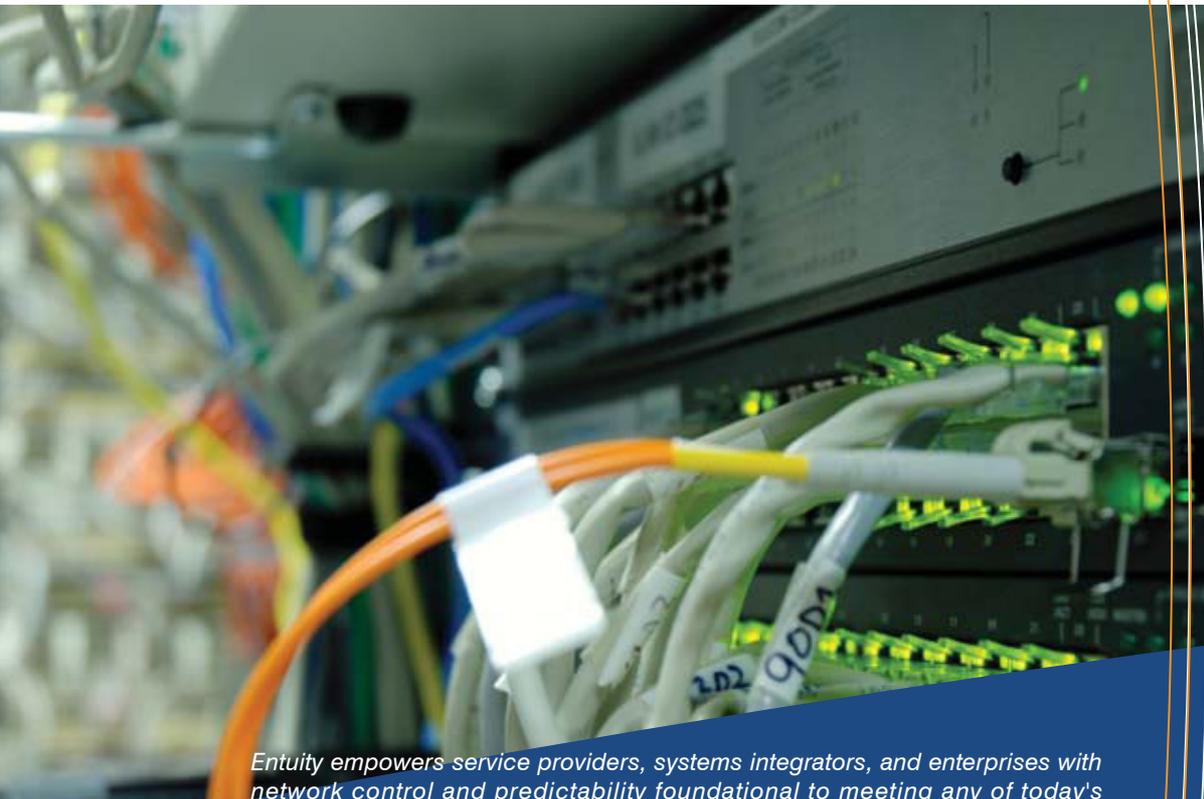




Entuity[®] 16.5

Entuity Migration Guide



Entuity empowers service providers, systems integrators, and enterprises with network control and predictability foundational to meeting any of today's complex IT infrastructure challenges. Entuity provides a succinct suite of the most important functionality for network management – inventory, fault, and performance management – but presented in an easy to use, quick to deploy format.

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1 Entuity 16.5 Migration Overview

This migration guide covers issues for users migrating from earlier versions of the Entuity software to Entuity 16.5 GA (General Availability).



Before you upgrade to Entuity 16.5 you are strongly recommended to back up your current installation; the Entuity 16.5 upgrade process does not include a rollback facility.

Migration Prerequisites

Before installing Entuity 16.5 you should read its accompanying:

- *Known Issues* note which details open Issues and resolutions.
- *Release Notes* which identifies for you new, changed and removed functionality.

This Migration Guide, the Known Issues note and the Release Notes are all available from the [Entuity Training Academy](#). If you require login credentials for the Customer Portal please contact your Entuity representative for assistance.

You can find detailed install and configure instructions in the *Entuity Getting Started Guide*. The *Getting Started Guide* and *Release Notes* are available at the root of the supplied Entuity installation DVD or ISO image.

