Vertiv™ Data Center Planner

Installer/User Guide

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures. For additional assistance, visit https://www.VertivCo.com/en-us/support/

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1 PRODUCT OVERVIEW

1.1 Features and Benefits

NOTE: This document supports versions up to and including release 4.0, Service Pack 10 (SP10).

Vertiv™ Data Center Planner is an enterprise class application designed to enable management of server room and data center physical infrastructures.

With Data Center Planner, information technology managers can gain quick and valuable insight into space, power, heat, weight and network connectivity.

At the heart of this application is a powerful design tool used to model the data center down to the physical device and rack levels. Using the comprehensive Device Library, a data center manager can quickly design or modify an existing floor-mounted device using user interface drag-and-drop operations.

Global view allows you to view individual or multiple data center locations on a visual map along with their properties and capacity visualization.

Plan view enables you to visualize placement of racks and other floor-mounted assets and provides capacity visualization. Using tab navigation, you can open two plans simultaneously.

Rack view allows you to view the front and back of the rack design with a detailed level of clarity and reliability. This view also provides rack properties and capacity visualization.

Asset view allows you to view a single asset. This view also provides asset properties and capacity visualization.

Connection view allows you to create cable-based connections between assets.

Templates can be created for future or repeated use.

Inventory has a repository for placed and unplaced assets.

Capacity Search allows you to search for assets by power, heat, weight, space and user-defined property and value for a selected plan or across all plans.

Planning allows you to create future changes to your data center. Changes are organized into projects by due date and contain groups of tasks that will be executed together. You can select projects to see the effect of changes on the currently selected floor plans.

Project history allows you to view changes to the data center over time.

In addition to all of these features, enhanced integration capabilities are provided between the Data Center Planner software, the Avocent® DSView™ management software and the Avocent® Rack Power Manager software. The capabilities are provided to enhance event notifications, reboot and shut down devices, monitor device power status and read average power. To access these enhanced integration capabilities, the Data Center Planner software must be used with the DSView™ software and/or the Rack Power Manager software. See Enhanced Integration Features on page 26 for more information.

The Data Center Planner software also includes the ability to integrate with Liebert SiteScan™ Web. See Liebert SiteScan™ web integration on page 24 for more information.

1.2 Attributes

The software attributes allow for easy start-up and integration of data center management.

- Data center floor design and visualization.
- Supports floor tile system and grid detail.
- Visualization and summary data provided at five levels of detail: power, space, weight, heat and networking.
    - Global view - Shows a geographical view of the infrastructure, formed by the combination of a static map overlay, locations, data elements and a visual representation of relationships between locations.
    - Plan view - Shows a high-level view of the data center floor plan.
    - Rack view - Shows a single rack or multiple racks and all their components.
    - Asset view - Shows a single asset and its properties.
    - Connection view - Shows asset port connections.
    - Supports rack unit (RU) detail.
    - Imports and exports floor plan and asset information.
    - Search for assets that are placed or unplaced on floor plans.
    - Rack design and visualization.
    - Front and back views for mounted assets.
    - Intuitive graphical drag and drop of shapes within the floor plan.
    - Pan, zoom, move and rotate capabilities.
    - Set derated properties for power, heat and weight.
    - Colorization - In plan view, you can get a visual picture of capacity parameters. That capability is delivered via color-coded visual cues and static data elements displayed according to user configuration.
    - A large device library of preloaded assets.
    - Updates provided for requesting new asset types.
    - Imports and exports features custom floor plans.
    - Integration with DSView™ software.
    - Allows you to plan data center changes in the future by creating projects with scheduled tasks.
    - View History.
    - Reservations - Reserve space in racks for future utilization.
    - Rack Timeline - View progression of changes over a time period.
    - Capacity Search - Quickly identifies available capacity regarding space, power, heat, weight and network connectivity.
    - End-to-end connection visualization.
    - Real world power usage.
    - User access control.

1.2.1 Visualization capabilities

Both visualization and design capabilities are accessible at different view levels. The software provides an intuitive method to switch from one view to another.

This feature consists of graphic capabilities that enable you to access a visual representation of the IT infrastructure modeled in the data center. A web browser provides visual representation and depicts the

actual infrastructure with a high level of consistency. The software offers a visualization feature measured by dependability, appearance and functionality.

1.2.2 Layout design capabilities

This feature enables the computer-aided design of the IT infrastructure's physical organization, letting you quickly design or replicate the actual infrastructure and capture it in the application modeling data store.

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2 SOFTWARE REQUIREMENTS

2.1 Getting Started

This chapter describes the configuration and software requirements for installation of the Data Center Planner software.

2.1.1 Server

- Microsoft® Windows® Server 2003 R2 Standard Edition SP2
- Microsoft Windows Server 2008 SP1 (32-bit) Standard Edition
- Microsoft Windows Server 2008 R2 (64-bit) Standard Edition
- Microsoft Windows Server 2012 (64-bit) Standard Edition
- Microsoft Windows Server 2012 R2 (64-bit) Standard Edition
- Red Hat® Enterprise Linux® 5.4 and 6.5 (32-bit and 64-bit)
- Red Hat Enterprise Linux 7.0 (32-bit and 64-bit)
- Red Hat Linux RPM Packages - libXext, libXtst, libXi, xorg-x11-apps, xorg-x11-xauth, glibc, libXrender and libstdc++
- Hardware - Any server class processor with four or more cores, 4 GB or more memory, 16 GB hard disk or SSD

NOTE: Specialized versions of Microsoft Windows Server such as SMB Server and Storage Server are not supported.

NOTE: When the server is on Windows Server 2008 with Internet Explorer Enhanced Security Configuration (IE ESC) enabled, which is the default, port 8443 and 8092 must be open for remote computers to run the application.

2.1.2 Client

- Microsoft Windows 7 and 8.1 Professional
- Microsoft Windows XP Professional with SP3 (32-bit support only)
- Microsoft Windows Vista® Business SP2
- Adobe Flash Player 10 through 17 for Windows OS
- Adobe Flash Player 11 for Linux OS
- Hardware - Intel® i7 Core Processor - dual or more core, 4 GB or more ram and 100 Mbits/s or faster network

2.1.3 Browsers

- Mozilla® Firefox®
- Microsoft Internet Explorer® 7, 8, 9, 10 and 11
- Google Chrome™

2.1.4 Network connection

For use over wide area network (WAN), a connection of 1.5 MB or more and network latency less than 150 ms is required.

2.1.5 Other software

- Adobe® Reader®
- Microsoft Excel® 2003
- Crystal Reports® 2008 or 2011 (optional)

The minimum screen resolution required is 1024 x 768. At this resolution, it is necessary to view the application in full-screen mode.

NOTE: If Microsoft Office is not installed on the client, you can only save floor plans as All Files(*.*). Floor plans export properly, but the file does not get an extension, which makes Excel software hesitant to open it. The filename should have the .xls extension.

2.1.6 Supported database types

- Microsoft® SQL Server® 2005
- Microsoft SQL Server 2008 R2 (64-bit)
- Microsoft SQL Server 2012
- Microsoft SQL Server 2014
- PostgreSQL Version 9.1 (32-bit and 64-bit)
- PostgreSQL Version 8.4.2

2.1.7 Supported languages

- English
- Chinese Simplified
- Japanese
- French
- German
- Russian
- Spanish

NOTE: Red Hat Enterprise 5.4 server is supported for these languages using Microsoft XP SP3 Client on a PostgreSQL database.

2.2 Configuration assumptions

The configuration and benchmarking provided in this chapter are based on testing with dedicated physical servers. Use of the Data Center Planner software within a virtual server is not supported in a production environment. While the application is known to work using VMWare's virtualization, no guarantees or configurations are offered for its support. In addition, there are known problems using Microsoft virtualization products and other virtualization solutions such as Sun's VirtualBox have not been tested.

2.2.1 Minimum system recommendations

While the default installation of Data Center Planner assumes a single server installation of the application and database server, with co-resident application and database servers, the multi-tier architecture of the application allows it to be distributed across multiple servers in order to offer increased scalability and performance.

The recommended arrangement configuration for a distributed system is to install the application server on a separate server from the PostgreSQL or Microsoft SQL Server® installation.

The following table captures the minimum and recommended system recommendations for CPUs memory and I/O for the application and database server based on configuration benchmark testing within our test labs. The minimum configuration should be sufficient for installations of 50 racks or less per floor plan. The recommended configuration has been tested with 1000 racks per floor plan.

Table 2.1 Minimum System Recommendations

RECOMMENDED	CPU	MEMORY	I/O	COMMENTS
Minimum	Processor: Single core Pentium 4, Speed: 2.8 GHz	2 GB	Standard desktop configuration	N/A
Recommended	Processor: Quad core Intel® Xeon processor, 4 MB cache, Speed: 2 GHz or greater	4 GB or greater	SATA class I/O consistent with RAID 5 using 7200 rpm drives	Application Server and DBMS on separate servers. Hardware requirements are identical for both.

2.2.2 Hardware considerations

While the hardware described provides satisfactory performance for day-to-day operation of the software, some operations that are I/O intensive, such as importing and exporting Microsoft Excel representations of large floor plans, can take a considerable amount of time directly related to I/O and CPU characteristics of the application server and the database server.

