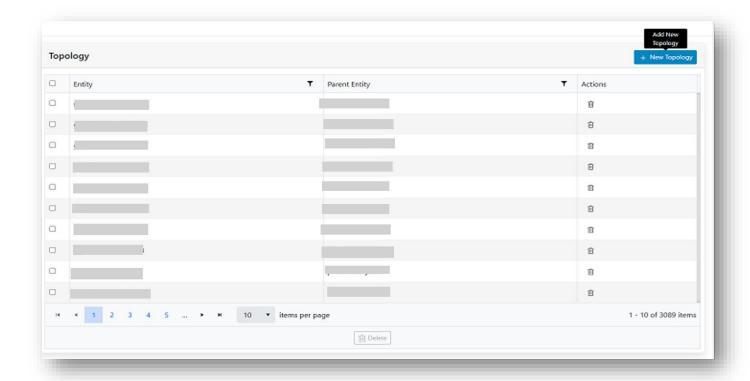


Figure 180 - Add Topology

- 2. Bulk Insertion can be done using the upload CSV option.
- 3. Choose a file based on the template available and upload it. Click on submit.

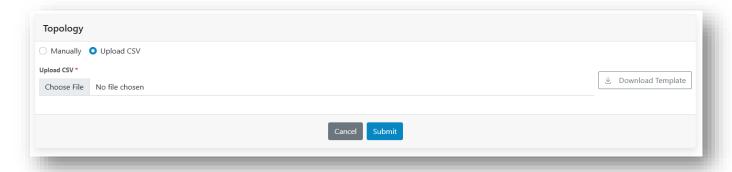


Figure 181 – Bulk Upload Topologies

Prior to adding the records ensure the Customer selection is proper. A new addition will enrich the records of the selected customers

4. Let us next look at each action.

6.1.10.7.1.1 Individual Record Addition

1. Click on +New Topology Data button. This opens the following popup.

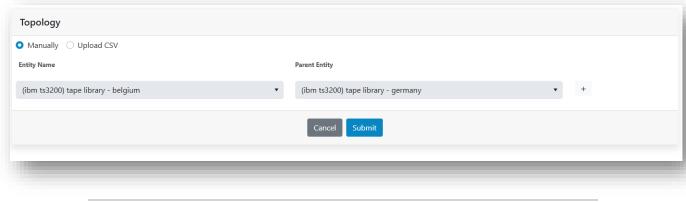


Figure 182 — Topology Creation

- 2. Entities which are configured for the selected customer using Configure -> Entity Screen appears in the Dropdown.
- 3. Select the entity and its parent entity from the dropdowns.

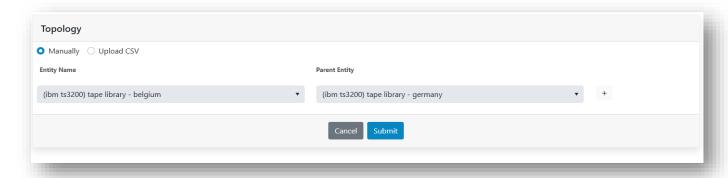


Figure 183 - Parent Entity Selection

- 4. Click on Submit.
- 5. On successful addition a prompt is displayed as shown:

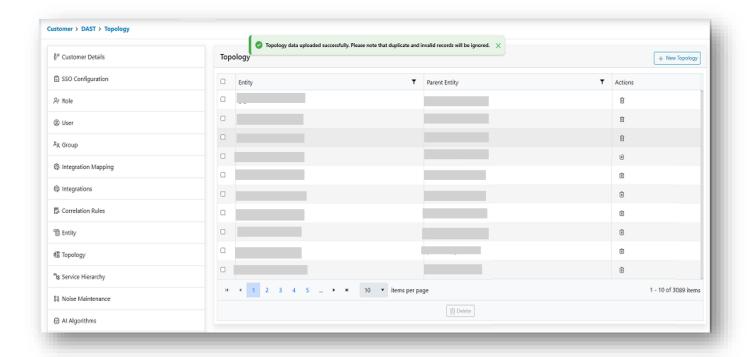


Figure 184 – Alert Message

6. The relationship data appears in the grid as shown:

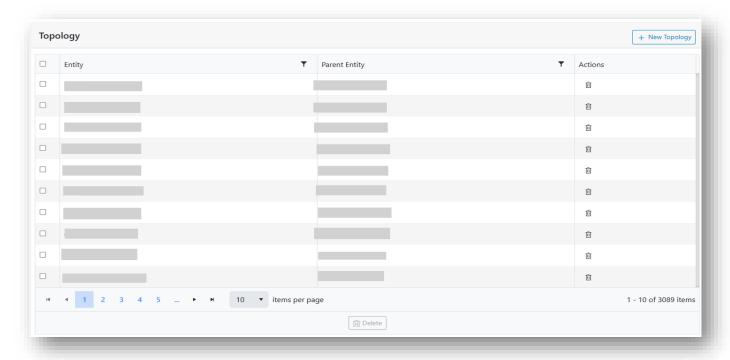


Figure 185 - Grid View for Topology

7. Using a similar approach, hierarchies can be defined between the entities.

6.1.10.7.1.2 Bulk Insert

In case large amount of data to be inserted in one go, the bulk insert option can be used.

1. Select Upload CSV option as shown. As users select Upload CSV the following record appears.

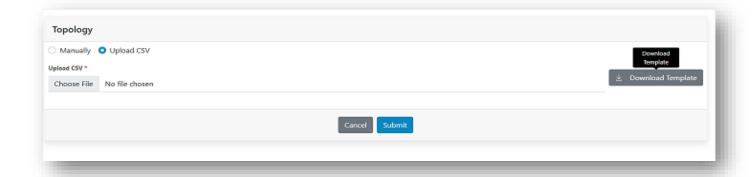


Figure 186 - Bulk Upload CSV

2. Click on the Download Template button. The following template is downloaded.

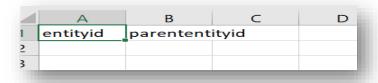


Figure 187 - Template Format of Bulk Topology

3. Define the parent child relationship data as shown. Save the CSV data.



Figure 188 - CSV File of Parent and child entities.

4. As the data is prepared, Upload the filled in excel by clicking on Upload CSV. Like with entities section browse to the local directory where the data file is saved and select the file. As the file is selected it appears as shown:

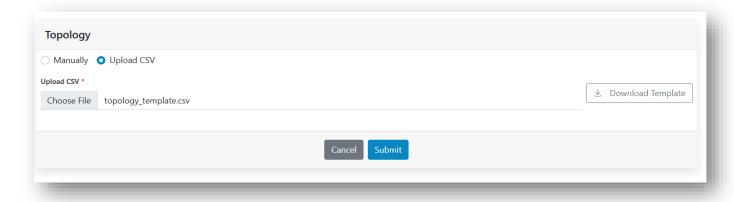


Figure 189 — Uploading the Topologies

5. Click Submit. On successful data creation, a confirmation box is displayed, and the new data is displayed in the grid for the selected customer.



If entities are not pre-configured, uploading the sheet creates the entity records as well.

6.1.10.7.2 Delete Topology

If the relationship data are wrongly mapped or created or need to be removed, provision of bulk delete is available on the page.

1. Click on the check boxes next to the topology data to select the rows or relationship that needs to be deleted.

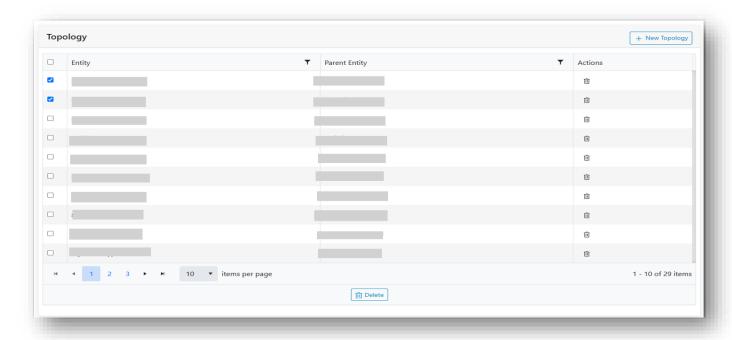


Figure 191 – Delete Topology

2. Like with the entities page as the rows are selected, the icons on the footer of the grid are enabled and selection count is displayed as well.

Like entities, if all data is to be selected on the page, click on the checkbox in the header, it will select all the rows displayed on the page.

3. Click on the Delete icon.

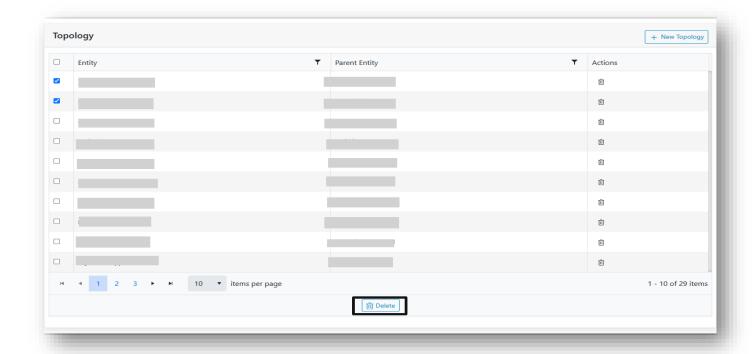


Figure 192 — - Bulk Delete Topology

4. A confirmation box will be prompted.

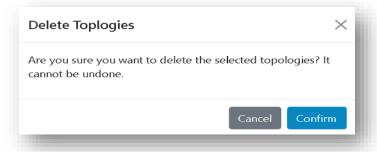


Figure 193 — Confirmation pop-up.

- 5. Clicking Ok, deletes the selected relationship data.
- 6. On successful deletion rows are removed from the grid and a confirmation box is displayed.

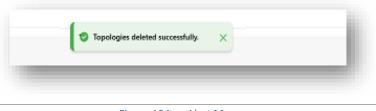


Figure 194 – Alert Message

6.1.10.7.3 Apply Filters

The steps explain how to Apply Filters to the topology data.

1. Click on the Apply Filters as shown in the figure below-



Figure 195 - Apply Filter Operation

2. The form will appear. From there the user can select Field and operator from drop down list and should assign a value. Then click on the apply button.

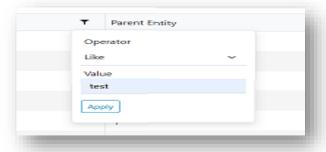


Figure 196 – Apply Filter Operation

3. Users can see the result of applied filter.

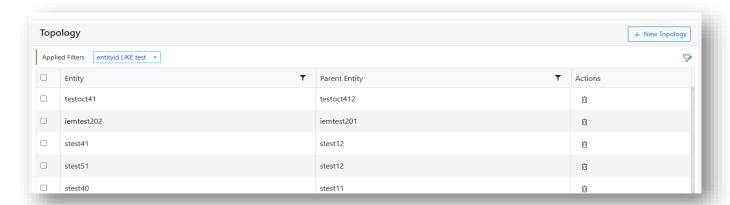


Figure 197 – Apply Filter Result

6.1.10.8 Service Hierarchy

A service represents a business capability or functionality that is provided by the IT infrastructure.

A service is composed of various components, and there are dependencies between these components.

Understanding the relationships between components helps in mapping the service landscape and identifying potential points of failure.

In this section user define the service hierarchy. In here user create a service view and map it to the actual entities on which the alerts are created.

This helps in populating the customer specific service view enabling the user to view the impact of events getting generated in the environment on the services in his/her environment.

Like other screens the user can perform actions based on their role.

1. Click the customer onboard section, for customer click on customer action edit section. Click on the Service Hierarchy page, Records for the selected customer will be displayed in the grid view as shown.

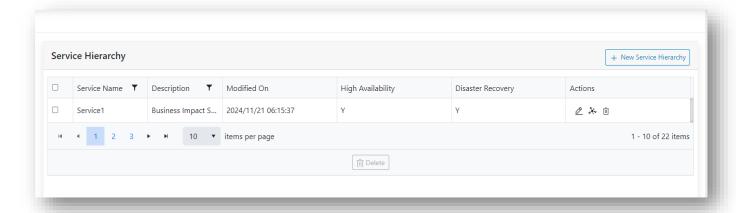


Figure 198 - Service Hierarchy Page

- 2. Use the customer dropdown to change the customers and view data defined for it.
- 3. The following actions can be performed on the page:
 - Add New
 - Edit
 - Delete
 - Manage Relationship and Entities
 - Apply Filters

6.1.10.8.1 Add New Service Hierarchy

1. Click on + New Service Hierarchy button at the top of the grid to create a new Service.



Please ensure that the actual customer for which the data is being added is selected in the dropdown at the top of the page. As any addition will be mapped to the customer selected in the dropdown.

2. The following popup is displayed.

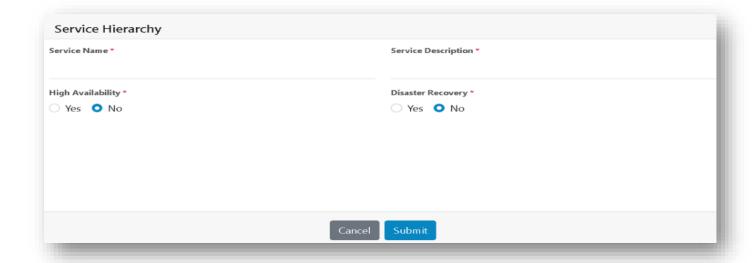


Figure 200 — Service Add Configuration

- 3. Enter the Service Name and Description.
- 4. Select radio button Yes or No for HA (High Availability) and for DR (Disaster Recovery)

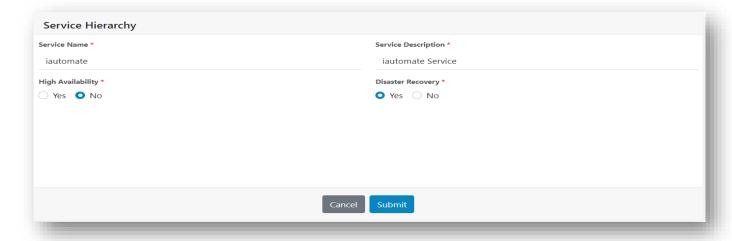


Figure 201 — Selecting Dropdown

- 5. Click Submit.
- 6. On successful addition the following message is displayed.

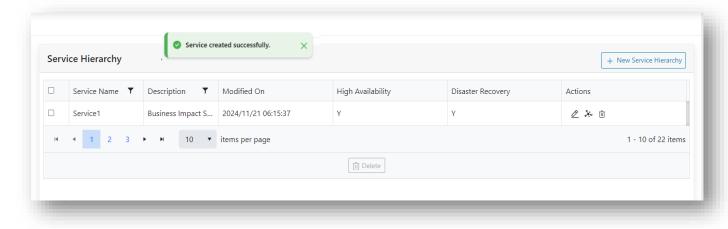


Figure 202 - Alert Message

7. The service will start appearing in the grid as shown below.

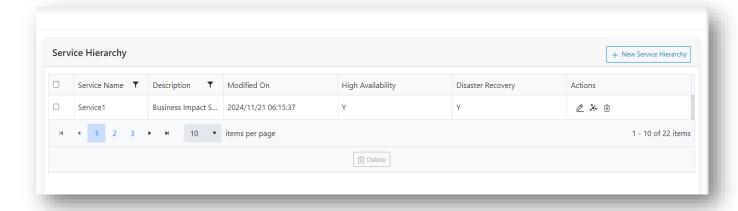
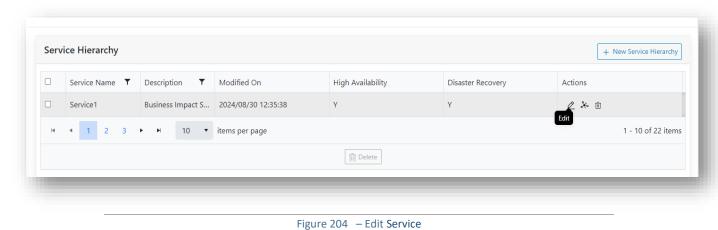


Figure 203 – Grid View for Service Hierarchy

6.1.10.8.2 Edit Service Hierarchy

1. Like in the other views, click on the edit icon next to the Service which needs to be edited.



2. Saved data according to popup.

3. Make the necessary changes. For this example, parse let's edit the Name.

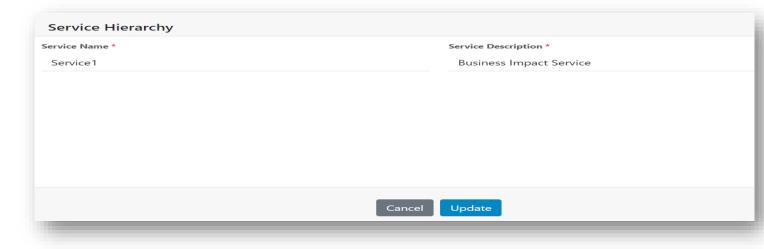


Figure 205 - Editing Service

4. Click Submit. On successful update the following popup message is displayed.

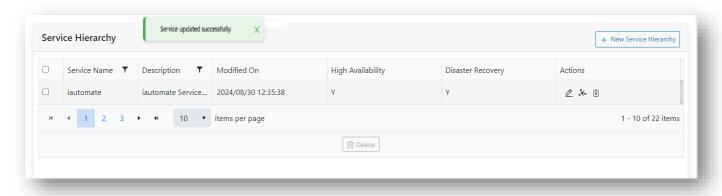


Figure 206 – Alert Message

6.1.10.8.3 Delete Service Hierarchy

1. Like with the entity and the topology screen, select the services that are to be deleted by selecting the check boxes next to their names in the grid view.

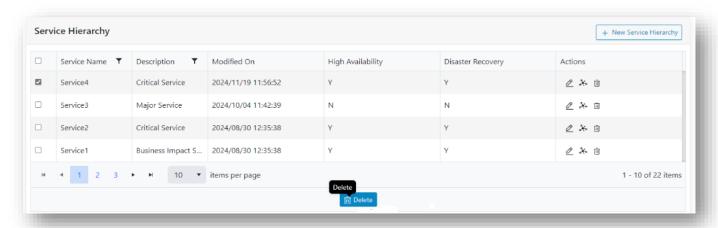


Figure 207 — Selecting Services

2. The icons will be enabled in the footer.

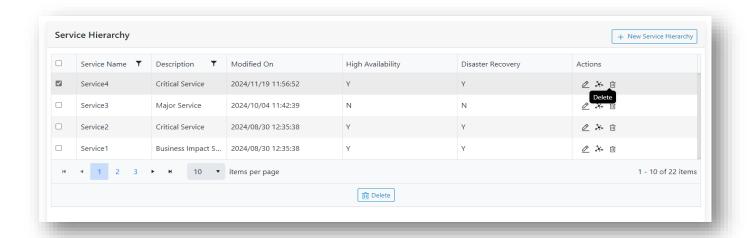


Figure 208 - Deleting Services

3. A Confirmation message box is prompted as shown.

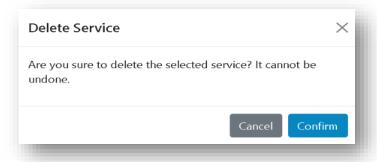


Figure 209 - Confirmation pop-up.

4. Click on Confirm. On success the following popup is displayed.

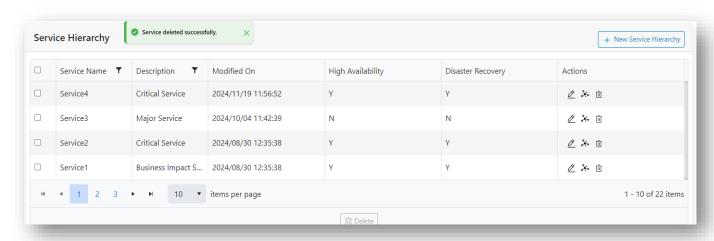


Figure 210 – Alert Message

6.1.10.8.4 Mapping Service Hierarchy

Mapping services in IEM involves the identification, visualization, and analysis of the relationships and dependencies between different services within an IT environment.

This process is essential for understanding how services interact, detecting potential issues, and facilitating effective actionable management.

The relationship between the created services can be defined by clicking the Mapping icon below the actions field. By using this option, the mapping between the actual entities can be done.

- 1. Click on the service to see the details related to the service. There are three actions visible for a particular service:
 - Edit, Delete and Mapping.

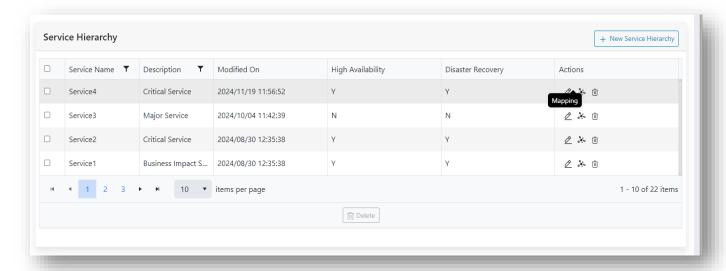


Figure 211 - Mapping Service

- 2. After clicking the Mapping icon on the service, users have the following two tabs: -
 - Define Topology
 - Map Entities

Define Topology - This tab enables us to manage the relationship data. Let's click on the tab.

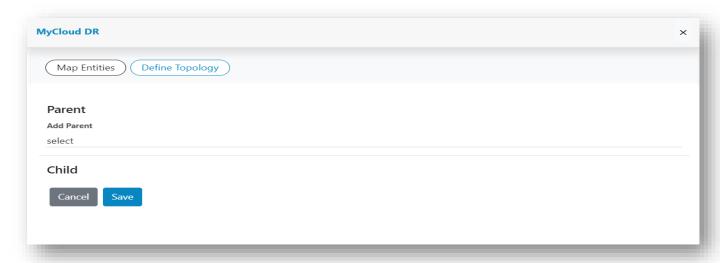


Figure 212 – Define Topology

- 3. It's divided into two sections:
 - Parent In this section the mapping happens. Users specify the parent node here.
 - Child This is a display only section. All the child services of the selected service will be displayed here.

4. Let's add a parent service. Click and select from the services available in the dropdown.

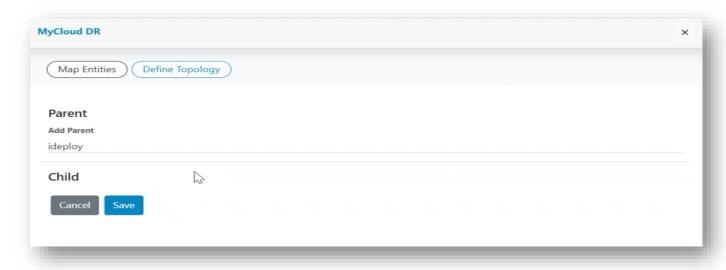


Figure 213 — Applying Parent Service

- For example, let's select ideploy as Parent.
- 5. Click Save.
- 6. The following confirmation box will be displayed.

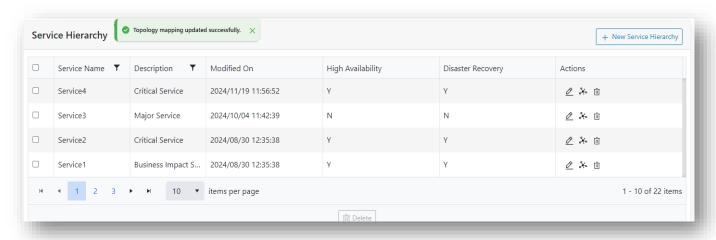


Figure 214 – Alert Message

7. Relationships have been created. Click on mapping icon of ideploy service and user can view the child of the service which the user has created above.

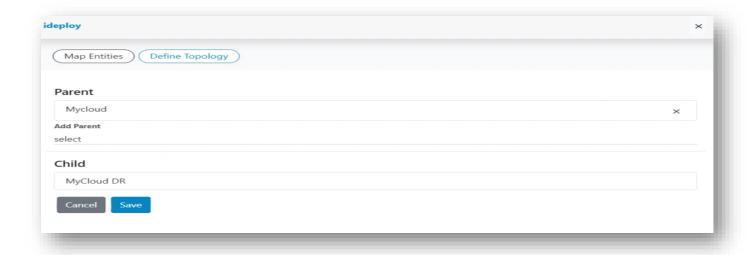


Figure 215 - Parent Service Name

8. A service can have multiple parents defined using the Add Parent drop down. Once a parent is added, it will start appearing underneath the Parent section.

Users need to save the parent one after the other.

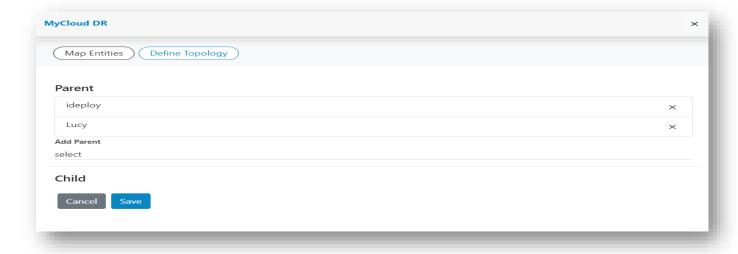


Figure 216 – Parent List Services

- 9. In case a relationship is wrongly created, click on the cross button next to the parent row to remove the relationship.
- 10. The row will disappear, click on Save button to save the changes permanently.
- 11. On successful save the following popup message will be displayed.

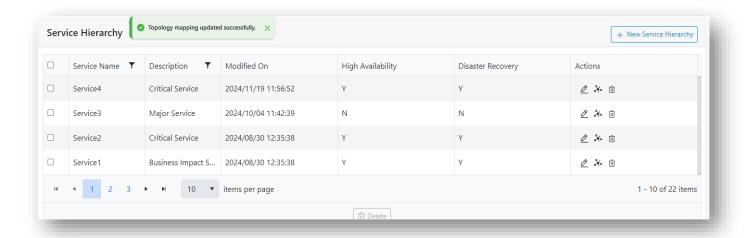


Figure 217 - Alert Message

Map Entities – Here user maps the service to the actual entities. A service can be mapped to one or more entities.

If High Availability (HA) and Disaster Recovery (DR) both are disabled, at that time user can map only one entity to the service. Else if any of the HA and DR is enabled or both are enabled, user can map two or more than two entities to the service.

1. Clicking on the tab lists all the entities created for the selected customer.

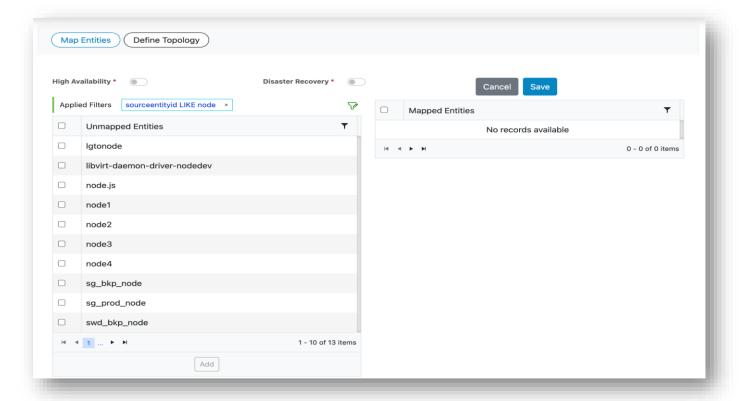


Figure 218 – Map Entities

- 2. Select the entities by clicking on the check boxes next to its name. For example, parse let's map node1 (as both HA and DR is disabled). and then click on Add.
- 3. You will see the selected entity appearing in the Mapped Entities Section

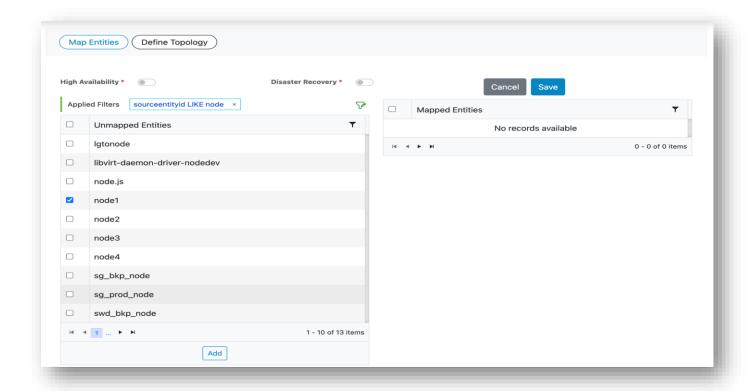


Figure 219 - Selected Entities for Service

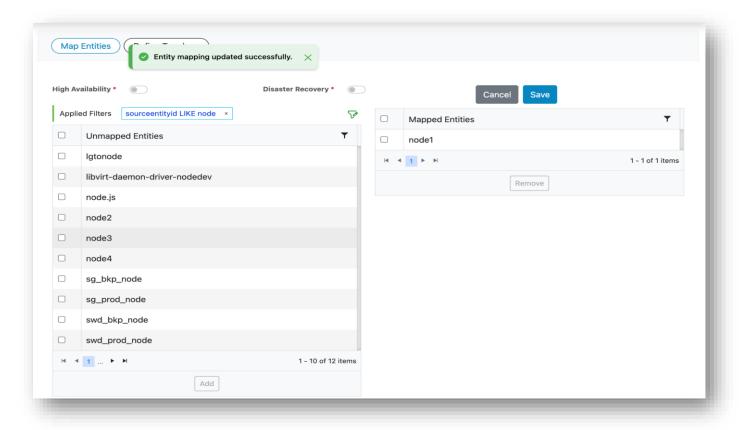


Figure 220 - Map Entities

The impact of mapping the service to the entities are, if an alert exists which is not closed, the node will be highlighted in the service view, and the flow will also propagate up in the view showing the impact on the parent nodes as well.

- 4. Click on Save.
- 5. On successful update, the following popup is displayed.

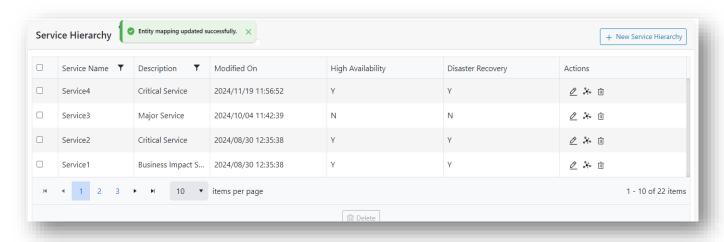


Figure 221 – Alert Message

6. Click Ok. The selected entities will start appearing at the top of the grid.

6.1.10.8.5 Apply Filters

The steps explain how to Apply filter to the Service Hierarchy Data.

1. Click on the Apply Filters action button presents at the below header of the console.

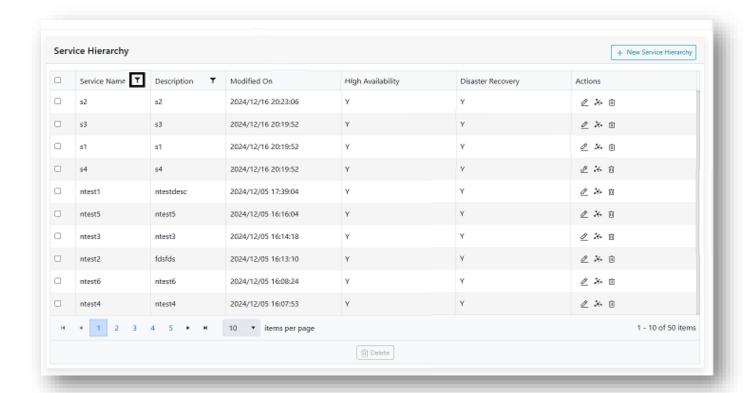


Figure 222 - Apply Filter Operation

2. The form will appear from there user can select Filed and operator from drop down list and must write value. Then click on the apply button.

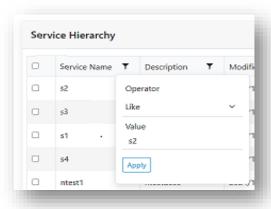


Figure 223 - Apply Filter Operation

3. Users can see the result of applied filter.

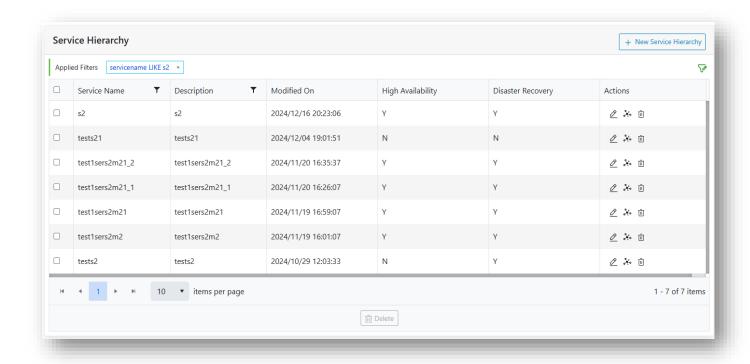


Figure 224 - Apply Filter Result

6.1.10.9 Noise Maintenance

Noise maintenance" refers to the ongoing process of managing and reducing the amount of irrelevant or non-actionable events, alerts, or data generated by the monitoring and detection systems. Noise, in this context, represents information that does not contribute to meaningful insights or indicate significant issues. Reducing noise is crucial for optimizing the efficiency of actionable detection, analysis, and resolution.

"Noise Maintenance Window" refers to a specific time or scheduled period during which fine-tuning activities are performed to manage and reduce the noise generated by the monitoring and alerting systems.

This window allows IT teams to proactively address issues related to false positives, irrelevant alerts, or unnecessary noise in the event data.

This section enables user to define rules for filtering out events data at the beginning of event data processing. User can perform actions based on their role.

1. Click the customer onboard section, for customers click on customer action edit section. Click on the Noise/Maintenance window page, Records for the selected customer will be displayed in the grid view as shown.

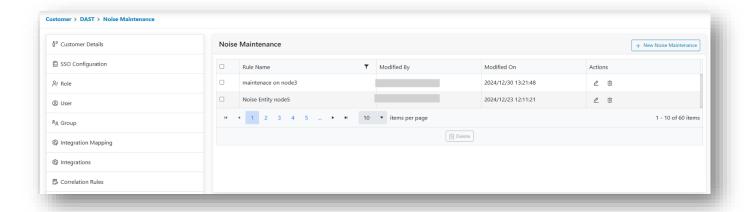


Figure 225 - Noise Maintenance Page

- 2. User can perform the following actions:
 - Add new
 - Edit
 - Delete
 - Apply Filter

Noise Rules can be created from the Entity screen as well. Refer to the Entity section. Those rules appear prefixed with the action i.e., whether it's a Noise or a Maintenance configuration followed with the Entity name, user can create rules based on entity id only. In the Noise screen grid user can also see the rules that are configured from Entity screen and the Noise Maintenance screen.

6.1.10.9.1 Add New Noise Maintenance

1. Click on the + New button at the top of the grid to create a new rule.

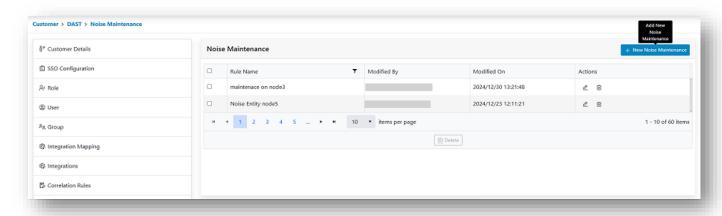


Figure 226 - New Noise Rule Creation

2. The following form is opened. You have two options on the screen which are as follows:

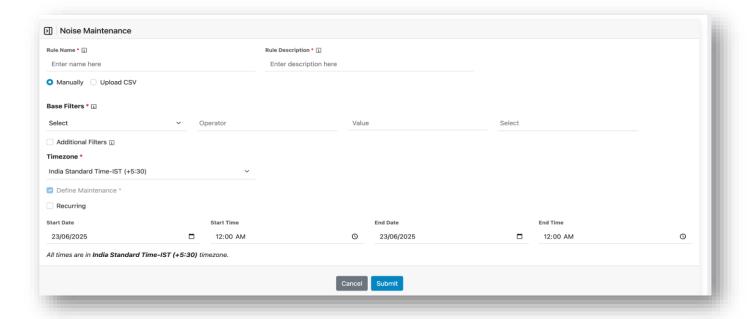


Figure 227 - Add Base Filters

- Manually: This is the default option. It allows users to manually enter filter criteria based on their preferences.
- Upload CSV: This option enables users to upload a CSV file containing a list of entities for which the maintenance window should be configured.

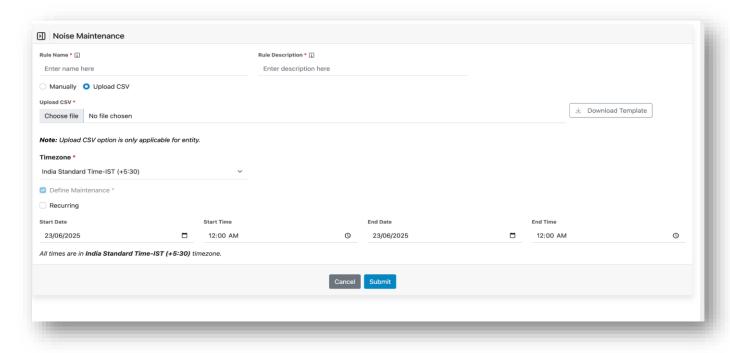


Figure 228 - Add Base Filters

3. In Base Filter click on selected field dropdown.

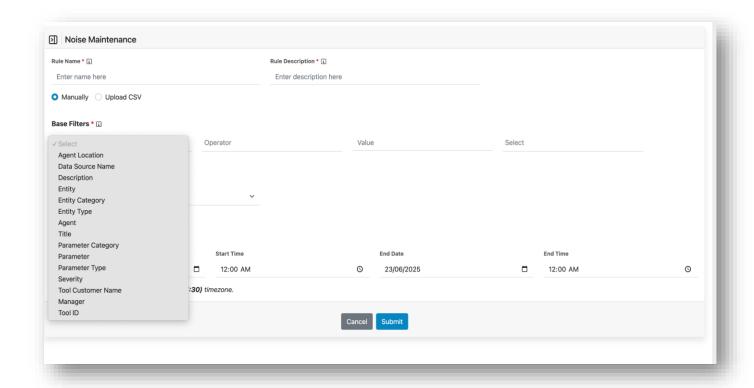


Figure 229 - Selection of The Field

4. Select any one of the fields like entity and select any operator from the dropdown.

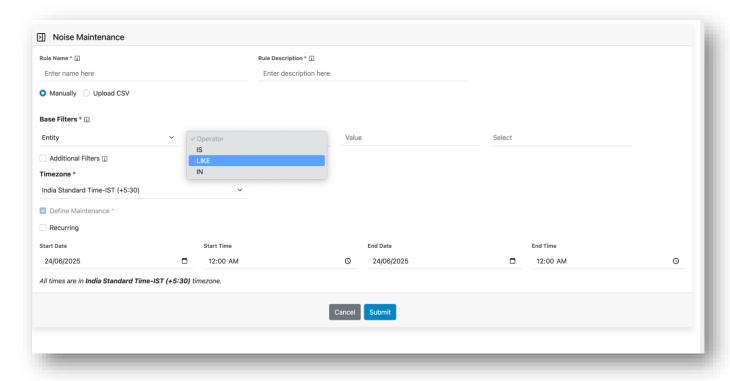


Figure 230 — Selection of The Operator

5. You can then choose to add additional conditions using logical operators And or Or, depending on how you want to refine the filter.

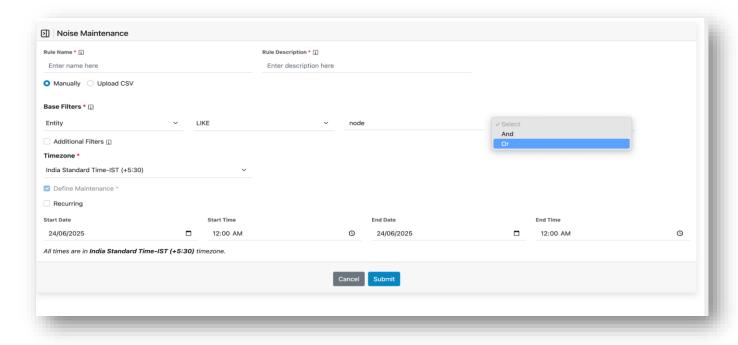


Figure 231 - Selection of The Operator

6. You can then add the name of the rule and its short description.

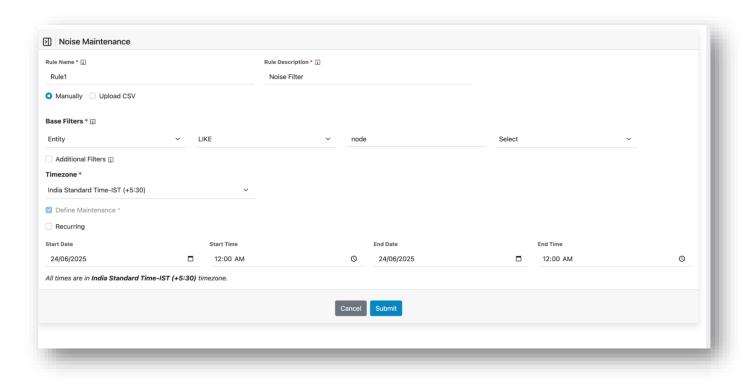


Figure 232 - Rule Name for Noise

7. In addition, for Custom Field Filters click on Additional Filters select field dropdown.

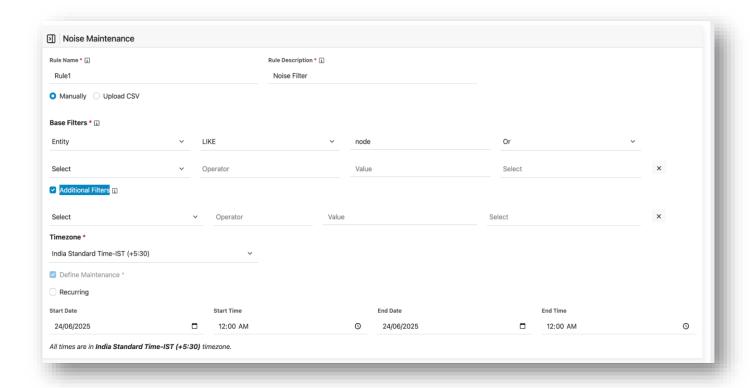


Figure 233 - Select Filters

8. Select any one of the fields like Category and select any operator from the dropdown.

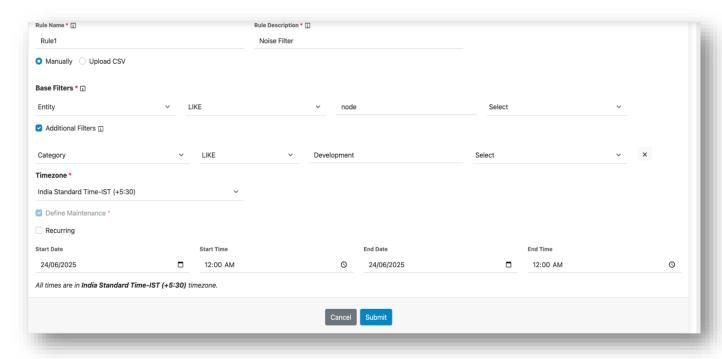


Figure 234 – Select Operator

9. After selection of the operator, specify the name of Category.



Figure 235 — Add Base Filters

10. In addition, like in Entity page, users can also specify maintenance window details. Refer to the section Define Maintenance Window. The following screen appears:

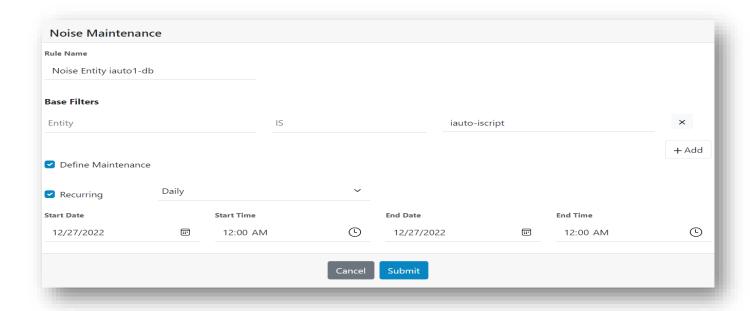


Figure 236 – Define Maintenance for Noise Rule

Reference- This section is like the one explained in Define Maintenance Window section.