When migrating from Entuity 15.5 or earlier you should also read the *Release Notes* and *Migration Guide* of intermediate releases, for example Entuity 16.0.

Entuity 16.5 Licenses

You must obtain from your Entuity representative an Entuity 16.5 license; licenses valid with earlier versions of Entuity are not valid with Entuity 16.5.

Entuity 16.5 Multi-Server Environments

If you use multiple Entuity servers to manage your Network and group these together using a consolidation server, then you must upgrade all servers in the group to the same version of Entuity. Note that, whilst Entuity does not enforce the upgrade, the consolidation server will not provide full access to data or functionality of any remote servers that are on different versions of the software.

If you use multiple Entuity servers to manage your Network, independently of each other, then you may continue to operate these servers using different versions of the software.



If you require further guidance on migrating multiple Entuity servers to Entuity 16.5 please contact your Entuity Support representative.

System Requirements and Shipped Software

Entuity 16.5 server is only certified for use with the 64-bit English edition variants of:

- Red Hat Enterprise Linux ES version 6
- Red Hat Enterprise Linux ES version 7
- Oracle Linux 6
- Windows Server 2008 R2
- Windows Server 2008 SP2
- Windows Server 2012
- Windows Server 2012 R2.

Table 1 Minimum Server Specifications provides a by component breakdown of the minimum requirements for each of the device-port management bands:

- High, 1000 devices and 70000 ports.
- Intermediate, 800 devices and 50000 ports.
- Low, 400 devices and 25000 ports.

There is no change from Entuity 16.0 to Entuity 16.5.

Server Component	Low	Intermediate	High
Minimum CPU Clock Speed	2.5 GHz	2.5 GHz	2.5 GHz
Intel Processor Family (or equivalent)	Xeon E3 Family	Xeon 5000 Sequence	Xeon E5 Family
Minimum No Cores	4	6	12
Windows Minimum Physical Memory	6 GB	12 GB	24 GB
Linux Minimum Physical Memory	8 GB	16 GB	32 GB
Disk Capacity	60 GB	90 GB	120 GB

Table 1 Minimum Server Specifications

Changes to Shipped Third Party Software Versions

Product	Entuity 16.0 GA	Entuity 16.5
Apache Tomcat	7.0.62	7.0.70
Apache HTTPD	2.4.12	2.4.23
JRE	1.8.0_45	1.8.0_101
MariaDB Server	10.0.16	10.0.26
MariaDB Library (libmariadb)	2.1.0	2.3.0
MariaDB Java Client	1.1.8	1.2.3

Table 2 Third Party Software Versions

Product	Entuity 16.0 GA	Entuity 16.5
OpenSSL	1.0.2a	1.0.2h

Table 2 Third Party Software Versions

JRE Upgrade Overrides SSL/TLS Certificates in the Default Keystore

This section is only relevant to you if you have implemented Entuity external authentication using secure LDAPs.

The default keystore file `entuity_home\install\JRE\lib\security\cacerts` is overwritten during the JRE upgrade. If you had imported certificates into that keystore then those security certificates are lost.

To preserve your certificate setup you can export them before migrating to Entuity 16.5 and import them after completing the migration. It is important that you export and then import all of the security certificates in a certificate chain. A gap in the chain will cause Java to fail to resolve a certificate to a trusted authority and in turn prevent users from logging on.

To retain imported SSL/TLS certificates:

- 1) Before starting the Entuity 16.5 upgrade export the security certificate chains using `entuity_home\install\JRE\bin\keytool`. For example to export the `dvlz` certificate enter:

```
keytool -keystore ..\lib\security\cacerts -export -alias dvlz -file
c:\certificates\dvlzcertfile.crt
```

Where:

- `..\lib\security\cacerts` is the path to the keystore.
- `dvlz` is the user friendly name used to identify the certificate in the keystore.
- `c:\certificates\dvlzcertfile.crt` is the exported certificate file. The export directory should exist before you export the certificate, `keytool` does not create it.