Large floor plan imports and exports times can be reduced up to 50% by using faster CPU's and I/O. Since imports and exports are considered infrequent events in the daily use, the sizing recommendations are determined based on the regular day-to-day use for building floor plans, device racks and creating future projects with capacity planning.

2.2.3 Tuning considerations

In addition to the impact of hardware configuration, adjustments may be necessary to take advantage of additional memory in either the application server or database server.

Application server

The application server memory is determined by parameters passed to the Java Virtual server (JVM) hosting the Avocent Management Platform enterprise service bus. These settings are set to provide optimum performance for the application and should not be adjusted.

Database server

PostgreSQL

The PostgreSQL server can be tuned to take advantage of additional memory by modifying the postgresql.conf file, which is located in the C:\Program Files\PostgreSQL\8.4.2\data\ directory for Microsoft Windows or opt/PostgreSQL/8.4.2/data/ for Red Hat Linux installations.

For a new installation, the directory is C:\Program Files\PostgreSQL\9.1.3\data\ for Microsoft Windows or opt/PostgreSQL/9.1.4/data/ for Red Hat Linux.

Two configuration variables may be set in that file:

- The shared_buffers variable sets the amount of memory cache used by all PostgreSQL processes. It should be set to 10-25% of total memory available to the database server.

- The following example is from the postgresql.conf file that is configured to reserve 2 GB of memory. Please note that changes in this file require restarting the database to take effect.

Resource usage (except WAL)

Memory - shared_buffers = 2 GB min 128 kB or max_connections at 16 kB (This change requires a restart.)

The effective cache size is the amount of kernel cache that can be dedicated to PostgreSQL. Setting this depends on what else is running on the server. For a dedicated server, set this to 75% of total memory.

Query tuning

Planner method configuration

- enable_bitmapscan = on
- enable_hashagg = on
- enable_hashjoin = on
- enable_indexscan = on
- enable_mergejoin = on
- enable_nestloop = on
- enable_seqscan = on
- enable_sort = on
- enable_tidscan = on

Planner cost constants

- seq_page_cost = 1.0 measured on an arbitrary scale
- random_page_cost = 4.0 same scale as above
- cpu_tuple_cost = 0.01 same scale as above
- cpu_index_tuple_cost = 0.005 same scale as above
- cpu_operator_cost = 0.0025 same scale as above
- effective_cache_size = 6 GB

Microsoft SQL Server 2005

The default memory settings for Microsoft SQL Server 2005 are usually more than adequate. If you have other applications installed on the server server and wish to change the default settings, adjustments may be made by using the MS SQL Server management studio application.

Configuring SQL Server's tempdb

The SQL Server tempdb system database is a global resource that is available to all users connected to an instance of the SQL Server. It is used to hold temporary and internal objects that SQL Server uses to perform many different operations.

Performance issues

Because tempdb is used by all databases contained in an instance if the SQL Server, it can become a bottleneck for performance. It can also cause degraded performance if a single database continues to

grow at a fast pace. In both of these cases, tempdb automatically grows in size. The result is overhead during the execution of queries, updates and other operations.

Determining the appropriate size

It is recommended that the initial size of tempdb be set to 25% of the total user database size. For example, if an instance of SQL Server instance 3 databases of size 250 mb, 250 mb and 500 mb and the size of tempdb should be calculated as: (250 + 250 + 500) / 4 = 250. Thus, the initial size of tempdb should be set to 250 mb in this case.

To set the initial size of the tempdb:

The initial size of tempdb can be set in two ways.

1. The first way requires Microsoft SQL Server Management Studio.
    a. Connect to the SQL Server instance for which you desire to change tempdb size.
    b. Select the instance's node in the Object Explorer pane.
    c. Select the Databases node and the System Databases node under that.
    d. Right-click the tempdb node and select *Properties*.
    e. In the dialog box that appears, select the *Files* tab.
    f. Modify the Initial Size (MB) value for "tempdev" in the Database Files table. Set to the value described in the above Determining the Appropriate Size section.
    g. Click *OK*.
2. Set the initial size of tempdb is by executing the following SQL queries:
    a. Get the current size of tempdb:

```
USE tempdb
GO
EXEC SP_SPACEUSED;
GO
```

    b. Set the desired size of tempdb:

```
USE master
GO
ALTER DATABASE tempdb
MODIFY FILE (NAME = 'tempdev', SIZE = 250MB);
GO
```

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3 INSTALLATION

3.1 Installing Vertiv™ Data Center Planner

The following steps take you through the Data Center Planner installation process.

NOTE: Data Center Planner does not support network drive installations. The software must be installed on a hard drive partition. In addition, the installation is not supported on a domain controller. It must be installed on a system with a properly configured hostname, which resolves to the IP address of the server where the application is installed.

To install the application:

1. On a Windows® server, run the *DataCenterPlanner.exe*.

   -or-

   On a Linux server, run the *DataCenterPlanner.bin*.

NOTE: The Install Anywhere window launches. This may take several minutes.

2. On the first screen, select a language from the drop-down list. Click *OK*.
3. On the Data Center Planner Introduction screen, click *Next*.
4. Accept the Data Center Planner license agreement and click *Next*.

NOTE: The Choose Install folder screen opens. On a Linux server, the path is */usr/local*.

5. Accept the Data Center Planner default location folder or choose another location. Click *Next*.
6. A Database Installation Warning opens advising not to choose Oracle® as a database selection. Click *OK*.
7. On the Data Center Planner Pre-Installation Summary screen, click *Install*. This may take several minutes.
8. In the meantime, the Avocent Management Platform (AMP) installation begins. On the AMP Introduction screen, click *Next*.
9. Accept the AMP license agreement and click *Next*.
10. Accept the AMP default location folder or choose another location. Click *Next*.
11. Enter an AMP default administrator username and password. Confirm the password and click *Next*.
12. On the AMP Database Selection screen, there are four options for installing a database:
    a. Install a new PostgreSQL database.

       On the PostgreSQL Database installation screen, enter a password, confirm the password and click *Next*. Be sure to note the password for editing in PostgreSQL.

       On the Pre-Installation Summary screen, click *Install*.

    b. Connect to existing PostgreSQL database.
    c. Connect to existing Oracle database. (Oracle database is not supported for use with Data Center Planner. If you choose this database, the installation will not perform properly.)
    d. Connect to existing Microsoft SQL Server database.

On the Existing Microsoft SQL Server Database Configuration screen, enter the database server, database name, username and password. Check the *Use Unicode Encoding* checkbox if required and click *Install*.

NOTE: When selecting Microsoft SQL, a domain name is required, use Username:domain\username. An instance name is not required, but you can use MS-SQL-ServerName\InstanceName.

13. It may take several minutes for the database to load.
14. When the AMP installation is complete, click *Done*.
15. The Data Center Planner installation continues.
16. A message displays advising to wait for the Data Center Planner services to come up before launching the application. Click *OK* and click *Done*.
17. To run the application: on a Windows Server, go to *Start - All Programs - Avocent - MergePoint Data Center Planner - Avocent - MergePoint Data Center Planner*.

    -or-

    On a Linux server, open a browser and point the server where the application was installed.
18. Depending on your browser, a message may appear advising that there is a problem with the web site security certificate. Follow the instructions for installing the browser's security certificate.
19. Next, activate the license to use the application. If the proper license is not activated, you will be unable to manage floor plans. The following errors may occur: the launch site does not display or the launch site displays the correct information under Start - All Programs but no plans can be created, deleted, loaded or imported.
20. After activating the license, create users.

NOTE: You can also access the application from any supported web browser with access to the installed server. The URL is https://{servername}:8443/console/console.html?root=mergepoint, where {servername} is replaced with the name or IP address of the server upon which the application was installed.

NOTE: When first logging in, if the application does not open with the username and password fields, close the browser and wait a few minutes for the database information to load and services to start and try again. For more information, see Stopping and Starting the Vertiv Services on page 137.

3.1.1 Installing Data Center Planner on a server with limited or no Internet connection

To install the software with limited or no internet connectivity:

Contact Vertiv Technical Support and supply the host name of the server. They will send you an email with information to activate your software.

3.2 Logging into Data Center Planner

A user with roles and rights must be created before using the application. An administrator must create users and assign roles.

To log into Data Center Planner:

1. From the Desktop, select *Start - All Programs - Avocent - MergePoint Data Center Planner - Avocent MergePoint Data Center Planner*.
2. Enter the username and password created in user management by the administrator.

3. Click *Options* to expand all options. Leave the default Authentication Source as Internal.
4. Enable the *Remember User* checkbox if you want the system to remember your log in information.
5. Click *Change Password* if you want to change your password.
    a. Enter your Username.
    b. Enter your old password.
    c. Enter a new password.
    d. Confirm the new password by entering it again.
    e. Click *OK*.
6. Click *Login* or press Enter.
7. The application opens to a dialog box with the list of available plans. Depending on your rights, you may or may not have Create Plan and Import Plan as options.

NOTE: If you click *Cancel* on this dialog box, you cannot place anything on the content area or export a plan.

8. Select a floor plan from the list and click *Open* or select *Create Plan* or *Import Plan*.
9. When a floor plan opens, the application is in current state mode. Depending on your rights, current state, project or history modes are functional accordingly.