- 11. In Entity screen, after selecting particular entity then user will click on the Noise button, Maintenance window will appear. Once the user adds all the field data and on submission a Noise rule will be created for the particular entity in Noise Maintenance screen.
- 12. For Mark as Noise button in Entity screen, a noise rule will be created for the particular entity in the Noise Maintenance screen without any time constraints.
- 13. The recurring option shows the dropdown that contains Daily, Monthly, Weekly options for checking from the dropdown.

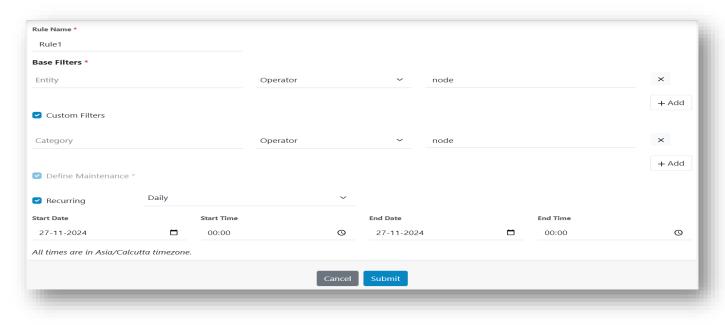


Figure 237 - Define Maintenance for Noise Rule

14. Click on Submit. A confirmation message is displayed.

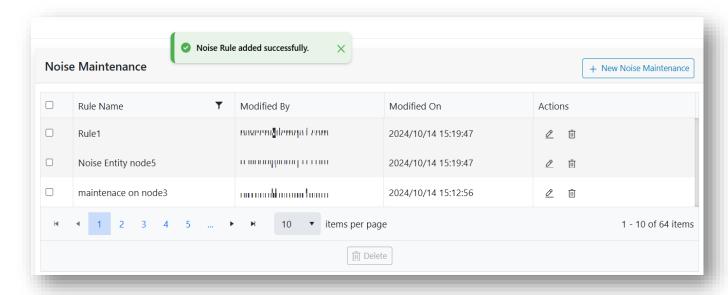


Figure 238 - Alert Message

15. The rule will start appearing in the gird view.

16. Let's next look at the way users can create time base (maintenance window) rule as well. Let's specify entity as auto and a one-time window as shown -

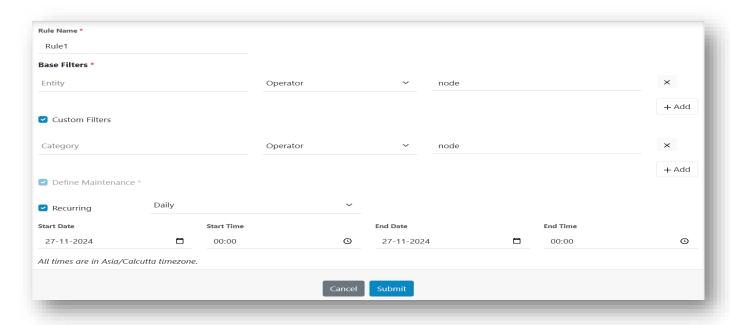


Figure 239 - Define Maintenance for Noise

- 17. This rule means that any data created on 27th December between a specific time for the entity auto will be filtered out and will not be processed further. Events outside the specified window will be processed using the normal flow.
- 18. Like the previous rule, Clicking Submit, the rule will start appearing in the grid view.

6.1.10.9.2 Edit Noise Maintenance

Reviewing and modifying Maintenance window helps in adapting to changes in the environment and creating a window that clubs the events that are considered as noise within a specific period and ensuring that alerts are relevant and indicative of actual issues.

User can edit the created noise rule also.

1. Click on the edit icon next to the rule which needs to be edited.

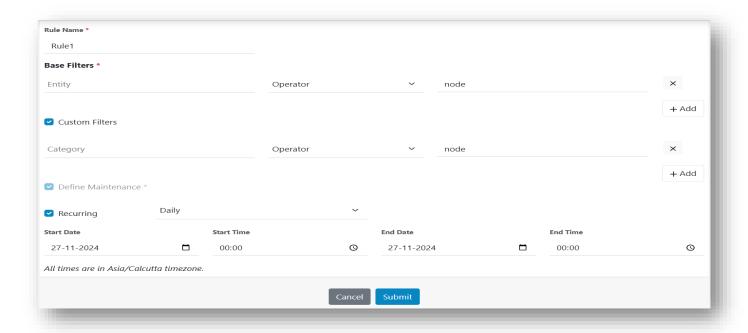


Figure 240– Edit Option for Noise Rule

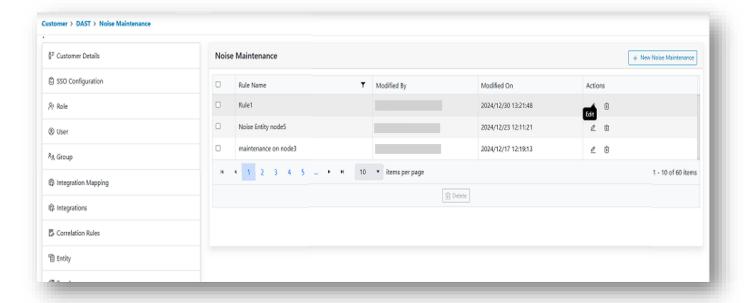


Figure 241 - Noise Maintenance

2. The Noise Maintenance window can be edited with the edit option. Base Filters can be added for the Noise Rule and after making the changes, click on the Submit button.

The option to choose manual or upload svg will not be present in edit

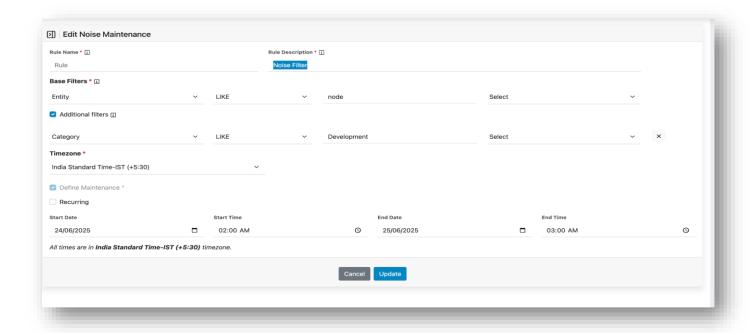


Figure 242 – Editing Noise Rule

3. A successful message appears as shown below.

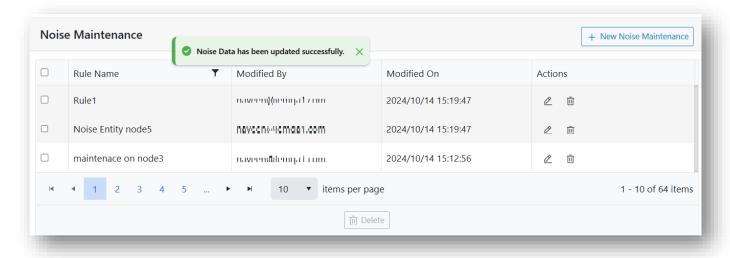


Figure 243 – Success Popup

6.1.10.9.3 Delete Noise Maintenance

This action enables users to delete the rules created.

1. Select the rules to be deleted and click on Delete icon in the footer row.

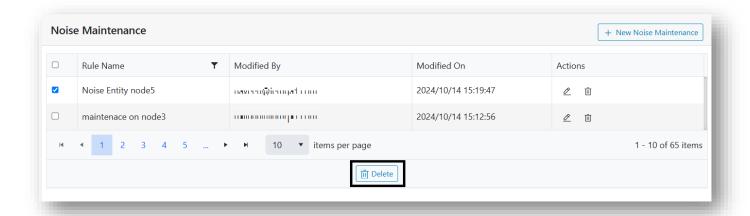


Figure 244 - Selected Noise Rules

2. A confirmation box is prompted.

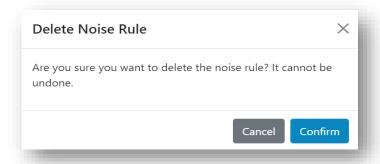


Figure 245 - Confirmation pop-up.

- 3. Click on the Confirm button to proceed with the deletion process.
- 4. On successful deletion, a confirmation message is displayed.

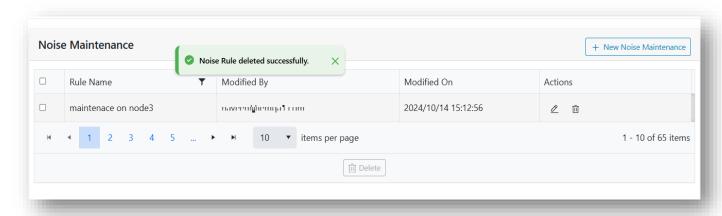


Figure 246 – Alert Message

5. Grid View will be refreshed, and the rules will be removed from the grid.

6.1.10.9.4 Apply Filters

The steps explain how to Apply filter, filters the Noise/Maintenance Window Data.

1. Click on the Apply filter action button present at the header below the console.

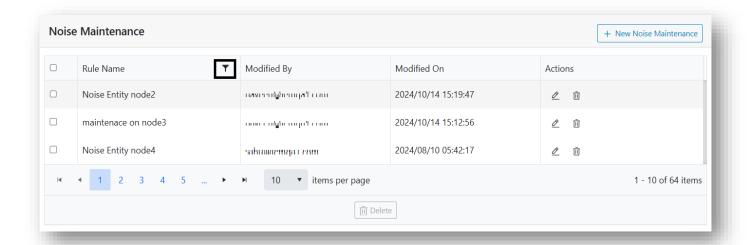


Figure 247 - Apply Filter Operation

2. The form will appear, from there user can select Filed and operator from drop down list and must write value.

Then click on the apply button.

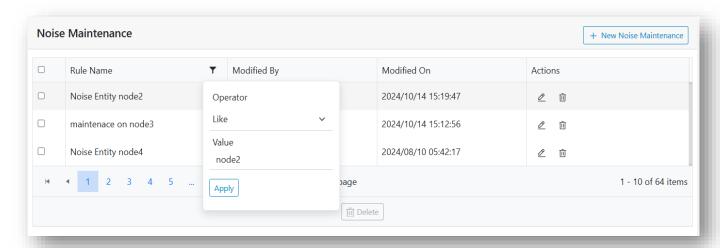


Figure 248 – Apply Filter Operation

3. Users can see the result of applied filter.

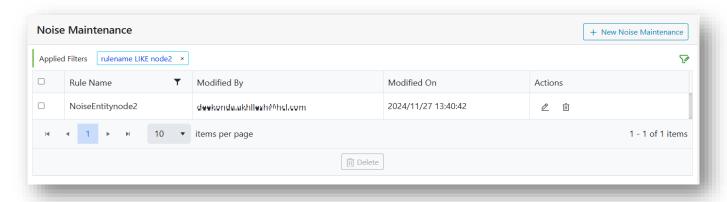


Figure 249 – Apply Filter Result

6.1.10.10 Correlation Rules

Correlation rules in IEM are predefined sets of conditions and logic used to analyze and associate multiple events or alerts to identify patterns, relationships, and potential root causes.

These rules play a crucial role in minimizing noise, prioritizing incidents, and aiding in more accurate and efficient incident detection and response. Correlation rules define the criteria and logic for grouping or correlating related alerts based on certain conditions or characteristics.

Conditions specify the criteria that must be met for events to be correlated.

When correlated alerts meet certain criteria, correlation rules can trigger the automatic creation of actionable to streamline the actionable response process.

IEM Supports Topology based alert correlation and Temporal based alert correlation.

- Topology based alert correlation:
- Topology-based alert correlation helps in identifying root causes, reducing noise, and providing a more comprehensive view of incidents.
- By considering the topology of the infrastructure, HCL IntelliOps Event Management can correlate alerts from different sources and determine their impact on the overall environment. This enables faster and more accurate incident resolution, as well as proactive problem identification.
- Temporal-based Correlation with feedback system
- A technique implemented in HCL IntelliOps Event Management, allows for the analysis and correlation of alerts based on their time-related attributes. It helps in identifying patterns, trends, and dependencies among events over time. By incorporating temporal-based correlation into event correlation, we can gain insight into the temporal relationships among alerts. This allows for more accurate and timely actionable detection, helping to improve overall operational efficiency and responsiveness.

6.1.10.10.1 Topology Based Alert Correlation – OOB Correlation Rules

There are OOB default correlation rules for a tenant present in the environment.

Out-of-the-box correlation rules refer to predefined logic/rules that analyze and correlate incoming alerts or events from various sources to identify actionable.

- Time & Location Based Cross Domain Correlation Rule- This correlation rule groups and filters alerts based on environment. There is a filter applied for production environment. The rule will be triggered and will stop grouping alerts into action when a specific metric (location) breaches a predefined location/region.
- Time Based Cross Domain Correlation Rule-This correlation rule groups and filters alerts based on environment. There is a filter applied for production environment. The rule will be triggered and will stop grouping alerts into actionable when a specific metric (time) exceeds a predefined threshold.
- Network Topology Based Correlation Rule- This correlation rule groups and filters alerts based on environment. There is a filter applied for production environment. There is predefined topology and the alerts having same entity following similar topology will be grouped into an actionable.

- Entity and Time-Based Cross Domain Correlation Rule- This correlation rule groups and filters alerts based on environment. There is a filter applied for production environment. The rule will group the alerts based on entity name. The rule will be triggered and will stop grouping alerts into actionable when a specific metric (time)exceeds a predefined threshold.
- Noise and Incident Reduction Due to System Load- This correlation rule filter alerts based on parameters (which should contain -CPU, memory or Swap). The alerts with the same entity will be clubbed into actionable.
- User Defined Rule-This rule allows users to manually group alerts under a specific rule and define automated actions to be executed based on the actions taken through this rule.

This section enables us to define the correlation rules within environment as per the requirements. Correlation rules are user-defined rules which correlate the incoming alerts, identify causal and the impacting alerts within a correlated group and enable actionable creations.

In addition to enablement of actionable creation, this enables user to define automated actions on the actionable 's created by the rule for e.g., auto resolution actions based on criteria such as occurrence of a resolving event.

- Navigate to the Customer page. Click on the edit icon corresponding to the customer for whom the Correlation Rules are to be added.
- 2. The following screen appears. Select Correlation Rules option from the left navigation pane:

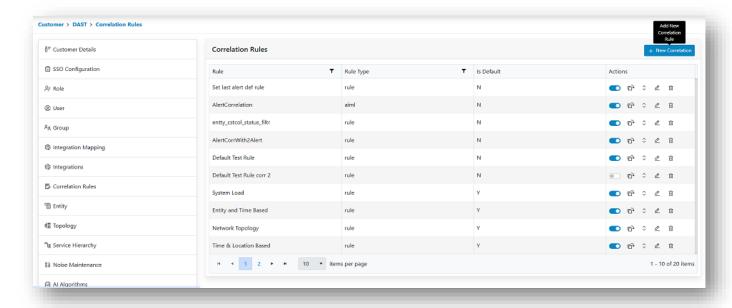


Figure 250 - Correlation View

- The following are the actions users can perform on this screen based on their assigned roles.
 - Add New
 - Edit Existing
 - Delete
 - Change Rule Priority
 - Clone Correlation Rule
 - Enable/Disable Correlation Rule

Apply Filters

6.1.10.10.2 Add New Correlation Rules

1. Click on the +New Correlation button.

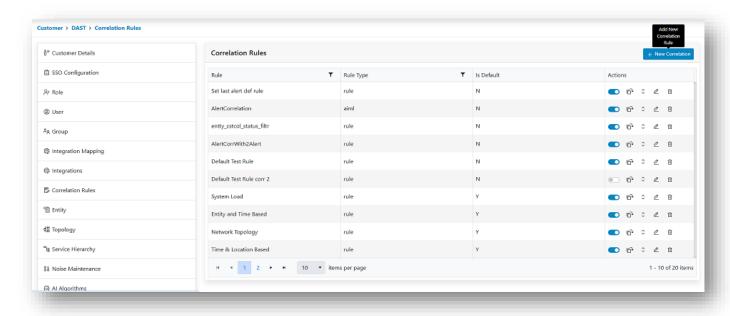


Figure 251 - Creating New Correlation Rule

2. The following form appears for the correlation screen:

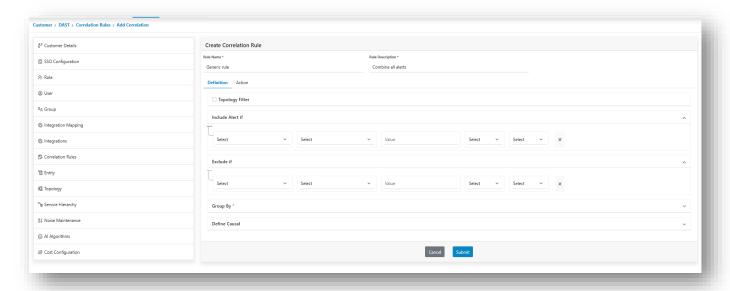


Figure 252 - Correlation Page

- 3. The correlation creation is divided into three sections:
 - General
 - Definition
 - Action

The general section enables users to specify the following:

• Rule Name – Name of the rule

• Rule description – Brief description of the rule



Figure 253 — Create New Name

- Definition section is where the user defines the way the alerts data are correlated and is further divided across the following sections:
 - Topology Filter Check Box
 - Include if
 - Exclude if
 - Group by
 - Define Casual

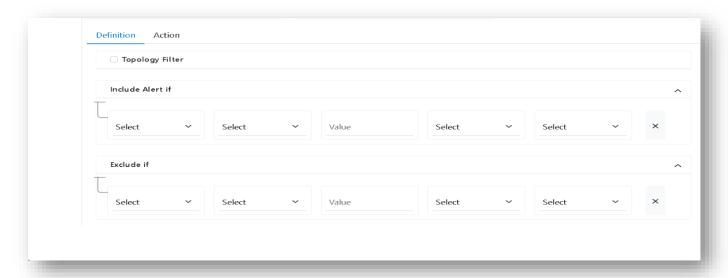


Figure 254 – Definition Section

Topology Filter: This lets the user decide whether the topology details are to be taken into consideration. If selected, the alerts for which the entities 'topology details are available will only be taken into consideration.

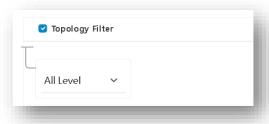


Figure 255 - Topology Filter

1. Topology filters are selected from the dropdown.

2. The user then selects the levels to be considered, i.e., whether all the levels of the tree are to be considered or limited levels.

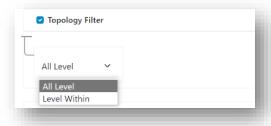


Figure 256 — Selecting Topology Level Types

- 3. By Default, All Level option is selected.
- 4. If a user selects Level Within, he next needs to specify the number of levels to be considered and while grouping the data, the user needs to select the methodology to group between Tumbling or Sliding. Tumbling means no overlap will happen in the level grouping of alerts whereas sliding implies overlapping will happen in the level grouping of alerts.



Figure 257 - Selecting Sliding and Tumbling

5. Based on the selection, entities which topology details match the criteria are taken into consideration for this rule.

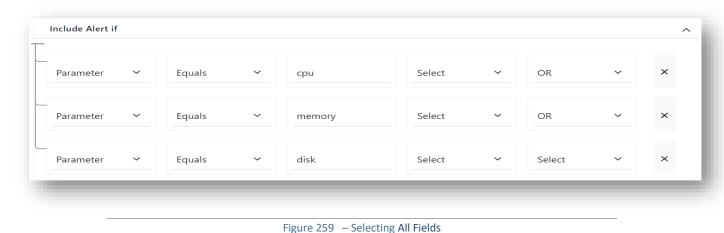
Include Alert if Filter: User specifies here the alerts data to be considered based on its field's values. E.g., alerts where parameter is CPU or memory or disk. Refer below Table 3 – Include Alert If Filter Fields_to understand the fields of this filter.



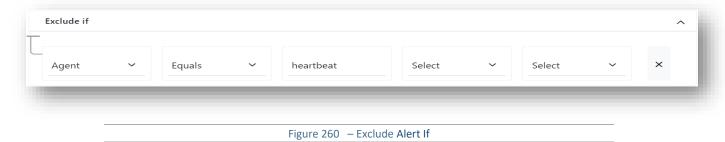
Fields	Description
Fields	Enables users to select the field which user want to consider while applying the filter
	and it comprises of Alerts direct fields, its custom keys, associated entities master
	key data defined.

Operator	Based on the fields datatype the operators are populated
Value	Users need to specify the value to be compared to the field selected based on the operator chosen
Condition	Users choose to specify nested Sub And/Sub Or condition or Main And/ Or conditions

With the data filled in the section looks as below: -



Exclude if Filter - User specifies here the criteria based on which incoming alerts data to be excluded if applicable, e.g., alerts where agent heartbeat belongs to a specific location. The condition is defined the same way it is defined for include filter. With the details filled in, the section looks as below:



At the end of this section, users have alerts data which qualifies to be correlated by this rule.

Group By: Once a user has the alerts which qualify for this rule, the user decides how to group those, e.g., group all the alerts by its entity id.

This means all the incoming alert data will further be segregated by their entity id and will form that many groups.

1. In this section, user chooses the fields based on which the incoming alerts are to be grouped.

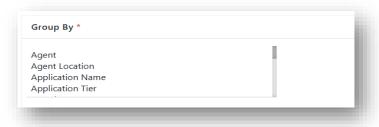


Figure 261 - Group By

- 2. Users have the option to group alerts based on partial matches. To enable this, simply adjust the Similarity (%), which is set to 100 by default. This value represents the threshold that alerts must meet to be grouped together. A lower similarity value allows for more flexible (partial) matching, while a higher value enforces stricter grouping criteria.
- 3. The fields are listed the same way as they are displayed in the included filter section. Users can select one or more fields. With the inputs selected, the field looks as below.
- 4. In case of tumbling & Sliding topology, the user needs to group by Hierarchy ID & Sub Entity ID as a mandate.

The Similarity (%) in case of Hierarchy ID & Sub Entity ID will be 100 and cannot be changed by user.

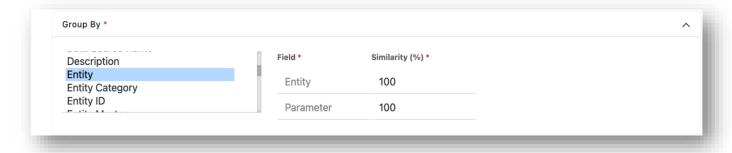


Figure 262 – Selecting Group By

Define causal:

- With the groups identified, the user next determines the following:
 - Process for Define windows within the group. for e.g., user wants to create hourly windows within the
 groups so that 10-11, 11-12 alerts data are grouped together and actionable are created accordingly. For
 this, you specify the interval and period as shown below. Default is set to 1 Hour.



Figure 263 – Process For

Trigger – Defines when the grouping to be marked as actionable. This is based on the correlated alert count which is by default set to 1 as shown below.



Figure 264 - Trigger.

Users can specify the count based on their trigger criteria.

- Mark as Causal: With the groups identified this section helps determine out of all the alerts within a group which one is to be tagged as causal. For this, the user has the following options.
- Based on Time user has two options enabled: -
 - Set First Alert First occurring alert within the group, the one with the minimum first occurrence.
 - Set Last Alert This is the alert which occurred latest in the group i.e., the alert with maximum alert time (first occurrence).

Based on Topology level user has two options enabled: -

- 1. Set First level
- 2. Set Last level

These options are enabled in case users have selected topology data to be considered. As the name suggest first level is the first one and Last level is as the level comes in last. In case of conflict the time of occurrence is taken into consideration to determine the causal.

Set First Level – This enables user to identify causal based on an expression.

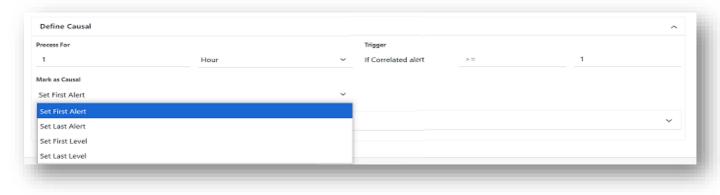


Figure 265 – Mark as Casual

Set Last Level: An order of events based on which the alerts meeting the criteria will become casual.

- 1. This implies in the group if users have long run query coming in its priority of becoming a causal alert is higher than the CPU alert. This can help user override the time of occurrence case, scenarios where user might have possibility of causal delayed and received after the impacted once.
- 2. Define This enables user to group the incoming alert and define a higher cause which is not dependent on any alert, but which is the reason behind the alert's occurrences.

- 3. Specify Actionable Details helps user to work and resolve the causal actionable created.
- 4. Enter the specific actionable details as mentioned.

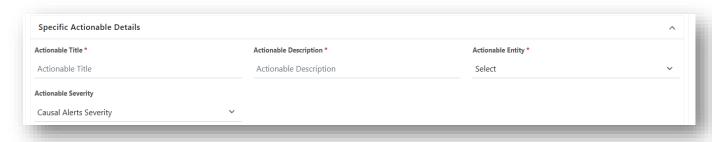


Figure 266 - Specific Actionable Details

5. Title – Brief description about the actionable. Users can choose to specify any alert field e.g., Title as shown below or create its own title using combination of alerts fields or its associated master fields as shown below or create its own title using combination of alerts fields or its associated master fields as shown below -



Figure 267 — Actionable Title

- 6. Create its own title using combination of alerts fields or its associated master fields.
- 7. As mentioned, the fields can be accessed by using \$ sign as shown below.



Figure 268 – Actionable Title Drop-down

8. Description – Detailed description about the actionable wherein user can add additional details which will help the operation user to better work on the actionable. Like Title either a single field can be specified, or a combination of texts and fields can be specified. With the values filled in the field looks as below

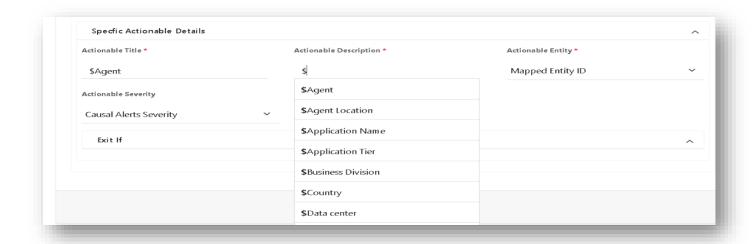


Figure 269 - Actionable Description

9. Entity – This is default set to the causal alert's entity id as shown below.

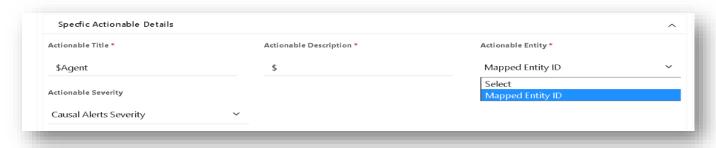


Figure 270 – Actionable Entity

10. In the case of Define, this is based on Group in which the alerts data is grouped which requires the action to be taken upon the group by field itself e.g., Datacenter. With defined options, the Actionable entity looks as below.

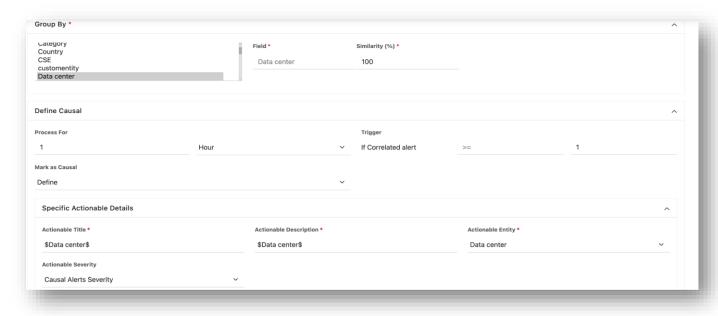


Figure 271 – Enter all Fields.

11. Severity – Sets the actionable severity. Possible options are:



Figure 272 - Actionable Severity

- Causal severity if selected the severity is set to be same as the causal alert severity on grouping.
- Maximum severity if selected the severity is set to maximum severity of all the grouped alerts.
- Static severity if selected, user choose to specify the severity of actionable as shown below.

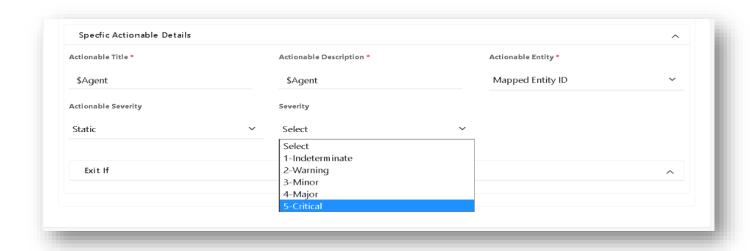


Figure 273 — Actionable Severity

Exit if – with the details specified next user determine when the actionable grouping will be emitted from the state, and it has the following three options.

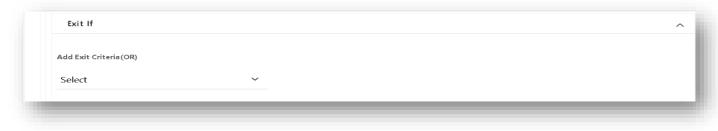


Figure 274 – Exit if.

To close actionable, it is mandated to add exit criteria of the correlation rules as "Exit If, clear is received for Causal Alert".

- i. If clear received for the Causal As the name suggests if the causal alert clear severity is received, this actionable will be emitted from the state.
- ii. If the following record appears This section helps user to specify conditions and when it is met, leads to actionable being emitted from the state e.g., incoming alert parameter contains up or any alert is received within the group where severity is clear.
- iii. If the flow of new records is paused for specified duration When it is selected it emits the actionable from the state if incoming data is stopped for the mentioned duration.
- iv. All these options are available as shown below: -

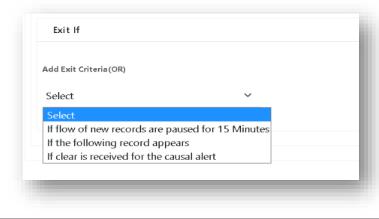


Figure 275 - Exit If

Choose to specify either one or all the conditions. Select, individual sections are added for each which captures the relevant input as required.

- Figure shows the section which appears when "If flow of new records is paused for" is selected: -

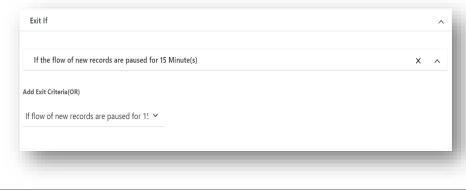


Figure 276 - Exit If Condition

- 15 min default is selected, expand the added section, user has the option to provide the interval and duration as shown below.

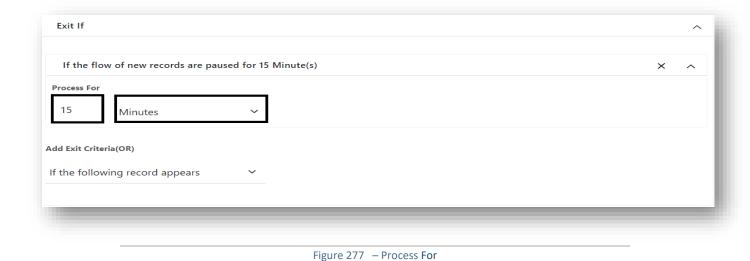


Figure below shows section which appears when the option "If the following record appears" is selected.

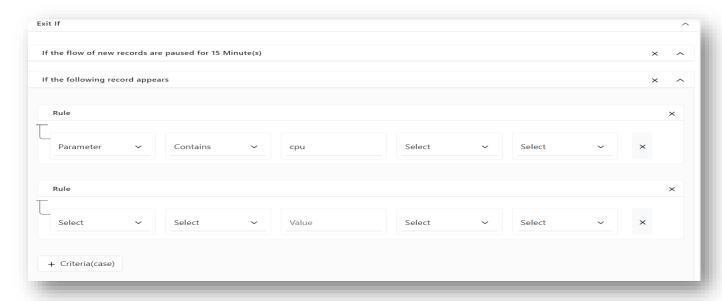


Figure 278 — Entity Fields

- Expression Criteria is defined in similar manner as user did for include criteria. Multiple criteria can be specified by Clicking on +Criteria(case).
- Figure shows the section which appears when "if clear is received for the causal" is selected. In this section there is no input to be captured.

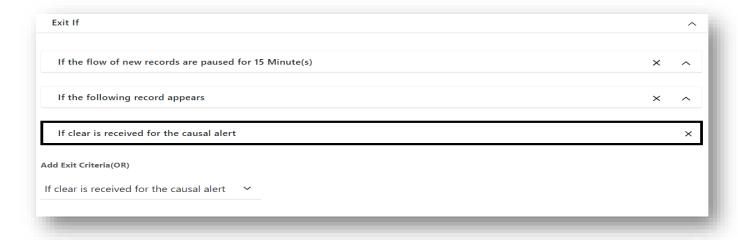


Figure 279 - Select Condition

- All the criteria can be added only once. User can choose to delete any section (if not applicable) by clicking the delete icon next to the section as shown below.

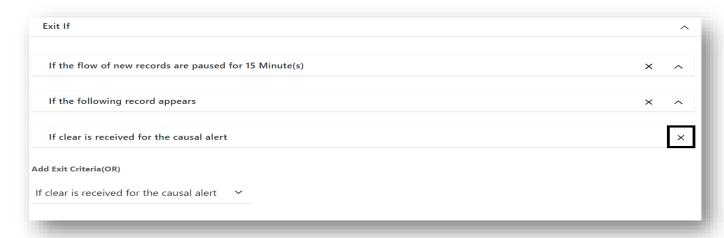


Figure 280 – Delete Condition

- **Action**: With the actionable creation rule defined in the *Definition* section next user can specify automated actions on the actionable's created by the said rule using the Action section. There are three automated actions available as how in the below screen shot which are as following:
 - Incident Ticket: Allows users to automatically create a ticket in the configured ITSM tool (e.g., ServiceNow or SX) at the time an actionable is created using the specified rule.
 - Resolve Actionable: Enables users to define the condition under which the actionable—created by the specified rule—should be automatically marked as Resolved by the system.
- Clear Alert on Resolved/Closed Actionable: Allows users to specify which of the grouped alerts—associated with the
 actionable created by the specified rule should automatically trigger events with Severity Clear when the actionable
 is Resolved or Closed.

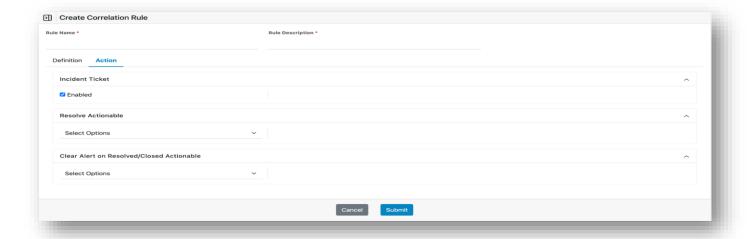


Figure 281 - Action.

- Incident Ticket: Users can choose whether to automatically create an incident in the configured ITSM tool.
 This is controlled by the "Enabled" checkbox, which is selected by default.
- If the user does not wish to create an actionable incident generated by the specified rule, they can simply uncheck this box.
- Resolve Actionable: Users are provided with two condition options under the Resolve Actionable section:
 - On All Alert Clear
 If selected, the actionable created by the specified rule will be automatically marked as Resolved when
 all associated alerts have their severity changed to Clear.
 - On Causal Clear

 If selected, the actionable will be marked as Resolved when the causal alert associated with the actionable has its severity updated to Clear.

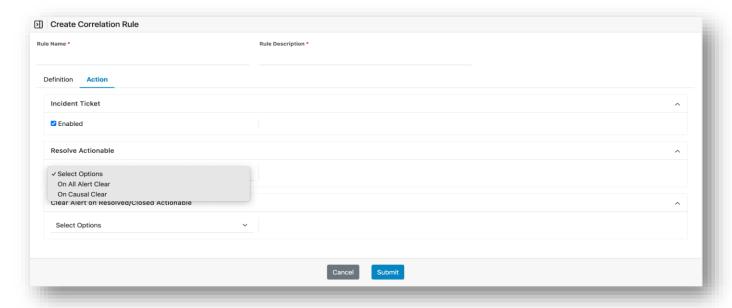


Figure 282 - Action.

- Clear Alert on Resolved/Closed Actionable: Under this section, users can configure how alerts should be cleared when the state of an actionable—created using the specified rule—is set to Resolved or Closed.
 There are three options available:
 - Clear None
 When selected, the severity of the associated alerts will remain unchanged. No clear events will be generated.
 - Clear All
 When the actionable is marked as Resolved, the system will generate a Clear severity event for each alert associated with the actionable.
 - Clear Unique
 This option clears only the alerts that are unique to the actionable., alerts that are not part of any other actionable that is still in an Open (not Resolved or Closed) state. Only these unique alerts will have a Clear severity event generated.

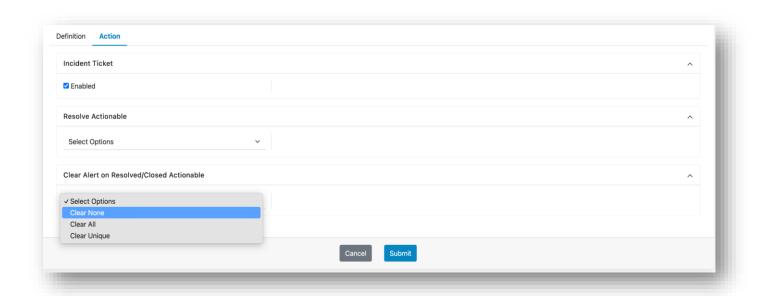


Figure 283 – Action.

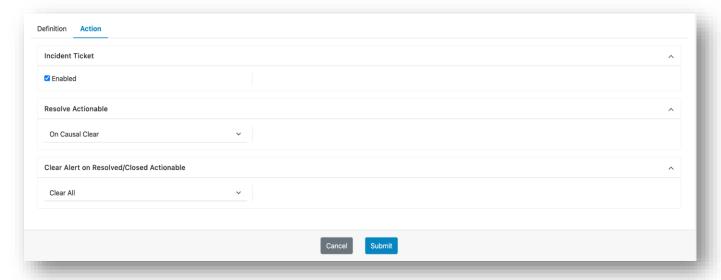


Figure 284 - Click on Submit

 As the Submit button is clicked, control is redirected to the grid view page listing the rule created as shown below.

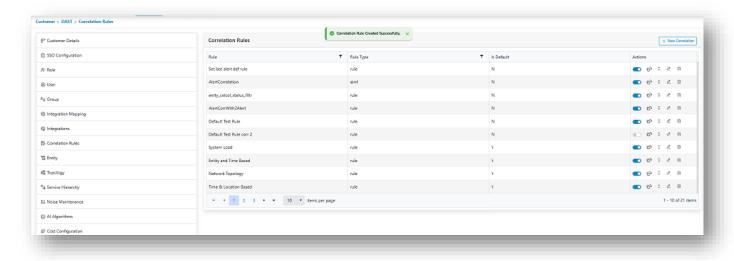


Figure 285 — Grid View for Correlation Rules

6.1.10.10.3 Edit Correlation Rules

1. Click on the Edit icon next to the rule that is to be edited.

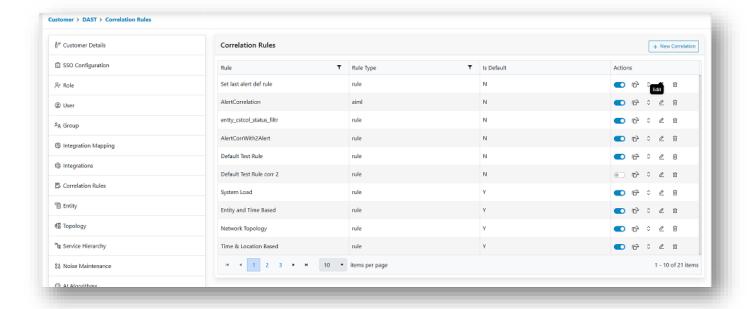


Figure 286 – Edit Correlation Rule

2. The form appears with all the details filled in.

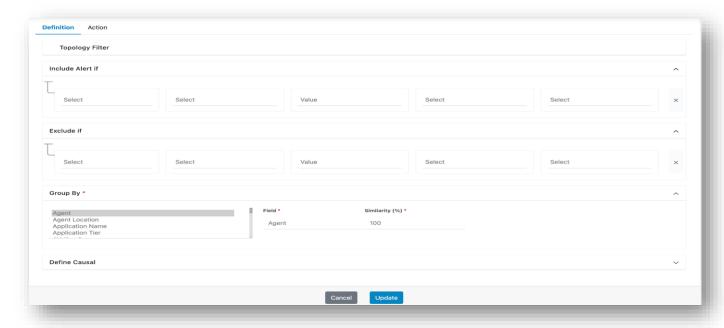


Figure 287 - Edit Correlation Rule (Cont.)

- 3. Once saved, the user can only perform the following action on the saved data.
 - Manage Automated Actions Change the settings in any of the three subsections in the action section.
- 4. All the other sections will appear in read only mode as shown in the following figure:

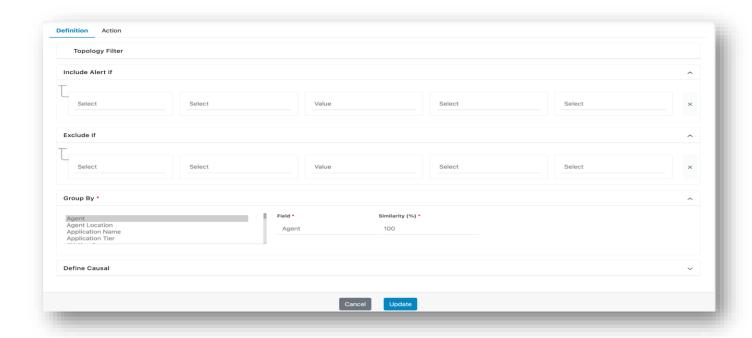


Figure 288 - Updated Correlation Rules

- 5. Make the required changes and click on Update for the changes to be applicable.
- 6. A prompt is displayed as shown below.