- 2) Enter the keystore password. The default keystore password is **changeit** although your system administrator may have previously amended it.
- 3) After migrating to Entuity 16.5 import those security certificates using `keytool`. For example to import the `dvlz` certificate enter:

```
keytool -keystore ..\lib\security\cacerts -import -alias dvlz -file
c:\certificates\dvlzcertfile.crt
```

- 4) Enter the keystore password. During the migration the JRE was updated and the keystore password was reset to the default password, **changeit**.
- 5) After you have imported all of the security certificates you must ensure they are picked up by Apache Tomcat on the Entuity server. When Tomcat starts it updates its security certificates. You do not have to stop Entuity, you only have to stop Tomcat (and it will automatically restart). For example from `entuity_home\bin` enter:

```
stop tomcat
```

Entuity Web UI System Requirements

The Entuity web UI is certified for use with:

- Internet Explorer 10.0 or later
- Microsoft Edge v38.14393 (with EdgeHTML v14.14393)
- Firefox 38 ESR (Extended Support Release) or later
- Google Chrome 46 or later releases.

Users must enable their web browsers for both JavaScript, for example to allow the working of the Entuity menu structure, and cookies, for example to maintain their login status.

The greatest call on the resources of a client machine is the map. An Entuity map is drawn on the client machine, the more objects you have in the map the greater the resource required to render it. To use maps with 500 or more objects the client machine should have:

- 8GB or more of memory.
- The equivalent, or better, of an Intel 4 Cores i5 2.8 GHz processor.

Entuity 16.5 Migration Path

The certified migration paths to Entuity 16.5 are from:

- Entuity 15.5 Patch 3
- Entuity 16.0 Patch 2.

You can check the Entuity Support site for the latest patches.



If you are upgrading to Entuity 16.5 from a version of Entuity or patch level that is different to the certified migration path please contact Entuity Support for guidance.

Entuity Version and Patch Level

To check the current version and patch level of an Entuity server:

- 1) From the Entuity server click **Help > About Entuity**.

Entuity displays server details, including release version and patch details, for example:

```
Entuity 16.0 Patch (P01)
```

To install a patch to an Entuity server:

- 1) From the Entuity customer support site download the patch file to a temporary location.
- 2) Stop the Entuity server and take a backup.
- 3) Apply the patch using the patch installer, `entuity_home\install\installPatch`, for example:

```
installPatch c:\temp\ENTUITY_15.5.P01.WinNT.patch
```

- 4) After installing the patch run `configure`. The patch is only applied once `configure`

successfully completes.

- 5) Restart the Entuity server.

Event Project Deployment

Entuity 16.5 has an updated Event Management System (EMS) event project, that for example includes:

- Remote server availability events and incidents.
- Service-level traffic aggregation events and incidents.
- Virtual Machine events and incidents.

When you upgrade Entuity the new event project is available but it is only applied to the installation when it is deployed.

If you have customized your current event project then use the Merge tool that is available from the EMS Project History page. It identifies differences between two selected projects. You can then choose how to resolve conflicts between the two. On completion it creates a new event project ready for deployment (the two source projects are not changed).

Migrating to Entuity 16.5

Installing Entuity 16.5 is the same process whether migrating from Entuity 16.0 Patch 2 or an earlier supported version of Entuity. When migrating from Entuity 15.5 Patch 3 you only need to install Entuity 16.5; you do not first install Entuity 16.0. Ensure you:

- Are migrating a server on the migration path. (See *Entuity Version and Patch Level*.)
- Read *Chapter 2 - Entuity 16.5 Key Changes*.
- Read *Chapter 3 - Entuity 16.0 Key Changes* if migrating from Entuity 15.0 or earlier.
- Have an Entuity 16.5 license.

To migrate to Entuity 16.5:

- 1) Stop the Entuity server and take a backup.
- 2) Run `install` to install Entuity 16.5. You should add the new license before running `configure` (by default the license is installed to `entuity_home\etc`).
- 3) Run `configure`. After `install` completes you are prompted to continue with the installation process.
- 4) Restart the Entuity server.
- 5) Deploy the updated event project or apply the changes within it to your current project.

2 Entuity 16.5 Key Changes

This section details areas of Entuity 16.5 where there are changes in either its behavior or management.

Component Viewer (Java Client) Removed

Component Viewer (Java Client) is removed in Entuity 16.5:

- Administrators may remove the Java installation used to run Component Viewer on client workstations.
- Functionality delivered through the Java Client is now available through the Entuity 16.5 web UI, e.g. Ticker, Object Editor, Annotations. (See the *Entuity 16.5 Release Notes*.)
- Any user scripts which called Component Viewer must be updated to call the same functionality available from the Entuity web UI.

eyeclientrpc Removed

`eyeclientrpc` was deprecated in Entuity 16.0 and is now removed. The Entuity RESTful API is enhanced to support functionality which was previously delivered through `eyeclientrpc`. Any scripts run through `eyeclientrpc` must be re-implemented using the Entuity RESTful API.