3.3 Migrating to a New Version of Data Center Planner

To prepare for a new version upgrade:

1. As a safety precaution, before migrating to a new version, you must back up the database and floor plans.
2. Check to make sure your maintenance agreement is up to date.
3. Check to make sure your hardware and software are up to date.
4. Do not uninstall the software before migrating to a new version. If you do so, you will lose your projects and your database.
5. When a new version is released, you will receive an email with a link to the location for downloading the software and documentation.
6. When you run the executable, it will automatically replace your version and your current plans will be transferred to the new version.

To migrate to a new version:

1. On a Windows server, run *DataCenterPlaner.exe*.

    -or-

    On a Linux server, run the *DataCenterPlanner.bin*.

2. The Install Anywhere window launches. This may take several minutes.
3. On the first screen select a language and click *OK*.
4. Click *Next* on the Introduction screen.
5. Accept the License Agreement and click *Next*.
6. Accept the default location on the Choose Install Folder screen and click *Next*. On a Linux server, the path will be different.
7. Accept the default on the Installation Upgrade screen and click *Next*.

8. On the Pre-Installation Summary screen, click *Install*. This may take several minutes.
9. Click *Done* when the installation is complete.
10. Click *OK* on the Install Complete message. Allow approximately 30 minutes for the services to come up before launching the application and do not restart the server during this time.
11. Once the database has migrated, import all floor plans again and you can remove the older versions.

NOTE: When first logging in, if the application does not open with the username and password fields, close the browser and wait a few minutes for the database information to load and services to start and try again.

3.4 Uninstalling Data Center Planner

It is not necessary to uninstall the application before migrating to a new version. If you do uninstall, you will lose your projects, plans and your database. Be sure to back up your database, export your projects to .pdf files for reference and export your plans to spreadsheets.

To uninstall Data Center Planner and Avocent Management Platform (AMP) on a Windows server:

NOTE: If you uninstall AMP, you may remove other Vertiv products that are installed on your system.

1. Select *Start - All Programs - Avocent - MergePoint Data Center Planner - Uninstall*. The Uninstall Introduction screen opens. Click *Uninstall*. Click *Done* when complete.
2. If you desire to remove the AMP program, go to *Start - Control Pane - Add or Remove programs* and *Remove the Avocent Management Platform program*. Click *Uninstall,* then click *Done*.
3. If you desire to remove the database, highlight PostgreSQL and click *Remove the PostgreSQL*.
4. After removing the database from your control pane, navigate to C:\Program Files and delete the PostgreSQL folder.
5. Under Program Files also delete the Avocent folder and navigate to C:\Documents and Settings and delete the Postgres folder.
6. Go to *My Computer*, right-click and select *Manage*.
7. Expand Local Users and Groups and select *Users*. Delete the postgres user.
8. Go to *Start - Control Pane - System* and click the *Advanced* tab.
9. Click *Environment Variables*.
10. Under System Variables, highlight *DVR_HOME* and click *Delete*.
11. Highlight *AMP_HOME* and click *Delete*.
12. Reboot your computer.

To uninstall on a Linux server:

1. Right-click on the desktop and select *Open Terminal*.
2. At the # prompt, enter **cd $DVR_HOME**. Press **Enter**.
3. Enter **cd Uninstall**. Press *Enter*.
4. Enter **./Uninstall_Data_Center_Planner**. Press **Enter**.
5. Enter **cd $AMP_HOME**. Press **Enter**.
6. Enter **cd uninstall**. Press **Enter**.
7. Enter **./Uninstall_AMP**. Press **Enter**.

To remove the PostgreSQL 9.1.4 application packages:

1. At the prompt, enter **cd/opt/PostgreSQL/9.1.4/** and press **Enter**.
2. Enter **./uninstall-postgresql**. Click *Yes*.

To remove the PostgreSQL 8.4.2 application packages:

1. At the prompt, enter **cd /opt/PostgreSQL/8.4.2/**
2. Enter **./uninstall-postgresql**. Click *Yes*.

To remove the Postgres database 9.1.4 folder:

1. At the prompt, enter **cd /opt/**. Press **Enter**.
2. Enter **rm -rf/opt/PostgreSQL**. Press **Enter**.

To remove the Postgres database 8.4.2 folder:

1. At the prompt, enter **cd /opt/**. Press **Enter**.
2. Enter **rm -rf /opt/PostgreSQL/**. Press **Enter**.

To cleanup and remove the Avocent folder:

1. At the prompt, enter **cd /usr/local**. Press **Enter**.
2. Enter **rm -rf Avocent**. Press **Enter**.

To remove the Avocent xml file:

1. At the prompt, enter **cd /opt**. Press **Enter**.
2. Enter **rm -rf Avocent**. Press **Enter**.

NOTE: When uninstalling Avocent Management Platform, you may receive the following message: D:\Avocent\docs refers to a location that is unavailable. It could be on a hard drive on this computer or on a network. Check to make sure that the disk is properly inserted, or that you are connected to the Internet or your network and then try again. If it still cannot be located, the information might have been moved to a different location. This is a Windows Explorer refreshing issue. On the left side of the pane, it looks like the directories are still there. However, unless there is a file that was not removed from the selected directory, Windows will display the message stating that the selected directory refers to a location that is unavailable because the selected directory was deleted. Click *OK* on the message and it will refresh and show the remaining directories.

If an uninstall fails on a Microsoft Windows server, use the following steps to uninstall the software:

1. Uninstall AMP.
2. Start Windows Explorer.
3. Remove the directory where Avocent Management Platform and Data Center Planner were installed.
4. Go to *Start - Run*.
5. Enter **regedit**.
6. Expand HKEY_LOCAL_server - Software - Microsoft - Windows - CurrentVersion - Uninstall.
7. Remove Data Center Planner and Avocent Management Platform, if they exist.

If an uninstall fails on a Linux server, use the following steps to uninstall the software:

1. From the Linux terminal, enter **cd $AMP_HOME/uninstall**. Press **Enter**.

2. Enter **./Uninstall_AMP**. Press **Enter**.
3. Enter **cd /home.** Press **Enter**.
4. Enter **rm -rf <top level of the directory where AMP and DVR were installed>**. Press **Enter**.
5. Enter **rm -rf /etc/profile.d/amp.sh**. Press **Enter**.
6. Enter **rm - rf /etc/profile.d/dvr.sh**. Press **Enter**.

4 USER MANAGEMENT

4.1 Managing Users

Before using Data Center Planner, an administrator must create users and assign roles to users. Data Center Planner utilizes existing and custom authentication methods to create and authorize new users and establish roles and effective rights.

The administrator can only log into the application and select *User Management and Licensing* to manage users and activate licenses, that is, unless other rights are assigned.

4.2 Authentication

Internal authentication is configured automatically when the Avocent Management Platform is installed.

4.3 External Authentication

Data Center Planner also allows External Authentication and Authorization through LDAP and Active Directory. External authentication is based on plugging in external services to the Authentication Manager. All instance creation is managed using the configuration console. The Vertiv server authenticates to the actual external authentication service when doing instance creation. If you can authenticate to a service normally, the same rights should be adequate for creating an external authentication instance using the Vertiv server. For additional information, see External Authentication and Authorization on page 132.

4.4 Users

These options are used to manage users, groups and external group mappings.

4.4.1 Permissions

Permissions are a relationship between a user and a role. A role is a set of rights and targets.

Rights

For a role to be effective, it must have a right. A role can be created without targets and it can be assigned to users, groups and collections. For additional information, see Roles on page 19.

You can assign one of the following default roles and its corresponding rights to a user:

- User - Persons authenticated with access to the authorization system. Only the unique identifier of the person is stored.
- Effective Rights - Used to identify the effective rights for users, rights and targets.
- Permission - An unnamed association of a user and role.
- Role - A set of rights used in conjunction with a user and a target to create permissions. Each role has a unique name within the system.
- Groups - Groups can be created and users assigned to a group or groups.

The current roles are:

Avocent Administrator - Performs user management functions only, such as add, assign and edit users, permissions and roles.

Data Center Planner-Executor - Can perform the same functions as a read-only user and commit tasks within a project.

Data Center Planner-Manager - Has read-write permissions.

Data Center Planner-Planner - Can perform the same functions as read-only users, plus view, edit and create projects. The planner role does not have access to import, create or delete current floor plans.

NOTE: A planner can only create templates in the context of a project. Unlike the manipulation of assets and their properties in project planning, the templates created by a planner are available across all floor plans and time and can be used by anyone in the current state, providing they have permissions.

Data Center Planner Project Review - Can perform the same functions as read-only users plus view projects and history but cannot create or make changes to current floor plans or projects. A project reviewer can click the *Revalidate* button to refresh a project making sure the project is current.

Data Center Planner - ReadOnly - Can open global view, view floor plans, racks, assets, connections and history, but cannot make changes in any view.

Reporting Designer - Can create reports using Crystal Reports.

Reporting Viewer - Can view reports.