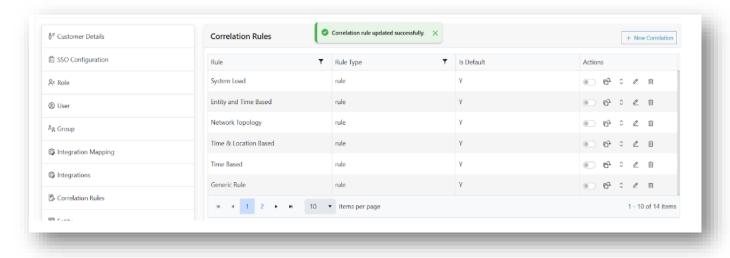


Figure 289 – Alert Message

6.1.10.10.4 Delete Correlation Rules

1. Click on the Delete icon next to the rule that is to be deleted.

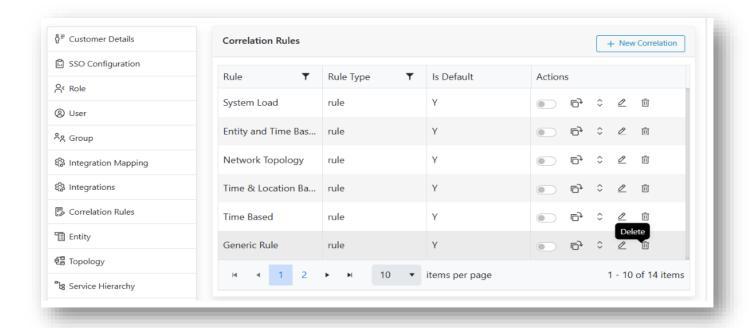


Figure 290 - Delete Correlation

2. A prompt is displayed as shown below.

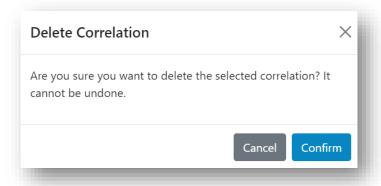


Figure 291 — Confirmation pop-up.

- 3. On confirmation the rule and the associated processes will be deleted.
- 4. On successful deletion the following message will be displayed.

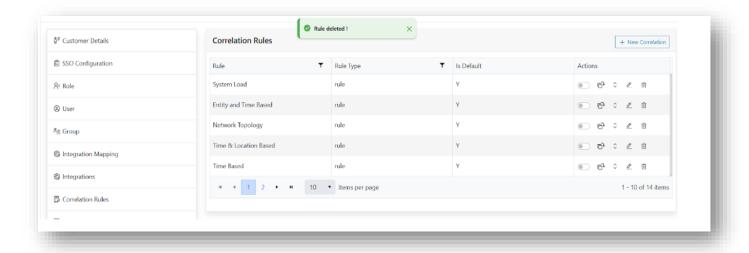


Figure 292 - Alert Message

5. The rule no longer appears in the grid and the data table is updated.

6.1.10.10.5 Change Rule Priority

The grid view page enables user to adjust the rule priority. Rule priority helps prioritize the actionable created by different rules and enables us to take actions or define automated actions based on the priority ordering.

Users need to note that the rules are displayed in descending order of their priority in the grid. The topmost rule has the highest priority with the priority decreasing as user go down in the grid.

1. Click on the drag icon next to the rule for which the priority needs to be adjusted.

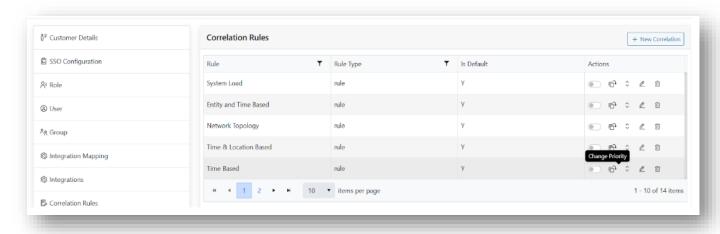


Figure 293 - Change the Priority

2. Select and drag the rule.

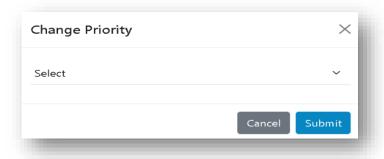


Figure 294 — Select the Change Priority Dropdown

3. Position the dragged rules at the desired position. As the ordering is changed, a Save Priorities Button appears at the bottom of the grid.

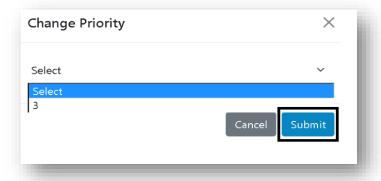


Figure 295 - Select the Change Priority Dropdown

- 4. Click on the Submit button to update the rule priorities.
- 5. On successful update the following message is displayed

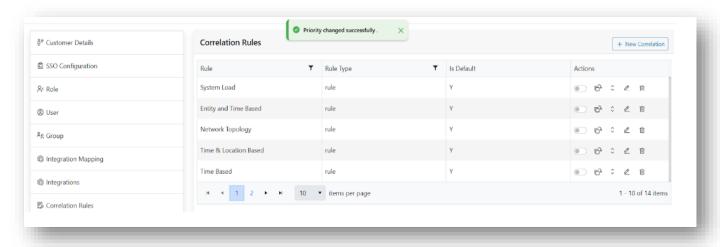


Figure 296 – Alert Message

6. The priority is saved; the grid is refreshed showing the changed ordering.

6.1.10.10.6 Clone Correlation rules.

1. Click on the Clone button next to the correlation rule that is to be cloned.

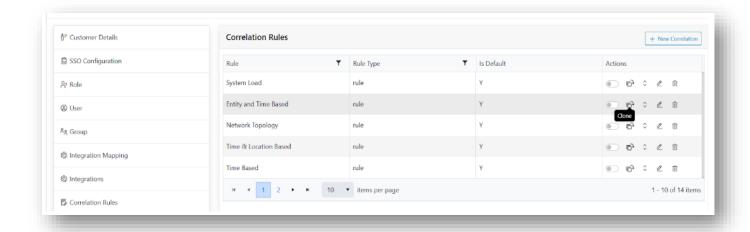


Figure 297 - Clone Action

2. This will prompt confirmation as shown:

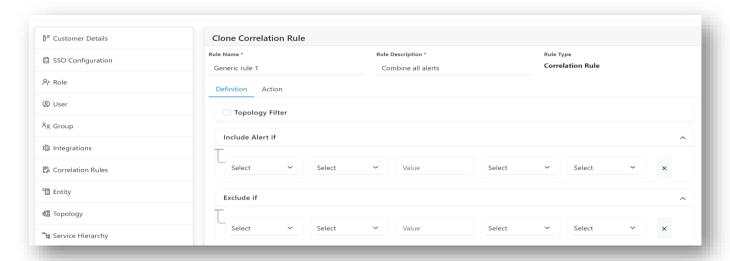


Figure 298 — Clone Connection Integration

3. On successful cloning the following message is displayed

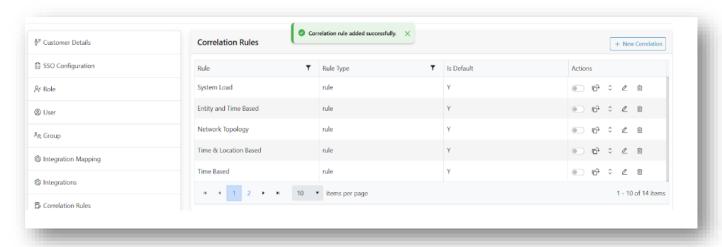


Figure 299 – Alert Message

6.1.10.10.7 Enable/Disable Correlation Rule

- 1. Click on the Enable/Disable toggle button next to the correlation rule that needs to be Enabled/Disabled.
- 2. Click on Enable/Disable icon, on success a confirmation pop-up message is displayed.

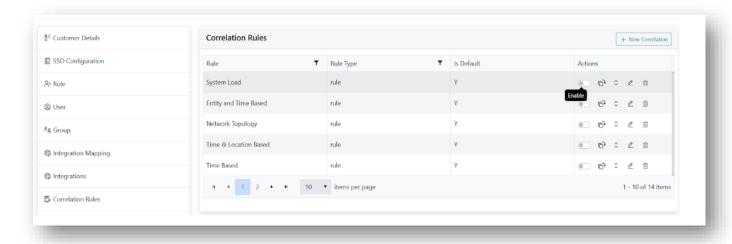


Figure 300 - Enable / Disable Correlation Rules

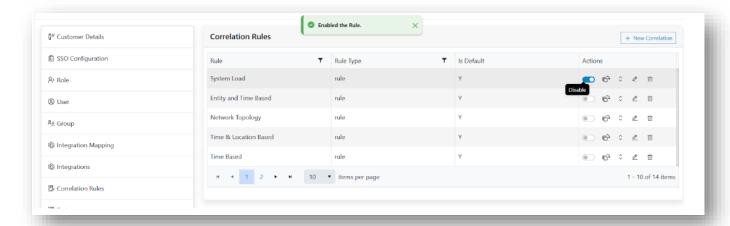


Figure 301 - Alert Message

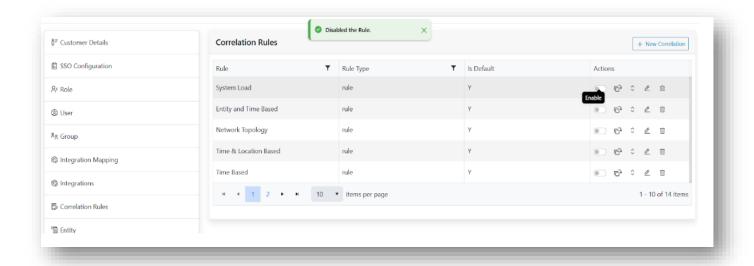


Figure 302 - Success Pop-up for Enable

6.1.10.10.8 Apply Filters

The section involves the steps to Apply filter to the Correlation Rules Data.

1. Click on the Apply filter action button present below the header of the console.

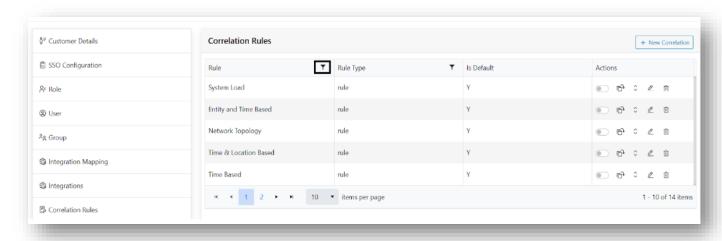


Figure 303 — Apply Filter Operation

2. The form appears. From there, select Field and Operator from drop down list and provide Value. Then click on the Apply button.

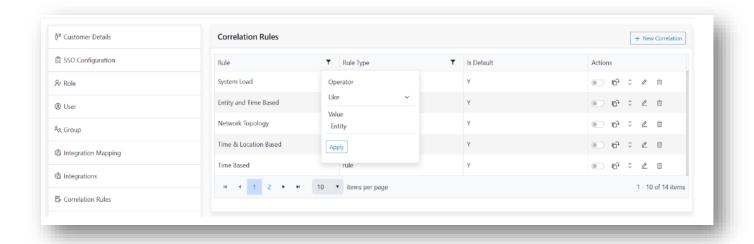


Figure 304 - Apply Filter Operation

3. The result looks as shown in the following figure:

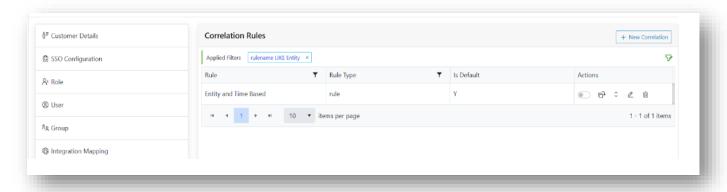


Figure 305 — Apply Filter Result

6.1.10.11 Integration Mapping

1. Click the customer onboard section. For a specific customer, click on the customer action edit section. Click on the Integration Mapping page, Records for the selected customer will be displayed in the grid view as shown.

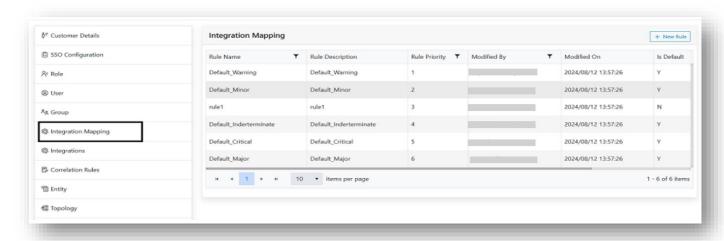


Figure 306 – Integration Mapping Page

- 2. User can perform the following actions:
 - Add New
 - Edit
 - Delete
 - Enable/Disable
 - Change Rule Priority
 - Apply Filter

6.1.10.11.1 Add New Integration Mapping

1. Click on the +New button at the top of the grid to create a new rule.

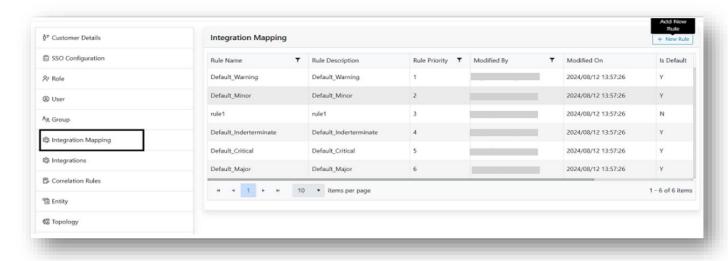


Figure 307 - Create New Integration Mapping

2. The following form is opened. Click on the +New Rule button.

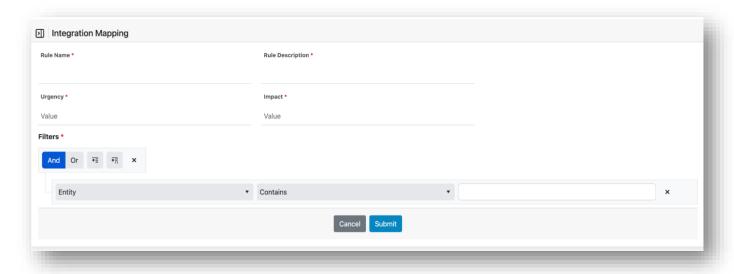


Figure 308 – Create Integration Mapping

3. The following page appears. Enter all the details that are presented in the integration mapping creation page.

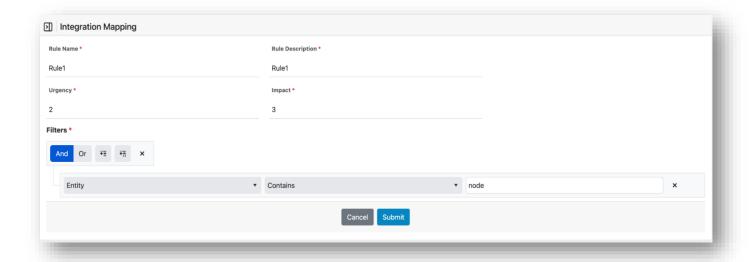


Figure 309 - Create Integration Mapping (Cont.)

4. Users can also add more conditions for adding more conditions the button is clicked a new row

appears or option to add sub condition also available which can be availed by clicking on button and sub condition.

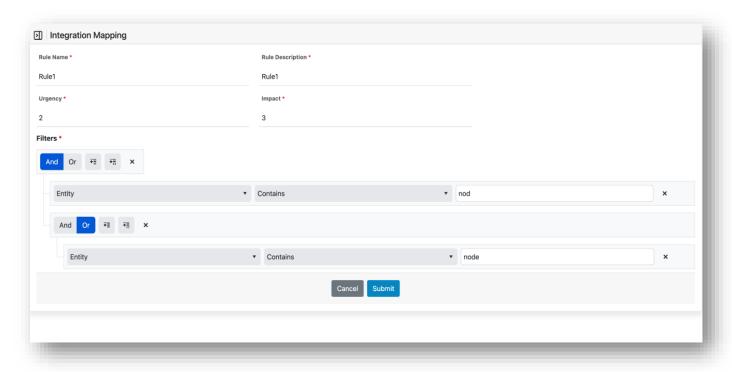


Figure 310 — Add Sub condition.

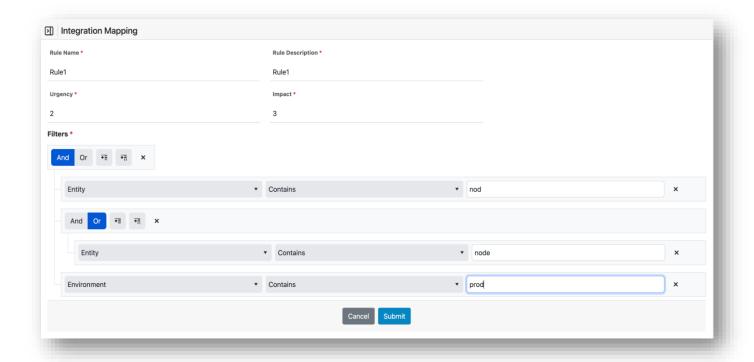


Figure 311 — Add Condition

5. Click on Submit. A confirmation message is displayed.

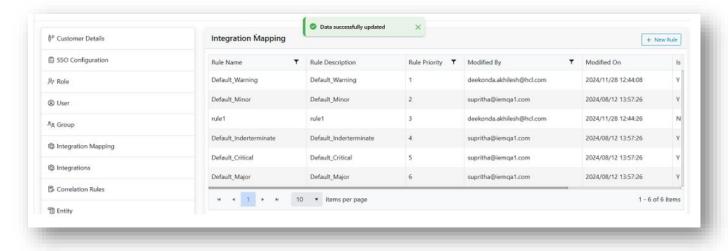


Figure 312 – Listing Page of Integration Mapping

6. On Clicking Submit, the integration mapping will start appearing in the grid view.

6.1.10.11.2 Edit Integration Mapping

User can edit the created integration mapping also.

1. Click on the edit icon next to the rule which needs to be edited.

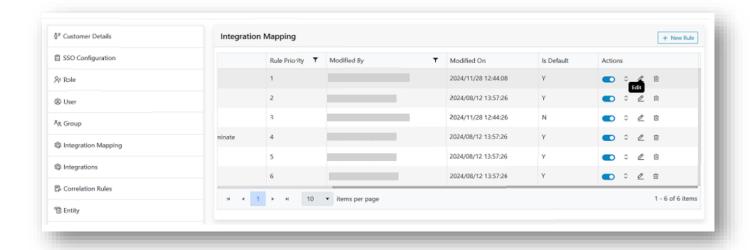


Figure 313 – Edit Action

2. The Integration Mapping can be edited with edit option. Alter the Filter c for the Integration Mapping and after making the changes, click on the Submit button.

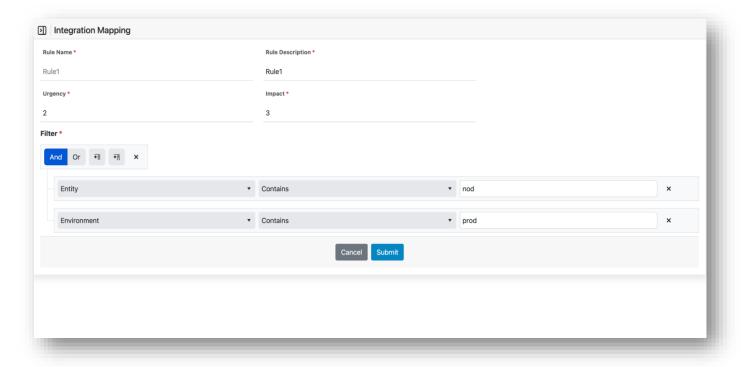


Figure 314 – Edit Integration Mapping

3. A successful message appears as shown below.

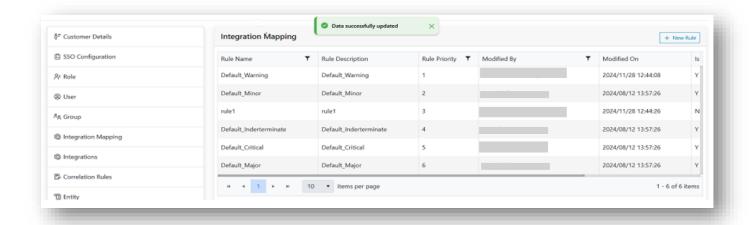


Figure 315 - Alert Message

6.1.10.11.3 Delete Integration Mapping

The action enables user to delete the integration mapping created.

1. Select the integration mapping to be deleted and click on delete icon.

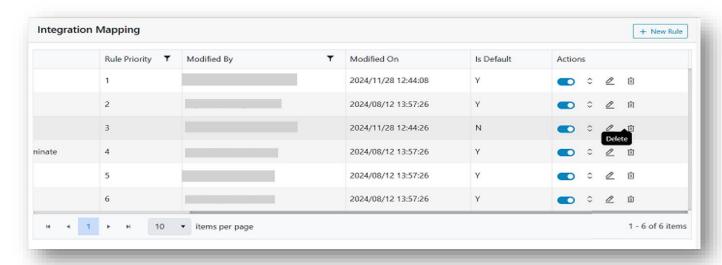


Figure 316 - Delete Integration Mapping

2. A confirmation box is prompted.

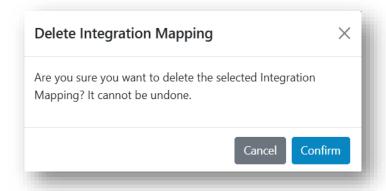


Figure 317 - Confirmation Pop-Up

- 3. Click on the Confirm button to proceed with the deletion process.
- 4. On successful deletion, a confirmation message is displayed.

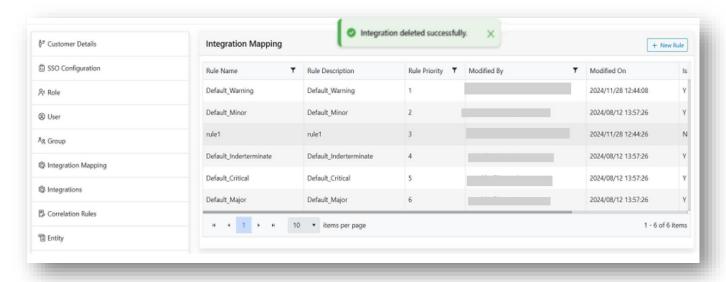


Figure 318 – Alert Message

5. Grid View will be refreshed, and the rules will be removed from the grid.

6.1.10.11.4 Enable/Disable Integration Mapping

To enable or disable an integration mapping in an environment, there is provision of toggle switches to easily perform the required actions.

1. Click on the Enable/Disable toggle button which needs to be Enabled/Disabled.

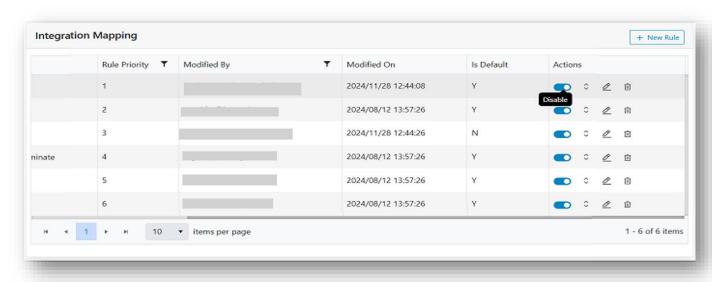


Figure 319 - Enable/Disable Integration Mapping

2. Click on Enable/Disable toggle. On success, a confirmation pop-up message will be displayed.

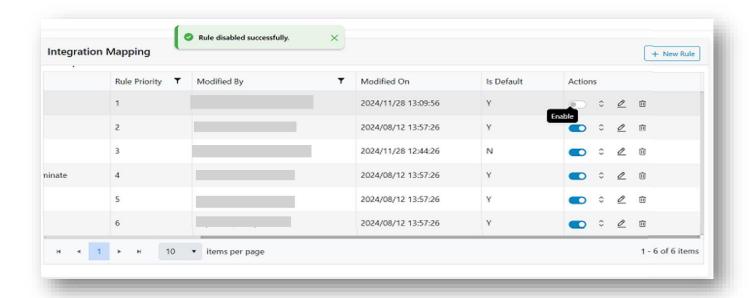


Figure 320 – Alert Message

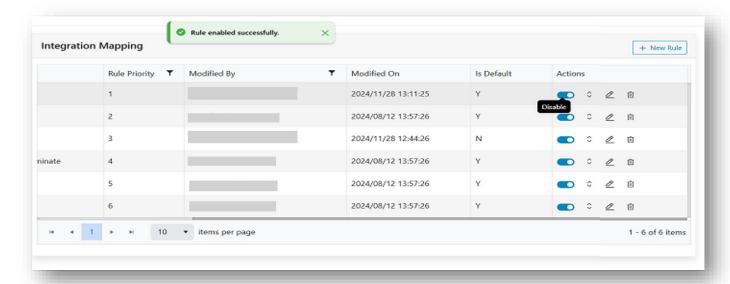


Figure 321 – Alert Message

6.1.10.11.5 Change Integration Mapping

The grid view page enables user to adjust the rule priority. Rule priority helps prioritize the actionable created by different rules and enables us to take actions or define automated actions based on the priority.

Users need to note that the rules are displayed in descending order of their priority in the grid. The topmost rule has the highest priority with the priority decreasing as user go down in the grid.

1. Click on the drag icon next to the rule for which the priority needs to be adjusted.

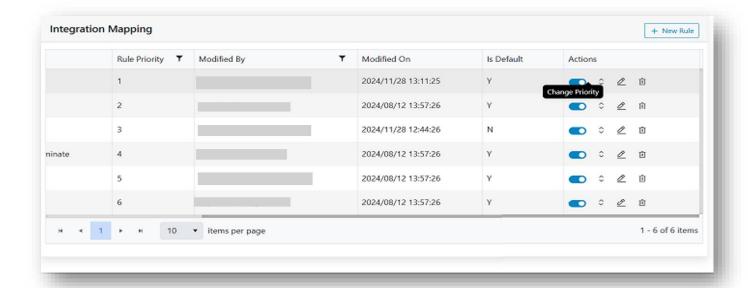


Figure 322 - Change Priority

2. Select and drag the rule.

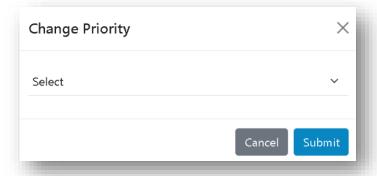


Figure 323 — Select Change Priority Dropdown

3. Position the dragged rules at the desired position. As the ordering is changed, a Save Priorities button appears at the bottom of the grid.

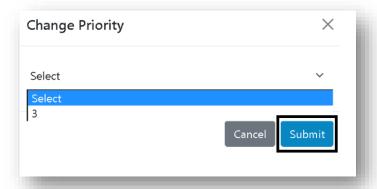


Figure 324 — Select Change Priority Dropdown

- 4. Click on the Submit button to update the rule priorities.
- 5. On successful update, the following message is displayed:

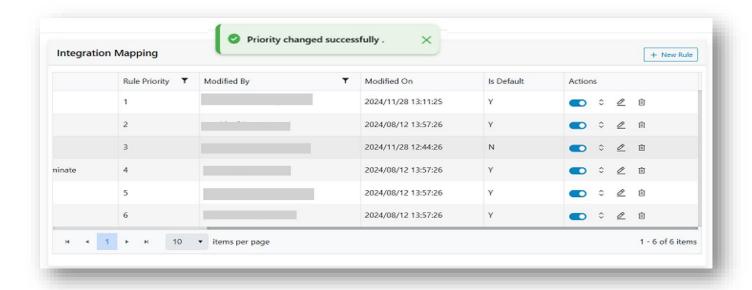


Figure 325 – Alert Message

6. The priority is saved; the grid is refreshed showing the changed ordering.

6.1.10.11.6 Apply Filters

The steps explain how to apply filter, filters the integration mapping data.

1. Click on the Apply Filter action button presents at the header below of the console.

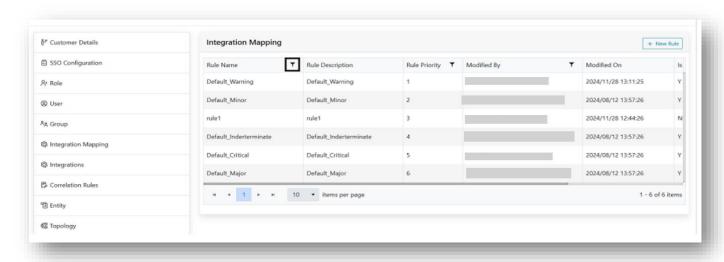


Figure 326 — Apply Filter Operation

- 2. The form will appear, from there user can select Filed and operator from drop down list and must write value.
- 3. Click on the apply button.

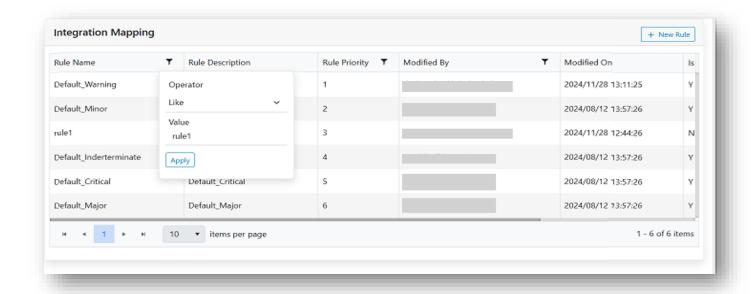


Figure 327 - Apply Filter Operation

4. Users can see the result of applied filter.

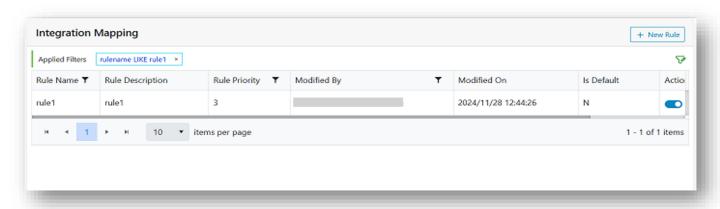


Figure 328 – Apply Filter Operation

6.1.10.12 Integrations

Integration with third-party tools is a crucial feature for IEM. IEM leverage external tools and services to enhance their capabilities, providing a more comprehensive and effective solution for effective Event Management.

IT Service Management (ITSM) Integration:

- Integrate ITSM platforms for seamless collaboration between Event Management and IT service workflows.
- Facilitates the creation of tickets, automated incident resolution and related changes and problems updates for effective Root Cause Analysis.

Currently IEM has integration with two tools:

- ServiceNow
- ServiceXchange

Both the tools are responsible for Incident Management, Automated Ticket creation, ITSM Collaboration providing a cohesive approach efficiently.

This section enables a user to define the external tool integrations within our environment.

E.g., if user needs to create a ticket in ServiceNow or update a ticket in ServiceNow, this is where user will define the integration details.

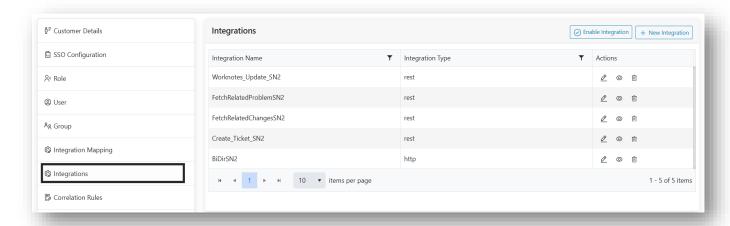


Figure 329 - Integration Page

- 1. Click the customer onboard section ("Customer" → "Customer Name" → "Integrations")
- 2. Click on the Integration page. Available integrations are displayed in the grid. The following are the actions, the user can perform on this screen based on their roles.
 - Add New
 - Edit Existing
 - View Existing
 - Delete
 - Apply Filters

6.1.10.12.1 Add New Integration

1. If there's no integration defined, then click on "+ New Integration" button shown on the top of the Integrations Screen, as in the below image.

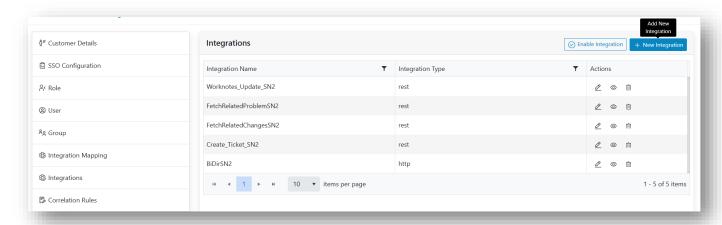


Figure 330 — Creating New Integration

2. The user is redirected to the Integration form, which is divided into 3-Steps.

- General (Step 1)
- Connection (Step 2)
- Definition (Step 3)

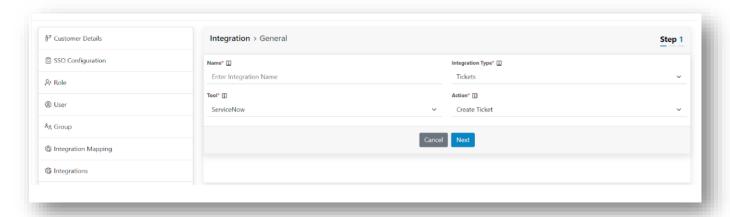


Figure 331 — Create an Integration

- 3. In the General Section fill in the details below:
 - Name: Name of Integration
 - Integration Type: Integration type is where the integration is to be defined like Tickets.
 - **Tool**: Tool related to the selected module e.g., for Tickets user have ServiceNow.
 - Action: Type of action for which the integration is being defined like Create Ticket, Update Ticket etc.
 - Once the user fills in the above details and clicks Next, control is redirected to the second step.

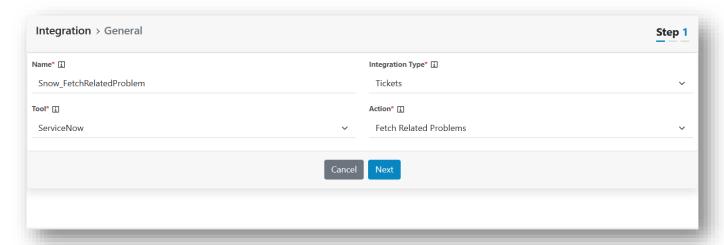


Figure 332 — Create an Integration

4. Connection Section – In this section, users can select an existing connection or create a new connection.

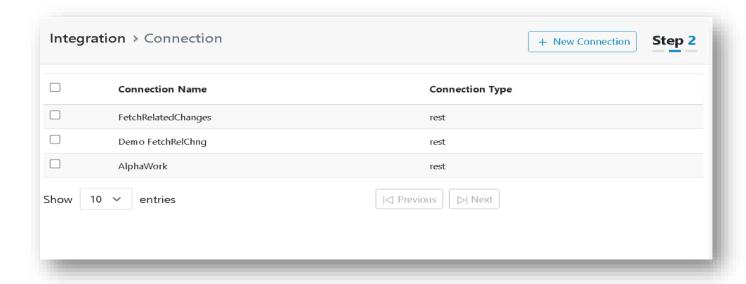


Figure 333 - Existing Connection

5. For selecting from the existing list of connections, user must select the checkbox from existing connection and click on Next button.

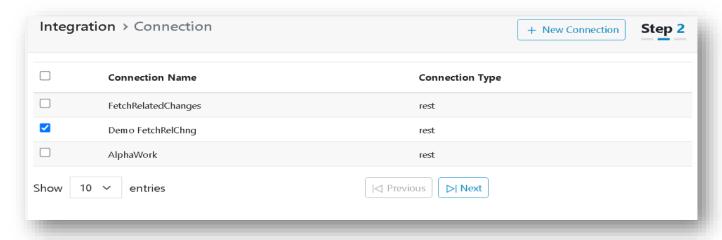
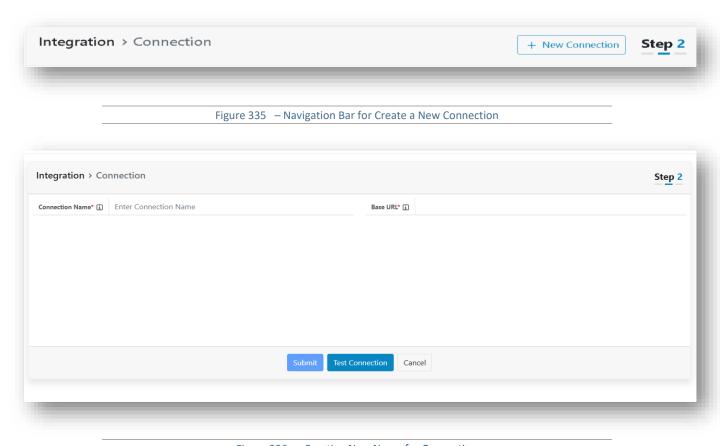


Figure 334 – Existing Connection

- 6. To create a new connection, the New Connection button is to be clicked, and user will be redirected to the Manage connection form.
- 7. The input being asked for in this section depends on the Connection Type selected.
- 8. Refer to the "Manage Connection section" to understand the steps for creating a REST based connection.
- 9. For the Generic REST Pull Based Connection Type in the General section, the following options need to be filled in.
 - Connection Name
 - Base URL



- Figure 336 Creating New Name for Connection
- 10. If the user clicks on the Advance Options button, it displays the following options to fill in.
 - Username
 - Password

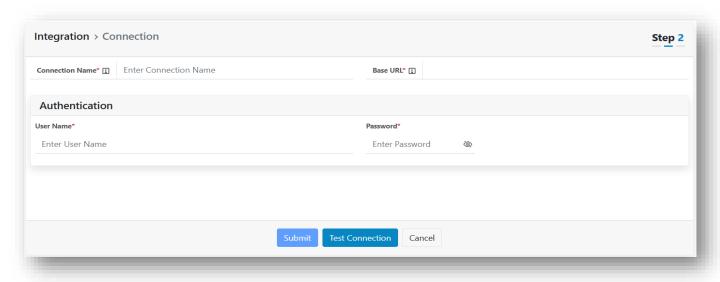


Figure 337 – Advance Options

11. After all fields are filled, click on the Test Connection to check the URL Connection. It displays the message as shown below:

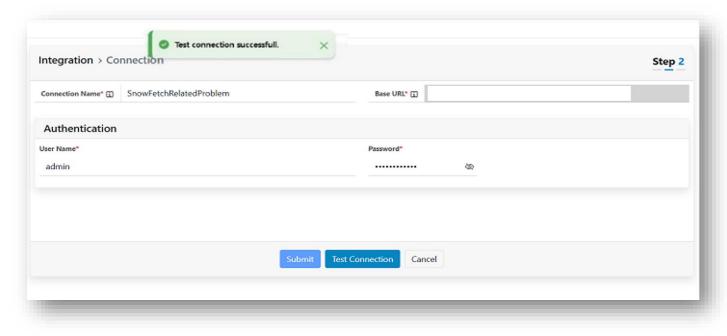


Figure 338 – Alert Message

12. After successful Test connection, click on Submit Button. It displays the New Connection added pop-up as below.

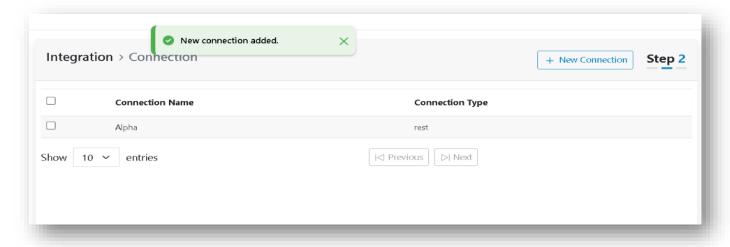


Figure 339 – Alert Message



Figure 340 – Existing Connection

13. If a user selects HTTP Request Push Based Connection Type in the General section, the following fields need to be filled.

- Connection Name
- Base URL
- 14. Specify the Connection Name, a Token is populated, and the URL is ready to be used for integration by the external tools.

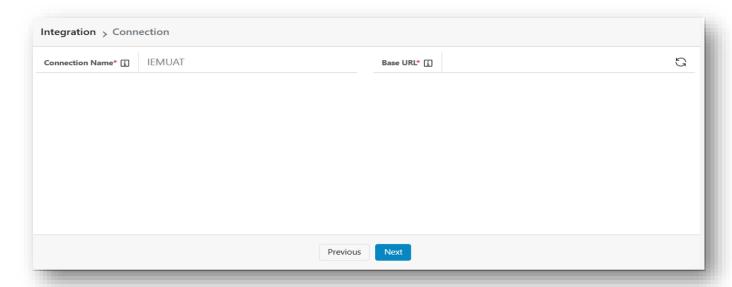


Figure 341 — Create New Connection

15. Copy the URL and click on the Submit button.

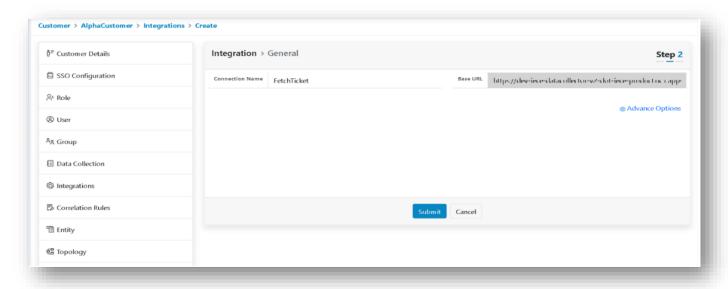


Figure 342 — Create New Connection

16. Clicking on the Submit button takes the user to the Definition tab.

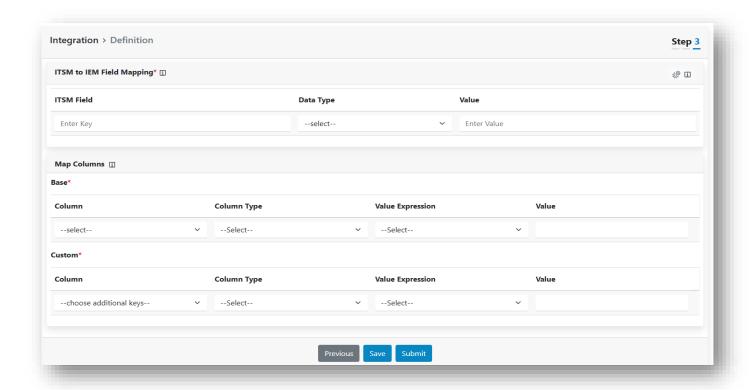
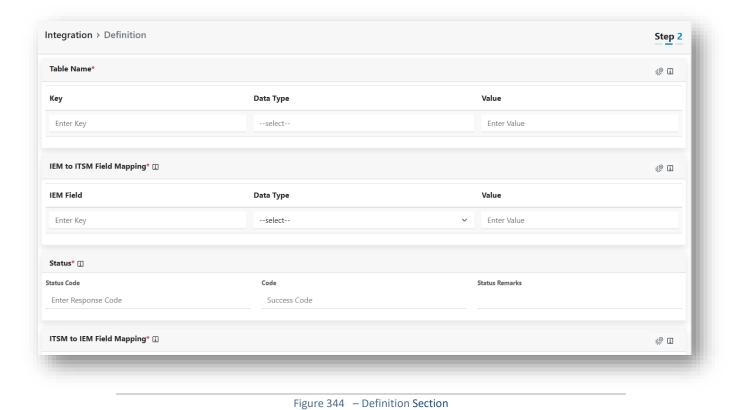


Figure 343 — Definition Section

- 17. Definition (Step 3) is where the user defines the request details. This section is further divided into the following subsections.
 - Method
 - Table Name
 - Request Body
 - Response
 - Payload
 - Map Columns



- 18. These sub-sections depend on the Connection Type selected.
 - Table Name: In this section, the user needs to add the Table Name. First, the user needs to click on JSON button which is on right side top. A form appears in which user needs to add JSON data.