Entuity Configuration Management

The Configuration Monitor module is removed from Entuity 16.5:

- Its functionality is now part of the Entuity Configuration Management module. Enable this module to retain Configuration Monitor functionality.
- It is now licensed under the Entuity Configuration Management license.
- It retains a separate Tool Permission, Configuration Monitor, to allow users access to the Configuration data, e.g. through the Configuration tabs in the web Explorer, the Check Configuration Now context menu option.

Also note that the Configuration Monitor feature will now be made available to Ping Only and Basic Managed devices, as well as Fully Managed devices.

Pre Entuity 16.5 Scripts Obsolete

Configuration Monitor functionality is now delivered through the Configuration Management framework and uses Tasks and Steps to define the retrieval actions.

Scripts written for the Configuration Monitor module do not work in Entuity 16.5. Entuity 16.5 includes system tasks to replace the obsolete Configuration Monitor scripts:

- Retrieve Configuration (Cisco)

- Retrieve Configuration (Juniper)
- Retrieve Configuration (HP)
- Retrieve Configuration (Huawei)

During the upgrade:

- Entuity attempts to match old system configuration retrieval scripts with the appropriate, new configuration retrieval tasks.
- Custom scripts will not be matched to tasks, and will be left blank.
If you have written or modified scripts you must convert them to the new tasks/steps format. Contact Entuity Support for guidance on converting your scripts.
- Policy and exclusion file settings are retained.

Annotations on Views

In Entuity 16.5 annotations are managed through the web UI. Entuity 16.5:

- Migrates annotations associated with network objects to the new implementation.
- Discards any annotations associated with views. Entuity 16.5 does not support view annotations.

View-level Streams

The existing view-level reachability stream (`viewReachability`) is replaced by a new stream that reflects the status of devices in the view (`viewDeviceStatus`), i.e. it gives a breakdown of the number of devices in each of the possible status categories. The new stream has these attributes:

- `okDeviceCount`
- `adminDownDeviceCount`
- `uninitialisedDeviceCount`
- `unknownDeviceCount`
- `degradedDeviceCount`
- `downDeviceCount`.

These new streams:

- Provide a historical record of the count of the devices in each of the possible states per view.
- Are displayed in a view's Advanced tab.
- Are available for use in Report Builder.

The AvailMonitor Low View Device Reachability event and its associated Device Reachability threshold remain intact. However, the way in which a view's device reachability is calculated has been modified. Entuity now raises this event when the number of devices in the view

(expressed as a percentage of the total number of devices in the view) falls below the view's Device Reachability threshold. Note that, for the purposes of this event, devices will be considered Reachable if they meet one of these conditions:

- Responding to ICMP ping.
- Explicitly set to Admin Down (and therefore not contactable by design).
- In an Uninitialized state (and therefore their actual status is not yet available).

Any existing customer reports that use the old streams will not work and will need to be updated.

3 Entuity 16.0 Key Changes

This section details key changes introduced with the release of Entuity 16.0. You should read this section if you are migrating to Entuity 16.5 from Entuity 15.5 or earlier. Users migrating from Entuity 16.0 can skip this section.

Entuity 16.0 changed the behavior of these functions:

- Map Migration and mapToView Utility
- Physical Connections
- Entuity Integration for BMC Remedy AR System
- Power over Ethernet Module Removed.

Map Migration and mapToView Utility

Maps in Entuity 16.0 are representation of views. Users must therefore consider which of their current maps they want to create in Entuity 16.0 as views.

After migrating to Entuity 16.0 users can use the `mapToView` utility to convert old maps into views. Users will be able to create a view for a selected map along with any sub-views to match the map's old hierarchy. This method will keep the map's X and Y co-ordinates and any background image and drill downs. Custom links will be removed.

mapToView Overview

`mapToView` creates a view and map definition for each specified map saved on the current server. If a map contains components that are managed by remote Entuity servers it will also create views on those remote servers (when using a valid user account with the Create Views permission).



When migrating maps on a central Entuity sever that include objects managed by remote Entuity servers then the central and remote servers should be running Entuity 16.0.