4.4.2 Creating users

To create new users:

1. Log in as an administrator and select *User Management* from the primary navigation pane.
2. Select *Users* from the secondary navigation pane.
3. Select *New* from the Actions, Users pane.
4. Enter a username. Do not use any spaces in the username.
5. Enter a password. The password should be between 8 and 65 characters, contain at least one alphabetic and one numeric character and contain at least one upper case and one lower case letter and confirm the password by entering it again.
6. To assign the new user to a group, select *Groups* from the left tree.
7. Select a group from the Available groups column, click on a group and click the right arrow to move it to the Selected groups column and click *OK*.
8. To assign the new user account information, select *Properties* from the left tree.
9. Enable the appropriate boxes, add an expiration date if necessary and click *OK*. The new user is added to the list of users.
10. Select *Permissions* from the secondary navigation pane to assign the new user a role.
11. Under the Permissions pane, expand the AllUsers option.
12. Click on the new user just created.
13. Under *Actions - Roles*, click *Assign Role*.
14. From the Available roles column, click on a role and click the right arrow to move the role to the Selected roles column.
15. Click *OK*. The new role is added to the Roles, Assigned column.
16. Click *User* in the left navigation pane and on the bottom of the content screen, you can enter contact information for the user.

To add a group and assign users to groups:

1. Select *Users* from the content pane.
2. Select *New Group* from the *Actions, User, Groups* pane.
3. Enter a name for the new group.
4. In the Available users column, click the desired users to add to the new group and click the right arrow to move the users to the Selected users column.
5. Click *OK*. The new group is added to the Groups column.

NOTE: The application supports using special characters when naming groups. Use Active Directory naming conventions, such as alphabetical characters (Aa-Zz), numeric characters (0-9), the minus sign "-" and the period "." Do not include spaces, ampersand, more than/less than brackets, slashes, colons or semi-colons.

4.4.3 Changing a password

There are two ways to change a password:

- An administrator can change a password in the User Management menu under Users.
- A user other than an administrator can use the login options.

To change a password by using the log in options:

1. You must be logged out of the application.
2. On the log-in screen, click *Options* to expand all options.
3. Click *Change Password*.
    a. Enter your username.
    b. Enter your old password.
    c. Enter a new password and confirm the new password by entering it again. Click *OK*.
4. Log in with the new password.

To change a password by using the administrator log in:

1. Log in as an administrator and select *User Management* from the primary navigation pane.
2. Select *Users* from the secondary navigation pane.
3. Click *AllUsers* under the Groups column.
4. Select a user under the User name column.
5. Click *Edit* under User in the Actions column.
6. Click *Change Password*.
7. Enter a new password.
8. Confirm the new password. Click *OK*.
9. The Change password was successful message opens. Click *OK*.

4.4.4 Roles

Roles are managed from User Management in the primary menu, are related to permissions and contain right, collection and target associations.

To add a role:

1. Select *User Management* from the primary menu.

2. Click *Permissions* in the secondary menu.
3. In the lower pane, under *Roles Management - Actions*, select *New*.
4. Enter a name for the new role in the name field.
5. Click *Available Rights* in the left tree.
6. Expand the *Avocent Data Center Management* option.
7. Expand the appropriate option for *Collection, Project or Plan*.
8. Enable the appropriate boxes to assign to the new role and click *OK*.
9. The associated rights are displayed in the Rights column.

To edit a role:

The Avocent Administrator role cannot be edited.

1. Select the role to be edited and click *Edit* under Actions.
2. Change the name or click *Available Rights* in the left tree.
3. Expand the *Avocent Data Center Management* option.
4. Expand the appropriate option for *Collection, Project or Plan*.
5. Enable or disable the appropriate boxes to edit the role and click *OK*.
6. The new associated rights are displayed in the Rights column.

To delete a role:

The Avocent Administrator role cannot be deleted.

1. Select the role to be deleted and click *Delete* under Actions.
2. A confirmation message displays. Click *Yes* to delete the role.

To copy a role:

1. Select the role to be copied and click *Copy* under Actions.
2. Change the name and click *Available Rights* in the left tree.
3. Expand the *Avocent Data Center Management* option.
4. Expand the appropriate option for *Collection, Project or Plan*.
5. Enable or disable the appropriate boxes to edit the role and click *OK*.
6. The new associated rights are displayed in the Rights column.

5 LICENSES

5.1 Rack Licensing

The application licensing is on a per rack basis. For example, a 100-rack license allows you to define 100 racks across all floor plans. Defining a total number of racks that exceeds your application license will create a notification pop-up at each subsequent log in.

The maintenance licensing provides access to application and shape database maintenance upgrades for the term of the maintenance license.

5.1.1 License enforcement

You can apply a production license that has a purchased rack count against it. The application will give visual feedback on the number of racks in plans and how many are licensed.

At log in, once the total plans reach the licensed rack count, the application starts informing you that you have exceeded the rack count. It will not allow you to place any racks beyond the licensed count. This includes copy and paste of racks and through any use of the web service interface or import.

5.1.2 License activation

After installing the software, you must activate the license.

To activate a license:

1. After logging into the application, select *Licenses* from the primary navigation pane.
2. Select *Licenses* from the secondary navigation pane.
3. From the *Actions, Licenses* pane, select *Activate*.
4. Enter your Entitlement ID and click *Get Entitlement*.
5. In the table, on the Data Center Planner Maintenance line, enter the number of maintenance licenses to be activated in the *Copies to activate* column.
6. On the Data Center Planner line, enter the number of racks to be activated.
7. The number of licenses/racks activated will be subtracted from the total number purchased in the *Copies remaining* column.
8. Click *Activate*.

Off-line license activation

If you install Data Center Planner install on a protected network and it is not able to communicate with our licensing servers on the Internet, you will have to perform off-line license activation. Please let your sales team know that you require this type of license activation.

You will provide your sales team with the hostname of the server where Data Center Planner will be installed. A license certificate will be generated with that host name and sent to you by email before you start the installation.

To perform an off-line activation after receiving the .lic file:

1. Microsoft Windows:
   - Place the .lic file in the [AMP_HOME]\bin.
   - Refresh the license server by running the lmreread.exe in the same folder.

2. Red Hat Linux Enterprise:
    - Place the .lic file in the [AMP_HOME]\bin.
    - Refresh the license server by running the *lmreread* in the same folder.

5.1.3 License return

Rehosting is the administrative process of issuing a return of license activations for a device that is going to be decommissioned followed by an entitlement and activation of the same licenses on a different computer.

If you need to rehost entitlements to another computer, have the entitlement ID and activation ID and work with Vertiv Technical Support or Professional Services. To rehost licenses so the rehosting does not count as the one return that can be done within the rehost licenses policy.

5.1.4 License repair

The licensing is anchored to a single server and synchronized to the server clock. Changes to the device setup, clock changes or alterations to files within the server may cause corruption preventing licensing from performing appropriate. Licensing will attempt to repair this automatically. Should licensing fail to operation and log files indicate that the license cannot be repaired, please contact Vertiv Technical Support.

5.1.5 License details

You can display your license information by clicking on *Details* in the Action pane.

5.1.6 Proxy settings

You only have to set up a proxy server if your environment has a firewall that blocks communication to the Vertiv licensing server. To use a proxy server, you must know the proxy server address and port. If the proxy server requires credentials to log in, you must have an associated username, password and domain.

To use a proxy server with licensing:

1. In the Licenses menu, click *Proxy* in the Actions pane.
2. When the Proxy settings dialog opens:
    - Enable *Use proxy server*.
    - Enter the proxy server's IP Address or DNS Name.
    - Enter the port number.
    - Enter a username and password.
    - For proxy servers requiring Microsoft domain authentication, enter the name of the domain in the Domain field.
3. Click the *OK* button. The message: “Proxy settings successful” will be displayed. This success message only indicates that the proxy information has been stored. It does not verify that the proxy information is correct. If the information entered is incorrect, activation may fail.

6 INTEGRATION WITH OTHER VERTIV™ PRODUCTS

6.1 Supported Products

Data Center Planner supports integration capability with three additional Vertiv products concurrently.

6.1.1 DSView™ management software

Avocent® DSView™ software provides data centers with secure, centralized management for physical and virtual IT assets. By allowing administrators to remotely diagnose and modify any managed device, regardless of the health or status of the operating system or network connection, DSView software makes data center management and remote offices more accessible, extensible and secure.

DSView software easily integrates with existing security infrastructure, authenticating against internal or external standards-based services. All traffic is encrypted and the detailed activity logs provide a critical audit trail for issue resolution and regulatory compliance. Remote management capabilities allow physical lock down of sensitive servers. To take advantage of DSView software functionality, you must purchase a software web services license.

NOTE: All instances of DSView software within this document refer to DSView software versions 3 or higher.

6.1.2 Rack Power Manager

Rack Power Manager software is a standalone web browser-based, centralized rack power distribution unit (PDU) management solution. It provides all centralized management capabilities related to rack PDU devices, can perform power control actions and can run power consumption reports for rack PDUs.

6.1.3 Liebert® SiteScan™ web software

Liebert SiteScan Web software uses a network of microprocessor-based control modules to monitor and control Liebert precision cooling, power, UPS and other critical equipment. It enables you to monitor and control equipment in a single building, an entire campus or a network of facilities around the globe.

A Liebert SiteScan Web system utilizes a web-based server running Microsoft Windows XP, 2003 Server or 2000 and a conventional web browser to gather information, change operating parameters, run reports and perform similar functions on various types of critical equipment.