Figure 345 - Table Name

Click on the Extract Keys button. It displays the screen below. Select the *Population Type* and Population Value.

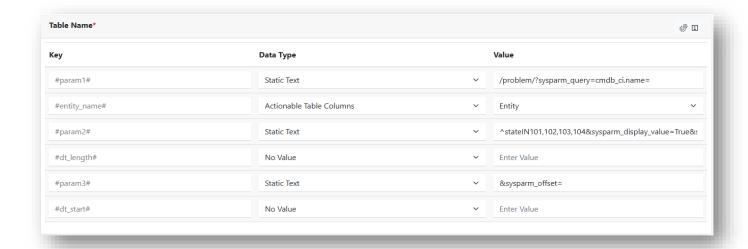


Figure 346 - Extract Keys

Request Body: In this section adds table name. First, select the JSON button which is on right side top, a form
appears in which the user adds JSON data.

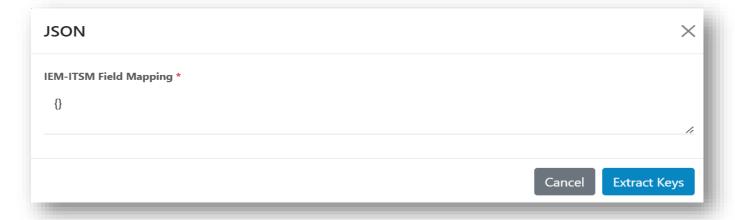


Figure 347 – Request Body

In Request body, against unique ID we should be able to map multiple or 2 fields, namely entity and parameter. Add Entity and parameter under JSON in a single tab.

 Click on the Extract Keys button. The following screen appears. Select the Population Type and Population Value.

In case of problem & Change Integration, state mapping values from ServiceNow need to be taken from customer ServiceNow team.



Figure 348 – Extract Keys

Response: User needs to fill the following fields.

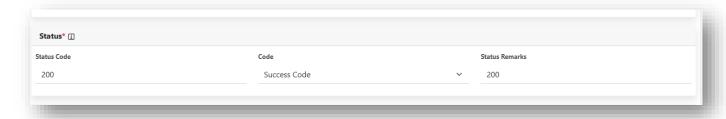


Figure 349 - Response.

Payload: Next, the user needs to define the payload, Json. This section is applicable for both Generic REST as
well as HTTP. Specify the JSON and click on Extract Keys. This populates all keys and values of that response
JSON.



Figure 350 – Define Payload Json

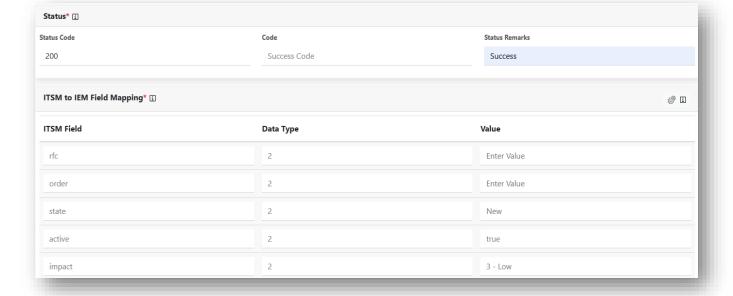


Figure 351 — Extract Payload Json

- Map Columns: This section is applicable for both Generic REST as well as HTTP, once the Payload JSON is extracted, user then maps the source columns to IEM columns using the following Population Type:
- JSON key: the columns are mapped with the Payload JSON Keys.

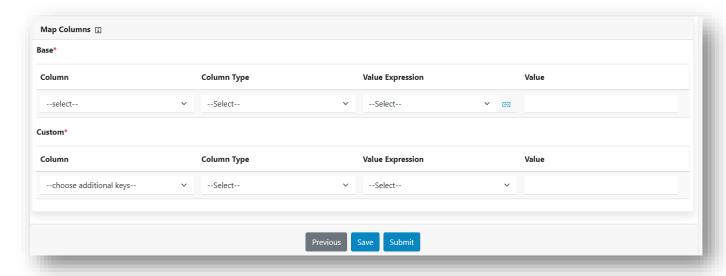


Figure 352 - Map Columns

• In the **Columns** section, select the IEM column or create a new custom key in the **Custom** section. In the **Population Type**, select JSON key and the value expression populates with the JSON keys extracted. Choose the relevant key. As the key is selected, its values are displayed underneath the value column.

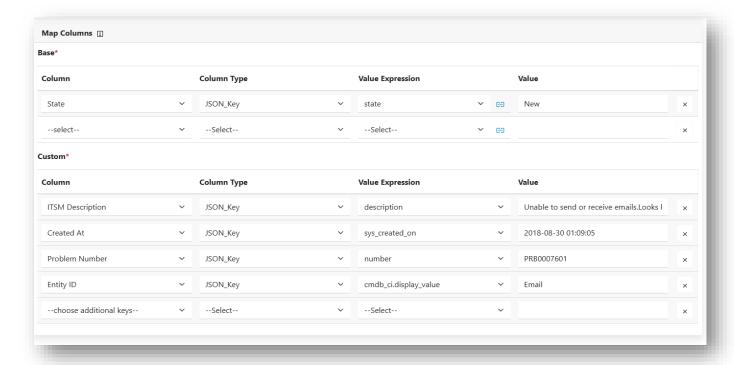


Figure 353 - Map Columns

• There are a few columns, for which it is must specify the value mapping. For e.g., for State column user need to specify mapping of the incoming values to state values as shown below.

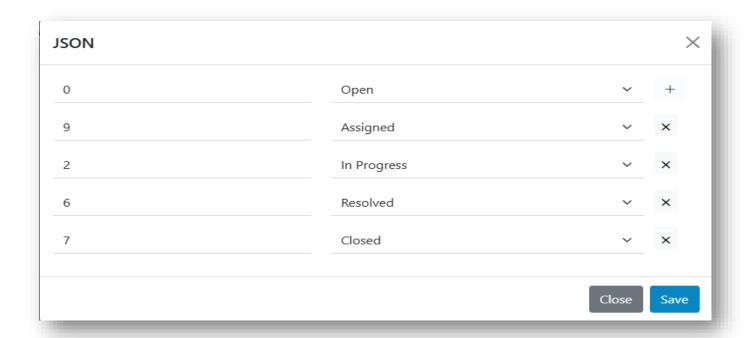


Figure 354 - Mapping State Column

After clicking on the Save button, the following will appear.

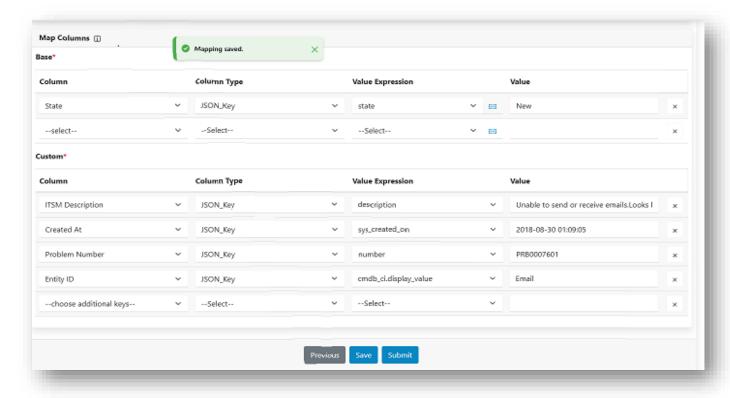


Figure 355 – Alert Message

It's important to capture all important fields from the source which might later be used for modification purposes or creating a bidirectional integration. E.g., in the case of ServiceNow along with Incident Number it's important to capture sys ID which is their unique identifier as it enables easy update flow between the two tools i.e., ServiceNow and IEM.

Once all the details are specified, user have two options for Saving its details.

- Save Saves the configurations details. Once saved user can edit the configurations.
- **Submit** Submits not only save the details but it also enables all the related processing's for the associated integration and is the final submission of the details. Post submission the processing details cannot be edited. Refer to the edit section to understand the possible edit allowed post Final submission.

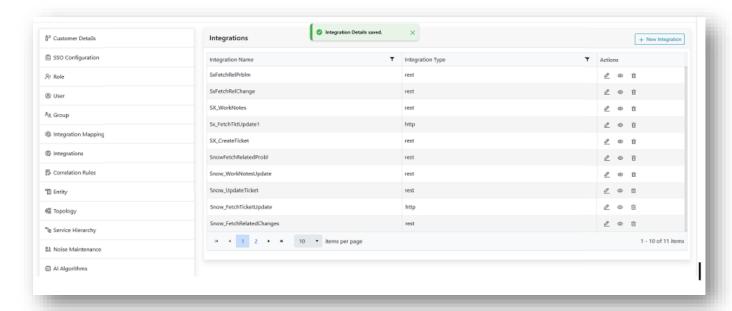


Figure 356 - Alert Message

6.1.10.12.2 Edit Integration

1. Click on the Edit icon next to the integration that is to be edited.

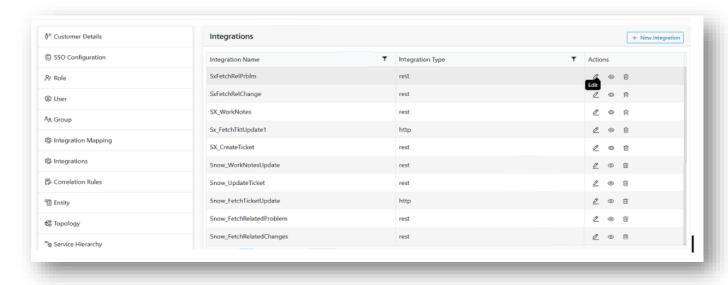


Figure 357 - Edit Action

2. This populates all the sections user discussions while creating new connection with the Saved Values.

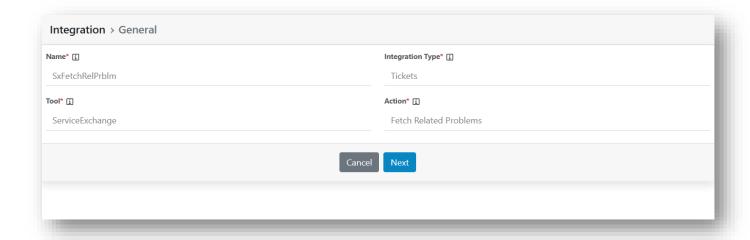


Figure 358 - Edit General Section

If user only Saves the integration, then inputs are enabled for the user to update its values, however if user edits post Submitting the integration, he can only update credentials\Tokens.

3. Make the necessary changes and click on Save/Submit as applicable.

Once the Integration is submitted, the only option available is "Submit", If the integration is saved only then both **Save** and **Submit** options are available.

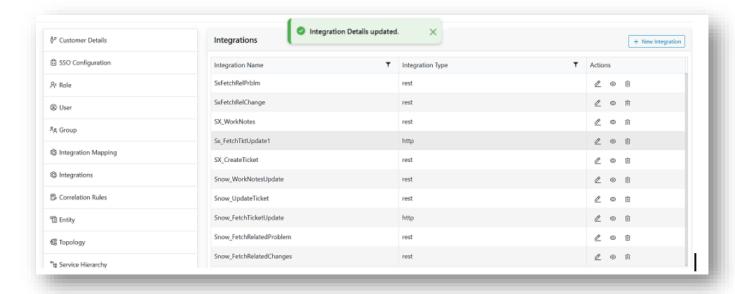


Figure 359 – Alert Message

6.1.10.12.3 View Integration

1. Click on the View icon next to the integration that is to be viewed.

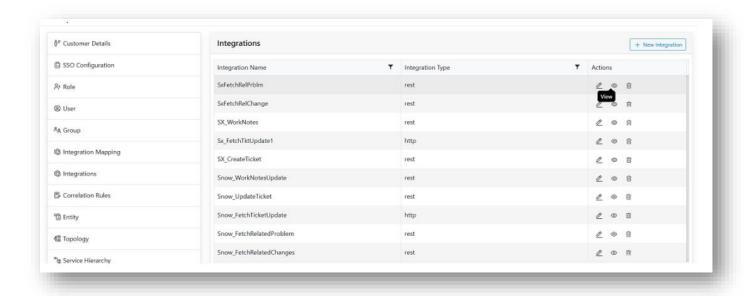


Figure 360 - View Integration

2. This opens all the sections in Read Only mode with the value saved.

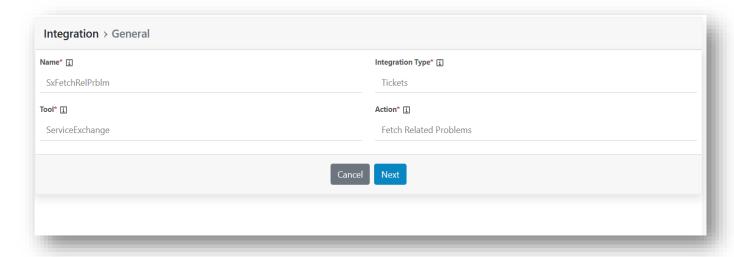


Figure 361 – View Integration

6.1.10.12.4 Delete Integration

1. Click on the Delete button next to the integration that is to be deleted.

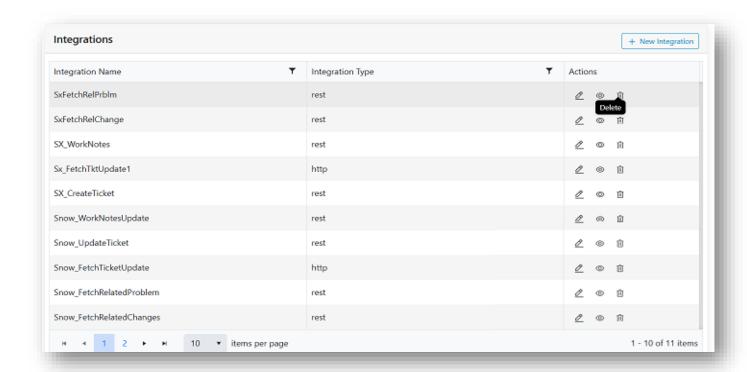


Figure 362 - Delete Integration

2. This will prompt confirmation as shown.



Figure 363 - Confirmation pop-up.

3. On successful deletion the following message will be displayed.

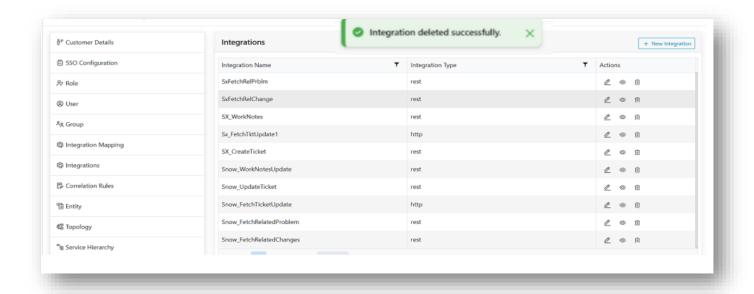


Figure 364 - Alert Message

6.1.10.12.5 Enable/Disable Integration

The steps involve how to Enable Integration.

1. Click on the Enable Integration available action button presents at the right top of the screen.

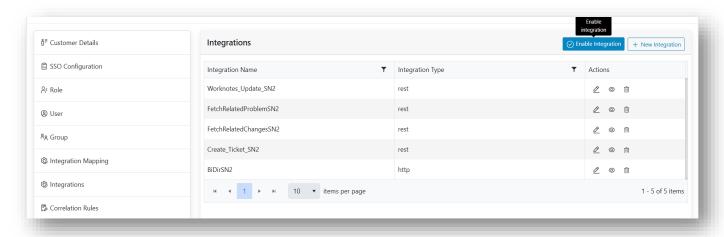


Figure 365 – Enable Integration

2. By clicking on the Enable integration button we can enable the integration. Once integration enabled, button will change to disable integration for disabled action.

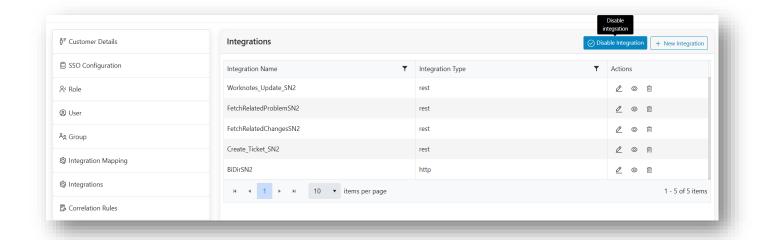


Figure 366 - Disable Integration

6.1.10.12.6 Apply Filters

The steps involve how to apply filter to the integration data.

1. Click on the Apply Filter available action button presents at the below header of the console.

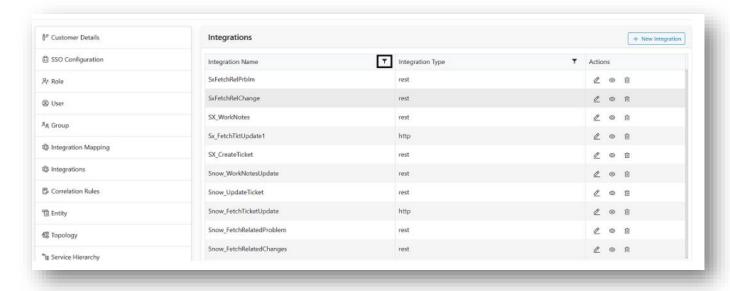


Figure 367 - Apply Filter Operation

- 2. The following form appears. Select Field and Operator from the drop-down list and provide the values.
- 3. Click on the Apply button.

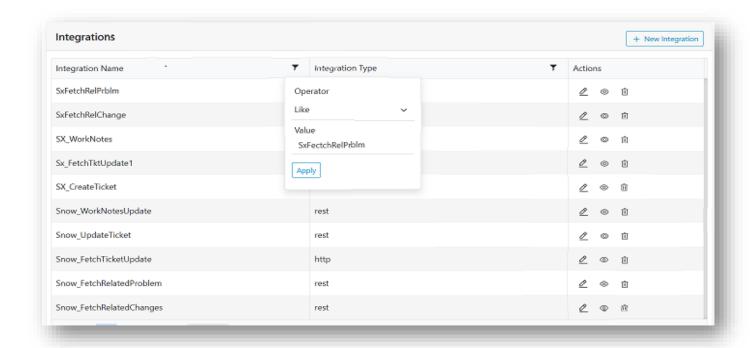


Figure 368 – Apply Filter Operation

4. The result of the applied filter looks as shown in the following figure:

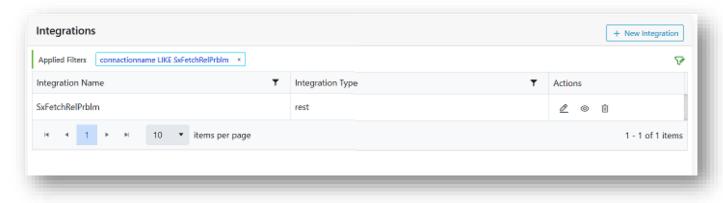


Figure 369 – Apply Filter Result

6.1.10.13 Al Algorithms

Al algorithms excel at identifying anomalies or deviations from normal behaviour in large datasets. Early detection of abnormal patterns helps in proactively identifying potential issues or security threats before they escalate. Al algorithms can recognize patterns and trends in historical and real-time data. It automates the process of identifying the root cause of incidents. Al algorithms correlate alerts from various sources to identify relationships and dependencies. Al Algorithms in IEM enable Temporal-based alert Correlation.

IEM leverages in-house AI Toolkit which has Out-of-Box features and it can be accessed based on roles and permission. Customer administrator then can create objectives over IEM and post that training of model is implemented on the data ingested via IEM and model is used in prediction for AI-Use cases.

Al-Driven Use-Cases for IEM includes,

- Enables user / system to select relevant algorithm for the use cases.

- Metric anomaly system to identify anomalous metric point.
- Temporal-based Alert Correlation.
- A feedback system for temporal-based correlation to avoid irrelevant alerts to actionable grouping.

This section enables us to configure the AI Algorithms in IEM.

- 1. Click on the "Customer"→"Customer Name"→"Al Algorithms" (On the Navigation page)
- 2. The Following page will be displayed:

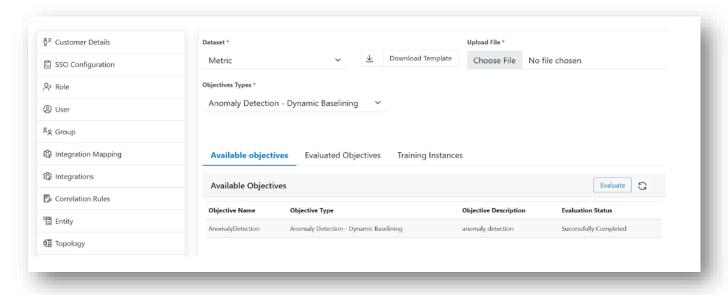


Figure 370 – Algorithms Available objectives.

3. Objectives created in the environment will be listed in the grid view.

6.1.10.13.1 Available Objectives

- 1. Select the dataset from the Dataset dropdown. The following options are available:
 - Metrics
 - Correlation Data
 - Correlation Feedback Data

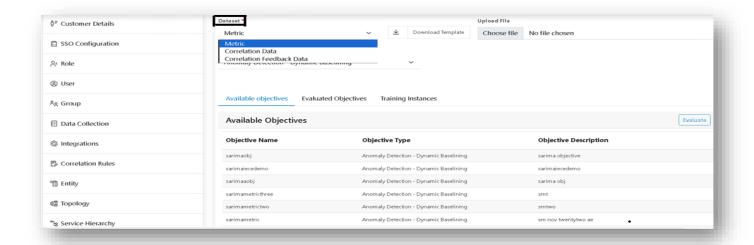


Figure 371 -- Selecting Dataset Type for Available Objectives

2. In Al Algorithms, Available Objectives contains all the objectives that are in the Objective AIML tool kit of the IEM.

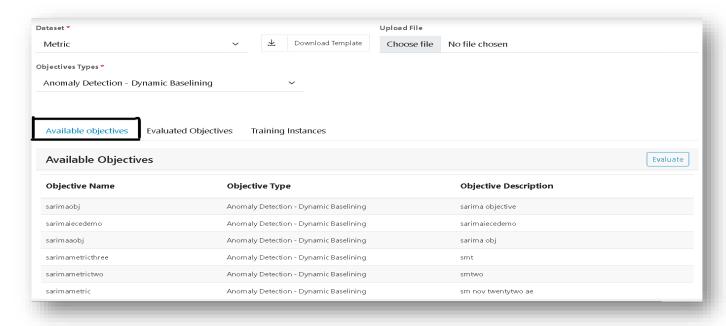


Figure 372 -- Algorithms available objectives!

3. If any objective is already populated, it will start appearing in the grid below.

6.1.10.13.2 Evaluate Action in AI Algorithm (Upload CSV File).

- 1. Select the dataset from the Dataset dropdown.
- 2. Click on Download Template (This will download the template specific to the selected dataset to upload its sample data)

Prior to running Evaluate, user must upload the sample dataset.

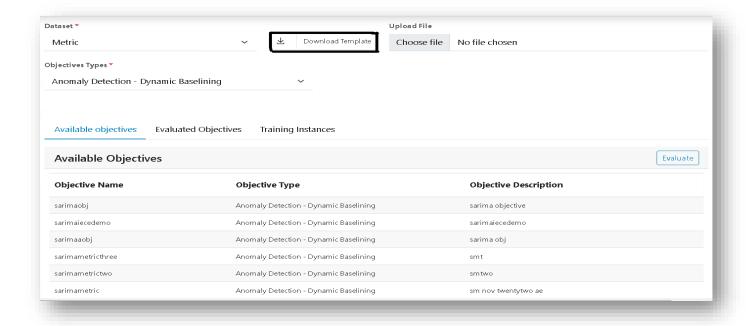


Figure 373 -- Bulk Upload Al Algorithm Objectives

3. Click on the Download Template button. The following template is downloaded.



Figure 374 -- Template for Bulk Al Algorithm Objectives

- 4. "Source entity id" is the mandatory column, rest are the additional \Optional details available in the environment.
- 5. user can choose to provide values of the additional details or can add more details in the columns as per the requirements.
- 6. The new additional details will be added to the repository post and the data is uploaded.
- 7. Upload the filled excel file by clicking on Upload CSV.

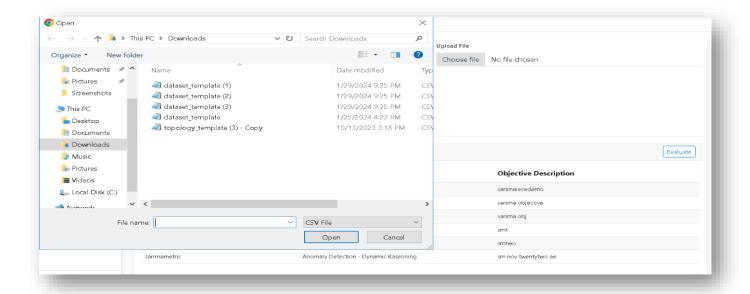


Figure 375 - Upload csv from Local Directory

- 8. Browse to the local directory where the data file is saved and select the file.
- 9. Once the file is selected it appears as shown in the below images.

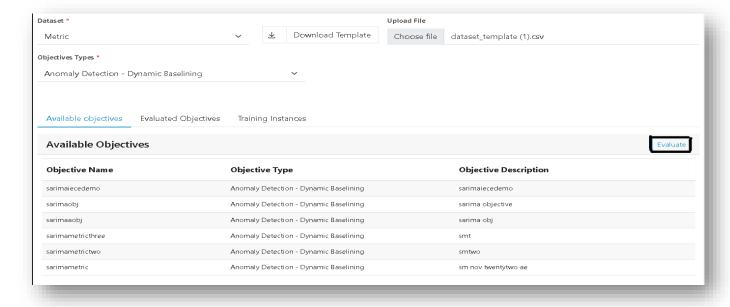


Figure 376 - Evaluate!

10. Click Evaluate. An evaluation pop-up will be displayed as shown below.



Figure 377 – Evaluate All

• Evaluate Objectives: Evaluate Objectives Option explains about the Objectives which users can select from the options in the dropdown as shown below:

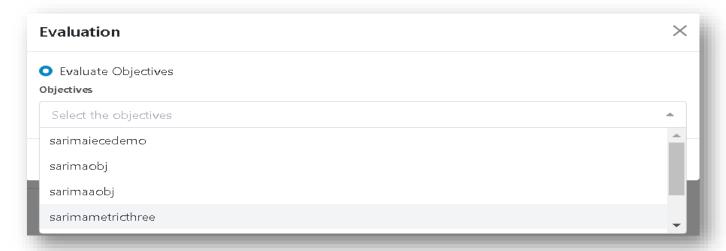


Figure 378 – Evaluate Objectives Dropdown

- Select an Objective and click on Submit button.
- Once done, the following confirmation box is displayed.

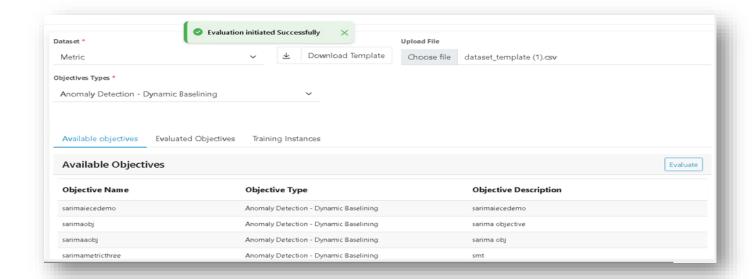


Figure 379 - Alert Message

After submitting the Evaluate Objective, all the Evaluated Objective job type will run in processing screen as shown below.



Figure 380 – Evaluate Objective job on Processing Screen

6.1.10.13.3 Evaluated Objectives

- 1. Select the dataset from the Dataset dropdown.
 - Metrics
 - Correlation Data
 - Correlation Feedback Data

15 days Metrics data will be considered as a baseline for model training.

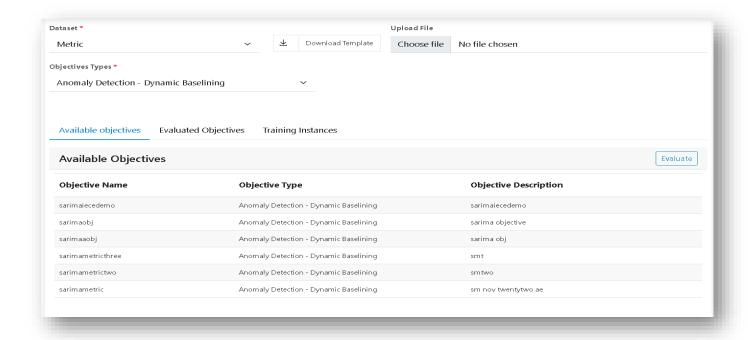


Figure 381 - Select Dataset Type for Evaluated Objectives

- 2. If any objective is already populated, it will start appearing in the grid below.
- 3. Click on the Evaluated Objectives of datasets, then evaluated objectives grid will be shown below

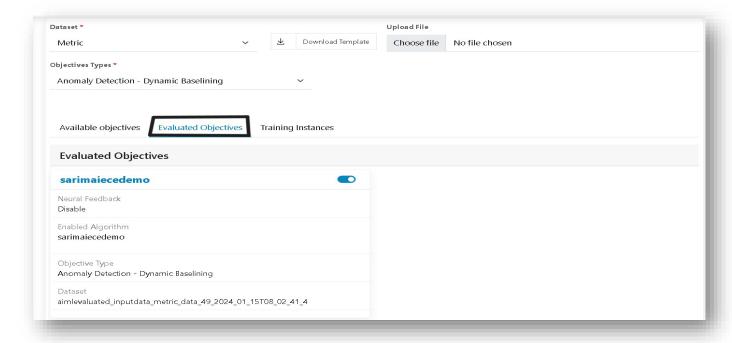


Figure 382 – Evaluated Objectives

6.1.10.13.4 Enable/Disable Objective

1. Click on the Enable/Disable icon corresponding to the Evaluated Objective which is to be Enabled/Disabled.

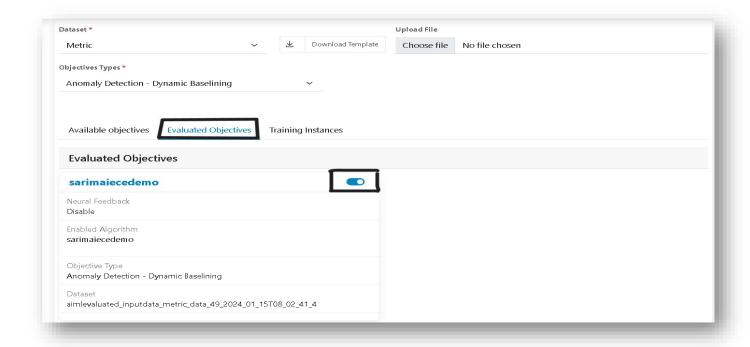


Figure 383 – Enable / Disable Evaluated Objectives

2. On success, a confirmation pop-up message will be displayed.

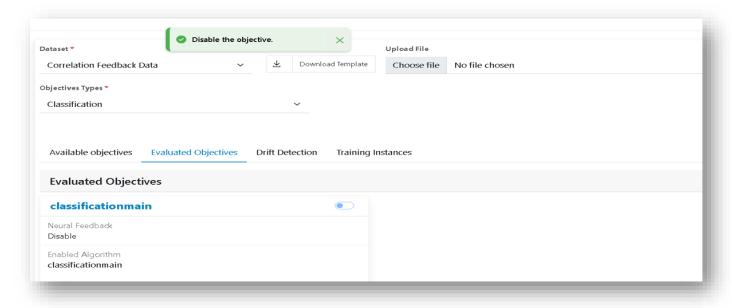


Figure 384 – Alert Message

6.1.10.13.5 Apply Filters

The steps involved how to apply filter to the Integration Data.

1. Click on the Apply filter available action button present at the header below the console.

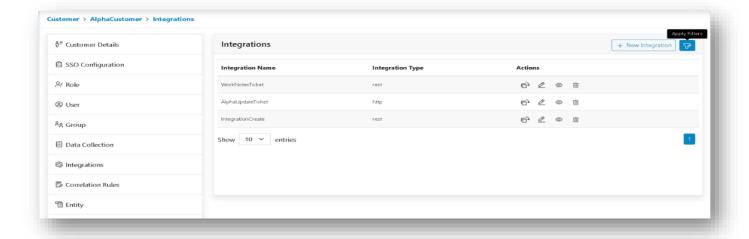


Figure 385 - Apply Filter Operation

2. The following form appears. Select Field and Operator from drop down list and provide the values. Then click on the Apply button.

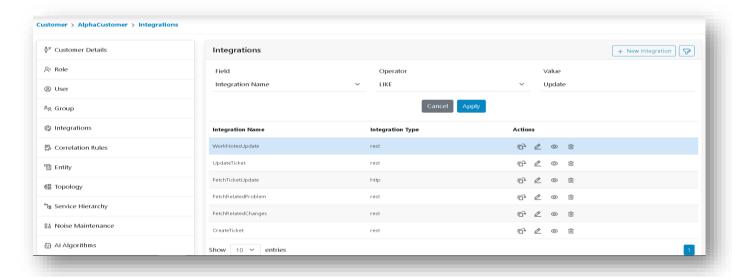


Figure 386 - Apply Filter Operation

3. The result of applied filter looks as shown in the following figure:

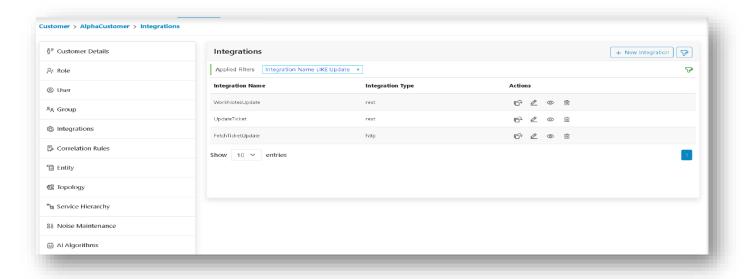


Figure 387 — Apply Filter Result

6.1.10.13.6 Enable Feedback

1. When user clicks on Enable feedback button in Evaluated Objectives, Dropdown will be visible for selecting the options.

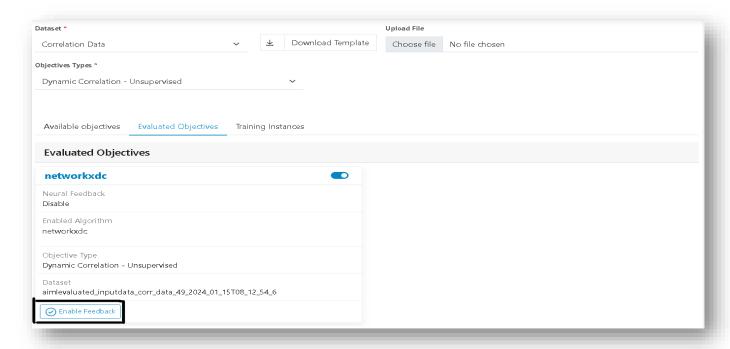


Figure 388 – Enable Feedback in Evaluated Objectives

2. Enable feedback drop down will be displayed. Select the feedback according to the objective as shown below.

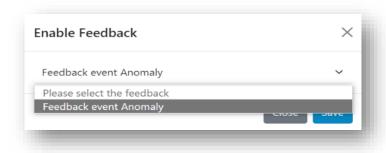


Figure 389 - Enable Feedback Dropdown

3. After selecting the option for enabling feedback from the dropdown, Click on Save.

6.1.10.13.7 Enable/Disable Prediction

We can see enable prediction button for dataset value Metrics by clicking the button we can enable/disable the predictions.

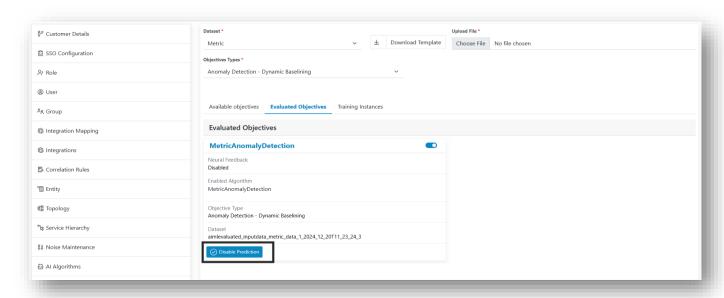


Figure 390 – Enable Prediction

6.1.10.13.8 View More Action

1. In Evaluated Objectives tab, click on View More action button.

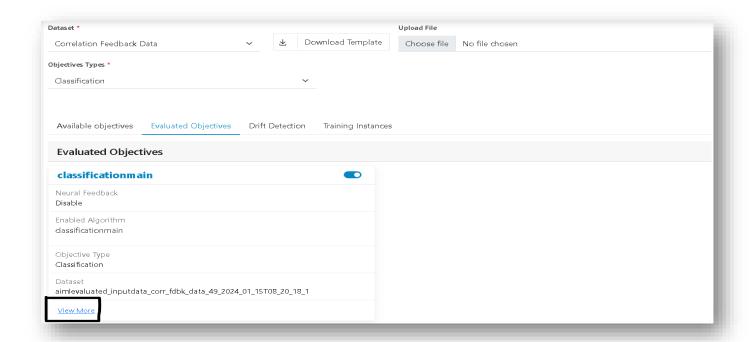


Figure 391 - View More action for Evaluated Objectives

2. The following screen appears:

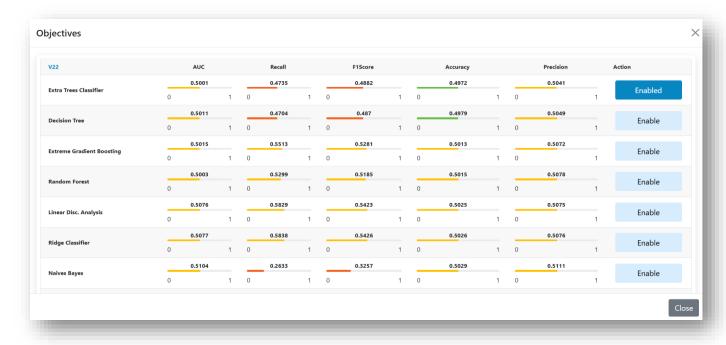


Figure 392 - View More

3. Click on the Close button, it will navigate to evaluate Objectives.

6.1.10.13.9 Training Instances

- 1. Select the dataset from the Dataset dropdown.
 - Metrics
 - Correlation Data

Correlation Feedback Data

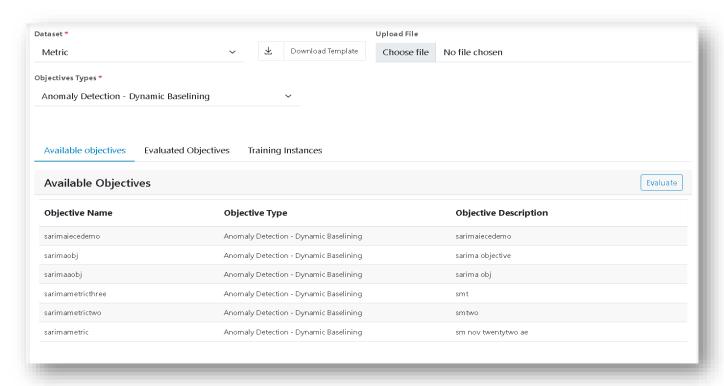


Figure 393 – Select Dataset Type for Training Instances

- 2. If any objective is already populated, it will start appearing in the grid below.
- 3. Click on the Evaluated Objectives of datasets, then the training instances grid will be shown below.

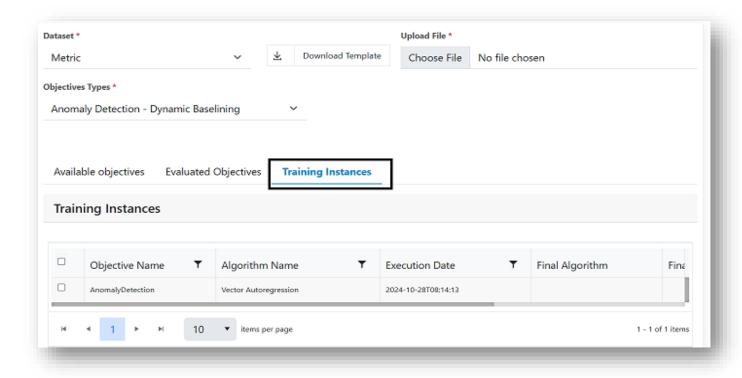


Figure 394 - Training Instances

6.1.10.14 Cost Configuration

"Cost Configuration Feature" for actionable in IEM refers to the ability to assign and track costs associated with managing and resolving actionable within the IT environment.

This feature is valuable for organizations as it allows them to measure and analyse the financial impact of actionable, helping in cost allocation, budgeting, and overall financial management.

This action enables us to configure the average cost of actionable.

- 1. The side Navigation bar contains a Cost Configuration option, click on the option and the screen will open.
- 2. Add the currency from the dropdown and add the average cost of actionable.

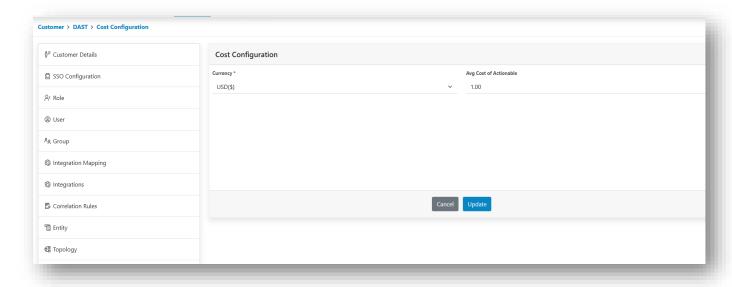


Figure 395 - Cost Configuration

3. The average cost of actionable saved in the configuration will help in generation of average savings in the currency selected in configuration.

6.1.10.14.1 Manage

This section enables us to manage the processing of iECE environment and the system configurations. This comprises of the following items:

- Site Setting
- Configuration
- Processing
- Health Status

6.1.10.14.1.1 Site Setting

This section enables users to manage the component details within the environment. In the top navigation bar, click on Manage -> Site Settings.

The following page appears:



Figure 396 — Site Setting Page

All components are listed here:

1. Like with other pages, the user can act based on its role on the screen. Possible actions are edit/view. Only the user with edit action can make changes to the setting details.



Figure 397 – Edit Action



Figure 398 - Site Settings Page

- 2. Click on the configure icon next to a component. The following popup is displayed wherein all the requested details are displayed in key/value format.
- 3. Update the details and click on Save.

Note: For the user with view access the save button will be disabled.