You can control:

- Which maps are converted by specifying the owner of the map and specifying either the name of a map or all of that user's maps.
Public maps do not have an owner but can be converted in a similar way.
- The owner of the new view. The view owner must have the Create View permission.



After the view is created the view owner or a member of the administrator user group can, through the web UI, setup user group access.

If a map included:

- A drill-down (i.e. a group) to another map then `mapToView` would create a sub-view that included the objects in that grouping.
- Entuity servers they are not included in the converted map. Entuity 16.0 maps do not represent the Entuity server.
- Hypervisors then the associated VM Platforms are migrated to the view. A VM Platform and all of its hypervisor are included to the map.



Hypervisors may be dragged into maps. They do not appear in the navigation tree but are listed in the View Summary and can be first dragged into Drop Box before dragging into a map.

- Components from remote Entuity servers then `mapToView` will also create views on those remote servers.
You should ensure the server on which you are running `mapToView` has access to those remote servers and that the user account to which you are assigning view ownership exists on all of the remote servers with the appropriate Create Views permission level.

Convert Maps with User Defined Connections

User Defined Connections are usually migrated to the new map. `mapToView` converts User Defined Connections to physical connections, connecting endpoints at the port or when that is not available at the device level.

`mapToView` does not convert User Defined Connections that include a group as an endpoint on the link. However in Entuity 16.0 maps do represent links between sub-views (i.e. between objects in the sub-views) and between a sub-view and an object on the map and if that were the purpose of the User Defined Link it may appear as though the link was migrated.

Map Folder Structure

Pre-Entuity 16.0 maps were saved to sub-folders of `entuity_home\maps`. Entuity derived the name of the sub-folder from the username of the map owner. Public maps did not have an owner and instead were saved to the `Shared` folder.

Maps and the map folder structure are migrated to Entuity 16.0 so that they are available for conversion to the new map implementation (they are not used by Entuity 16.0). When you run `mapToView` you must specify the owner of the map as it:

- Identifies the folder in which the map, or maps, to be converted reside.
Public maps were saved to the `Shared` folder and are specified through a separate parameter.
- May determine the owner of the migrated view (there is an option to specify a different owner). The owner of the view must have the appropriate Create View permission level for `mapToView` to create the view and map.

Users cannot globally convert all maps unless they write their own script from which to call `mapToView`.

mapToView Parameters

The conversion utility `mapToView` is located in the `/install` directory of the Entuity server, for example `entuity_home/install`.

To view the command line help run `mapToView` without any parameters:

```
maptoview
Usage: mapToView [OPTION].. [map]..
```

Parameters		Description
-h	--help	Outputs to the command line a listing and brief description of the <code>mapToView</code> parameters.
-u	--user	Converts map(s) owned by the user. If a user account name includes spaces then enclose that name in double quotes, e.g. "James Smith".
-c	--createAs	The username of the Entuity user assigned ownership of the converted map. This user account must be a member of the Administrator user group or have the Create Views tool permission.
-p	--password	Password of the Entuity user assigned ownership of the converted map.
-s	--shared	Parameter used to identify maps that were shared, set to Public. They do not have an owner.
-a	--all	Convert all maps owned by the specified owner (<code>--user</code>) or are public (<code>--shared</code>).
-v	--verbose	Sends to the command line progress messages on map conversion.

Table 3 mapToView Parameters

Convert All of a User's Maps

To convert all maps on the Entuity server that belong to one user and have that user retain ownership of the map (and view) you must specify the user account and password. For example to convert all admin's maps enter:

```
mapToView -u admin -p admin -a
```

If the maps saved to a server contain content from multiple servers then you should run `mapToView`:

- When the remote servers are available.
- And ensure the user account has the appropriate permission level on all servers. `mapToView` would create views and sub-views on the remote servers.

Convert a Named Map

This example uses a map

- Created in Entuity 15.5.
- Named **global user defined connections added**.
- Created by the user **admin**.

- Which includes groups, Cloud_Close and Cloud_Far that are connected to each other and c3560 using user defined links. User defined links are not migrated to Entuity 16.0 however these user defined links represent the connections that are available to the devices within the two groups.