6.2 Integrating with Data Center Planner

6.2.1 DSView software integration

Data Center Planner allows direct access to assets being managed by the DSView software by opening a web service session with the DSView software. For additional information on this capability, see Avocent® DSView™ Software Managed Assets on page 101.

Data Center Planner can retrieve real world power readings for PDUs that are being managed by the DSView software via the web server interface with the DSView software. For additional information, see Real world power on page 102.

In order to prepare Data Center Planner for integration with DSView, the administrator must first import the DSView software certificate to Data Center Planner as described in Importing Certificates on page 25; then the DSView software connection properties can be established using the following steps.

NOTE: In order to enable web session operation with Data Center Planner, a DSView Web Services API license must be purchased and installed on the DSView software server.

To configure DSView software connection properties:

1. Launch the application. You must have a floor plan open to configure DSView software devices.
2. Select *Edit, DSView™ Software Configuration* from the menu options.
3. Enter the Server Host name.
4. Enter the Server Port.
5. Enter the Service Account name.
6. Enter the Service Account password.
7. Click *Test* to test the connection.
8. If the test is successful, click *Save*.

6.2.2 Rack Power Manager integration

Data Center Planner can retrieve real world power readings for PDUs that are being managed by the Rack Power Manager software via the web server interface with Rack Power Manager software. For additional information, see Real world power on page 102

In order to prepare Data Center Planner for integration with Rack Power Manager software, the administrator must first import the Rack Power Manager software certificate to Data Center Planner as described in Importing Certificates on page 25and the Rack Power Manager software connection properties can be established using the following steps.

NOTE: In order to enable web session operation with Data Center Planner, a Rack Power Manager API license must be purchased and installed on the Rack Power Manager software server.

To configure Rack Power Manager software connection properties:

1. Launch the application. You must have a floor plan open to configure Rack Power Manager software devices.
2. From the Edit menu, select *Rack Power Manager Software Configurations*.
3. Enter the Server Host name.
4. Enter the Server Port.
5. Enter the Service Account name.
6. Enter the Service Account password.
7. Click *Test* to test the connection.
8. If the test is successful, click *Save*.

6.2.3 Liebert SiteScan™ web integration

Data Center Planner can retrieve real world power readings for PDUs that are being managed by the Liebert SiteScan Web software via the web server interface with Liebert SiteScan Web. For additional information, see Real world power on page 102.

In order to prepare Data Center Planner for this integration with Liebert SiteScan Web, there is one action that must be performed by the administrator. The Liebert SiteScan Web software connection properties must be established using the following steps.

To configure Liebert SiteScan Web software connection properties:

1. Launch the application. You must have a floor plan open to configure Liebert SiteScan Web software devices.
2. From the Edit menu, select *Liebert SiteScan Web Configuration*.
3. Enter the Server Host name.
4. Enter the Server Port.
5. Enter the Service Account name.
6. Enter the Service Account password.
7. Click *Test* to test the connection.
8. If the test is successful, click *Save*.

6.3 Importing Certificates

In order for DSView and Rack Power Manager software to interface with Data Center Planner, it is necessary to import the software certificate to the Avocent Management Platform/Data Center Planner server. This trust relationship is needed so that the client server (Data Center Planner) will trust the DSView management software or Rack Power Manager software server and establish a secure connection. Both DSView management and Rack Power Manager software use the same process for handling certificates.

NOTE: It is not necessary to import the software certificate for Liebert SiteScan™ Web software.

When importing a certificate on a Windows server, if you get an *Access Denied* error, right-click the command prompt on the server and click *Run as Administrator*. This will let you enter the command and import the certificate with no errors.

To import software certificates:

1. Open a browser on the Data Center Planner server and connect to the server.
   - For DSView software, use https://<dsview server>.
   - For Rack Power Manager use, https://<rpm server>.
2. The browser displays the Certificate Error next to the address bar. Click *Certificate Error*.
3. When the Certificate Invalid window opens, click *View certificates* at the bottom of the window.
4. Click the *Details* tab and click the *Copy To File…* button. Click *Next*.
5. Select *Base-64 encoded X.509 (.CER)*. Click *Next*.
6. Enter **dsview** or **rackpower** as the filename and click the *Browse* button.
7. Select the root of the *C:* drive as the location to save the file. This should always be the default location.
8. Click *Next* and *Finish*.

To import a certificate to the Avocent Management Platform (AMP) trust store:

From the command prompt, execute the following (single) command. Type the command exactly as shown in the following DSView software example, replacing "aliasname" with a unique name for DSView management and Rack Power Manager software.

```
"%AMP_HOME%"\jre\bin\keytool -importcert -alias aliasname -storepass changeit -keystore "%AMP_
HOME%"\jre\lib\security\cacerts -file c:\dsview.cer"
```

On successful execution of the command, the user is prompted for: Trust this certificate?: Enter **yes** and click *Enter*.

NOTE: For best results, manually type in the command. There may be a formatting issue with copy and paste for hyphens and quotes.

To import a certificate on a Linux server:

From the terminal, execute the following (single) command. Type the command exactly as shown.

```
$AMP_HOME/jre/bin/keytool -importcert -alias aliasname -storepass changeit -keystore $AMP_
HOME/jre/lib/security/cacerts -file /root/Desktop/dsview.cer.
```

To delete an existing certificate from the AMP trust store:

From the Command Prompt, execute the following (single) command, where aliasname is the alias name of the certificate that is to be deleted.

```
"%AMP_HOME%"\jre\bin\keytool -delete -alias aliasname -storepass changeit -keystore "%AMP_
HOME%"\jre\lib\security\cacerts
```

To view the existing certificate stored in the AMP trust store:

From the Command Prompt execute the following (single) command, where filename is the filename of the certificate with the complete path.

```
"%AMP_HOME%"\jre\bin\keytool -printcert -file filename -storepass changeit -keystore "%AMP_
HOME%"\jre\lib\security\cacerts
```

6.4 Enhanced Integration Features

The Data Center Planner SP10 software provides the following enhanced web service capabilities:

- Event Notifications (includes a graphical interface)
- Device Power Status and Power On/Off/Cycle
- Device Control
- Additional Average Power Reading Options

In order for the enhanced features to function, the Data Center Planner software must be integrated with a version of DSView™ and/or Rack Power Manager software that supports the enhancements as follows:

- Avocent® DSView™ software version 4.5 build 247+
- Avocent® Rack Power Manager software version 1.5 build 71+
- Liebert SiteScan™ 6

Also, if the Data Center Planner, Rack Power Manager or DSView software is upgraded after the Data Center Planner software is integrated with DSView and/or Rack Power Manager software, you must follow the instructions in Integrating with Data Center Planner on page 23 for the applicable software to enable these new integration enhancements.

6.4.1 Event notifications

The Event Configuration window is used to configure event filter settings for pulling or pushing events between DSView and/or Rack Power Manager software and the Data Center Planner software. From this window, global settings are made for event synchronization, which includes the severity and category filter selections and event trap or scheduler configuration. It also provides the ability to set the trap interval value which is used by DSView™ and Rack Power Manager software for pushing events to the Data Center Planner software when traps are enabled or to set the polling interval when the scheduler is enabled.

NOTE: Prior to synchronizing an asset's event from the DSView and/or Rack Power Manager software, the DSView name (for the asset) must be properly assigned to the User-Defined Property (UDP) in the Data Center Planner software. See Avocent® DSView™ Software Managed Assets on page 101.

NOTE: The trap function is dependent on the version of Web Service (WS) supported in DSView and/or Rack Power Manager software. If it is not supported, the feature is grayed out and is not selectable.

The Severity and Category filters are defined in the same way as in DSView and Rack Power Manager software. One or more event severity and catalog setting checkboxes can be selected to report only the events that match these settings. If no checkboxes are selected for the event severity and/or the category settings, it behaves as if all the checkboxes are selected for that category.

The Event Trap Settings section is used to configure either the sending of traps from DSView and/or Rack Power Manager software to report new events that have occurred over a given time interval, or to set up the scheduler in the Data Center Planner software to poll the DSView and/or Rack Power Manager software for new events that occur in specified time intervals. The Interval field is used to enter the numeric values for the minimum time interval between either traps or polls.

NOTE: When sending traps, the minimum value is 1 minute and the maximum value is 60 minutes. When scheduling polls, the minimum value is 5 minutes and the maximum value is 60 minutes.

Either the Trap checkbox or the Scheduler checkbox must be selected in order to enter the interval value and remains enabled until it is unchecked. After the *Apply* or *Save* button is clicked, your settings are saved to the local database and the information is sent to the remote DSView and/or Rack Power Manager software.

The Trap and Scheduler checkboxes can both be disabled (unchecked), but cannot both be enabled. If neither checkbox is checked, the Interval field is disabled and grayed out.

To configure the Event Configuration window:

1. From an opened plan in the Data Center Planner interface, click *Edit*, select *Preferences…* and then select *Event Configuration*.
2. Click one or more severity and category checkboxes to filter the events to be pulled from the DSView™ and Rack Power Manager software.
3. Click to enable the Trap or Scheduler checkbox and enter the event interval time.
4. Click *Apply* or *Save*.

NOTE: The window remains active if the *Apply* button is clicked and closes if the *Save* button is clicked.