4. On successful update the following message "Component Updated Successfully" is prompted to user.

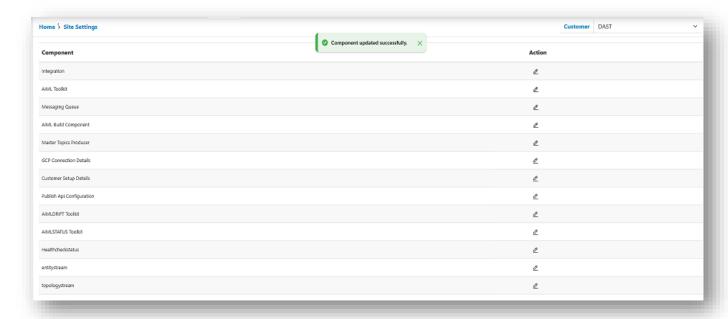


Figure 399 – Alert Message

- 5. Users will be redirecting the control back to the list page.
- 6. Apart from the API URL Key, users have messaging Queue Kafka, GCP Connection Details where in the broker details need to be provided as separate list.

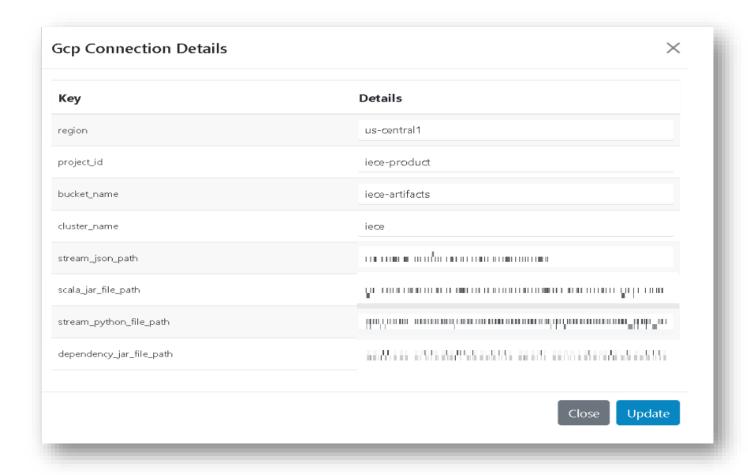
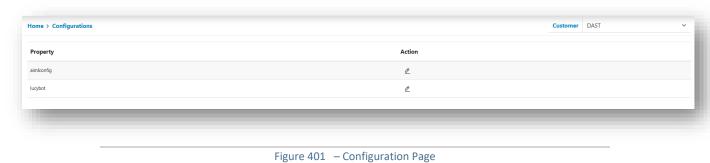


Figure 400 – GCP Connection Details

Note: This page is for the system admin user only and is not to be made available to generic admin or operations users. As this controls the related processing functionality.

6.1.10.14.1.2 Configuration

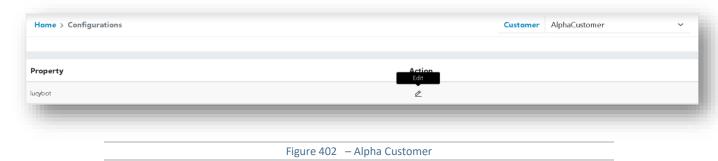
- This section enables users to manage the configurations within the iECE environment. In the top navigation bar, click on Manage → Configurations to open this page.
- 2. Default configurations property groups are displayed which is applicable for the complete environment. Click on the configure icon next to the group, all its associated keys with the default values will be displayed.



3. These are key value pairs, where the expected values unit are displayed along with the key detail only. As the values are changed, click on Save for the same to be effective. Like with other pages, as Save is clicked, on success a confirmation message is displayed. Click Ok to go back to the main view.

Note: Like with other pages, a user's role controls whether editing can be performed by him/her, or they can just view the data.

- 4. In addition to the default configuration, user can specify customer specific key values as all. Clicking on the Dropdown displays all the customers created within the environment.
- 5. As users select the customer, keys which can be overridden customer wise will be displayed which at present are only Lucy Bot details as shown below:



6. Clicking Configure helps us capture the customer specific Lucy Bot details. Clicking Save will display a confirmation message. Clicking Ok in the confirmation dialog box will redirect the control back to the list page.

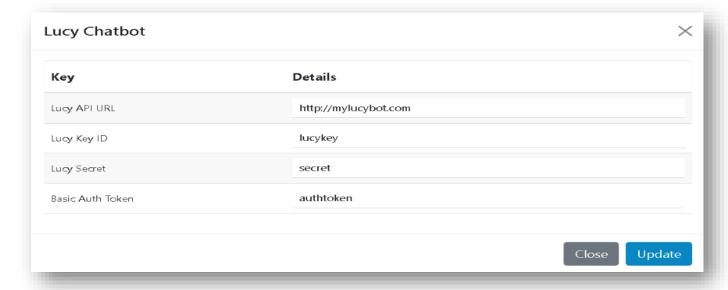


Figure 403 – Lucy Chatbot

Note: This page is for the system admin user only and is not to be made available to generic admin or operations users. As this controls the related processing functionality.



6.1.10.14.1.3 Processing

This section enables us to manage the processing enabled within the iECE environment.

1. In the top navigation bar, click on Manage -> Processing to open this page.

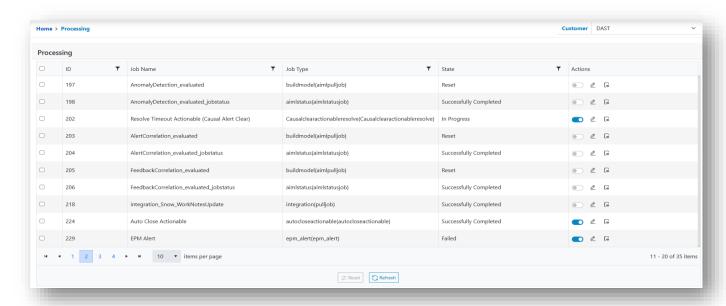


Figure 405 -- Processing Page

- 2. All processes that are running in the environment are displayed here. Like with other pages user can act on this screen depending on its role. Actions available on the screen are:
 - Customer Dropdown
 - Enable/Disable
 - Edit
 - Reset
 - Clone
 - Delete
 - View Logs

Customer Dropdown

The steps involved in viewing the jobs as per customer selection:

- In the navigation, click on Manage, then go to the Processing Screen.
- Click on Select a customer dropdown as shown in the panel. A dropdown list of customers configured in the environment will be displayed.
- Click on the customer to be selected for achieving a customer specific view.
- Processing jobs will be displayed for the selected customers.

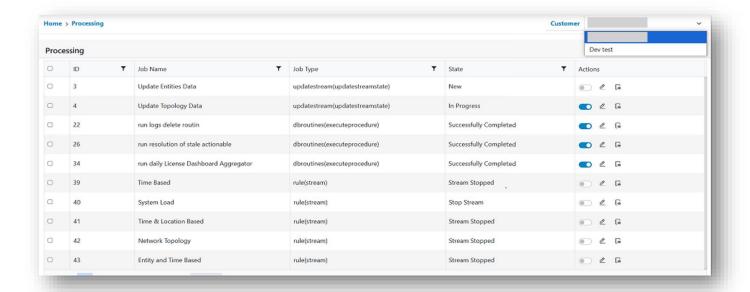


Figure 406 – Selecting a Customer Dropdown for Processing

Enable/Disable

3. Click on the Toggle icon in the Enable column next to the processing ID whose enablement status is to be changed as shown:

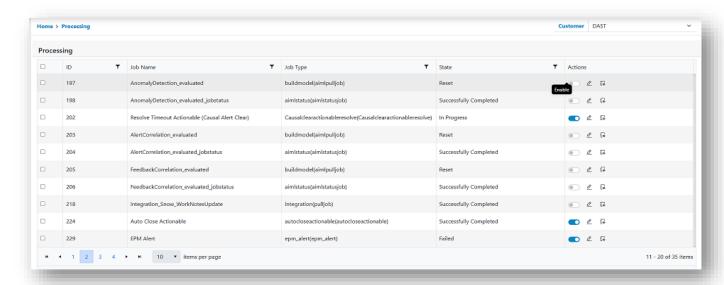


Figure 407 -- Enable/Disable

- 4. If the processing is enabled, it is identified by a blue toggle button, toggling will disable the processing. For example, parse let us disable processing id 1. As can be seen it has enabled Click on the toggle button. On successful update the button will be disabled, and a successful prompt is displayed.
- 5. If the processing is disabled identified by a greyed-out toggle button, toggling will enable the processing. Let's enable the processing id 1 again. As its disabled in the previous step, it will appear Click on the Toggle button. Like in Step 2, on successful enablement, the enable button changes to blue and the following prompt is displayed.

Note: When the processing jobs are added in the environment, primarily they are in disabled mode, user need to enable them from this screen to start it.

6. However, if users require the enabled processing jobs to temporarily stop for some time without deleting the processing jobs, then from this screen the user can disable them temporarily, this will stop the respective processing till it's enabled again.

Reset

Reset action enables us to reset the current state of the running jobs. This action is used if the processing's seems to be stuck e.g., it's lying in picked state or in in progress state in case of scheduled jobs where the expected state is to be either completed or failed, this can happen if there's an issue with the underlying processing component. In such scenarios, users can use this action to reset the states, so that it can be picked and processed again. Note this also enables us to reinitiate the long running jobs as user II such as the consumer or streaming jobs, in both cases resetting will restart the respective processing.

- 1. Select the processing's by either clicking on the check boxes next to them or by using Select All.
- 2. As the records are selected, the icons in the footer will be enabled. Click on the Reset icon.

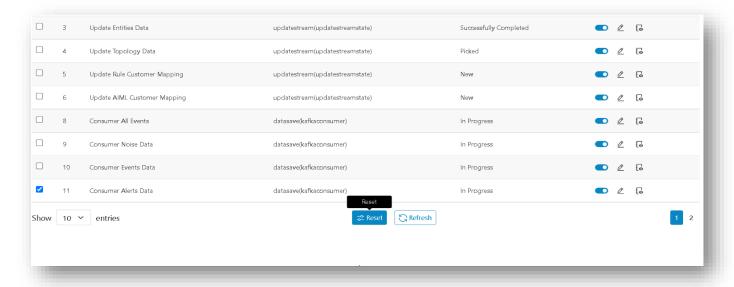


Figure 408 – Reset Action

3. Users will be prompted for confirmation.

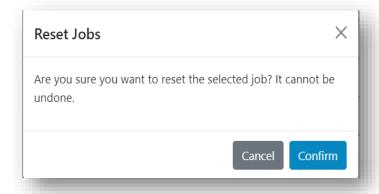


Figure 409 — Confirmation Pop-Up

- 4. Click on Confirm.
- On successful update, the following confirmation box will be prompted. Click on Close to remove the prompt message.

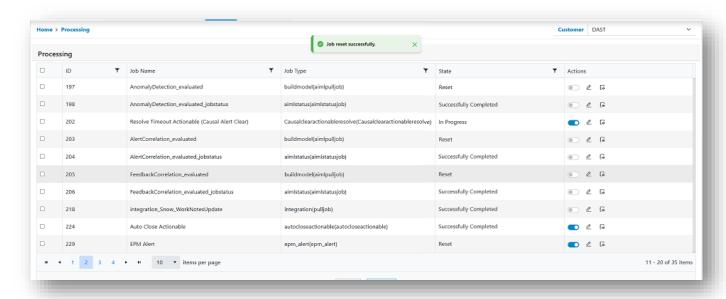


Figure 410 – Alert Message

Note: If a stream processing is set to reset, the state shows "Update Available".

Edit

This action enables us to update processing specific details such as name, its associated parameters, schedule details in case of a scheduled job.

1. Click on the Edit icon next to the processing whose details are to be edited.

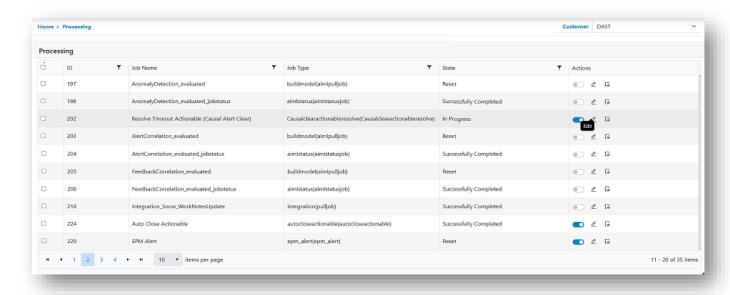


Figure 411 – Update Processing

2. The following slider opens, prepopulated with the saved data. The default two tabs are enabled for all General and Parameter. However, if it is a Scheduled processing, a scheduled tab will also be enabled, enabling the users

to manage the scheduling property for the processing. Also note that the details in the parameter tab vary as per the Job Type.

3. The parameter section displays few read only details and the ones which are editable either have a dropdown with values to select from or have help text associated to help enable the expected values.

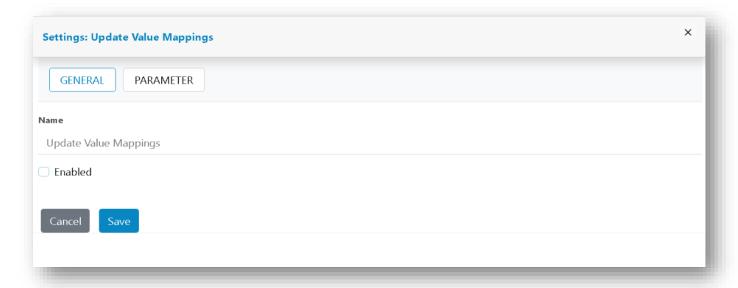


Figure 412 — Updating Values

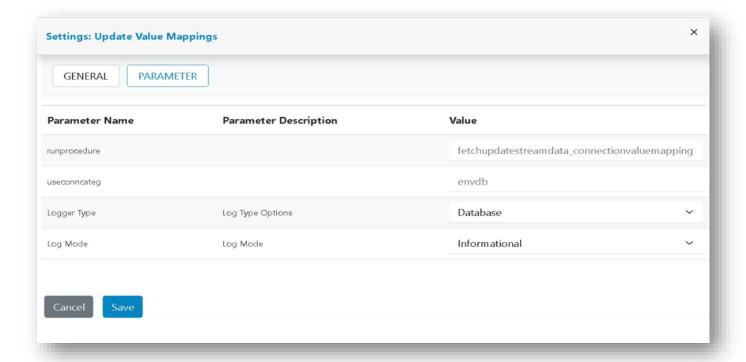


Figure 413 – Updating Parameter

- 4. When the desired changes are done, click on the Save button.
- 5. On successful update, a confirmation message is prompted.

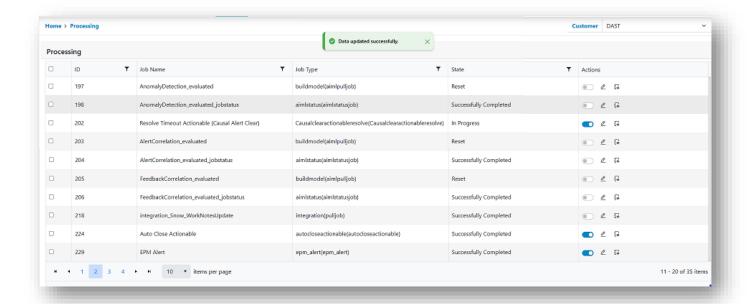


Figure 414 - Alert Message

6. Return to the main grid.

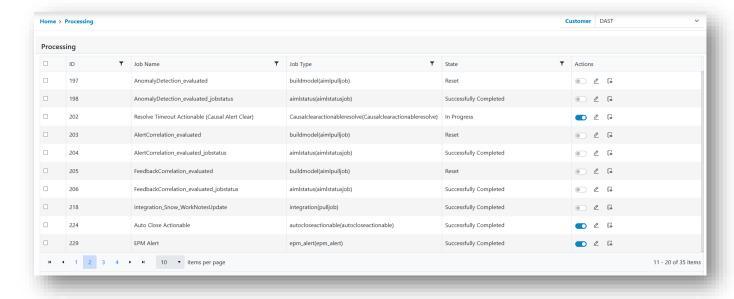


Figure 415 — Processing Main Grid

View Logs

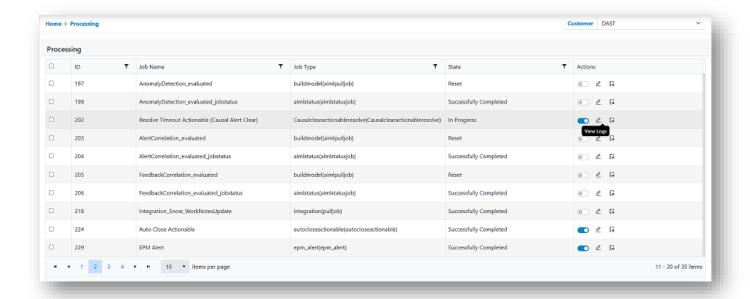


Figure 416 -- View Logs

- 1. Click on the Log icon next to the processing id whose log is to be seen.
- 2. The following slides open where the logs are displayed for the selected processing id. The icon color depicts whether the log is informational or is an error. Red icon denotes error.
- 3. Copy icons in the message column can be used to copy and paste the text in the local text editors such as notepad when the message is long and is not properly visible in the column.

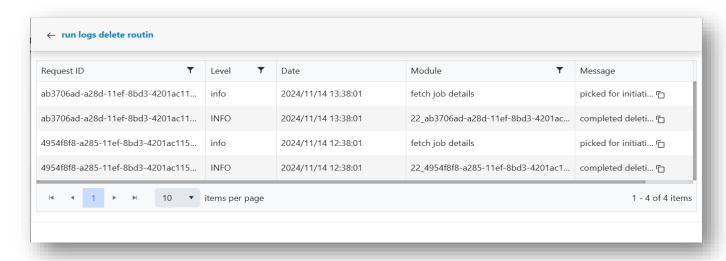


Figure 417 – View Logs Routine

4. Normal grid search and sort functionality works in this grid as user II. Click on the back arrow next to close the slider and return to the main grid.

Apply Filter

The steps involved in Apply Filter the Noise/Maintenance Window Data as per customer selection.

1. Click on the Apply Filter available action button presents at the below header of the console.

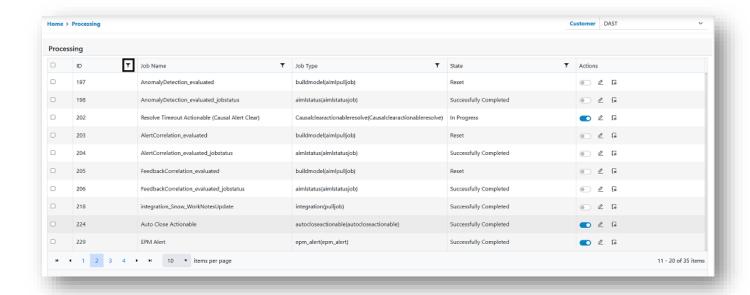


Figure 418 – Apply Filter Operation

2. The form will appear from there user can select Filed and operator from drop down list and must write value.

Then click on the apply button.

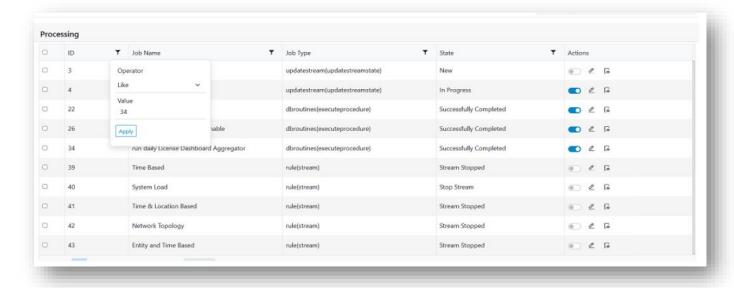


Figure 419 – Apply Filter Operation

3. Users can see the result of applied filter.

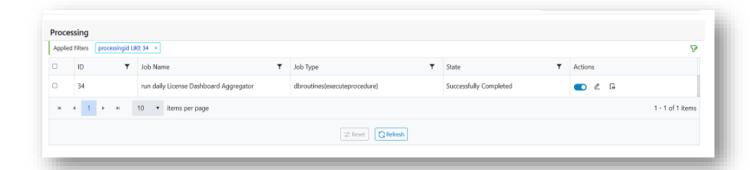


Figure 420 - Apply Filter Result

Health Status

Health Status grid shows the details of the machines and KPIs of the environment for a customer with additional details like description, value, and status for a particular customer. Using this screen, user can see the vital information regarding the environment configured.

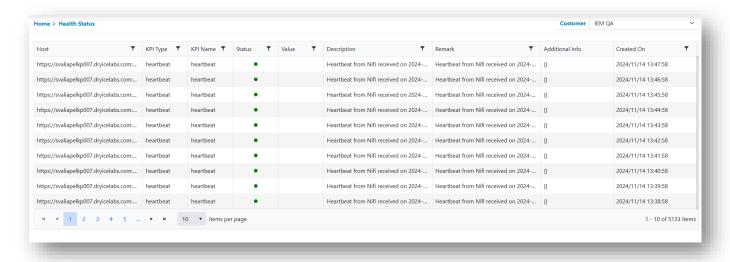


Figure 421 – Health Status

6.1.10.14.2 License

License grid provides details with the dashboard displaying details like the product name, version, build, and more details such as purchase date, renewal date and expiration date.

It also provides the Events and metrics details and CI's that are affected and usage percentage.

User can also see the CI consumption report of metrics and events in form of graph for easier understanding and can also download the details via CSV.

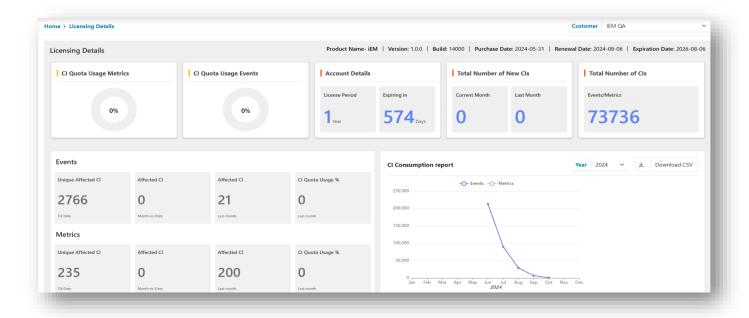


Figure 422 -- License.

6.1.10.15 Metric Configuration

iEM enables users to configure how the system evaluates incoming metric data to determine whether an anomalous event should be raised. Users can apply filters based on specific fields and define conditions for identifying deviations from either manually configured thresholds or AI/ML-derived thresholds.

When a metric value exceeds the defined threshold criteria, the system automatically raises an anomaly event to notify the customer.

Thresholds for anomaly detection can be:

- Manually configured by the user
- Automatically derived using AI/ML models or user can opt Save metric data to db without any processing
- If incoming metric data does not match any configured filter criteria, it will be disqualified and will not be stored in the system.

6.1.10.15.1 Add New Metric Configuration

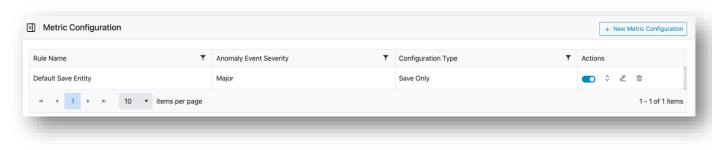


Figure 423 -- Metric Configuration

- When you select the Metric Configuration menu, you'll be directed to a page like the one shown in the screenshot below.

You will notice an out-of-the-box default rule named "Default Save Entity", with the Configuration Type labelled as "Save Only".

- This rule is designed to store all incoming metric data in the database without any filtering or conditions—it captures everything by default.
- This rule is enabled by default and can be disabled by clicking the toggle button under the "Action" column. It is important to note that this default rule is not editable.
- To add new rule user will have to click the button on right upper corner of the grid with name "+ New Metric Configuration".
- Users will land on the page as shown in the image below.

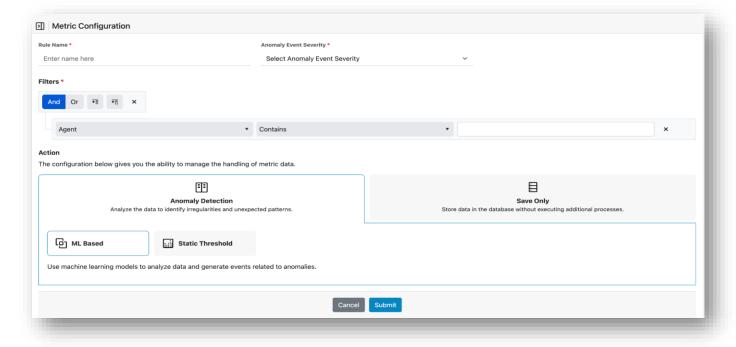
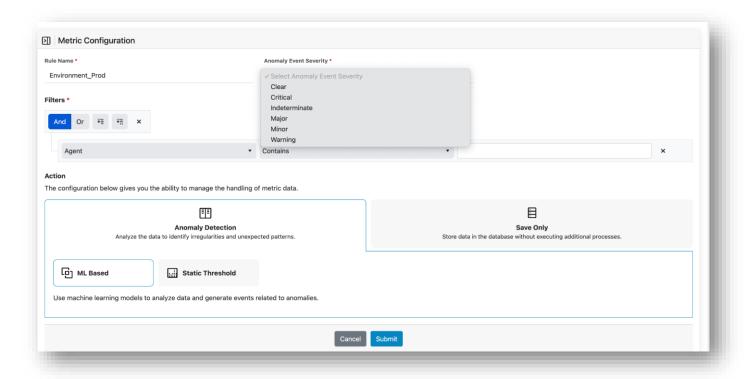


Figure 424 -- Add metric configuration.

- Users will have to fill in the rule name.
- Users can assign a value to the "Anomaly Event Severity" field by selecting an option from the dropdown menu. This setting defines the severity level of the anomalous event that will be triggered when an anomaly is detected.



- Figure 425 Set Anomaly severity.
- To add filter conditions, click the button. This will insert a new row for defining the condition.
- If you need to add a sub-condition, click the corresponding button. These filter conditions are used to identify which metric data points the subsequent settings (such as thresholds or actions) should be applied to.

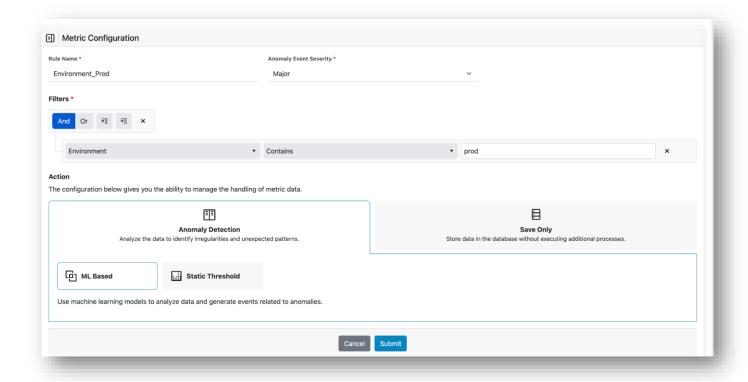


Figure 426 - Set Anomaly severity.

- The Action section provides two options:
 - Anomaly Detection

This option enables the system to raise an anomalous event when abnormal behaviour is detected in the metric data.

Anomaly Detection is further divided into two methods:

o ML Based:

Uses machine learning models to analyse metric patterns and detect anomalies. An event is automatically generated when the model identifies abnormal data.

- Static Threshold:
 - Allows users to manually define upper and lower limit values along with a duration.
 - If the metric data breaches the specified threshold for the defined duration, an anomalous event is raised.
- Save Only, this option stores the metric data in the database without performing any anomaly detection or additional processing. It is useful when data needs to be retained for monitoring, reporting, or training purposes only.
- After filling in the details, the user can click on the submit button to save the rule.
- A success message will appear on screen.

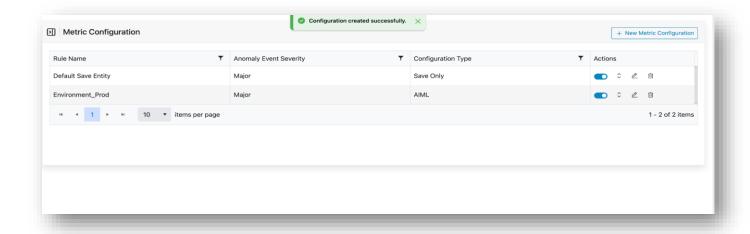


Figure 427 -- Success Message

6.1.10.15.2 Edit Metric Configuration

1. Click on the edit icon next to the rule which needs to be edited.

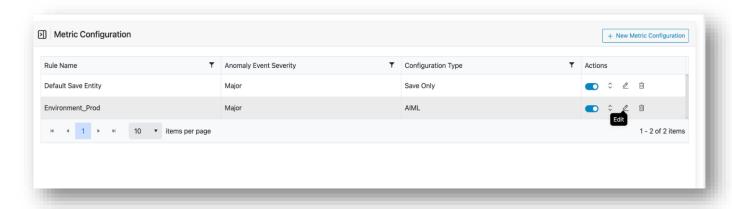


Figure 428 – Edit Action

2. Metric Configuration can be edited with the edit option. Alter the settings for the metric configuration rule and after making the changes, click on the Submit button.

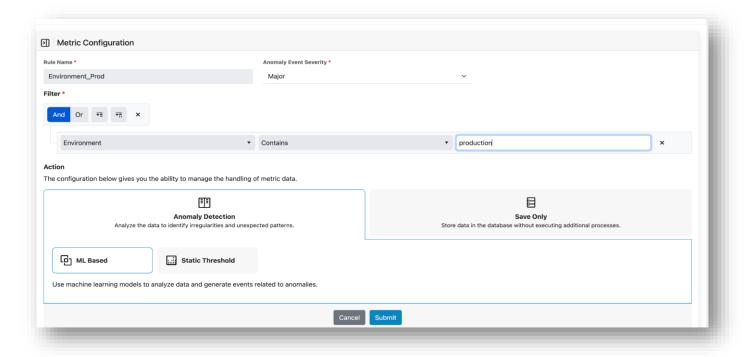


Figure 429 - Edit Action

3. A confirmation message will appear, prompting the user to confirm the change.
This is necessary because applying the new rule will invalidate any previous settings, and all incoming metric data will now be processed based on the current rule configuration. Click on confirm button.

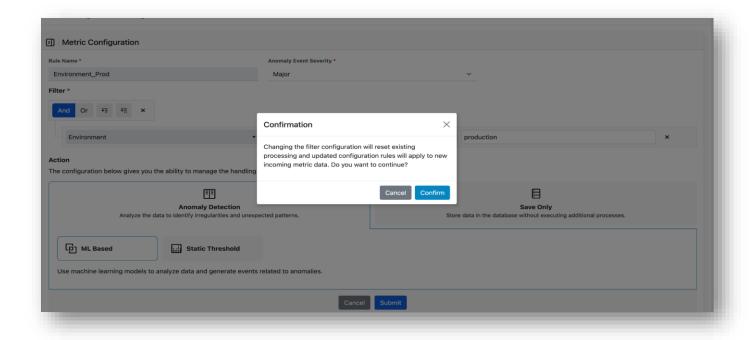


Figure 430 - Confirmation Message

4. A success message will appear on screen.

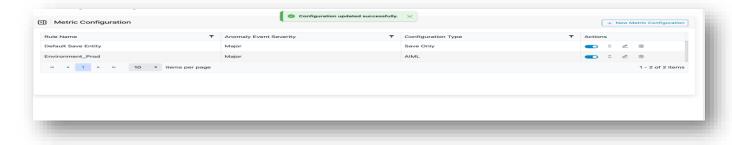


Figure 431 – Success Message

6.1.10.15.3 Delete New Metric Configuration

The action enables the user to delete the metric configuration rule created.

1. Select the metric configuration rule to be deleted and click on delete icon.

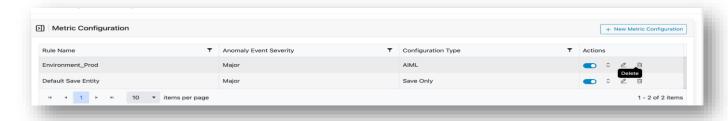


Figure 432 – Delete Metric Configuration

2. A confirmation box is prompted.

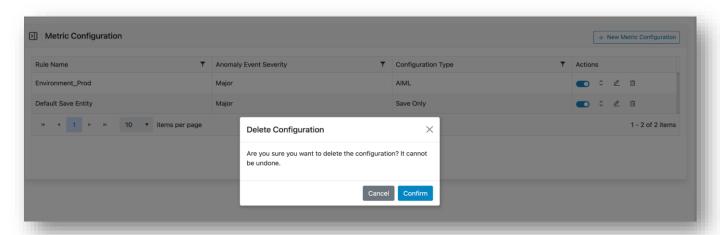


Figure 433 – Confirmation Pop-Up

- 3. Click on the Confirm button to proceed for the deletion process.
- 4. On successful deletion, a confirmation message is displayed.

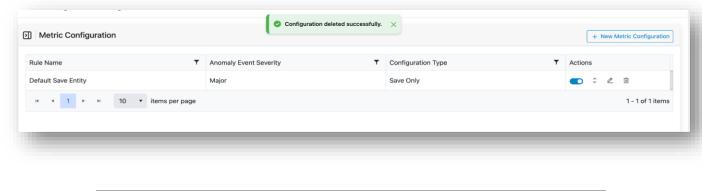


Figure 434 – Alert Message

5. Grid View will be refreshed, and the rules will be removed from the grid.

6.1.10.15.4 Change Priority

The Grid View page allows users to adjust the priority of rules. Rule priority is essential when the same metric data qualifies for multiple rules determines which rule takes precedence and, consequently, which actions or automated processes are executed.

Rules are displayed in the descending order of priority in the grid. The topmost rule has the highest priority, and priority decreases as you move down the list.

1. Click on the drag icon next to the rule for which the priority needs to be adjusted.

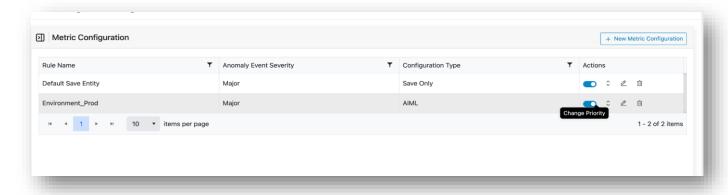


Figure 435 – Change Priority

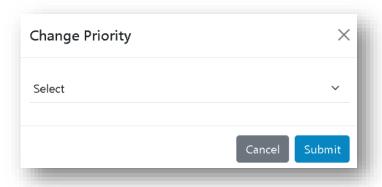


Figure 436 – Select Change Priority Dropdown

2. Select the priority from the dropdown for the rule.

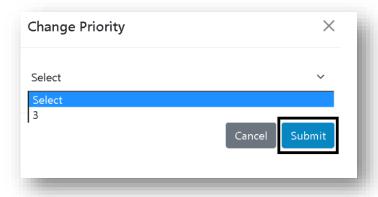


Figure 437 – Select Change Priority Dropdown

- 3. Click on the Submit button to update the rule priorities.
- 4. On successful update, the following message is displayed:

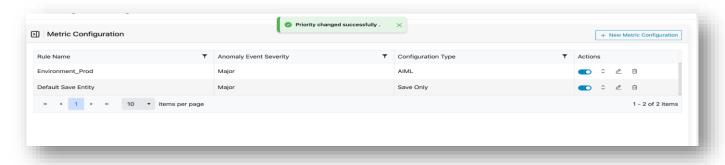


Figure 438 -- Alert Message

5. The priority is saved; the grid is refreshed showing the changed ordering.

6.1.10.15.5 Enable/Disable

To enable or disable an integration mapping in an environment, there is provision of toggle switches to easily perform the required actions.

1. Click on the Enable/Disable toggle button which needs to be Enabled/Disabled.

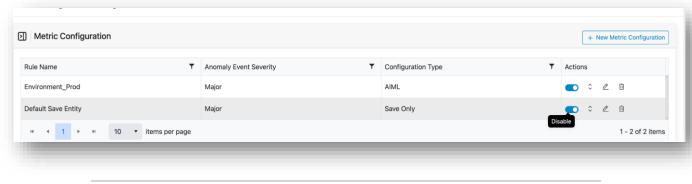


Figure 439 — Enable/Disable Metric Configuration Rule

2. Click on Enable/Disable toggle. On success, a confirmation pop-up message will be displayed.

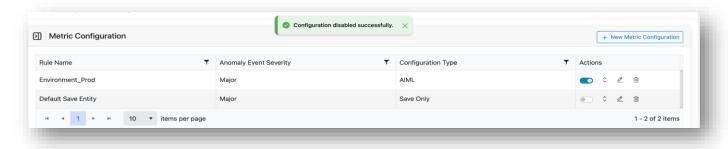


Figure 440 – Alert Message

6.1.10.16 Alert Closure Configuration

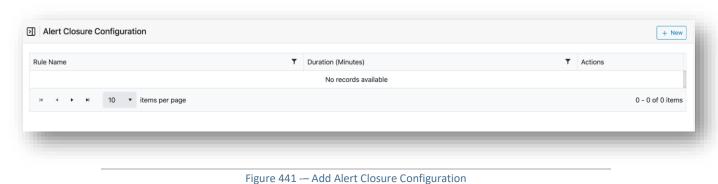
This feature allows users to configure rules that determine when open alerts in the system should be qualified for automatic closure by triggering an event with a "Clear" severity.

Rules can be defined based on:

- 1. Specific field values (e.g., entity name, category)
- 2. The age of the alert (in minutes)

For example, a rule might specify that alerts where the entity contains "iauto" and the alert is at least 1,440 minutes (i.e., 1 day) old should be automatically cleared.

6.1.10.16.1 Add Alert Closure Configuration



1. To add new rule user will have to click the button on right upper corner of the grid with name "+ New".

2. Users will land on the page as shown in the image below.

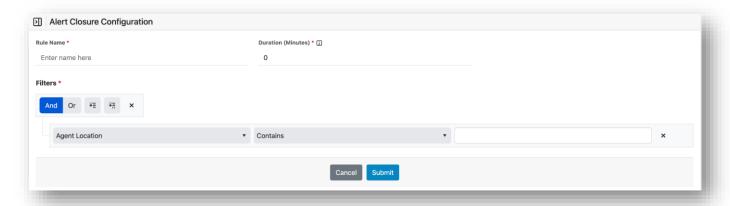


Figure 442 – Add Alert Closure Configuration

- 3. Users will have to fill in the rule name.
- 4. The Duration (Minutes) field allows users to define the minimum age an alert must reach to qualify under this rule.
- 5. For example, if set to 1440, it means that any alert that meets the filter criteria and is at least 1440 minutes old (i.e., 24 hours) will qualify. Once this condition is met, the system will trigger a Clear alert for that alert.

This value must be a positive integer greater than 0.

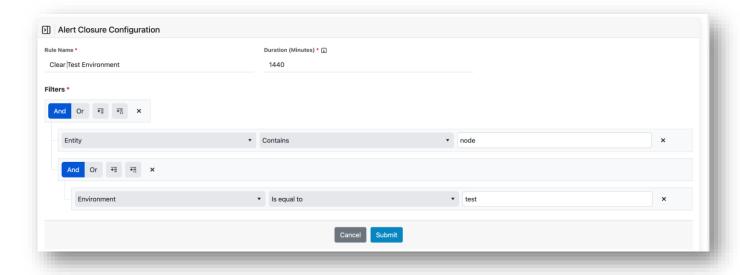


Figure 443 -- Add Alert Closure Configuration

6. To add filter conditions, click the button. This will insert a new row for defining the condition.

If you need to add a sub-condition, click the corresponding



- 7. Once the form is filled, click on the submit button.
- 8. Success messages will appear.

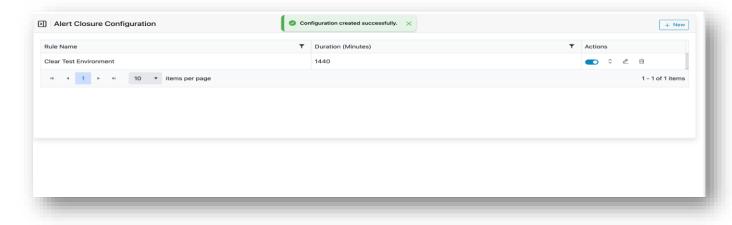


Figure 444 — Select Change Priority Dropdown

6.1.10.16.2 Edit Alert Closure Configuration

1. Click on the edit icon next to the rule which needs to be edited.

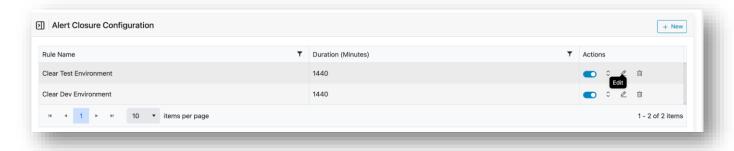


Figure 445 — Edit Action

2. Metric Configuration can be edited with the edit option. Alter the settings for the metric configuration rule and after making the changes, click on the Submit button.

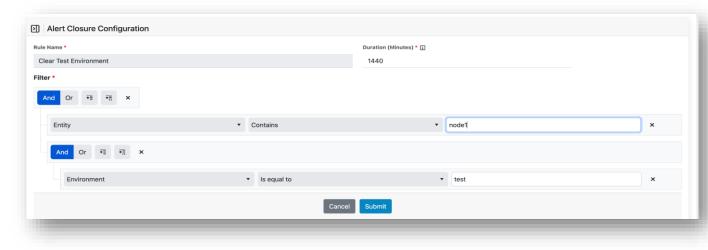


Figure 446 -- Edit Alert Closure Configuration

3. A confirmation message will appear, prompting the user to confirm the changes. This is required because applying the updated configuration will invalidate previous settings. When the job runs next time, the system will evaluate alerts for closure based on the latest configuration, and Clear events will be sent accordingly. Click the confirm button.

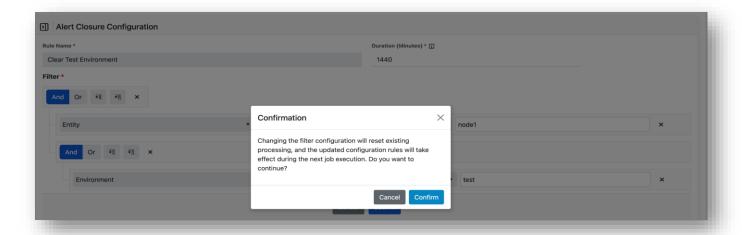


Figure 447 – Confirmation Pop IP

4. A success message will appear on screen.

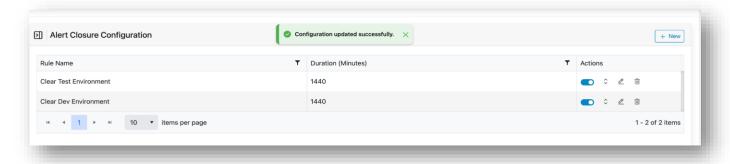


Figure 448 – Success message.

6.1.10.16.3 Delete Alert Closure Configuration

The action enables the user to delete the alert closure configuration rule created.