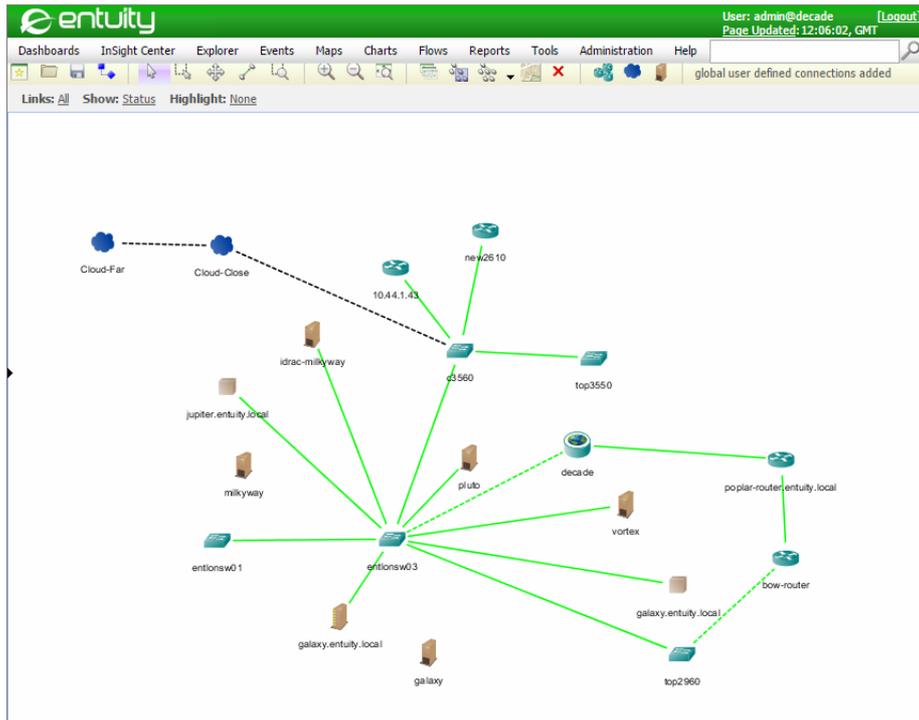


Figure 1 An Entuity 15.5 Map

To migrate a specific map to Entuity 16.0:

From the updated Entuity 16.0 server:

- 1) Navigate to `entuity_home\install` and enter:

```
mapToView -u admin -p admin "global user defined connections added"
```

`mapToView` reports the progress of the view generation. `mapToView` creates views and sub-views on all of the connected servers to which the owner of the new map currently has access and the permission to create a view.

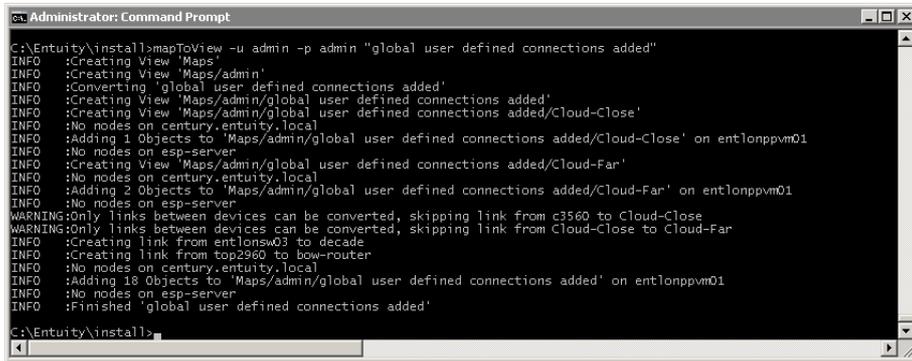


Figure 2 Map with User Defined Connections

2) Login into the Entuity server and view the newly created view.

mapToView creates the Cloud_Close and Cloud_Far sub-views. The map shows links between these sub-views because the devices within the views have connecting links.