6.4.2 Event retrieval from the DSView and Rack Power Manager software

From the Synchronize Events window, you can view the event severity and category filters and configure the date-time range to retrieve past events from the DSView and Rack Power Manager software. If the event filter list is too long to display in this window, the list is truncated; however, if you hover your mouse over the list, a pop-up window displays the complete list. These events can be viewed in a list from the Event Log of an asset or by locating severity icons in the graphical representation of your data center as detailed in the following pages.

In order to retrieve events for assets from the DSView or Rack Power Manager software, the DSView name must be properly assigned to the UDPs of the assets in the Data Center Planner software. See Avocent® DSView™ Software Managed Assets on page 101. The date-time range for pulling events must be assigned. After you have viewed events, they can be cleared by enabling the Clear Events First checkbox.

The following are the different configurations for clearing or retaining events:

- If the Clear Events First checkbox is checked and you leave the date time range as the default value, only all of the local events from the Data Center Planner database are deleted.
- If the Clear Events First checkbox is checked and you select a date and time range, all of the local events are deleted first and the remote events which occurred during this range are retrieved.
- If the Clear Events First checkbox is not checked and you select a date and time range, the existing local events are retained and the events that occurred during this range are retrieved.

After the Clear Events checkbox and date and time selections are configured, the *Execute* button is used to send the requests to the DSView and Rack Power Manager software to retrieve all the events that occurred during the specified date-time range.

To configure the Synchronize Events window:

1. From an opened plan in the Data Center Planner interface, click *Edit* and then click *Synchronize Events*.
2. Enable or disable the Clear Events First checkbox.
3. Click the calendars and arrows to select the date and time ranges.
4. Click *Execute*.

6.4.3 Event notification views

After configuring the Event Configuration and Synchronize Events windows and retrieving events, the Data Center Planner event notification feature allows you to identify assets with active events in four possible graphical views. (An event is indicated using the same severity icons used in the DSView™ and Rack Power Manager software.) The events are displayed in the global, plan, rack and asset views as follows:

- Global View - The plan icon is normally navy blue, however, the icon color changes depending on the level of severity as follows:
  - Non-critical events are yellow
  - Critical events or non-recoverable events are red

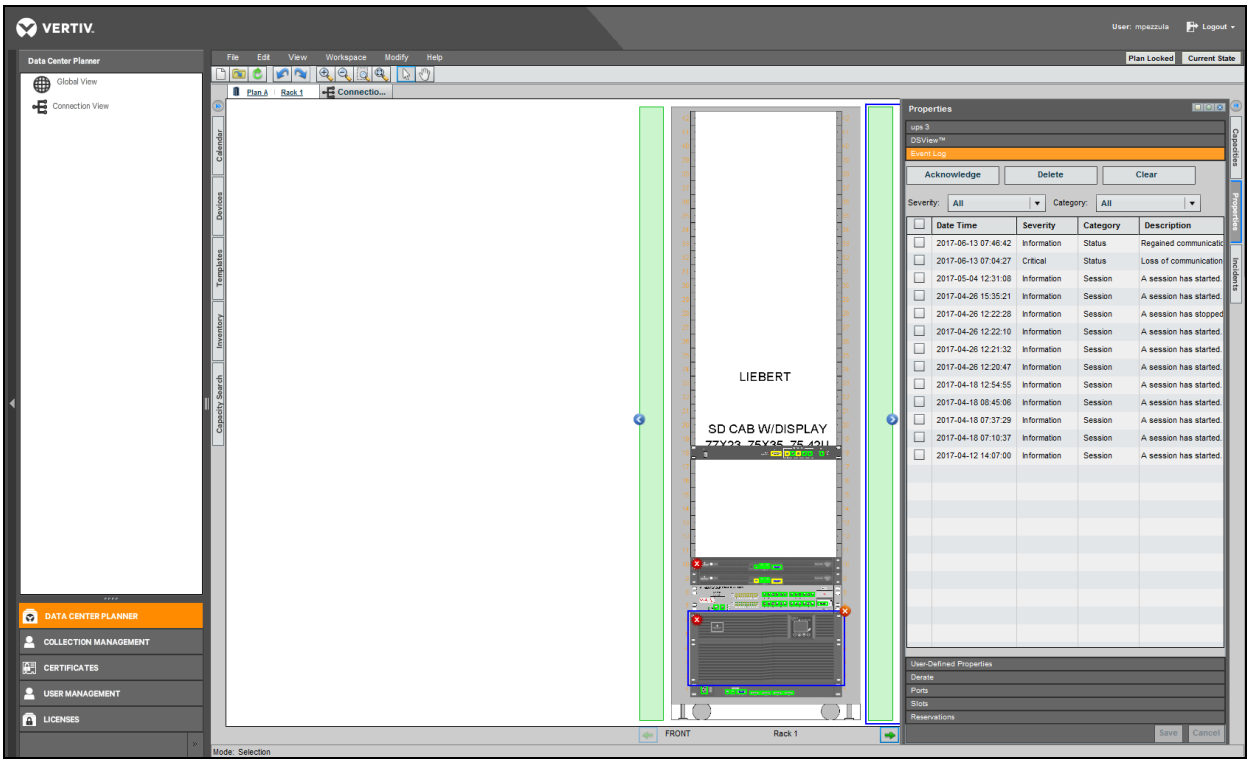
If a plan has many events and they have different severity levels, the most critical event is the displayed event. Also, if multiple plans are created in the same location and one or more plans have alarms, the most critical event is listed first.

- Plan View - Displays the highest severity icon of all events present in the database for any of the child assets in a floor-mounted asset. For example, if a rack has multiple child assets installed and one or more child assets have events present in the database, the event icon for the most critical event is displayed on the top of the rack in the floor plan.
- Rack View - For any of the child assets located in a rack, the highest severity icon is displayed at each child asset that has one or more events present in the database. For example, if multiple child assets located in the rack have one or more events present in the database, the event icon of the most critical event is displayed on the top of each of these child assets present in the rack view.
- Asset View - Displays the highest severity icon of all events present in the database for a specified asset. For example, if an asset has one or more events present in the database, the event icon for the most critical event is displayed on the top-left corner of the asset.

6.4.4 Event list display and acknowledgment

Logged events for a selected asset can be viewed by selecting the *Event Log* pane in the asset's Properties pane. From this window, the events can be filtered using the Severity and Category drop-down menu options. You can also select all listed events by clicking the checkbox in the first column's header or individually selecting one or more events. After the events are selected, clicking *Acknowledge* permanently deletes the acknowledged events from your local Data Center Planner database and sends the acknowledgments to the DSView™ and Rack Power Manager software. If you click the *Delete* button, the events are deleted from the Data Center Planner software and no acknowledgments are sent to the DSView and/or Rack Power Manager software. The *Clear* button resets the checkbox and filter fields to default.

Figure 6.1 Event Log



If you double-click an event in the Event List window, the Event Details window opens with more details about the event. Clicking the *Acknowledge* button on this window also deletes the event from the Data Center Planner database and sends an acknowledgment to the DSView and/or Rack Power Manager software.

NOTE: The event list information coming from the DSView™ and/or Rack Power Manager software and displayed in the Event Log or Event Details screen is always in English.

To display additional event information on these screens:

Move the mouse over a button to display the button's description.

-or-

Move the mouse over a label to display the complete string or double-click a label to open the complete description.

NOTE: If the severity event icon being displayed at the rack and/or asset view is due to the event that has just been deleted, the event icon changes to the next highest severity event in the database if one exists.

6.4.5 Rack Power Manager software sessions

With the addition of Rack Power Manager software session support, two radio buttons allow you to select sessions in the DSView™ software or the new Rack Power Manager software. The Rack Power Manager sessions behave similarly to the existing DSView software sessions as described in Avocent® DSView™ Software Managed Assets on page 101. Sessions can be enabled from the Data Center Planner software by selecting the Rack Power Manager Server radio button, entering the asset name (used in Rack Power

Manager software) in the DSView name field and clicking the *Save* button. When all available sessions from Rack Power Manager are displayed, you can click any session to open a Rack Power Manager session.

NOTE: This feature requires the Data Center Planner software and the version of Rack Power Manager software that supports session enhancement.

6.5 Device Power Status and Power On/Off/Cycle

Using this enhanced integration feature, you can turn power on or off and cycle power for a target device from your Data Center Planner interface. A request is sent to the DSView or Rack Power Manager software to retrieve the available power operations and select a power option from a drop-down list.

When you open the DSView™ sub-pane that has been configured for sessions using the DSView or Rack Power Manager software, the Data Center Planner software requests the DSView or Rack Power Manager software server to retrieve the current power status of the specified device and display the results in the Data Center Planner interface. Selecting one of the power options (*Asset Power On*, *Asset Power Off* or *Cycle Asset Power*) sends a command to the DSView or Rack Power Manager software. The device's current power state is the first item displayed in the drop-down list if the current state is provided. If the current state is not provided, the first item displayed is blank. For example, if the device is currently powered on, Asset Power ON is listed first in the drop-down list.

After performing a command, the Data Center Planner software displays an operation status message. If the operation fails, the drop-down list displays the previously selected item.