1. Select the metric configuration rule to be deleted and click on delete icon.

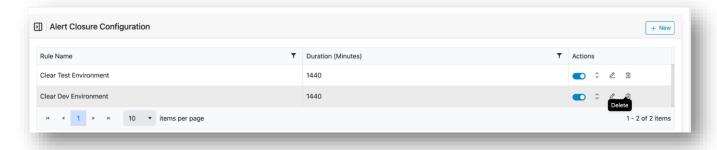


Figure 449 – Delete Alert Closure Configuration Rule

2. A confirmation box is prompted.

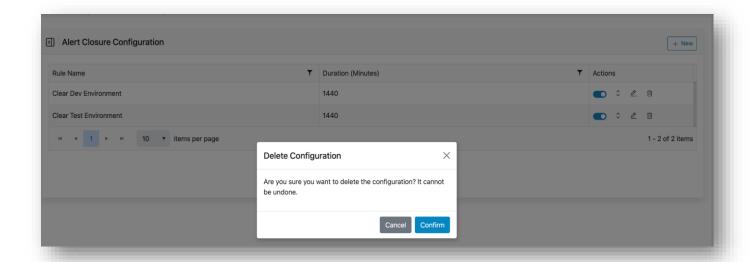


Figure 450 – Confirmation Pop-Up

- 3. Click on the Confirm button to proceed for the deletion process.
- 4. On successful deletion, a confirmation message is displayed.

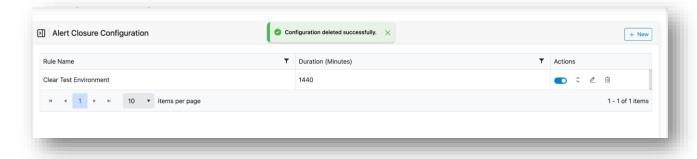


Figure 451 — Alert Message

5. Grid View will be refreshed, and the rules will be removed from the grid.

6.1.10.16.4 Change Priority

The **Grid View** page allows users to adjust the **priority of rules**. Rule priority is essential when the same metric data qualifies for multiple rules—it determines **which rule takes precedence** and, consequently, **which actions or automated processes are executed**.

Rules are displayed in the descending order of priority in the grid. The topmost rule has the highest priority, and priority decreases as you move down the list.

1. Click on the drag icon next to the rule for which the priority needs to be adjusted.

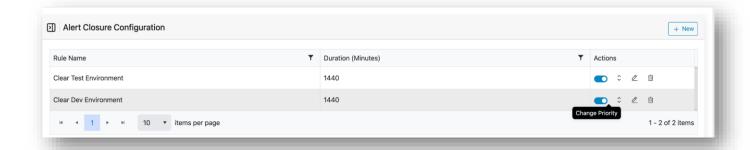


Figure 452 – Change Priority

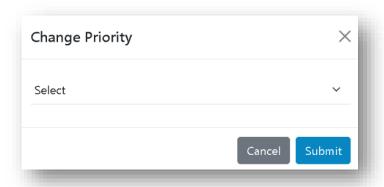


Figure 453 – Select Change Priority Dropdown

2. Select the priority you want to set from dropdown.

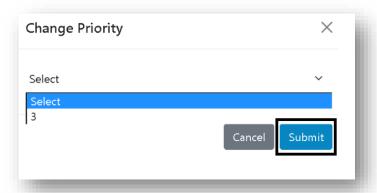


Figure 454 – Select Change Priority Dropdown

- 3. Click on the Submit button to update the rule priorities.
- 4. On successful update, the following message is displayed:

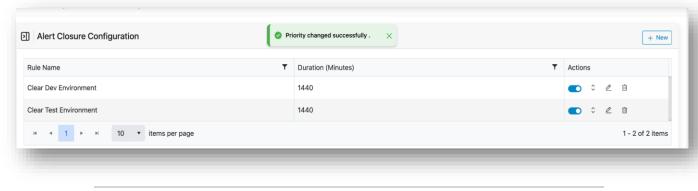


Figure 455 -- Alert Message

5. The priority is saved; the grid is refreshed showing the changed ordering.

6.1.10.16.5 Enable/Disable

To enable or disable an integration mapping in an environment, there is provision of toggle switches to easily perform the required actions.

1. Click on the Enable/Disable toggle button which needs to be Enabled/Disabled.

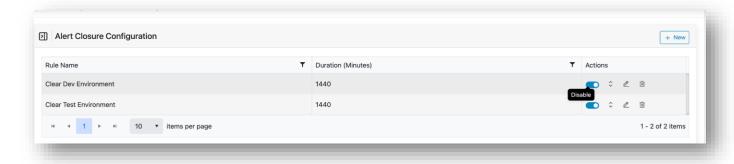


Figure 456 – Enable/Disable Integration Mapping

2. Click on Enable/Disable toggle. On success, a confirmation pop-up message will be displayed.

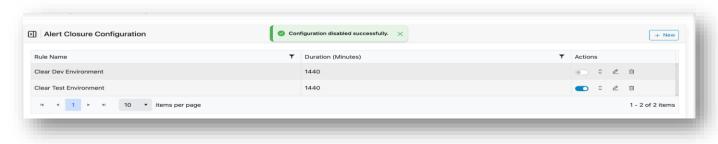


Figure 457 – Alert Message

7 IEM Interface

The interface presents unified views like Metric View, Topology View and Service View to facilitate Event Management helping IT Professionals understand the relationships between different entities and services to make informed decisions to manage and troubleshoot complex IT environments more efficiently.

7.1 Login to HCL IEM

To login to the system, perform the following steps:

1. Launch a user browser and provide HCL IEM User Portal URL. The HCLIEM Login Page appears.

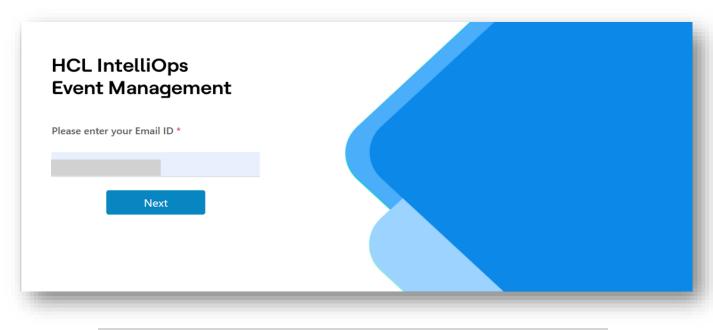


Figure 458 – HCL IEM Login Page

2. On the HCL IEM Login Page, type the Login ID. The user is redirected to the Password page.

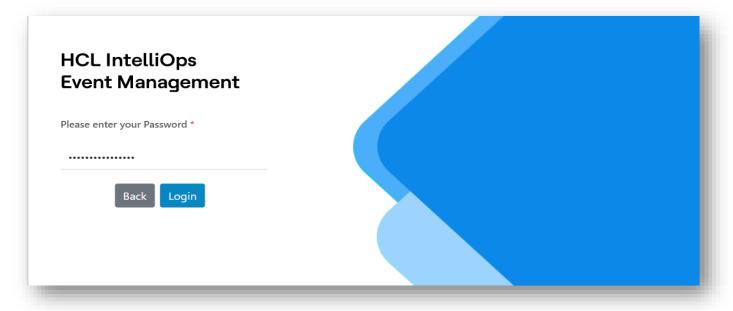


Figure 459 – Login Authentication

- 3. Enter the Password and click on Login.
- 4. The HCL IEM home page dashboard appears. This Home page is the landing page of IEM.

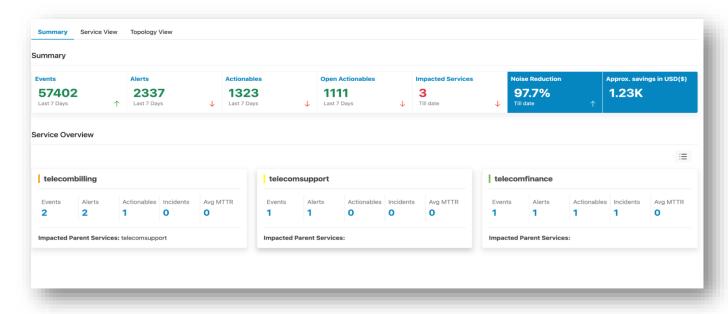


Figure 460 -- Home Page Dashboard

- 5. Home Screen shows three different views to the user.
 - a. Summary View
 - b. Service View
 - c. Topology View

Summary Overview and Service Overview card club to form a dashboard to show the numbers that user can view to create an overall perspective of the system configured.

7.1.1 Summary View

A summary dashboard is a kind of data dashboard, it is a tool that collects, integrates, and displays key performance indicators in a single place to analyze and project the quality status of the KPIs in real-time.

Summary Overview shows the metric analysis of Events, Alerts, Actionable for a customer. It gives a view of open actionable and impacted services. In addition, Noise Reduction % calculated shown in the metric view.

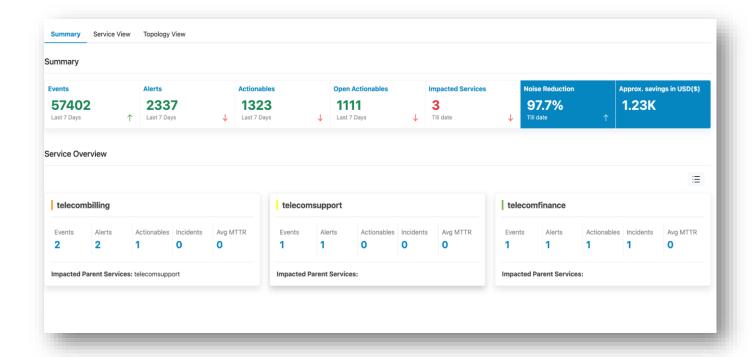


Figure 461 - Metric View

7.1.2 Service View

Service dashboards visualize the Service relationship data in a way that can be understood easily. Service View shows the service tree for a customer. Parent and Child nodes are depicted in the Services chart for a customer configured. The color coding shows the Service Impact.

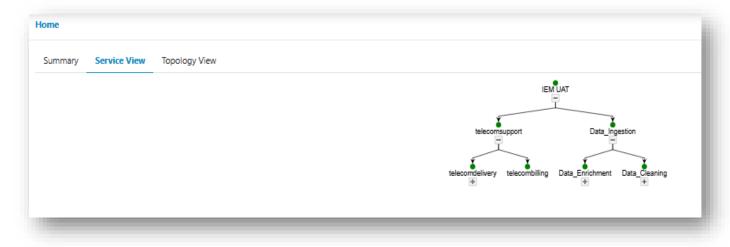


Figure 462 - Service View

7.1.3 Topology View

- Topology involves creating a visual representation of the dependencies between various IT components, displaying which components rely on others for proper functioning. This mapping helps in assessing the potential impact of a failure or performance issue in one component or others within the system.
- 2. Topology view dashboard provides a visual representation of the relationships and dependencies between different servers, applications, and other infrastructure components. It allows for quick identification of

bottlenecks, potential issues, or areas of concern, facilitating efficient troubleshooting and proactive management of IT events.

3. Topology views can be dynamic, providing real-time updates on the status and health of components and their connections.

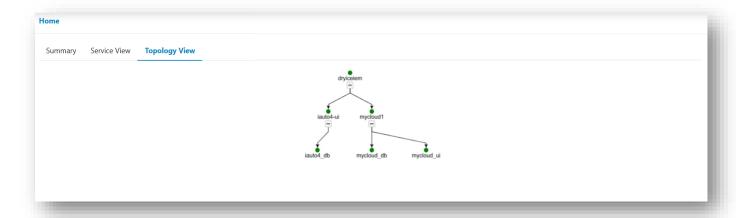


Figure 463 -- Topology View

7.2 Data View

Based on the configurations, three data types are displayed over Data View Console:

- 1. All Events
- 2. Noise Events
- 3. Events
- 4. Alerts
- 5. Actionable
- 6. Metrics

7.2.1 Events

An "event" refers to a significant occurrence or incident within an IT environment that is detected, monitored, and logged by various systems and tools. Events are typically generated by hardware, software, applications, or network devices, and they serve as a key source of information for monitoring and managing the performance and health of IT systems. Events can be diverse and may include activities such as system errors, warning messages, user interactions, configuration changes, or security-related incidents.

7.2.1.1 Events View

The steps explain how to view the events data.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Events data will be displayed for the selected customer.

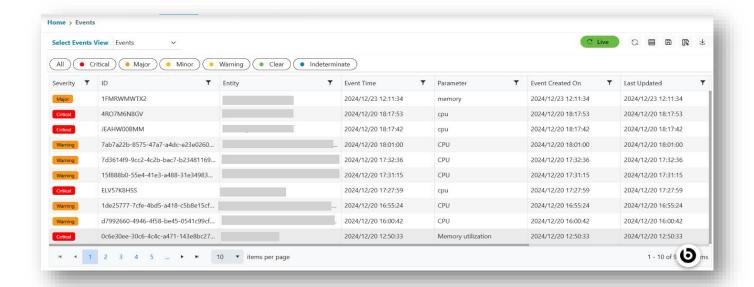


Figure 464 -- View Events

7.2.1.2 Add Column

The steps explain how to add column to event data:

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Click on the Add Column action button presents at the header of the console.

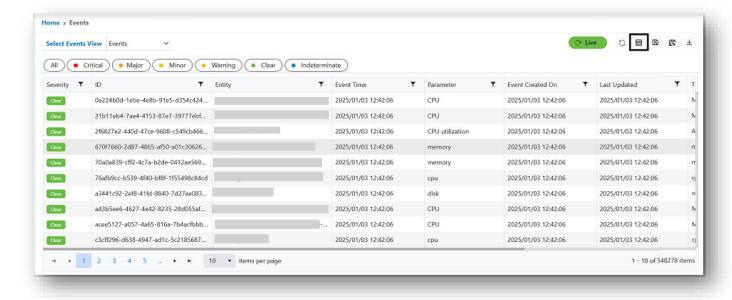


Figure 465 -- Add Column

3. The form will appear from there user can select from drop down list. Then click on the save button.

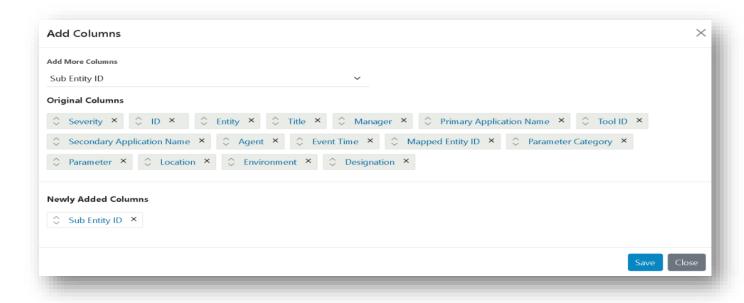


Figure 466 -- Add Column

7.2.1.3 Save View

The steps explain how to save the events data:

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. User can click the save button.

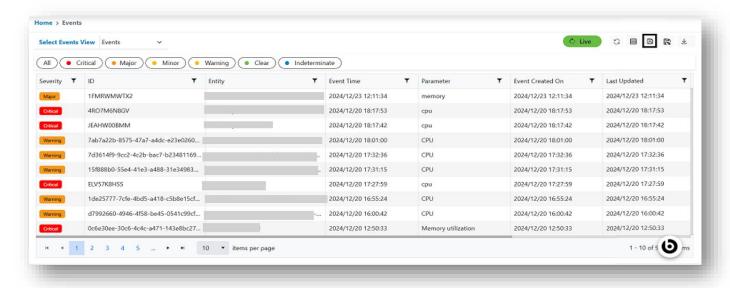


Figure 467 -- Save View

3. A confirmation pop-up message will appear.



Figure 468 -- Save View Events

4. Click on Confirm button, a success pop will appear and the grid changes.

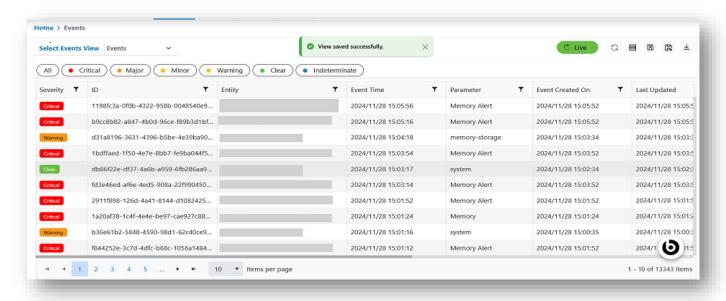


Figure 469 -- Popup Confirmation

7.2.1.4 Save As Events

The steps explain how to save the events data as view.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Users can click the save as events button.

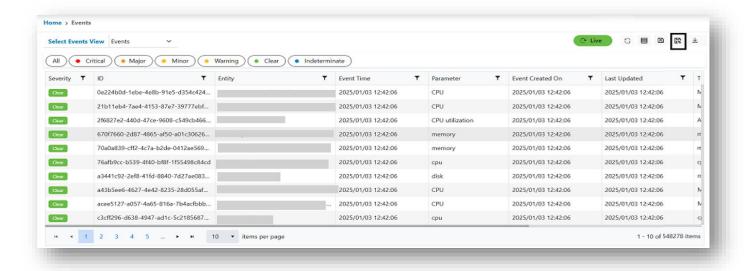


Figure 470 -- Save As Events

3. A confirmation pop-up message will appear.

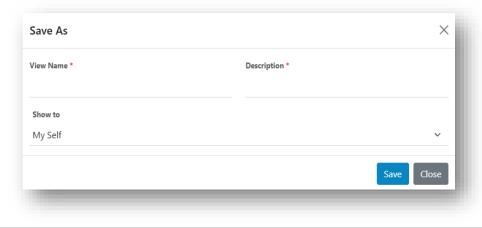


Figure 471 — Save as Events

4. As all fields are entered click on save button, success popup message will appear.

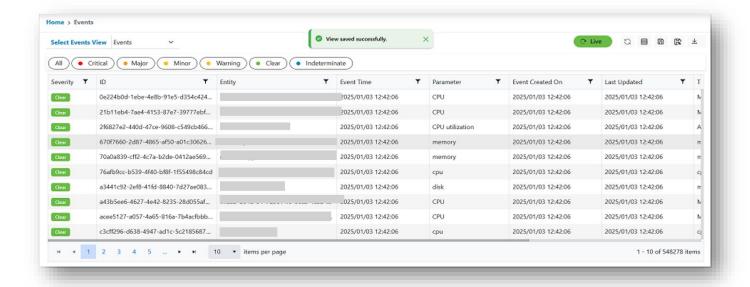


Figure 472 -- Alert Message

5. Then user can select Events view from the dropdown list in which user can create before this step.

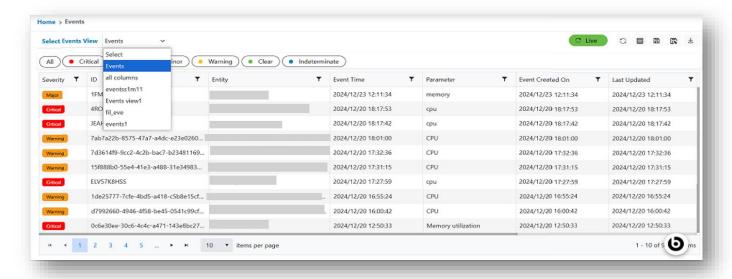


Figure 473 — Select Events View Dropdown

7.2.1.5 Live Events Data

The steps explain how to refresh the events data.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Users can see the Live Events Data updating every 4 seconds in Grid view.

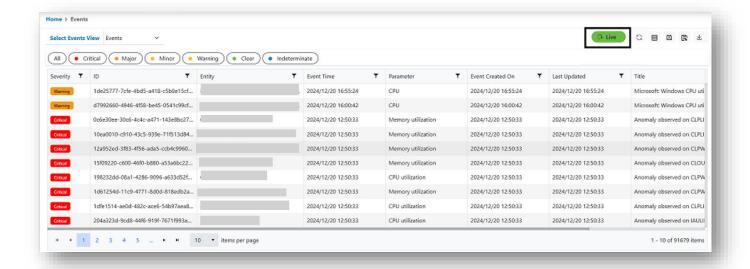


Figure 474 -- Live Events Data

3. To stop the auto-refresh, click on the Live Events Data button, a confirmation pop up message will appear.

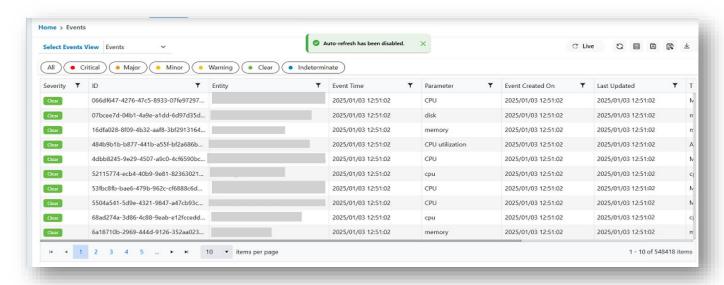


Figure 475 - Live Events Data Disabled

7.2.1.6 Refresh Events

The steps explain how to refresh the events data view.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Click on Refresh Events button if Live Events Data is disabled only.

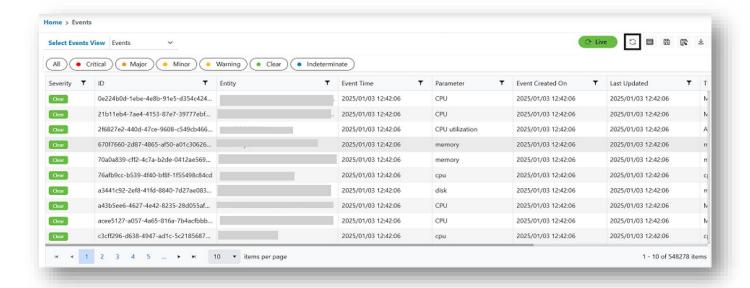


Figure 476 - Refresh View Data Events

3. A confirmation pop up message will appear.

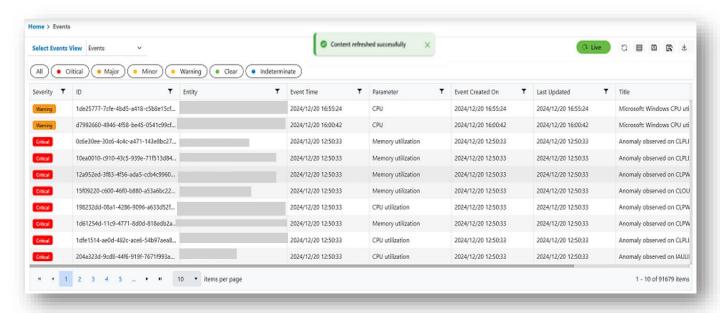


Figure 477 -- Alert Message

7.2.1.7 Apply Filters

The section provides details on how to apply filters to the event data.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Click on the Filter Option present at right as shown in figure.

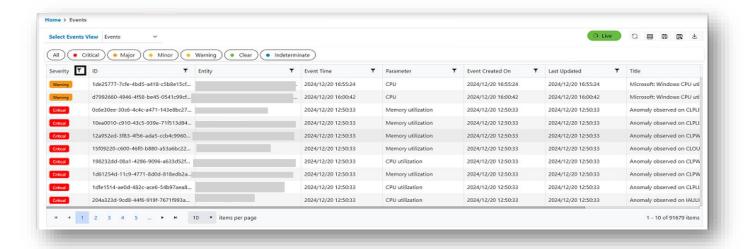


Figure 478 -- More Filter Operation

3. A form will appear. Select Field and Operator from drop down list and write a value. Then click on the Apply button.

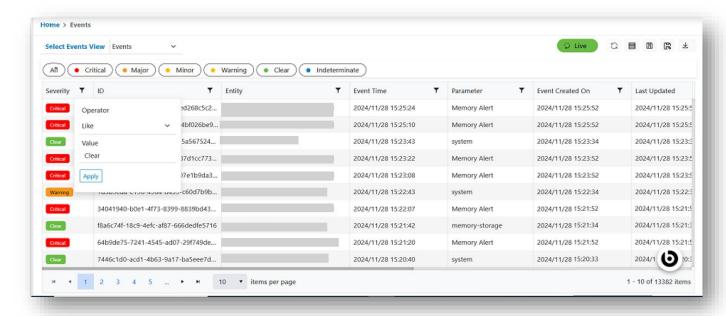


Figure 479 -- More Filter Operation

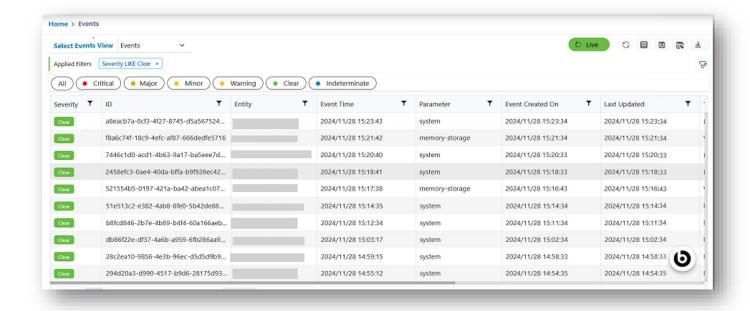


Figure 480 -- More Filter Operation

7.2.1.8 Download CSV

This section provides users with downloading CSV data of records based on the filter they apply to the records of the events screen. Users can download the csv files with max of 1000 records.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Apply the filters as per the requirement.
- 3. Click on the Download CSV $\stackrel{\checkmark}{\bot}$ action button.
- 4. Check the downloads in the system, the CSV file will be downloaded.

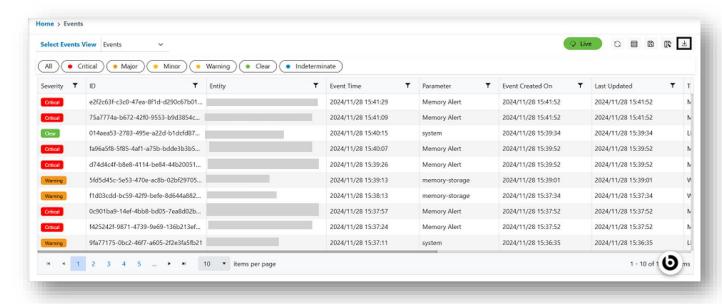


Figure 481 — Download CSV of Events

7.2.2 Alerts

- "Alerts" refer to notifications or warnings generated by monitoring systems or tools when significant events or issues are deviating from normal system behavior.
- Alerts play a crucial role in proactively identifying potential problems, anomalies, or security incidents within the IT environment.
- Alerts are triggered by a monitoring system to indicate the occurrence of a specific event or condition that requires attention.
- Alerts are typically generated based on predefined rules, thresholds, or conditions associated with events. Multiple
 alerts may be correlated to identify patterns or relationships between different events, helping in understanding the
 broader impact.
- A well-designed alerting view provides IT teams with crucial information, enabling them to respond proactively to potential issues and minimize the impact on operations.

7.2.2.1 Alerts View

The steps explain how to view the alerts data.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Alerts data will be displayed for the selected customer.

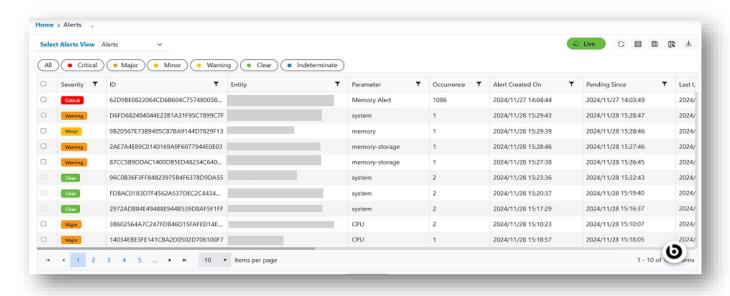


Figure 482 -- Alerts View

7.2.2.2 Clear Alerts

The steps explain how to delete the alerts data:

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Alerts can be selected by clicking on the checkbox. (Single select/Multi select)

The auto-refresh feature automatically updates data (including events, alerts, noise, actionable items, and all events) in the grid. Consequently, any previously checked items will be unchecked. If you intend to delete something, it is advisable to disable the auto-refresh feature first and then proceed with deletion operations.

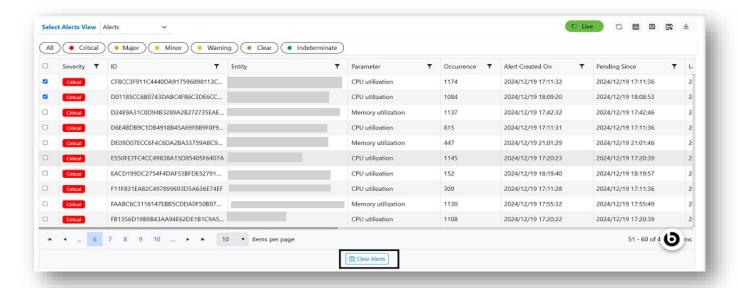


Figure 483 -- Deleting Bulk Alerts

- 3. Click on the Delete action button present at the bottom.
- 4. A confirmation dialog box appears to confirm the deletion.

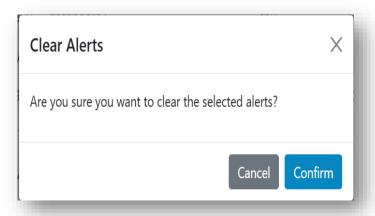


Figure 484 -- Confirmation Pop-Up

5. Click on Confirm button, a dialog box would appear for successful deletion of alerts.

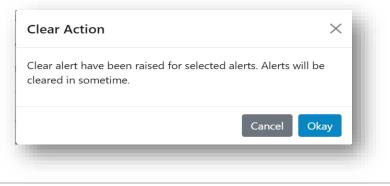


Figure 485 -- Alert Message

7.2.2.3 Create Actionable Alerts

This feature allows users to manually create an actionable by selecting alerts from the Alert screen and providing the necessary input details to complete the creation process.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Alerts can be selected by clicking on the checkbox. (Single select/Multi select)
- 3. Click on the Actionable action button presents at the bottom.



4. A form will appear like shown in the picture below.

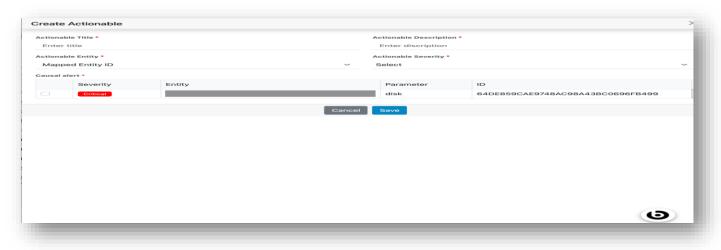


Figure 487 --- Alert Message

5. The user must select the relevant alerts from the alert grid, provide the necessary details such as Actionable Title, Description, Entity, and Severity, and select the causal alert by checking the corresponding box in the grid.

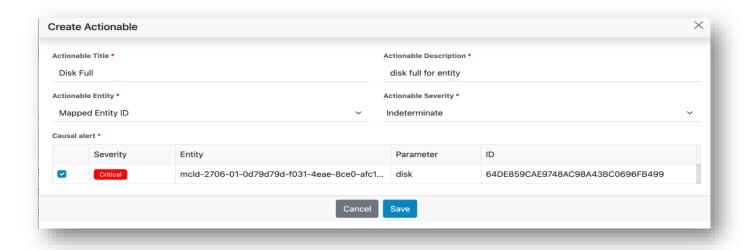


Figure 488 -- Alert Message

- 6. Once filled click on Save at the bottom of the form.
- 7. A successful message will appear.

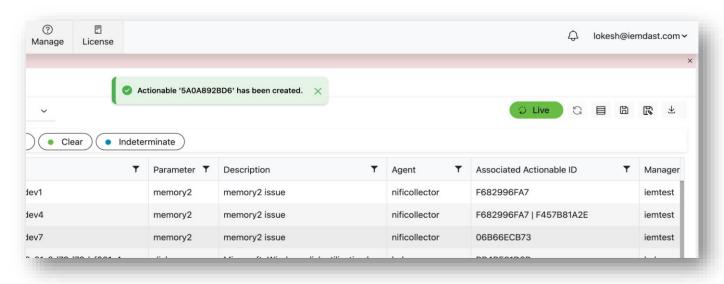


Figure 489 — Alert Message

7.2.2.4 Save Alerts

The steps provide information on how to save alert data.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Users can click on the save button.

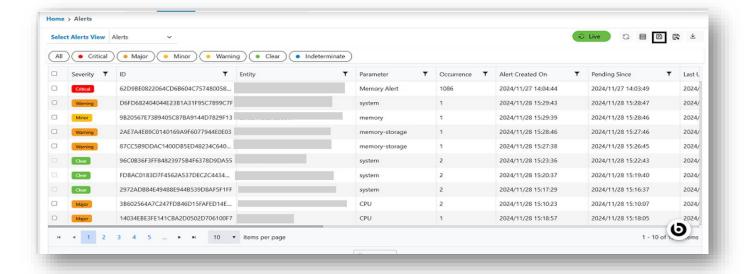


Figure 490 - Save Alerts

3. After saving, the event data appears in the grid and a successful popup appears.

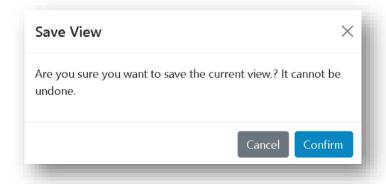


Figure 491 -- Save Alerts

4. On clicking the Confirm button, success will appear.

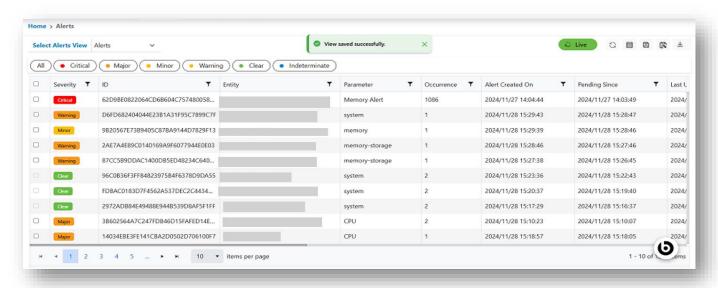


Figure 492 -- Alert Message

7.2.2.5 Save As Alerts

The section explains the steps to Save a personalized view of Alert data as per the requirement:

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Click Save as Alerts button.

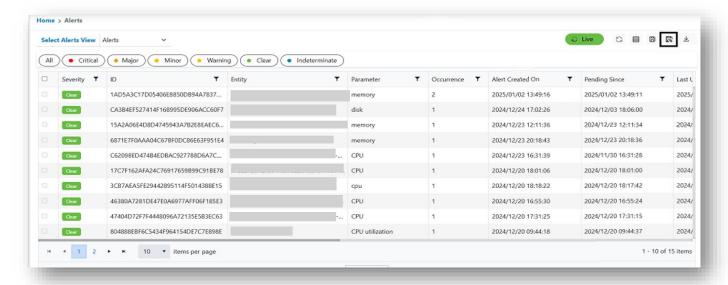


Figure 493 -- Save As Alerts

3. The following form appears:

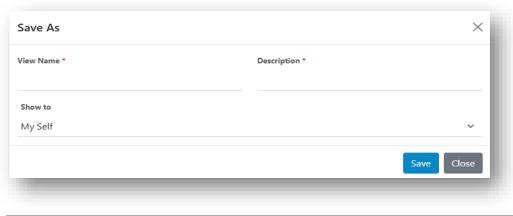


Figure 494 -- Save As Alerts

4. Once all the fields are entered, click on Save button.

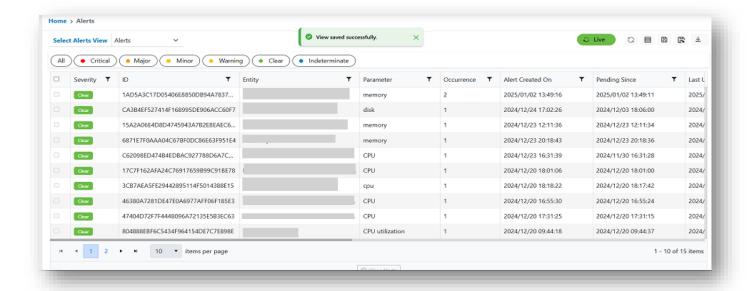


Figure 495 -- Alert Message

5. The newly created view is now available in the list of available views. The user can select Events view from the dropdown that lists all the existing views.

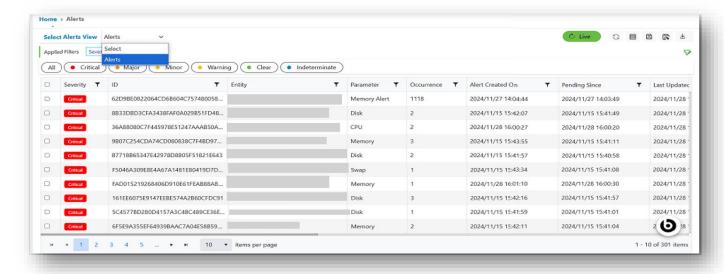


Figure 496 — Select Alerts View Dropdown

7.2.2.6 Add Column

The section explains how to Add Column to alerts data:

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Click on the Add Column action button presents at the header of the console.

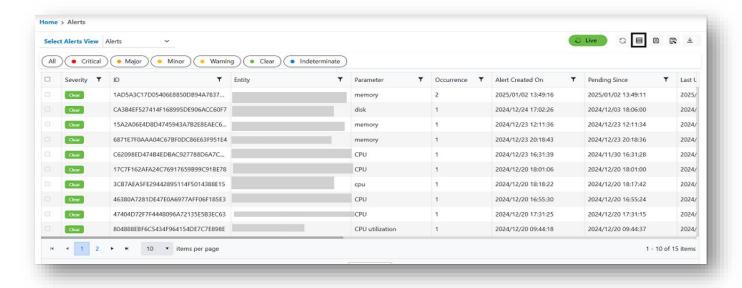


Figure 497 -- Add Column

- 3. The following form will appear. The user can select values from the drop-down lists.
- 4. Once done, click Save.

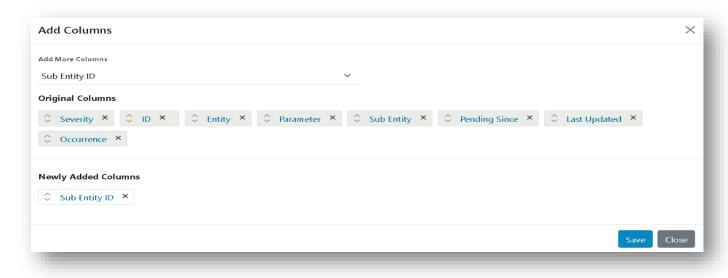


Figure 498 --- Add Column

7.2.2.7 Events Mapping (Alerts)

The steps involved to see events in alerts data:

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Click on an alert on Data View-Alert screen, then go to the pop up opened for the alert. Events for the selected alert are visible.

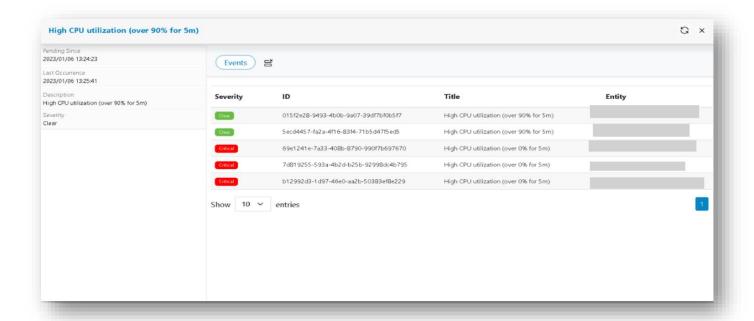


Figure 499 -- Alerts Related Events

3. Users can mark alerts as incorrect by clicking Mark as Incorrect button.

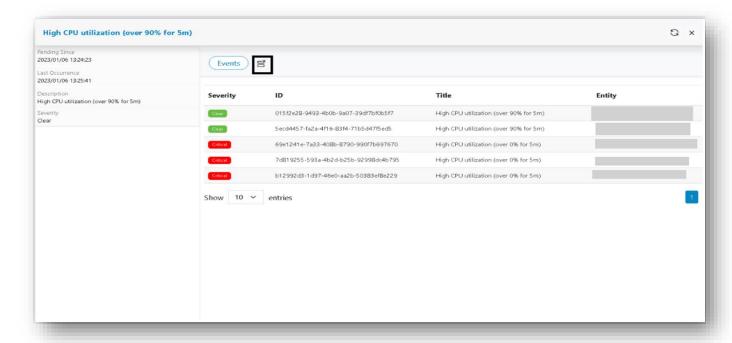


Figure 500 -- Mark as Incorrect

4. On successful marking the alert as incorrect, the following message will be displayed:

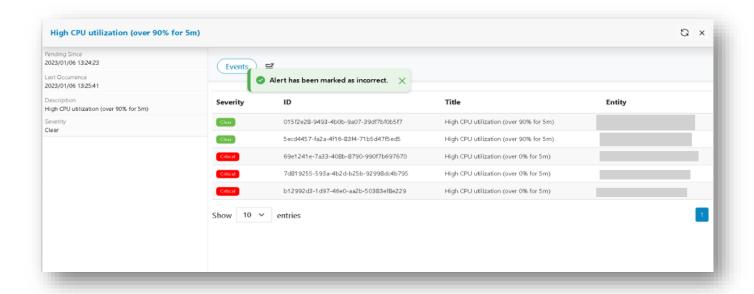


Figure 501 -- Alert Message

7.2.2.8 Live Alerts Data

The section helps users to view Live Alert Data.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Users can see the Live Alert Data in Grid view. The data gets auto refreshed every 4 seconds.

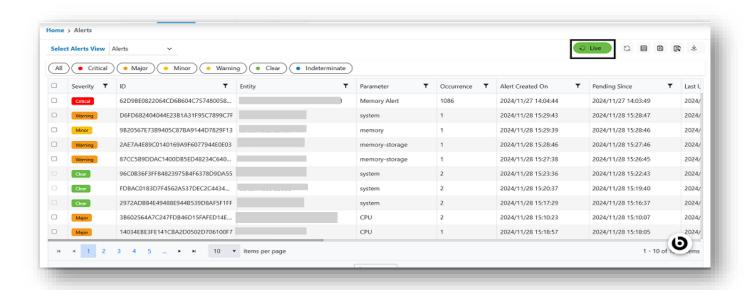


Figure 502 – Live Alerts Data

3. On clicking the Live Alert Data button, the auto refresh gets disabled and the following confirmation message pops-up.

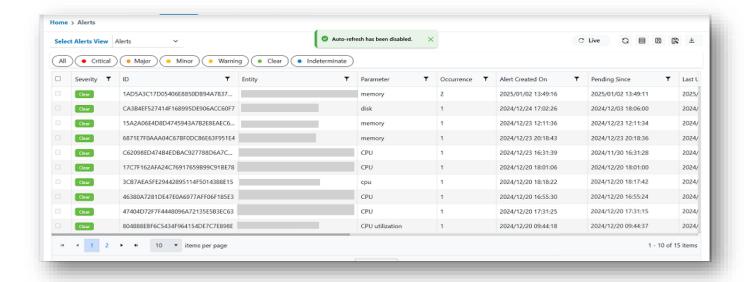


Figure 503 - Live Alerts Data Disabled

7.2.2.9 Refresh Alerts

The steps to apply Refresh Time View to alert data:

- 1. In the top navigation bar, click on Data View and click on Alert.
- 2. User can click on Refresh button only if the Live Alert Data is disabled.