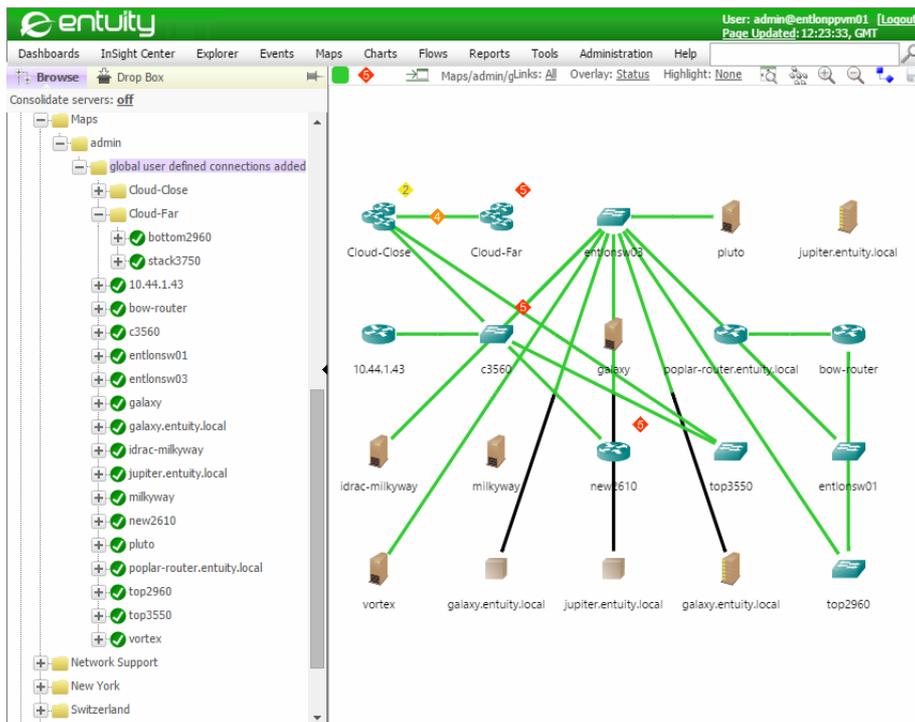


Figure 3 Imported Map and View

Reassign Ownership of a User's Maps

You can set ownership of the converted maps (views) to a different user to that who originally owned the map. For example to assign all of RiLee's maps to NanaToure enter:

```
mapToView -c NanaToure -p password -u RiLee -a
```

The password is for NanaToure's user account, as NanaToure's account is used to create the view.

Convert Shared Maps

mapToView does not assign user groups to views. When converting Shared maps assign an administrator as the owner and then - as with all other converted views - through the Entuity web UI assign user group access. This example assigns to JamesSmith ownership of all views converted from Public maps:

```
mapToView -c JamesSmith -p password -s -a
```

Physical Connections

In Entuity 16.0 the option to disable physical connections is removed. Entuity will migrate physical connections that are disabled and will maintain their disabled status. If you edit those connections then they are automatically enabled and you cannot subsequently disable them.



In Entuity 16.5 Physical Connections are renamed as Custom Connections.

You can check the current status of a connection through the Physical Connections page:

- 1) Click **Administration > Inventory/Topology > Physical Connections**.
- 2) Position the mouse over the column titles and from the context menu click Configure Columns.
- 3) Move Enabled to the Show column and click OK.

Name	From Device	From Interface	To Device	To Interface	Server	Enabled
c3560 to 10.44.4.240	c3560	[Fa0/1] FastEthernet0/1	10.44.4.242	[Fa0/0] FastEthernet0/0	century	Yes
c3560 to 10.44.4.240	c3560	[Fa0/1] FastEthernet0/1	10.44.4.242	[Fa0/0] FastEthernet0/0	entlonppvm01	Yes
Firefly to madrid-switch	Firefly		madrid-switch	[Fa0/9] FastEthernet0/9	entlonppvm01	No

Buttons: Add, Edit, Delete

Figure 4 View Migrated Disabled Connections

Entuity Integration for BMC Remedy AR System

When Entuity 16.0 is installed to machines running the Linux operating system the Entuity Integration for BMC Remedy AR System uses a 64-bit version of `arforward`. Entuity also include a 32-bit version, `arforward_32`. If you want to use the 32-bit version then you must rename it to `arforward`. Both versions of `arforward` are found in `entuity_home/integ/Remedy/`.

In Entuity 16.0 Windows installations continue to use a 32-bit version of `arforward`.

Power over Ethernet Module Removed

In Entuity 16.0 the Power over Ethernet (PoE) module is removed.

This includes the removal of:

- PoE module option from `configure`.
- The PoE and VLAN by Port and Device Report.
- Support for Ethernet Switch PoE and therefore after migration the loss of the per port PoE metrics. If you require more information please contact Entuity Support.

Support for PoE Midspan Injectors is retained and is now included to Entuity by default.



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