6.6 Device Control

This integration feature provides the ability to shut down or reboot a target device from the Data Center Planner interface. If the reboot and/or shutdown options are available in your software, you can click the applicable button to send the reboot or shutdown command to the DSView™ or Rack Power Manager software for a specified device. Similar to power operations, when you open the DSView™ sub-pane in the Properties pane, the Data Center Planner software sends a request to the DSView or Rack Power Manager software to retrieve the available operations and display the results (unless there are no operations to display). After the command is performed, the Data Center Planner software also displays the status of the operation.

6.7 Average Power Reading Options

In addition to the previous enhancements, you can now utilize the real world power reading feature as described in Real world power on page 102 to calculate average power values from the Rack Power Manager software for the configured PDU.

If the following criteria are met, three additional options are included in the enhanced feature set for retrieving power readings from devices:

- Integration must be set up for the Rack Power Manager software.
- The real world power function must be configured at a PDU to pull power readings from the Rack Power Manager software as the external source.
- The version of Rack Power Manager software must support the web service enhancement.

With these requirements met, in addition to retrieving power readings in real time, you can select to retrieve a calculated average power value for the previous hour, day or month. After selecting the *Rack Power Manager* source type and the PDU parameter name, if you pick one of the average options and press the *Test* button, the average reading request is sent to the Rack Power Manager software.

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7 COLLECTION MANAGEMENT

Collection Management allows Data Center Planner to restrict users access to specified plans and assets. Administrators can select plans and floor-mounted assets to create a new collection and assign it a role with write or read-only rights, so that the user can access plans and floor-mounted assets appropriately.

The Collection Management feature is disabled by default and can only be enabled by the server administrator where Data Center Planner is installed using the following steps. When the server administrator enables the collections feature, the Data Center Planner administrator can then create collections.

NOTE: The Collection Management tab is not selectable if Collection Management is disabled or if the logged in user does not have the appropriate rights.

To enable Collection Management:

1. The server administrator must edit the following file: \[AMP_HOME]\conf\extention.xml using a text file editor.
2. In the text file editor, locate the line containing the text "<target name="AccessControl">".
3. Edit the next line containing text "<property name="isEnabled" value="".
4. Change the text to value="true" to enable.
5. Restart the application for the change to take effect.
6. To disable, change the text to value="false" and restart the application. It is recommended to leave this feature disabled if no collections are needed.

7.1 Collection Access Control

The following table describes access control in Collection Management.

Table 7.1 Collections Access Control Descriptions

ACCESS TO	DESCRIPTION
Plans - Open/Copy/Delete/Save	With the access control function, you can only view plans for which you have access rights.
Floor-mounted assets	To access floor-mounted assets in a plan, you must be assigned right access to the plan and based on this plan, you must be assigned access to the selected floor-mounted assets. When you open one plan, all floor-mounted assets are listed, but you can only access assets for which you have rights. If some assets in plan are not controlled by right access, that asset can be accessed by anyone who has plan rights.
Inventory/Capacity search	You can only search for plans for which you have rights. If you have access to a plan, you may not have access to all of the assets in that plan.
Capacities	If you cannot access any assets in the plan and capacities cannot be computed or shown in colors. If you have access to specific assetsand capacities are computed and shown in color for those assets.
Show asset labels	You can only use the Show Asset Labels option for plans and assets for which you have access.
Import/Export to/from .xls file	You can only use the import or export feature for plans and assets for which you have access.

7.2 Creating Collections

To create a new collection:

1. Log in as an administrator and select *Collection management* from the primary navigation pane.
2. Select *New* in the Collection Management, Actions column.

   -or-

   Select the down arrow next to Collection Management from the primary navigation pane and select *New*. The New Collection dialog displays with a list of current plans and their floor-mounted assets.
3. Enter a name a description.
4. Click the down arrow on a plan to view the floor-mounted assets. Enable the appropriate checkboxes to associate with the new collection and click *OK*.
5. Note that the plan and floor-mounted assets columns show the information associated with the new collection.

To assign access control for a role in a collection:

1. Select a role from the bottom Roles column to associate with the collection and select *Read Only* or *Write* from the Actions pane.

   -or-

   Select the down arrow next to Access Control to Collections and select *Assign Read Only or Assign Write*. The Assign Collections dialog displays a list of available collections.
2. Enable the desired collection and click *OK*.

NOTE: It is not recommended to assign a collection to an existing role that has already been assigned to users prior to using the Collection Management feature. This includes the current roles provided by Data Center Planner, Data Center Planner Manager or Report Designing. A new role should be created which is then associated with a defined collection. If a new user is being created and the user can be assigned the appropriate roles. If the administrator wants to restrict access of an existing user to certain assets within plans using Collections Management, the administrator must edit the assigned rights of that user. The roles currently assigned to that user should be removed and the new roles with the associated collections be assigned.

To edit a collection:

1. Select the collection to be edited and select *Edit* in the Collection Management, Actions column. The Edit Collection dialog displays with a list of current plans and their floor-mounted assets associated with the collection.

   -or-

   Select the down arrow next to Collection Management in the top pane and select *Edit*.
2. Disable or enable the appropriate plan or floor-mounted asset and click *OK*.
3. Note that the plan and floor-mounted assets columns show the information associated with the edited collection.

To delete a collection:

1. Select the collection to be deleted and select *Delete* in the Collection Management, Actions column.

   -or-

   Select the down arrow next to Collection Management in the top pane and select *Delete*.

2. A confirmation message displays. Click *Yes* to delete the collection.

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8 DATABASE INFORMATION

8.1 Connecting to an Existing PostgreSQL Database

This option allows you to connect to a PostgreSQL database that already exists on your system.

To connect to an existing PostgreSQL database using a Windows server:

1. On the Database Selection screen during the installation, select the Connect to existing PostgreSQL database radio button and click *Next*. The Existing PostgreSQL Database Configuration screen opens. A new database will be created at the location of the existing database.
2. Go to the system where the existing database is located and select *Start - Programs - PostgreSQL - pgAdmin III*. The pgAdmin software opens.
3. In the tree, double-click *PostgreSQL Database Server* (localhost) to expand the directories.
4. Double-click *Databases*, right-click on *AMPDB* and select *New Object - New Database*. The New Database dialog box opens.
5. Enter a name for the new database and in the Encoding field, select *UTF8* from the drop-down list. This is acceptable for both the Windows® Server and Linux servers. Click *OK*. The new database is listed in the tree.
6. Select *Start - PostgreSQL - Configuration files - Edit pg_hba.conf*. The notepad opens.
7. Scroll to the bottom and locate #IPv4 local connections.
8. Go to the line host all all (IPlocalhost address) md5. Press **Enter**.
9. On the blank line, enter **host all all 0.0.0.0/0 md5**.
10. Select *File - Save*and *File - Exit* and select *Start - PostgreSQL - Configuration files - Edit postgresql.conf*. The notepad opens.
11. Select *Edit - Find*, enter **localhost** and click *Find Next*.
12. Under connections and authentication, delete the # in front of listen_addresses and change localhost to an asterisk (*).
13. Select *File - Save*and *File- Exit*.
14. Select *Start - PostgreSQL - Stop service*.
15. Select *Start - PostgreSQL - Start service*.
16. Exit the pgAdmin III software.
17. Close the system where the new database was created.
18. Go back to the Installation process at the Existing PostgreSQL Database Configuration screen and enter the new database information.
    - Database Server - Port number 5432 (default) - The system where the new database was created.
    - Database Name - Create a name.
    - User Name - Enter **postgres**.
    - Password - Enter the password created when AMP was first installed and click *Next*. The Pre-Installation Summary screen opens. On a Linux server, this screen will appear different.
19. Click *Install*. The installation begins. Upon completion, the Install Complete screen opens.
20. Click *Done* to complete the installation. See Installation on page 11.

To connect to an existing PostgreSQL database using a Linux server:

1. On the Database Selection screen during the installation, select the Connect to existing PostgreSQL database radio button and click *Next*. The Existing PostgreSQL Database Configuration screen opens. A new database will be created at the location of the existing database.
2. From a terminal window, enter **createdb <database name> -U<postgres user>**. A message displays stating create database.
3. Enter **psql -d<database name> -U<postgres user>**.
4. At the prompt <database name>=# enter **Alter <database name> set Encoding = 'UTF8'**.
5. At the next prompt, enter **\q**. This takes you out of the Postgres application.
6. Go to the Postgres data directory where Postgres was installed. For Postgres version 8.4.2, it is opt/PostgreSQL/8.4.2/data and for Postgres version 9.1.4, it is opt/PostgreSQL/9.1.4/data.
7. Enter **vi pg-hba.conf**.
8. Click the *Insert* key.
9. Scroll to the bottom and locate #IPv4 local connections.
10. Go to the line host all all (IPlocalhost address) trust and click *Enter*.
11. On the blank line, enter: **host all all 0.0.0.0/0 trust**
12. Press the **Esc** key, hold down the **Shift** key and click the colon(:) key.
13. Enter **wq** and click *Enter*.
14. Enter **vi postgresql.conf**
15. Under connections and authentication, delete the pound symbol (#) in front of listen_ addresses and change localhost to an asterisk (*).
16. Click the *Esc* key, hold down the *Shift* key and click the : key.
17. Enter **wq** and click **Enter**.
18. Click *System - Administration - Services*.
19. Highlight *posgresql* and click *Restart*.
20. Exit from the Services Configuration by either clicking the *(x)* in the upper, right corner or *File, Quit*.
21. Close the system where the new database was created.
22. Go back to the installation process at the Existing PostgreSQL Database Configuration screen and enter the new database information.
    - Database Server - (Port number 5432, default) - The system where the new database was created.
    - Database Name - Create a name.
    - User Name - Enter **postgres**.
    - Password - Enter the password created when AMP was first installed and click Next. The Pre-Installation Summary screen opens. On a Linux server, this screen will appear different.
23. Click *Install*. The installation begins. Upon completion, the Install Complete screen opens.
24. Click *Done* to complete the installation.
25. Continue as instructed in the Installation section.