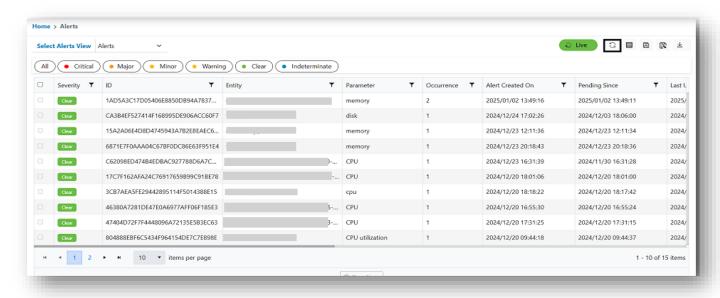


Figure 504 -- Refresh Data View Alerts

3. A confirmation pop-up message will appear.

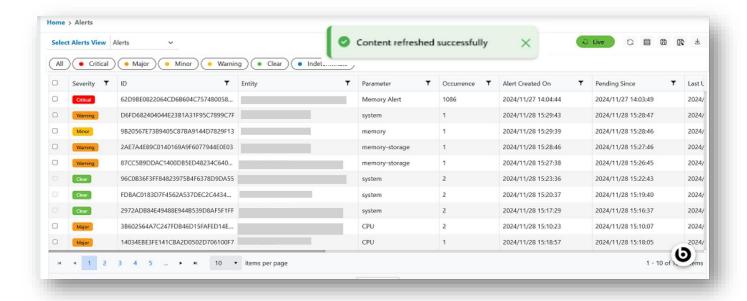


Figure 505 -- Refresh Data View Alerts

7.2.2.10 Apply Filters

The steps explain how to apply Filter to the alerts data.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Click on the Apply Filter action button presents as shown in figure.

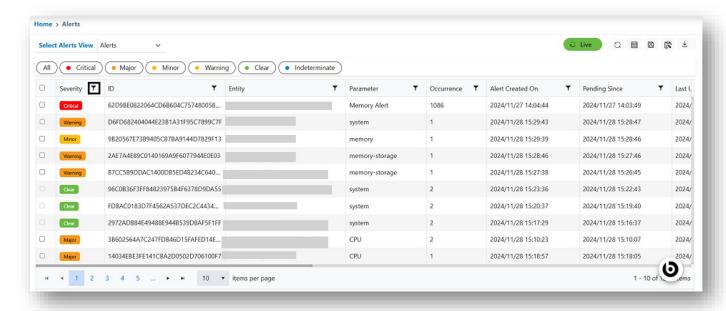


Figure 506 -- More Filter Operation

A form will appear. Select Field and Operator from drop down list and write Value. Then click on the Apply button.

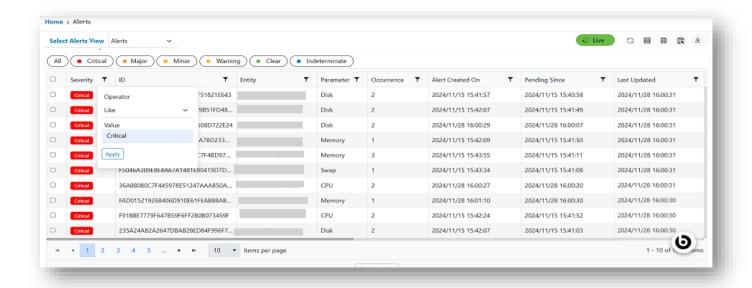


Figure 507 -- More Filter Operation

4. Users can see the result of applied filter.

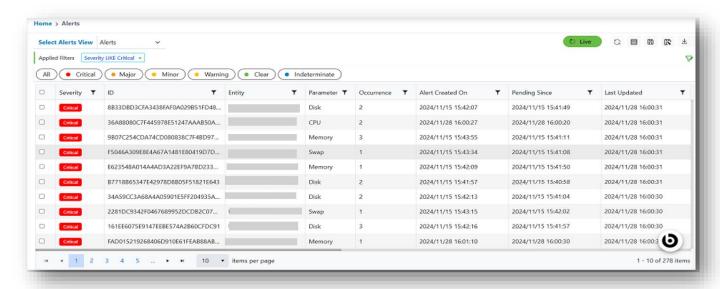


Figure 508 - More Filter Operation

7.2.2.11 Download CSV

This section provides users with downloading CSV data of records based on the filter they apply to the records of the events screen. Users can download the csv files with max of 1000 records.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Apply the filters as per the requirement.
- 4. Check the downloads in the system, the CSV file will be downloaded.

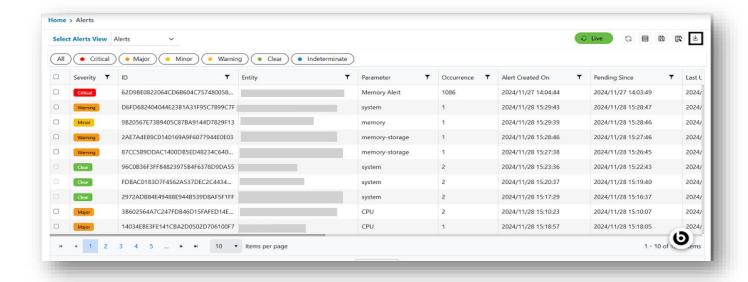


Figure 509 -- Download CSV for Alerts

7.2.3 Actionable

- "Actionable" refers to a specific occurrence or situation that disrupts normal IT operations and requires attention, investigation, and resolution.
- Actionable are typically identified based on events or alerts generated by monitoring systems, and their management involves a structured and coordinated response to minimize the impact on the organization's IT services.
- Actionable are identified through the correlation and analysis of alerts, or anomalies detected by monitoring systems over IEM. Efficient Actionable creation depends upon how effective alert correlation is happening over the system.
- Actionable progress through various stages in their lifecycle, including detection, identification, classification, investigation, resolution, and closure. It includes root cause analysis to identify the underlying factors that led to the actionable, helping in preventive actions.

7.2.3.1 Actionable View

The following steps help users in viewing the actionable data

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Actionable data will be displayed for the selected customer.

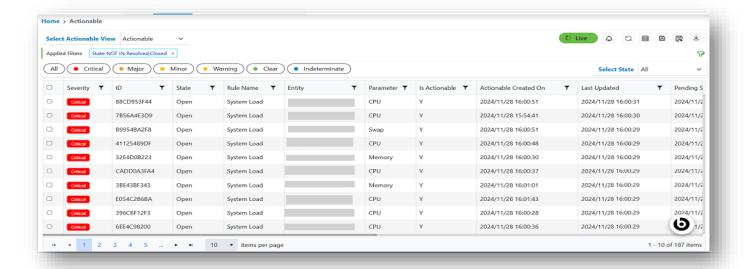


Figure 510 -- Actionable View

7.2.3.2 Add Column

The steps explain how to add column to alerts data.

- 1. In the top navigation bar, click on Data View and click on Alerts.
- 2. Click on the Add Column action button presents at the header of the console.

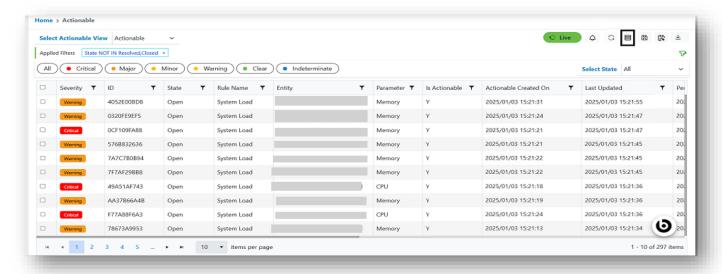


Figure 511 -- Add Column

3. A form appears. Select the values from drop down lists and click Save.

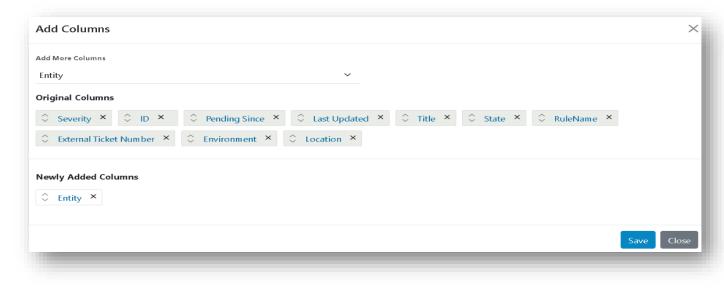


Figure 512 - Add Column

7.2.3.3 Related Changes and Related Problems

The steps explain how to view Related Changes and Related Problems for an actionable:

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on Related Changes or Related Problems icon present over the header of the actionable popup.
- 3. A pop-up displaying Related Changes and Related Problems details will be opened.

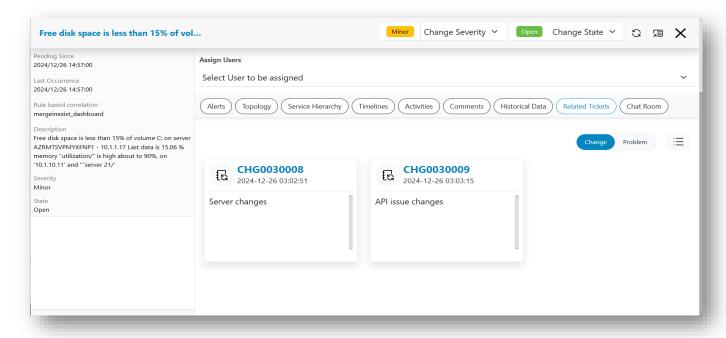


Figure 513 - Related Changes or Related Problems

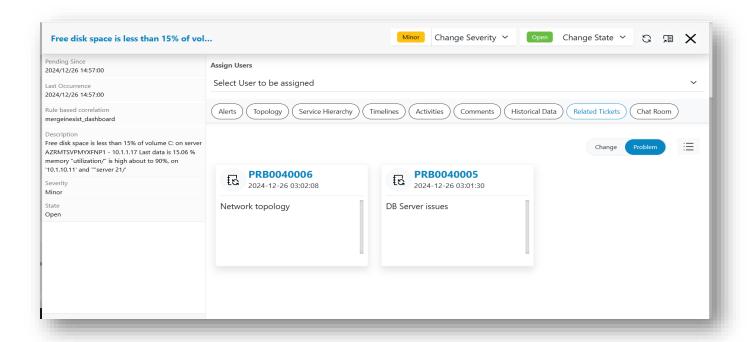


Figure 514 -- Related Problems & Related Changes

7.2.3.4 Chat Bot

These steps enable user to initiate chat with a particular user over chat window.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up opened for the actionable.
- 2. Click on the chat icon present over the header of the actionable popup.
- 3. Actionable ID is mentioned over the chat window. User can initiate chat with the invited user as shown.

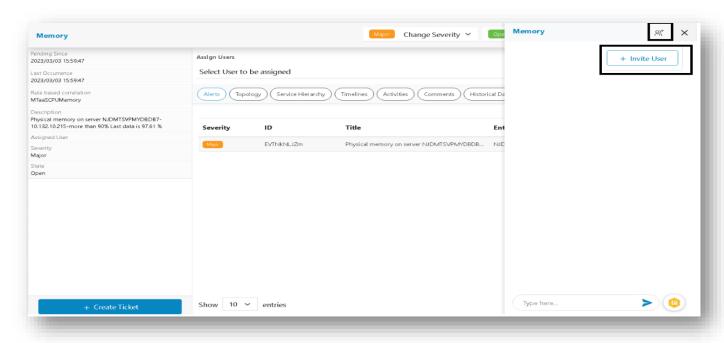


Figure 515 - Invite user.

4. On clicking + Invite User, user can select the user from the dropdown as shown in the image below:

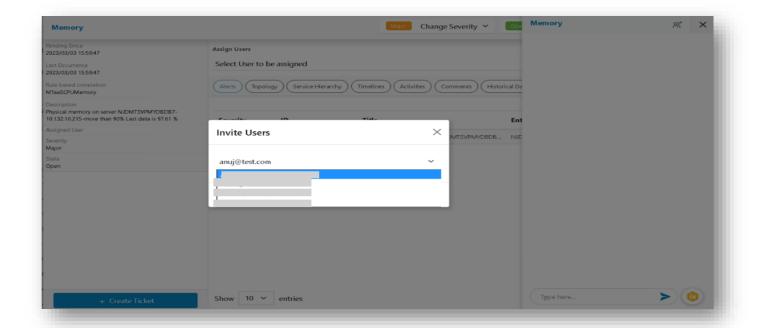


Figure 516 -- Select Users

5. Once Inviting a user for the selected actionable is completed, a confirmation message is prompted.

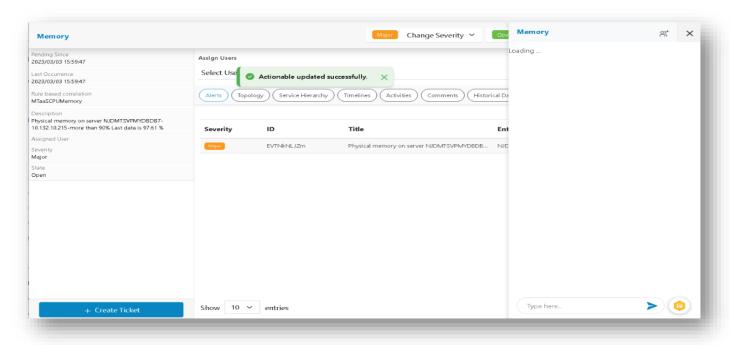


Figure 517 -- Confirmation popup.

- 6. Lucy chatbot icon is also present in the chat window to find some knowledge articles related to resolving queries for action.
- 7. Red Dot /Green Dot show if the chat window is inactive/active.

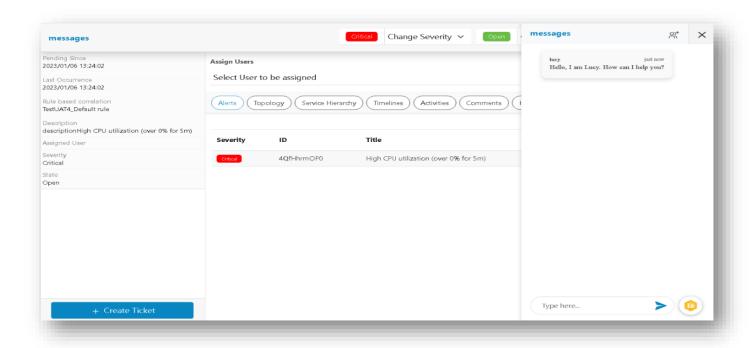


Figure 518 -- Chat Bot

7.2.3.5 Add Comments

The steps explain how to add comments for selected actionable.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Comments header present in the actionable popup.
- 3. Detailed view of users along with time and comments will be visible as shown.

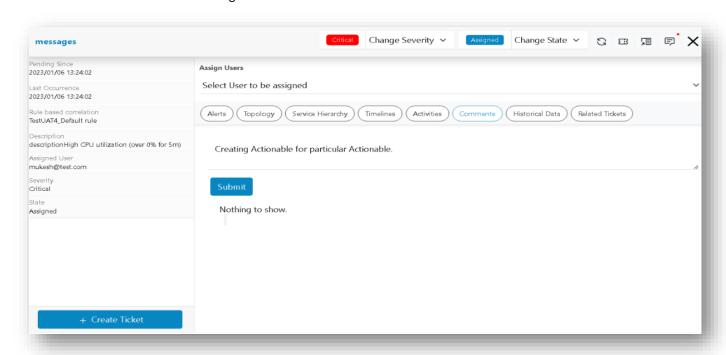


Figure 519 -- Add Comments to Actionable

4. Write the comment and click on Submit button. Once submitted the comment is displayed for that actionable as shown in the image below:

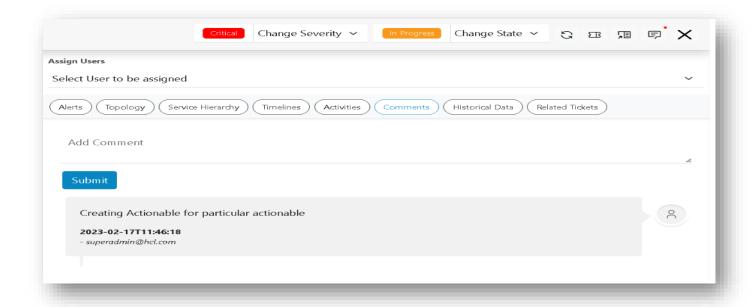


Figure 520 - Add Comments to Actionable

7.2.3.6 Activities

On this section, the users see activities for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up opened for the actionable
- 2. Click on the Activities header present in the actionable popup.
- 3. Detailed view of changes in the logs for that actionable and its related alerts will be visible as shown.
- 4. Search tab is present to search for a specific log present in the activity view.

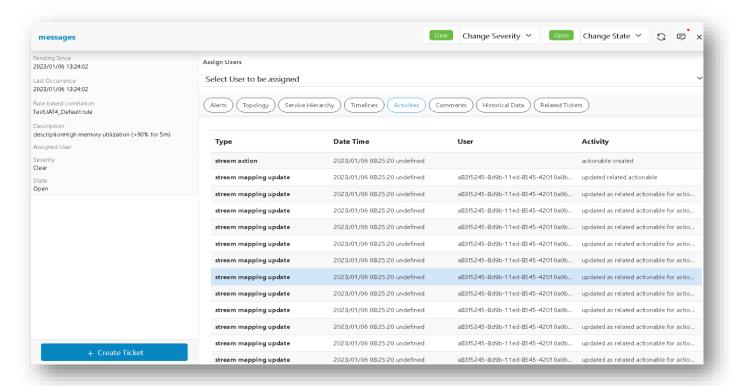


Figure 521 -- Activities.

7.2.3.7 Similar Actionable

The steps explain how to view similar actionable for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Historical Data present in the actionable popup.
- 3. Historical Data containing details will be displayed and details can be seen while scrolling from left to right for similar actionable.

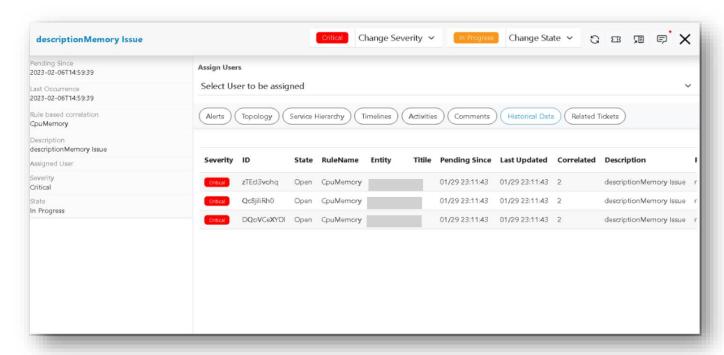


Figure 522 -- Similar Actionable

7.2.3.8 Service Hierarchy

The steps explain how to view service hierarchy for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Service Hierarchy header present in the actionable popup.
- 3. Service Hierarchy would be visualizing the relationship between the various services and their downstream / upstream impact due to any issue for a specific entity.
- 4. Impacted services can be highlighted as per custom logic (based on color-coding).

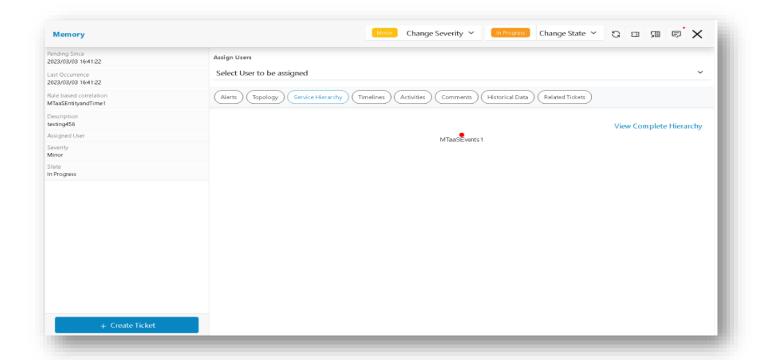


Figure 523 - Service Hierarchy

7.2.3.9 Timelines

The steps explain how to view the timeline for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Timelines header present in the actionable popup.
- 3. The timeline view is visible under the header and details can be seen while scrolling from top to bottom to check the timestamp of events and alerts for that actionable.
- 4. Entity, Parameter, Description and Timestamp are displayed for the selected Events/Alerts/ Actionable in the timeline view.
- 5. There are different icons present in timeline for displaying events, alerts and actionable details and their colour would display the severity.

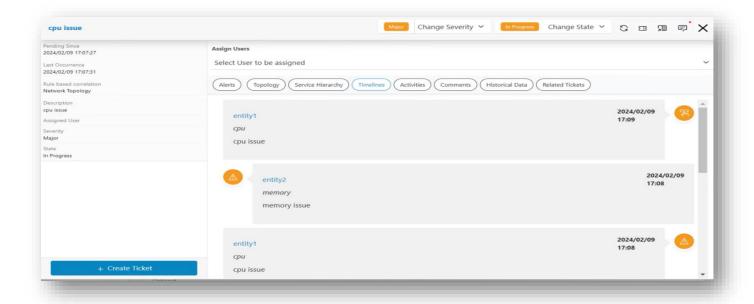


Figure 524 -- Timelines.

7.2.3.10 Change Severity

The steps explain how to change severity for actionable data:

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up opened for the actionable.
- 2. Change the severity of the actionable using the drop-down as shown in the image below:

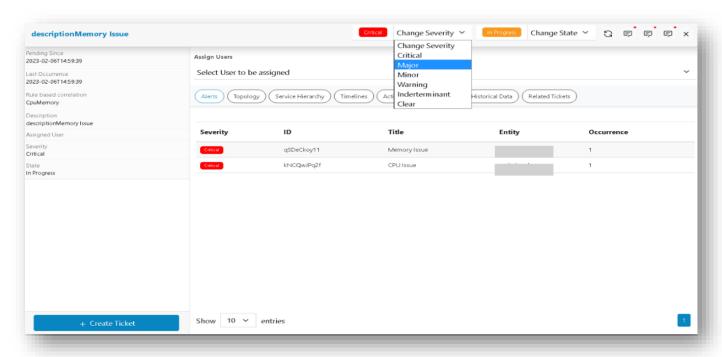


Figure 525 — To Change Severity of Actionable

3. A dialog box would appear for confirmation.



Figure 526 -- Confirmation Pop- up.

4. Click Confirm. On success, a confirmation pop-up message will be displayed.

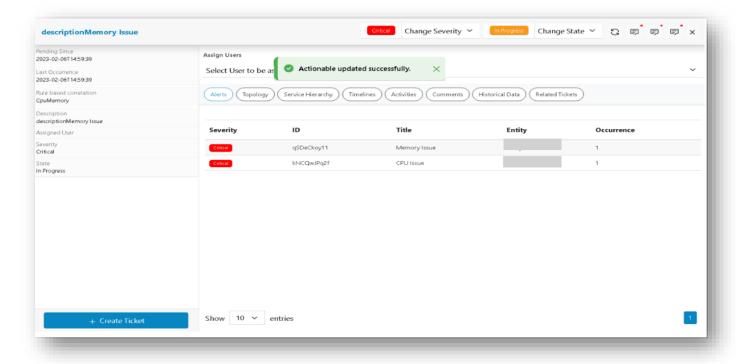


Figure 527 -- Alert Message

7.2.3.11 To Change Status

The steps involve the explanation on how to change status for actionable data.

- 1. Click on a particular actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Change the status of the Actionable using the drop-down as shown in the following figure:

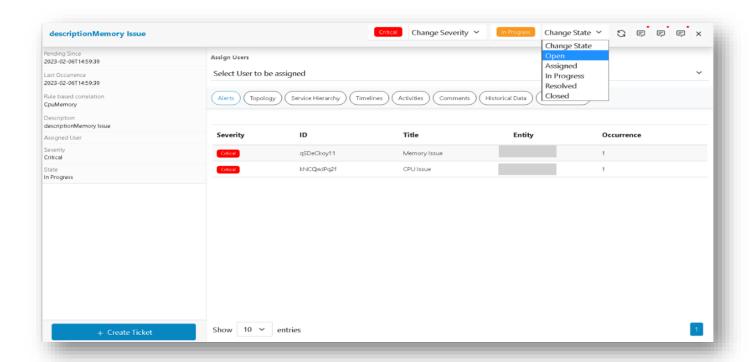


Figure 528 — To Change Status for Actionable

3. A dialog box would appear for confirmation.



Figure 529 – Confirmation Pop- up.

4. Click Confirm. On success, a confirmation pop-up message will be displayed.

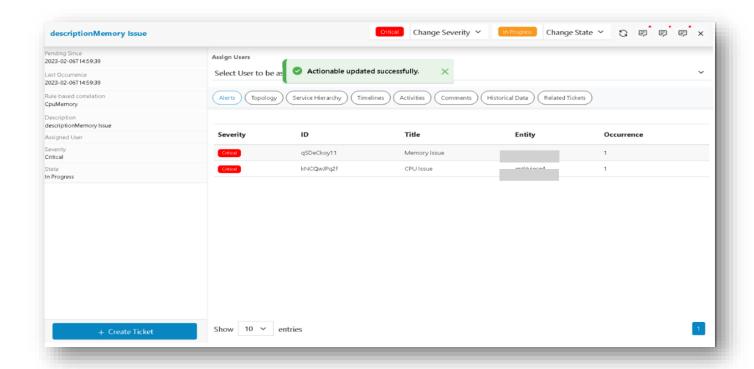


Figure 530 -- Alert Message

7.2.3.12 Assign Actionable to Another User

These steps enable user to assign actionable to a specific user for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Assigned header present in the actionable popup. The dropdown list of users configured in the environment will be displayed.
- 3. Select the user to be assigned for that actionable as shown in the following figure:

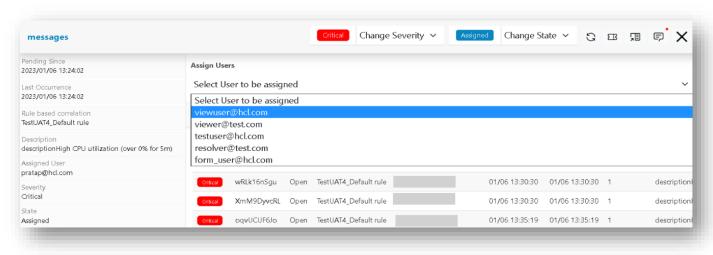


Figure 531 — Assign Actionable to Another User

- 4. A notification is sent to the user after the actionable is assigned.
- 5. A notification is also sent to the user when the actionable assigned is released by the user.

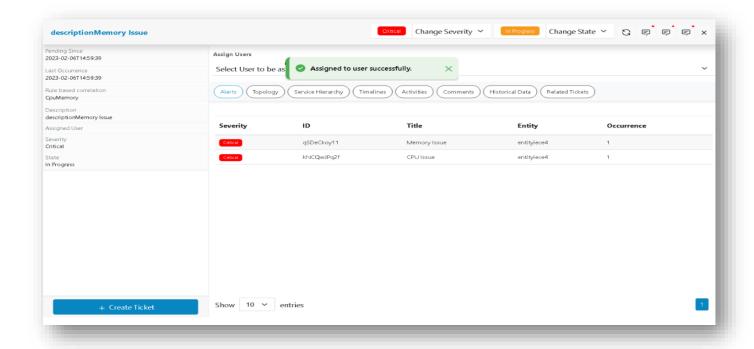


Figure 532 — Alert Message

7.2.3.13 Save Actionable

The steps explain how to save actionable data.

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Click on Save icon to save Actionable.

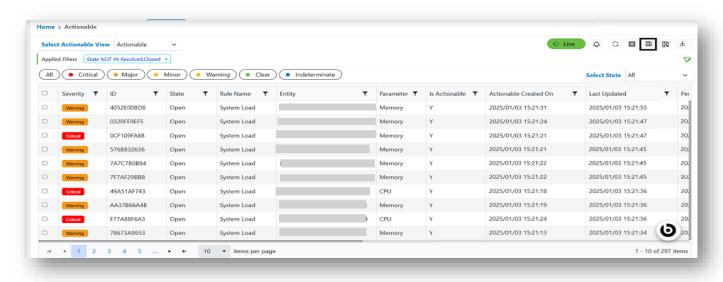


Figure 533 — Save Actionable

3. The following confirmation popup appears:



Figure 534 -- Save Actionable

4. Click Confirm. A successful pop will appear, and the grid will be updated accordingly, and the saved Actionable data starts appearing in the grid.

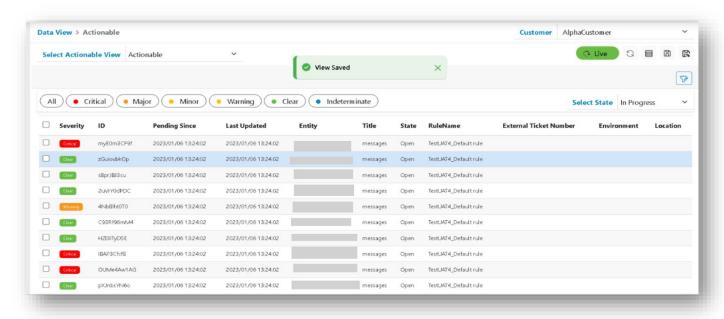


Figure 535 – Alert Message

7.2.3.14 Save As Actionable

The section explains the steps to Save a personalized view of Actionable data as per the requirement.

- 1. In the top navigation bar, click on Data View and click on Events.
- 2. Click the Save as an Actionable icon.

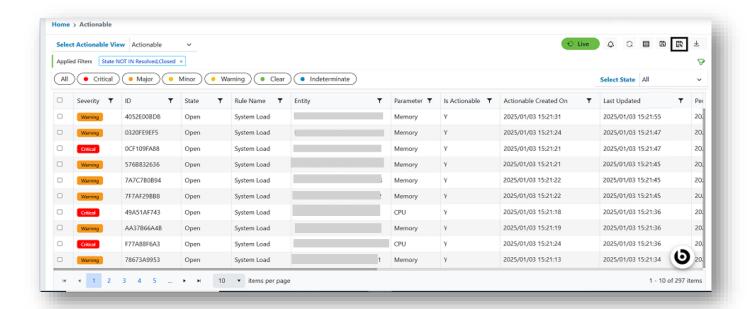


Figure 536 - Save As Actionable

3. The Save as pop-up appears:

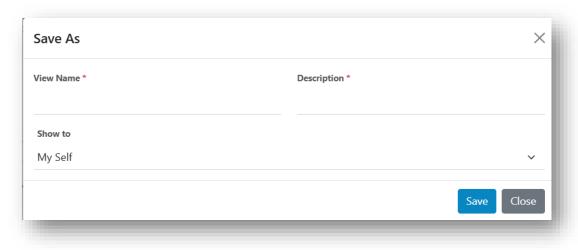


Figure 537 -- Save As Actionable

4. Populate all the fields and click on Save button. A success message pops up.

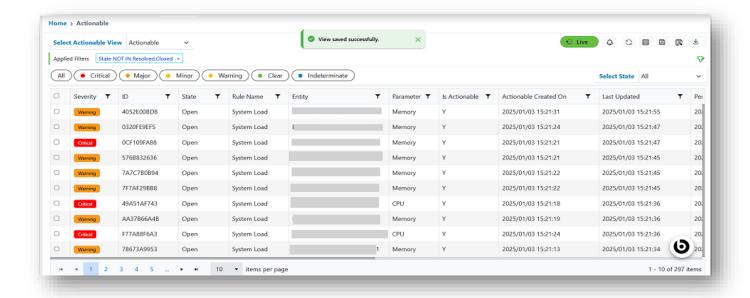


Figure 538 - Alert Message

7.2.3.15 Actionable Data

The steps explain how to view Live Actionable data.

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Users can see the Live Actionable Data in Grid view. The data gets automatically refreshed every 4 seconds.

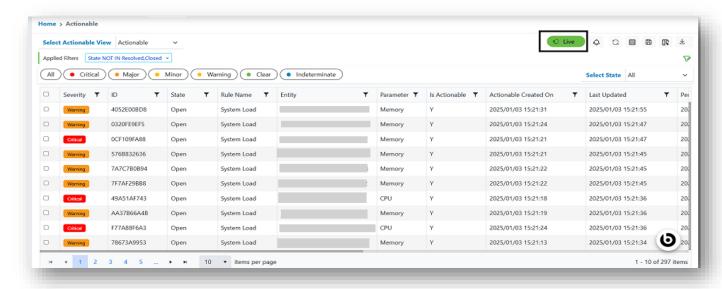


Figure 539 – Live Actionable Data

3. Click the Live Alert Data button to disable the auto refreshing the live alert data. A confirmation pop up message will appear.



7.2.3.16 Refresh

The steps explain how to refresh the actionable data.

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Click the Refresh icon if the Live Actionable Data is disabled.

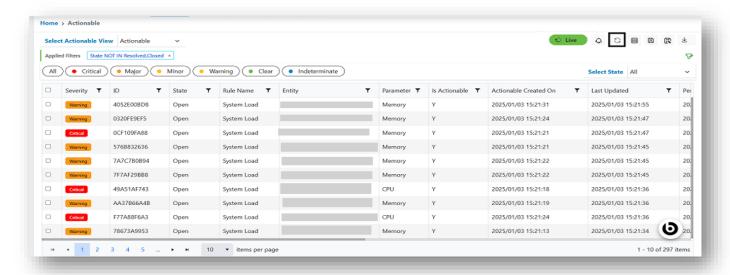


Figure 541 - Refresh time for Actionable.

3. A confirmation pop up message will appear.



Figure 542 - Refresh time for Actionable.

7.2.3.17 To see Alerts

The steps explain how to view alerts in Actionable data.

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Click on an actionable on Data View-actionable screen, then pop up open for the actionable.
- 3. Click on Alerts header to see the alert for that actionable.

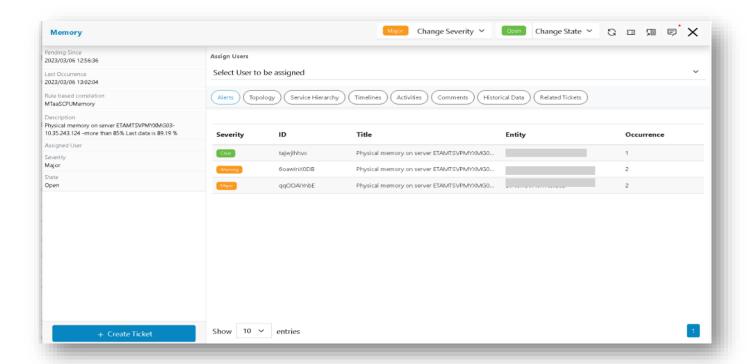


Figure 543 - Actionable Related Alerts

Note:

For actionable created using user-defined rules, an additional button will appear in the taskbar labeled "Create Correlation Rule".

When clicked, the user will be redirected to the Correlation Rule Creation page. On this page, the "Include If" filter section will be automatically pre-filled based on the alerts associated with the actionable.

- 4. Each alert's entity and parameter will be included in the filter.
- 5. A sub-AND operation will be applied between entity and parameter within a single alert.
- 6. An OR operation will be used between multiple alerts, if more than one alert is present.

7.2.3.18 Topology

The steps explain how to view the topology for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Topology header present in the actionable popup.
- 3. Topology would be visualizing the relationship between the various services and their downstream / upstream impact due to any issue for a specific entity.
- 4. Impacted services can be highlighted as per custom logic (based on color-coding).

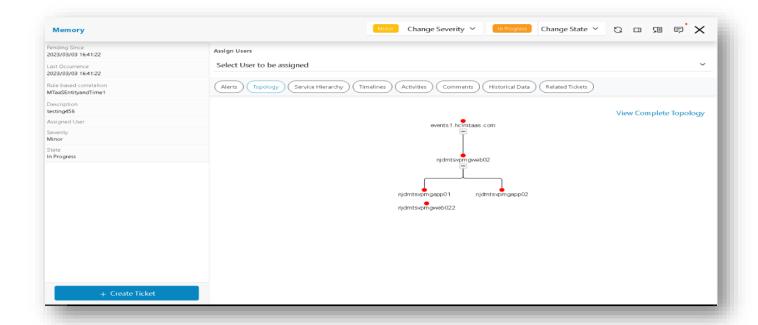


Figure 544 -- Topology.

7.2.3.19 Update Ticket

The steps explain how to update tickets for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up opened for the actionable.
- 2. Click on the Update Ticket icon presents in the actionable popup.

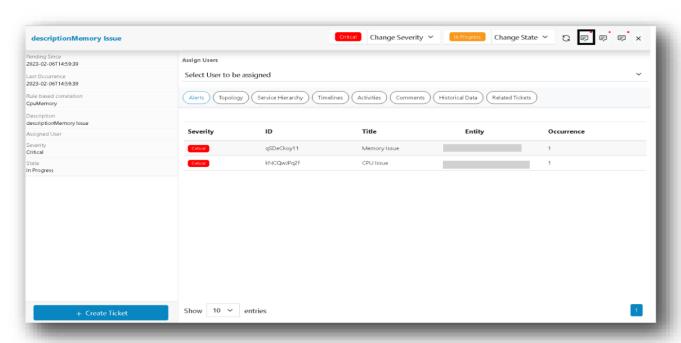


Figure 545 – Update Ticket for Actionable

3. On clicking the update ticket icon, a confirmation message pops-up:

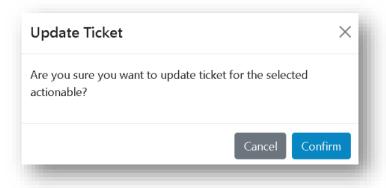


Figure 546 – Update Ticket for Actionable

4. Click on the Confirm button. A success message pops up as shown in the following figure:

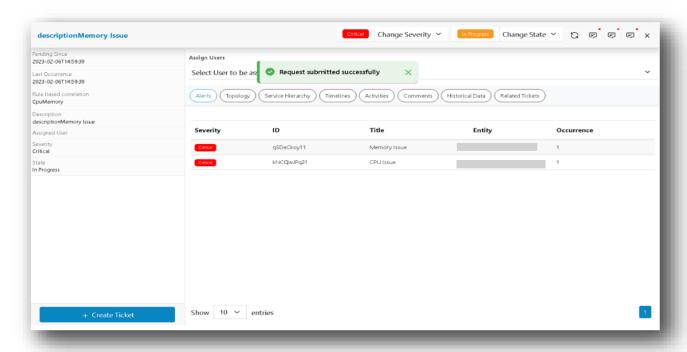


Figure 547 - Success Message for Update Ticket

7.2.3.20 Update Work Notes

The steps Explain how to view Update Work Notes for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the Update Work Notes icon present in the actionable popup.

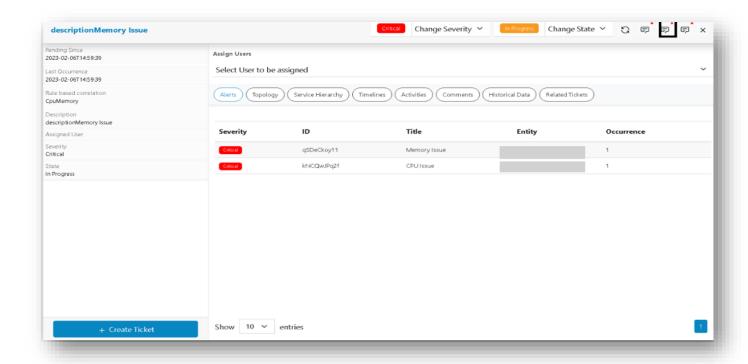


Figure 548 - Update Work Notes for Actionable

3. Click the Update Work Notes icon, a confirmation pop-up message will appear.

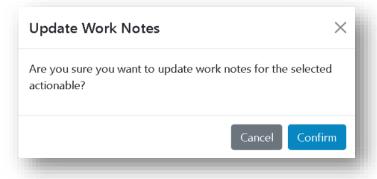


Figure 549 - Update Work Notes for Actionable

4. Click on the Confirm button. A successful message will appear.

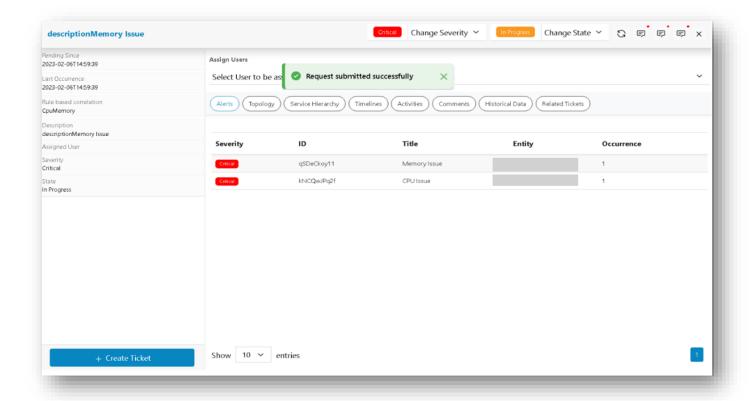


Figure 550 - Alert Message

7.2.3.21 Apply Filters

The steps explain how to apply filter to the actionable data.

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Click on the Apply filter action button as shown in figure.

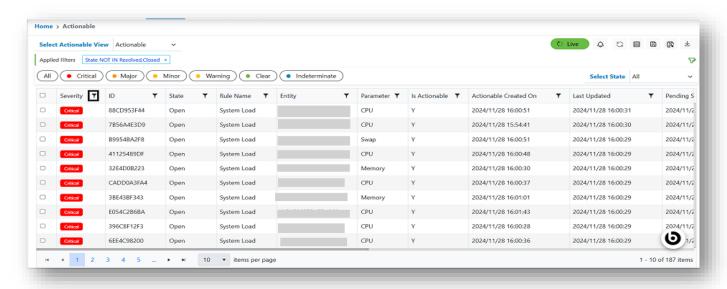


Figure 551 - More Filter Operation

A form opens to apply filter. Select Field and Operator from drop down list and provide Value. Then click on the Apply button.

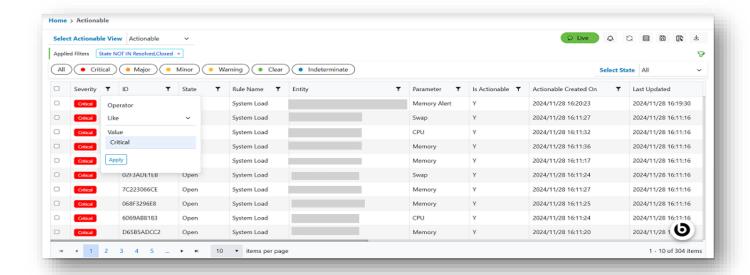


Figure 552 - More Filter Operation

4. Users can see the result of applied filter as shown in the following figure:

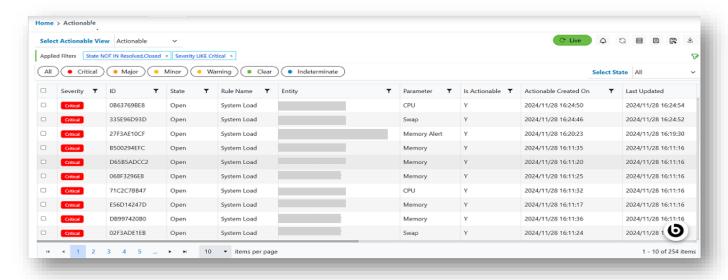


Figure 553 - More Filter Operation

- 5. Click on the Select State dropdown available action button presents at the below header of the console.
- 6. Select state from drop down list. Then click on the state button and the user can see the Applied filter based upon the state.

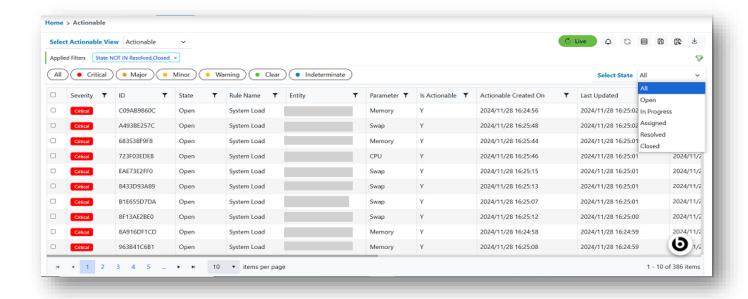


Figure 554 - Select State Operation

7.2.3.22 Create Ticket

The steps explain how to Create Ticket for actionable data.

- 1. Click on an actionable on Data View-Actionable screen, then go to pop up open for the actionable.
- 2. Click on the + Create Ticket icon presents in the actionable popup.

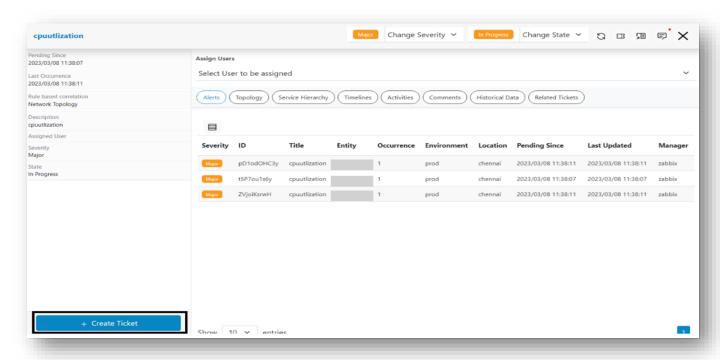


Figure 555 - Update Work Notes for Actionable

3. A confirmation pop-up message will appear.

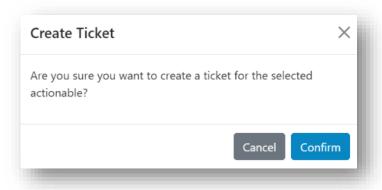


Figure 556 - Update Work Notes for Actionable

4. Click on the Confirm button. A successful message will appear.

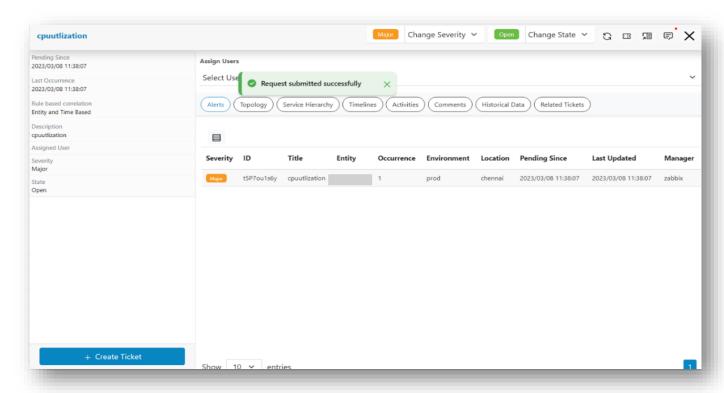


Figure 557 - Alert Message

7.2.3.23 Download CSV

This section provides users with downloading CSV data of records based on the filter they apply to the records of the events screen. Users can download the csv files with max of 1000 records.

- 1. In the top navigation bar, click on Data View and click on Actionable.
- 2. Apply the filters as per the requirement.
- 3. Click on the Download CSV action button.
- 4. Check the downloads in the system, the CSV file will be downloaded.

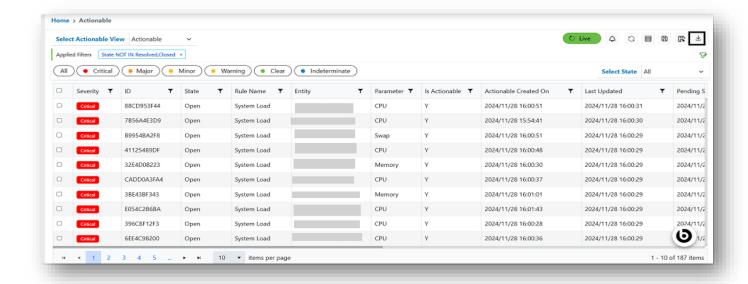


Figure 558 - Download CSV for Actionable

7.2.4 All Events View

All Events View includes a grid which contains all events data that is coming to the system. It includes noise events as well as non-noise events.

Please follow below steps to view All Events data:

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. All Events data will be displayed for the customer to which user is part of.

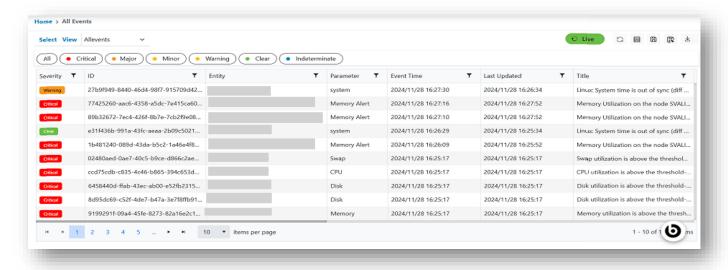


Figure 559 - All Events View

7.2.4.1 Add Column

This option will enable users to add more columns in the data grid to analyze it deeply. Please follow the steps below to add columns to data view.

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. Click on the Add Column action button presents at right side of Live button.

3. A pop-up will open which enables user to select from list of available columns to add it in the grid as shown in figure. Then, click on save button to add selected columns in view.

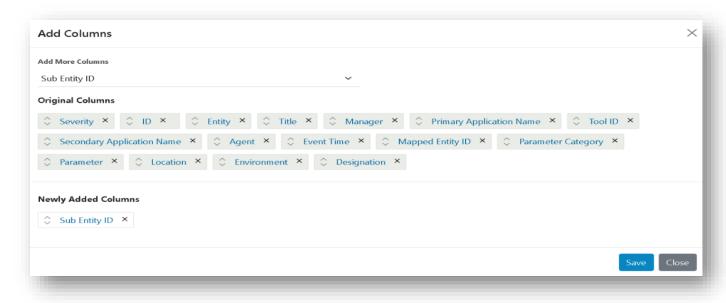


Figure 560 - Add Column

7.2.4.2 Save All Events

The steps provide information on how to save all events data.

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. User can click the save button.

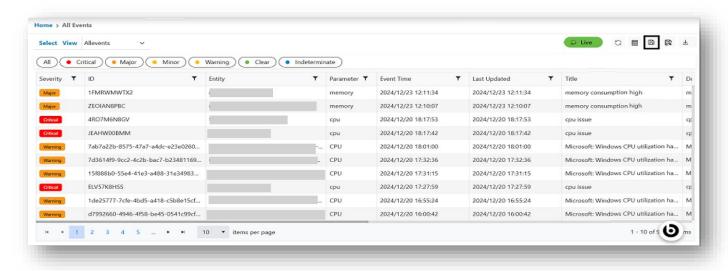


Figure 561 - Save All Events

3. After saving, the all-event data appears in the grid and a success popup appears.



Figure 562 - Confirmation Message

4. On clicking the Confirm button, a success popup will appear.

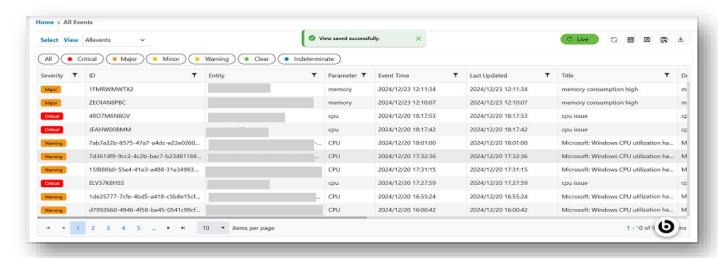


Figure 563 - Al Events Message

7.2.4.3 Save As All Events

This option will enable users to save the currently opened view with columns populated in data grid so the same view can be shown to any other user in an organization. It is very helpful for admins to configure this kind of view for other users in an organization by creating a different view other than the current view. For example, a view to list all events with critical severity only. Please follow the steps below to save as events:

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. Once the user can click the save as button, a pop-up will open to provide the following information:
 - View Name: name of view like critical events
 - Description: description of view like list all critical events
 - Show to: Either it will be visible to the user who is saving it or to other users.

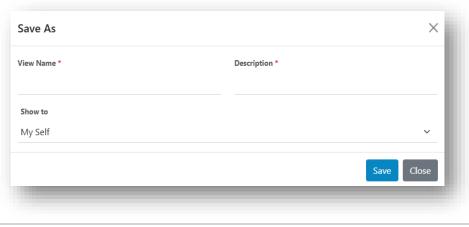


Figure 564 - Save as Events

3. Next, click on the save button to save view and this view will be available on a list for users.

7.2.4.4 Refresh All Events

This option will enable users to refresh data grid to populate latest data over screen.

Please follow below steps to refresh events grid:

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. Once the user can click the Refresh button, confirmation pop up message will appear.

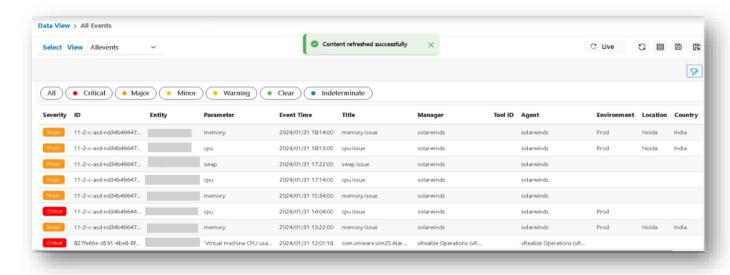


Figure 565 - Refresh All Events

7.2.4.5 Live All Events Data

This option will enable users to stop/start live updates of data being shown in grid. Please follow the steps below to enable/disable live events.

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. Users can see the Live All Events Data, and this will be updated regularly, and automatically refresh the grid.

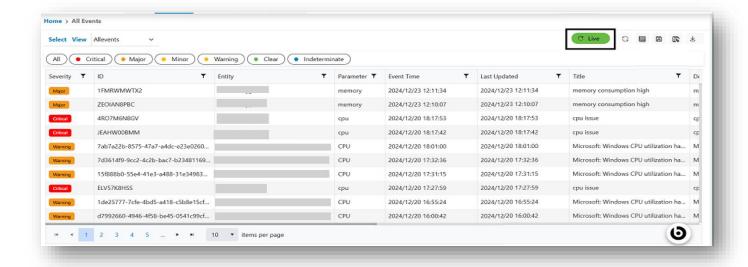


Figure 566 - Live Events Data

3. To stop live data update, please click on Live button, it stops updating the live all event data, a confirmation message will appear, stating that "Auto – refresh has been disabled.

7.2.4.6 Apply Filters

This option will enable users to apply filters over the currently opened view to see data of specific values. For example, to see lists of critical events, users can set filters over severity columns of all events 'data. Please follow the steps below to apply filters:

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. Click on the filter option present at right side of Live button as shown in figure.

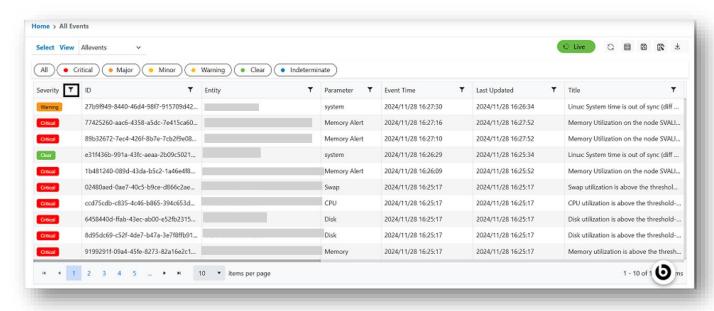


Figure 567 - Filter Operation

3. A filter screen will come up which enables user to select field and corresponding operator along with value to filter data.

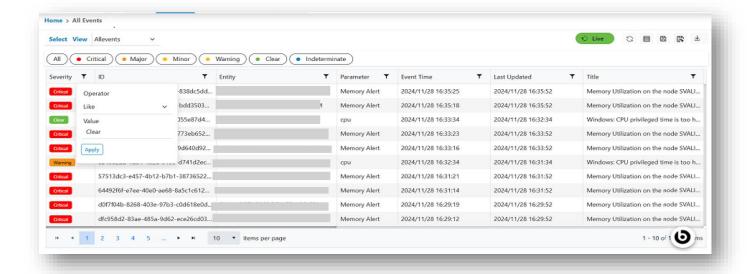


Figure 568 - Filter Operation

4. Users can see the result of applied filter.

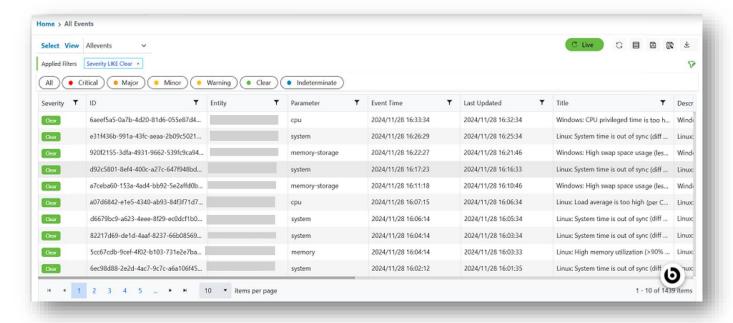


Figure 569 - Filter Operation

7.2.4.7 Download CSV

This section provides users with downloading CSV data of records based on the filter they apply to the records of the whole events screen. Users can download the csv files with max of 1000 records.

- 1. In the top navigation bar, click on Data View and click on All Events.
- 2. Apply the filters as per the requirement.
- 3. Click on the Download CSV \perp action button.
- 4. Check the downloads in the system, the CSV file will be downloaded.

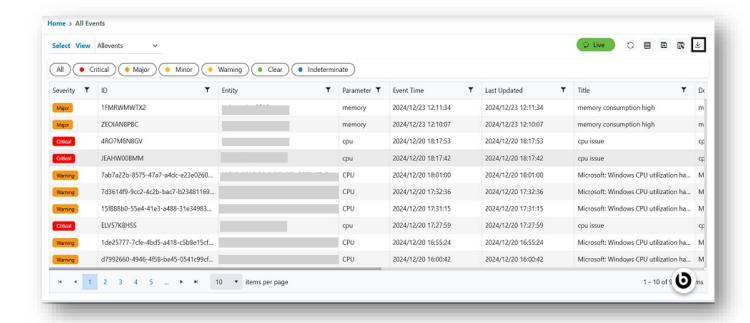


Figure 570 - Download CSV for All Events

7.2.5 Noise Events View

Noise Events View includes a grid which contains all the noise events in a single grid.

Please follow the steps below to view Noise Events data:

- 1. In the top navigation bar, click on Data View and click on Noise Events.
- 2. Noise Events data will be displayed for the customer to which user is part of.

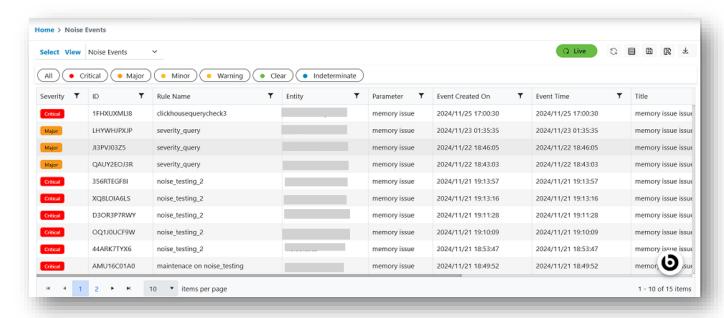


Figure 571 - Noise Events View

7.2.5.1 Add Column

This option will enable users to add more columns in the data grid to analyze it deeply. Please follow the steps below to add columns to data view.

- 1. In the top navigation bar, click on Data View and click on Noise Events.
- 2. Click on the Add Column action button presents at right side of Live button.
- 3. A pop-up will open which enables user to select from list of available columns to add it in the grid as shown in figure. Then, click on save button to add selected columns in view.

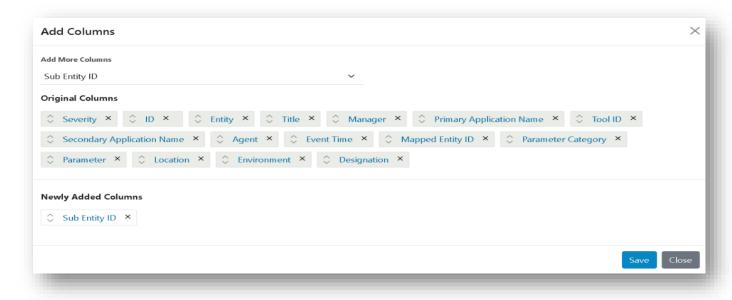


Figure 572 - Add Column

7.2.5.2 Save Noise Events

The steps provide information on how to save Noise Events data.

- 1. In the top navigation bar, click on Data View and click on Noise Events.
- 2. User can click the save button.

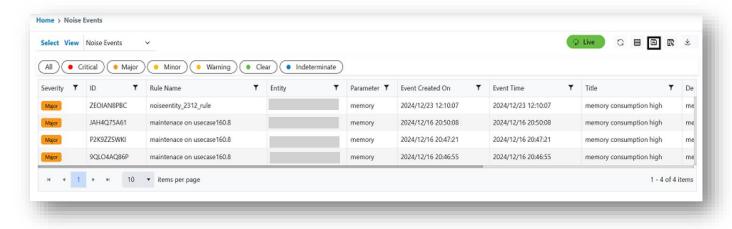


Figure 573 - Save Noise Events

3. After saving, the event data appears in the grid and a successful popup appears.



Figure 574 – Confirmation Message

4. On clicking the Confirm button, a success popup will appear.

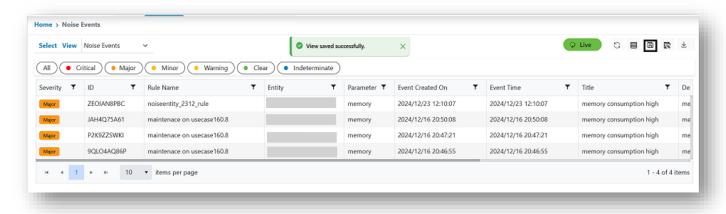


Figure 575 - Save Noise Events Message

7.2.5.3 Save As Noise Events

This option will enable users to save the currently opened view with columns populated in data grid so that the same view can be shown to any other user in an organization. It is very helpful for admins to configure this kind of view for other users in an organization by creating a different view other than the current view. For example, a view to list out noise events with critical severity only. Please follow the steps below to save as events:

- 1. In the top navigation bar, click on Data View and click on Noise Events.
- 2. Once the user can click the save as button, a pop-up will open to provide the following information:
 - View Name: name of view like critical noise events
 - Description: description of view like list all critical noise events
 - Show to: Either it will be visible to the user who is saving it or to other users.

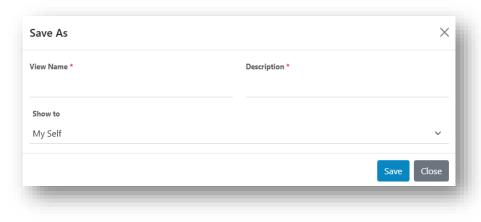


Figure 576 - Save as Events

3. Next, click on the save button to save view and this view will be available in list for users.

7.2.5.4 Refresh Noise Events

This option will enable users to refresh data grid to populate latest data over screen.

Please follow the steps below to refresh noise events grid:

- 1. In the top navigation bar, click on Data View and click on Noise Events.
- 2. Once the user can click the Refresh button, confirmation pop up message will appear.

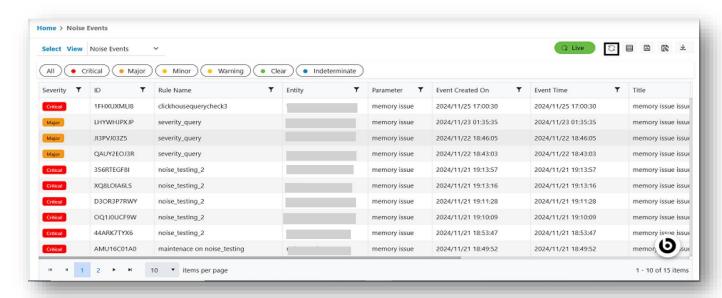


Figure 577 - Refresh Noise Events

7.2.5.5 Live Noise Events Data

This option will enable users to stop/start live updates of data being shown in grid. Please follow the steps below to enable/disable live noise events.

- In the top navigation bar, click on Data View and click on Noise Events.
- Users can see the Live Noise Events Data, and this will be updated regularly, and automatically refresh the grid.

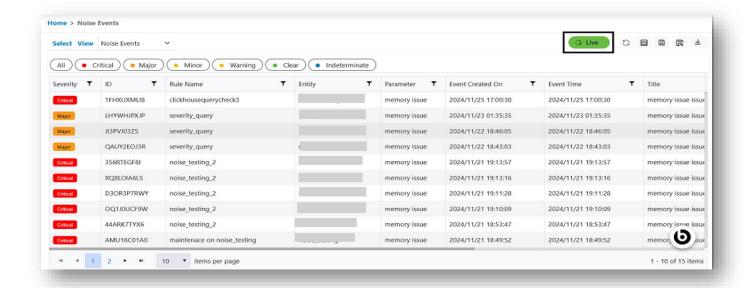


Figure 578 - Live Events Data

To stop live data update, please click on Live button, it stops updating the live noise event data, a confirmation message will appear, stating that "Auto – refresh has been disabled."

7.2.5.6 Apply Filters

This option will enable users to apply filters over the currently opened view to see data of specific values. For example, to see lists of critical noise events, users can set filters over severity columns of noise events data. Please follow the steps below to apply filters:

- 1. In the top navigation bar, click on Data View and click on Noise Events.
- 2. Click on the filter option present at right side of Live button as shown in figure.

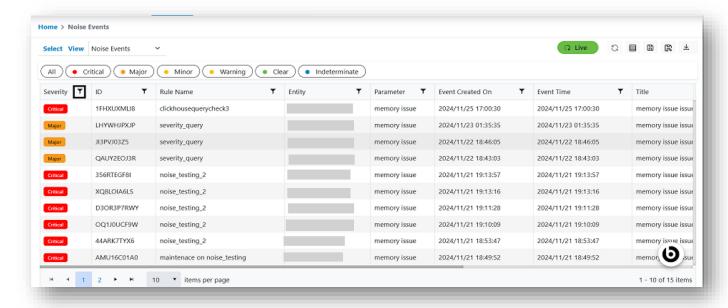


Figure 579 - Filter Operation

3. A filter screen will come up which enables user to select field and corresponding operator along with value to filter data.

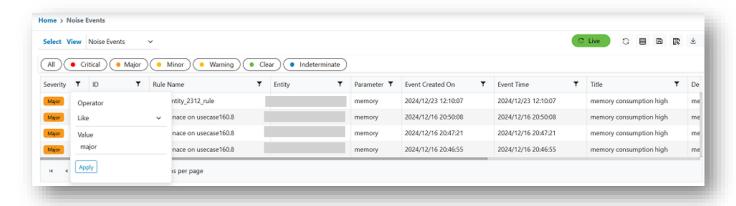


Figure 580 - Filter Operation

4. Users can see the result of applied filter.

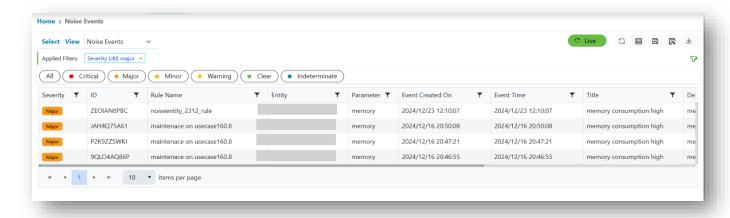


Figure 581 - Filter Operation

7.2.5.7 Download CSV

This section provides users with downloading CSV data of records based on the filter they apply to the records of the events screen. User can download the csv files with a maximum of 1000 records.

- 1. In the top navigation bar, click on Data View and Click on Noise Events.
- 2. Apply the filters as per requirements.
- 3. Click on the Download CSV $\stackrel{\checkmark}{\bot}$ action button.
- 4. Check the downloads in the system, the CSV file will be downloaded.

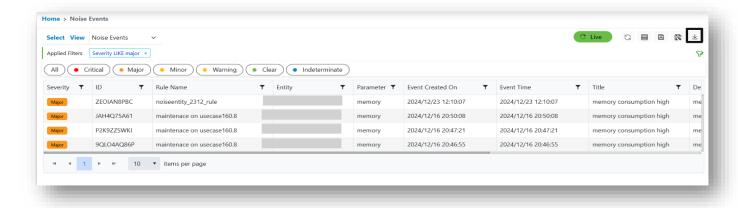


Figure 582 - Download CSV Noise Events

7.2.6 Metrics

The Metrics section displays a grid containing all metric data received by the system. This includes:

- 1. Metric data with specific values
- 2. Anomalous metric data identified from those values

All incoming metric data is visible under Metric View only, while anomalous metric data is also shown in the following sections:

- All Events
- Events
- Alerts
- Anomaly Metric View

If a correlation rule exists and the anomaly data satisfies its conditions, the system will automatically create an actionable for that anomaly.

7.2.6.1 Grid View and Chart View

Both Metric View and Anomaly Metric View offer a toggle button that lets users switch between:

- GridView
- ChartView

When switching to Chart View, it is mandatory to specify a date range in the filters. If no date range is provided, the chart will not be loaded.

By default, the date range filter is set to "Last 1 Day" when the user lands on the Metric View.

7.2.6.2 Filtering Options

Users are also provided with flexible filter options, available in both Grid and Chart views. These filters allow users to refine the data based on:

- Date Range
- Parameter
- Entity

Users can apply any one filter, a combination of two, or all three together to narrow down the displayed metric data as needed.

Please follow the steps below to view metric data:

- 1. In the top navigation bar, click on data view and click on Metrics.
- Metric data is displayed based on the customer account to which the user belongs. By default, the Date Range filter is set to "Last 1 Day".

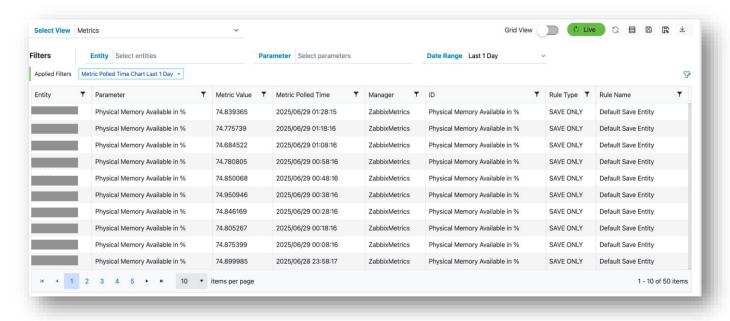


Figure 583 - Metrics.

7.2.6.3 Chart View

The Chart View allows users to visualize metric data values for a specific combination of entity and parameter, plotted against time.

The time range displayed on the chart corresponds to the date range selected by the user in the Date Range filter.

This view helps users analyze trends and patterns in metric data over a specified period, making it easier to identify anomalies or performance changes.

1. To view char view, click on the toggle button in the bar above Grid next to text "Grid View".

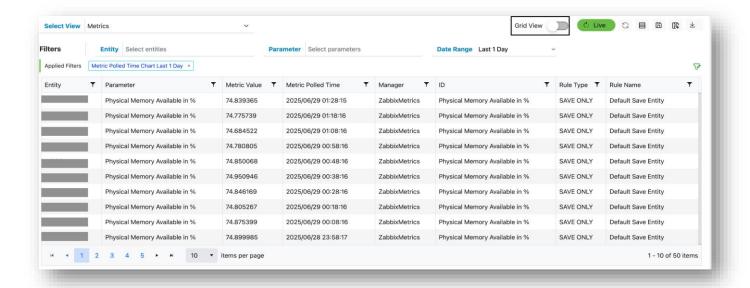


Figure 584 – Grid view Toggle button.

- 2. If there is no metric data available for the default time range (e.g., Last 1 Hour), you can change the Date Range using the dropdown filter.
- 3. As shown in the image below, selecting "Last 1 Day" provided metric data, which is then displayed in the chart.

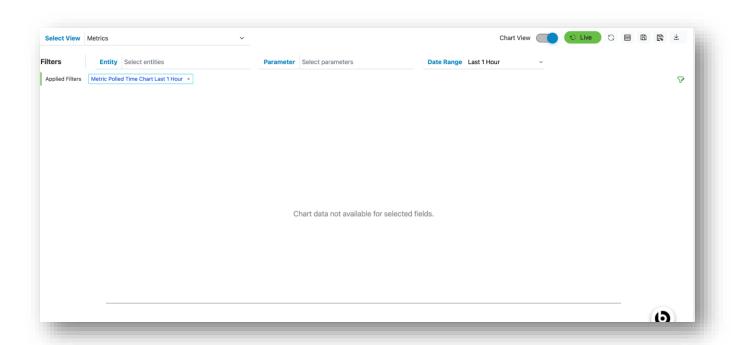


Figure 585 - Chart View

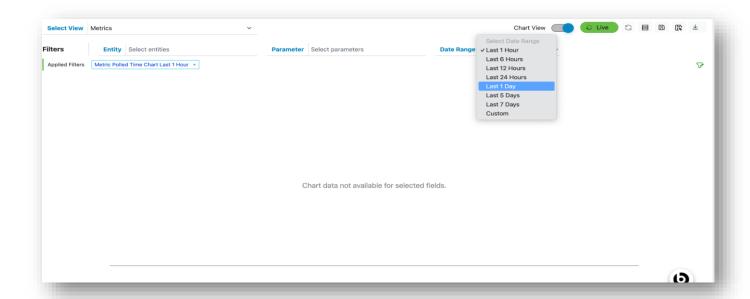


Figure 586 - Date Range

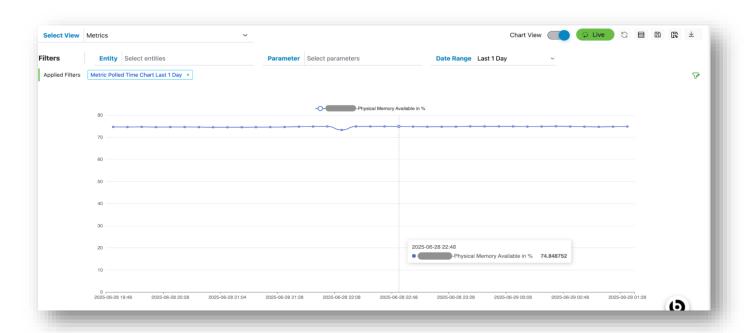


Figure 587 - Chart View

7.2.6.4 Add Column

This option will enable users to add more columns in the data grid to analyze it deeply. Please follow the steps below to add columns to the data view:

1. In the top navigation bar, click on data view and click on Metrics.

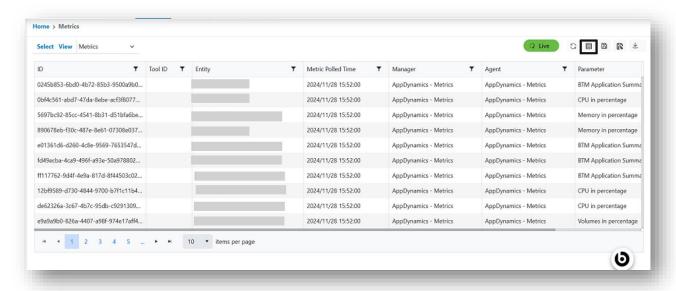


Figure 588 - Add Column

- 2. Click on the Add Column action button presents at right side of Live button.
- 3. A pop-up will open which enables user to select from list of available columns to add it in the grid as shown in figure. Then, click on save button to add selected columns in view.

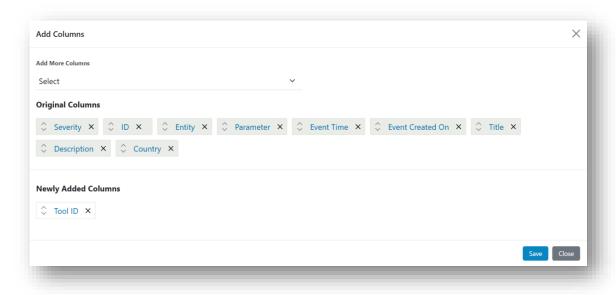


Figure 589 - Add Column (Cont.)

7.2.6.5 Save Metric

The steps below provide information on how to save metrics data:

- 1. In the top navigation bar, click on Data View and then click on Metrics.
- 2. Users can click the Save button.

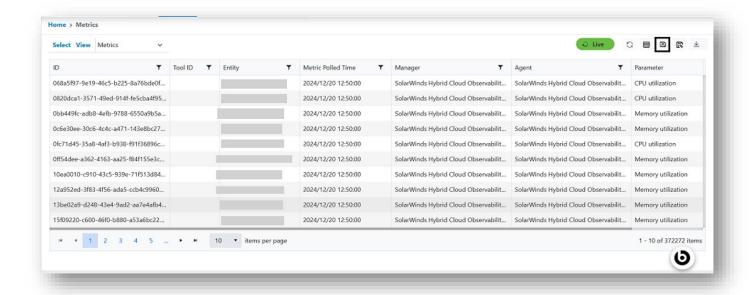


Figure 590 - Save Metrics

3. After saving, the event data appears in the grid and a successful popup appears.



Figure 591 - Confirmation Message

4. On clicking the Confirm button, success will appear.

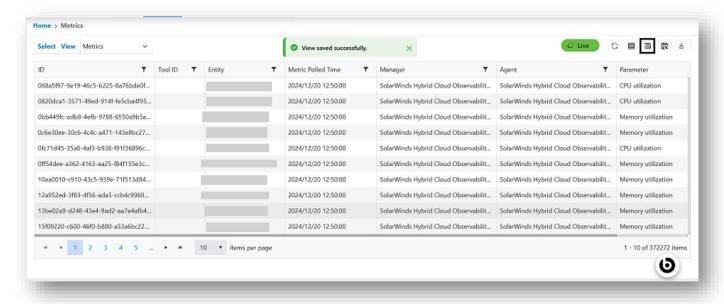


Figure 592 - Success Message

7.2.6.6 Save As Metric

This option will enable users to save the currently opened view with columns populated in data grid so that the same view can be shown to any other user in an organization. It is very helpful for admins to configure this kind of view for other users in an organization by creating a different view other than the current view. For example, view to list out all events with critical severity only. Please follow the steps below to save as events:

1. In the top navigation bar, click on Data View and click on Metrics.

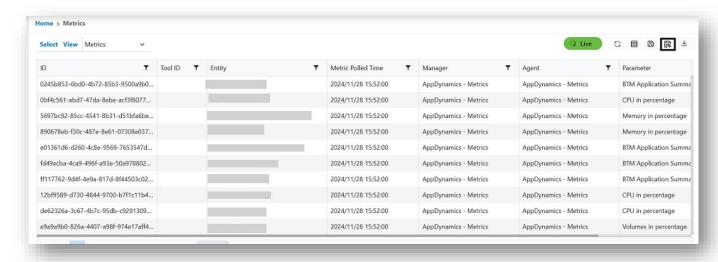


Figure 593 - Save As Metric

- 2. Once the user clicks on Save As button, a pop-up will open to provide the following information:
 - View Name: Name of view like critical events.
 - Description: Description of view like list all critical events.
 - Show To: Either it will be visible to the user who is saving it or to other users.

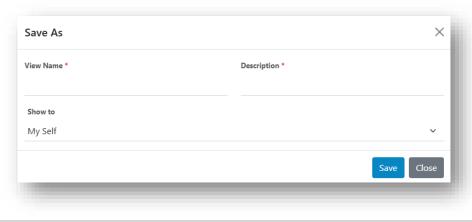


Figure 594 - Save As Metrics

3. Next, click on the save button to save view and this view will be available in list for users.

7.2.6.7 Refresh Metric

This option will enable users to refresh data grid to populate latest data over screen.

Please follow the steps below to refresh the metrics grid:

- 1. In the top navigation bar, click on Data View and click on Metrics.
- 2. Once the user can click the Refresh button, confirmation pop up message will appear.

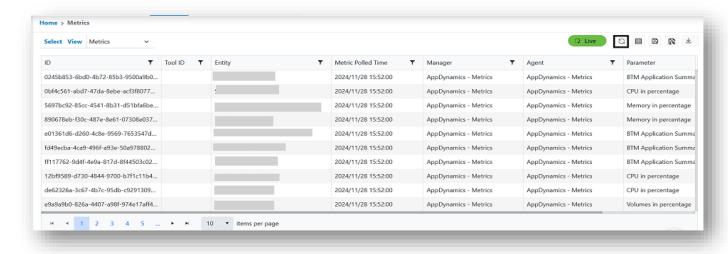


Figure 595 - Refresh Metric

7.2.6.8 Live Metrics Data

This option will enable users to stop/start live updates of data being shown in grid. Please follow the steps below to enable/disable live metrics.

- 1. In the top navigation bar, click on Data View and click on Metrics.
- 2. Users can see the Live Metrics Data, and this will be updated regularly, and automatically refreshes the grid.

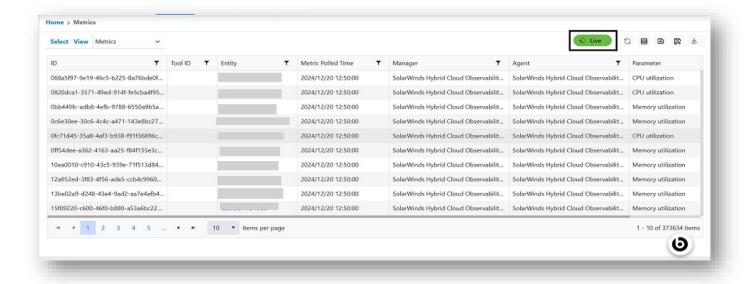


Figure 596 - Live Metrics Data

3. To stop live data update, please click on Live button, it stops updating the live noise event data, a confirmation message will appear, stating that "Auto – refresh has been disabled".

7.2.6.9 Apply Filters

This option will enable users to apply filters over the currently opened view to see data of specific values. For example, to see lists of critical events, users can set filters over severity columns of all metrics 'data. Please follow the steps below to apply filters:

- 1. In the top navigation bar, click on Data View and click on Metrics.
- 2. Click on the filter option present at each column as shown in figure:

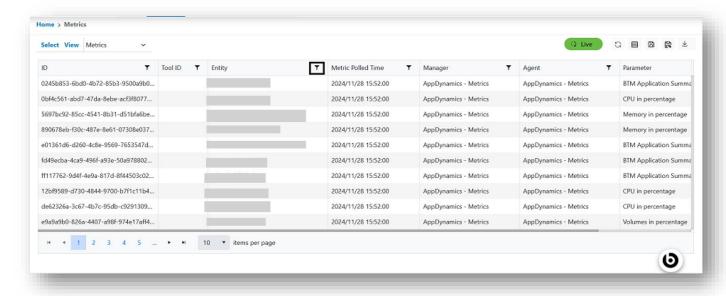


Figure 597 - Filter Operation

3. A filter screen will come up which enables user to select field and corresponding operator along with value to filter data.

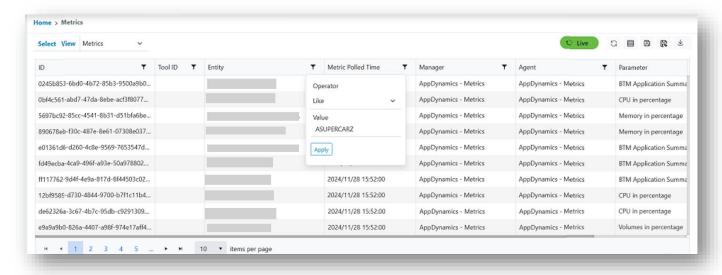


Figure 598 - Filter Operation

4. Users can see the result of applied filter.

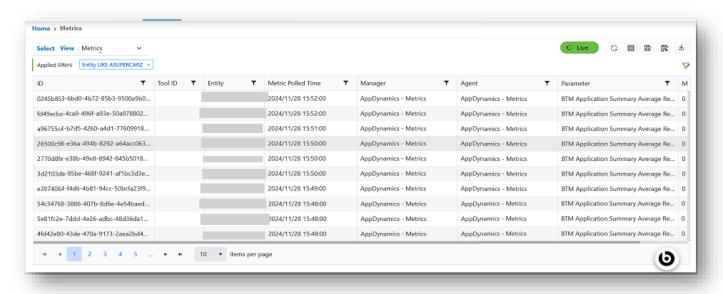


Figure 599 - Filter Operation

7.2.6.10 Download CSV

This section provides users with downloading CSV data of records based on the filter they apply to the records of the events screen. Users can download the csv files with max of 1000 records.

- 1. In the top navigation bar, click on Data View and click on Metrics.
- 2. Apply the filters as per requirements.
- 3. Click on the Download CSV $\stackrel{\checkmark}{\bot}$ action button.
- 4. Check the downloads in the system, the CSV file will be downloaded.

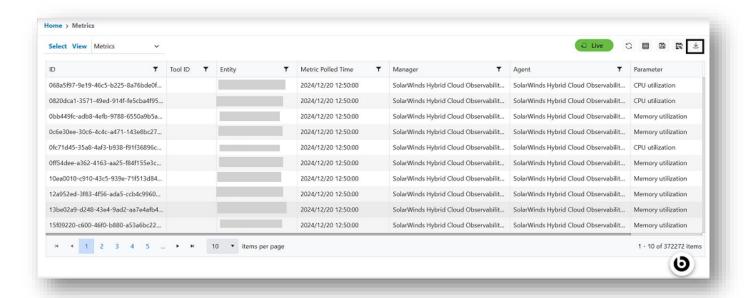


Figure 600 - Download CSV for Metrics Data

Anomaly Metrics:

- On selecting the anomaly metrics user can see the anomaly metrics data over the select view dropdown.
- On selecting the anomaly metrics from the select view dropdown, users can see the anomaly metrics data over the metrics screen.

8 Integration

IMM (Integration Management Module) offers a list of out of box adapters for onboarding in NiFi. Below is the list of adapters with respective required fields.

In case a connector is required to be deleted then it needs to be first deleted from NiFi and then from IMM.

For details of Out OF Box NiFi Connectors Integration, please refer to HCL IEM Integration Guide.

9 Glossary of Terms

9.1 Key Terminology Used in IEM

Table 4 – Key Terminology Used in IEM	
IEM	IntelliOps Event Management
IMM	Integration Management Module
IEA	IntelliOps Events Accumulator
ETL	Extract, Transform, Load
Al	Artificial Intelligence
ООВ	Out of the Box
NiFi	Apache NiFi (short for Niagara Files)
JVM	Java Virtual Machine
API	Application Programming Interface
UI	User Interface
NIC	Network Interface Card
SSD	Solid State Drive
СРИ	Central Processing Unit
SNMP	Simple Network Management Protocol
FQDN	Fully Qualified Domain Name
SSL	Secure Sockets Layer
URL	Uniform Resource Locator
CI	Configuration Item
CMDB	Configuration Management Database
PoC	Proof of Concept
IT	Information Technology
ITSM	IT Service Management
AIML	Artificial Intelligence and Machine Learning
SSO	Single Sign-On
SAML	Security Assertion Markup Language

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