8.2 PostgreSQL 9.1.3 Database Backup

The following information describes the process for backing up and restoring the PostgreSQL database, version 9.1.3.

8.2.1 Backing up the PostgreSQL database with pg_dump

The idea behind the SQL-dump method is to generate a text file with SQL commands that, when fed back to the Windows® or Linux® server, will recreate the database in the same state as it was at the time of the dump.

To stop the Avocent Management Platform ESB service on a Windows server:

Click *Start - Control Pane - Administrative Tools - Services* and locate the service named Avocent Management Platform ESB, right-click and select *Stop*.

-or-

Click *Start - Run* and at the command prompt, enter the following:

net stop "Avocent Management Platform ESB"

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To issue pg_dump to back up the Avocent Management Platform database on a Windows server:

1. Click *Start - Run* to open a command prompt window.
2. At the command prompt, change directory to c:\Program Files\PostgreSQL\9.1.3\bin.
3. Issue the following command: pg_dump -U postgres AMPDB > C:\AMPDB-Backup.sql (the syntax structure is = pg_dump -U <username> <DBname> <filename>)
4. If prompted, enter your DBAdmin password.
5. Upon completion of the backup process, you may copy the AMPDB-Backup.sql file to another location if needed. This may take a moment.
6. Restart the Avocent Management Platform ESB Services.
7. Enter the following:

   net start "Avocent Management Platform ESB"

NOTE: The following response appears "The Avocent Management Platform ESB service is starting..." If successful, the following response appears "The Avocent Management Platform ESB service was started successfully."

To stop the Avocent Management Platform ESB service on a Linux server:

At the terminal or command line of your Linux server, enter: service smx stop.

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To issue pg_dump to back up the Avocent Management Platform database on a Linux server:

1. At the command prompt window, issue the following command: pg_dump -U postgres AMPDB > AMPDB-Backup.sql (the syntax structure is = pg_dump –U <username> <DBname> <filename>).
2. If prompted, enter your DBAdmin password.

3. Upon completion of the backup process, copy the AMPDB-Backup.sql file to another location if needed. This may take a moment.
4. Restart the Avocent Management Platform ESB services by entering **service smx start**.

NOTE: The following response appears "Starting ServiceMix Application Server..." If successful, you are returned to the command prompt.

8.2.2 Restore the Database with psql

To stop the Avocent Management Platform ESB service on a Windows server:

Click *Start - Control Pane - Administrative Tools - Services* and locate the service named Avocent Management Platform ESB, right-click and select *Stop*.

-or-

Click *Start - Run* and at the command prompt, enter the following:

net stop "Avocent Management Platform ESB"

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To drop the AMPDB database on a Windows server:

NOTE: The restore will not work if there is any existing data in the AMPDB tables.

1. Using command prompt, click *Start, Run*.
2. Change directory to c:\Program Files\PostgreSQL\9.1.3\bin.
3. Issue the following command: DROPDB AMPDB -U postgres
4. If prompted, enter your postgres user password.

NOTE: The response is DROP DATABASE.

To create the blank database for the restore on a Windows server:

1. Type the following:

   CREATEDB "AMPDB" -O postgres -U postgres TEMPLATE="AMPDB"

2. Type the following:

   sql -U postgres -d AMPDB -f AMPDB-Backup.sql

3. Click *Start - Control Pane - Administrative Tools - Services* and locate the service named Avocent Management Platform ESB, right-click and select *Start*.

   -or-

   Click *Start - Run* and at the command prompt, enter: net start "Avocent Management Platform ESB".

To stop the Avocent Management Platform ESB service on a Linux server:

At the terminal or command line of your Linux server, enter: **service smx stop**.

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To drop the AMPDB database on a Linux server:

NOTE: The restore will not work if there is any existing data in the AMPDB tables.

1. Open a command prompt or terminal window.
2. Issue the following command: dropdb AMPDB -U postgres.
3. If prompted, enter your postgres user password.

NOTE: The response is DROP DATABASE.

To create the blank database for the restore on a Linux server:

1. Type the following:

   createdb "AMPDB" -O postgres -U postgres TEMPLATE="AMPDB".

2. Type the following:

   psql -U postgres -d AMPDB -f AMPDB-Backup.sql.

3. Start services with *service smx start*.

8.3 PostgreSQL 8.4.2 Database Backup

The following information describes the process for backing up and restoring the PostgreSQL database, version 8.4.2.

8.3.1 Backing up the PostgreSQL database with pg_dump

The idea behind the SQL-dump method is to generate a text file with SQL commands that, when fed back to the server, will recreate the database in the same state as it was at the time of the dump.

To stop the Avocent Management Platform ESB service on a Windows server:

Click *Start - Control Pane - Administrative Tools - Services* and locate the service named Avocent Management Platform ESB, right-click and select *Stop*.

-or-

Click *Start - Run* and at the command prompt, enter the following:

net stop "Avocent Management Platform ESB"

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To issue pg_dump to back up the Avocent Management Platform database on a Windows server:

1. Click *Start - Run* to open a command prompt window.
2. At the command prompt, change the directory to c:\Program Files\PostgreSQL\8.4.2\bin.
3. Issue the following command pg_dump -U postgres AMPDB > C:\AMPDB-Backup.sql and press Enter. The syntax structure is = pg_dump -U <username> <DBname> <filename>.
4. If prompted, enter your DBAdmin password.
5. Upon completion of the backup process, copy the AMPDB-Backup.sql file to another location if needed. This may take a moment.
6. Click *Start - Control Pane - Administrative Tools - Services,* locate the service named Avocent Management Platform ESB, right-click and select *Start*.

-or-

Click *Start - Run* and at the command prompt, enter: **net start "Avocent Management Platform ESB"**.

To stop the Avocent Management Platform ESB service on a Linux server:

At the terminal or command line of your Linux server, enter: **service smx stop**.

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To issue pg_dump to backup the Avocent Management Platform database on a Linux server:

1. At the command prompt window, issue the command **pg_dump -U postgres AMPDB > AMPDB-Backup.sql**. The syntax structure is = pg_dump –U <username> <DBname> <filename>.
2. If prompted, enter your DBAdmin password.
3. Upon completion of the backup process, copy the AMPDB-Backup.sql file to another location if needed. This may take a moment.
4. Restart the Avocent Management Platform ESB services by entering **service smx start**.

8.3.2 Restoring the database with PostgreSQL

To restore the database on a Windows server:

1. Stop the Avocent Management Platform ESB service by using one of these methods.
2. Using a Windows server:
   a. Click *Control Pane - Administrative Tools - Services*.
   b. Locate the service named Avocent Management Platform ESB, right-click and select *Stop*.
3. Using the command prompt:
   a. Click *Start - Run*.
   b. Type **net stop "Avocent Management Platform ESB"**.
   c. The prompt will return, The Avocent Management Platform ESB service is stopping...

To drop the AMPDB database on a Windows server:

NOTE: The restore will not work if there is any existing data in the AMPDB tables.

1. Using command prompt, click *Start - Run*.
2. Change the directory to **c:\Program Files\PostgreSQL\8.4.2\bin**.
3. Issue the command **DROPDB -U postgres AMPDB**.
4. If prompted, enter your postgres user password.
5. The response is a dropdb -U postgres AMPDB.

To create the blank database for the restore on a Windows server:

1. Type **CREATEDB -O postgres -U postgres "AMPDB" TEMPLATE="AMPDB"**, press **Enter**.
2. Type **psql -U postgres -d AMPDB -f C:\AMPDB-Backup.sql**, press **Enter**.
3. Click *Start - Control Pane - Administrative Tools - Services* and locate the service named Avocent Management Platform ESB, right-click and select *Start*.

-or-

Click *Start - Run* and at the command prompt, enter: **net start "Avocent Management Platform ESB"**.

To stop the Avocent Management Platform ESB service on a Linux server:

At the terminal or command line of your Linux server, enter: **service smx stop**.

NOTE: The following message appears "Stopping ServiceMix Application Server..." If successful, the following message appears "Stopped ServiceMix Application Server."

To drop the AMPDB database on a Linux server:

NOTE: The restore will not work if there is any existing data in the AMPDB tables.

1. Open a command prompt or terminal window and issue the command **dropdb -U postgres AMPDB**.
2. If prompted, enter your postgres user password.

NOTE: The response is dropdb -U postgres AMPDB.

To create the blank database for the restore on a Linux server:

1. Type **CREATEDB -O postgres -U postgres "AMPDB" TEMPLATE="AMPDB"** and press **Enter**.
2. Type **psql -U postgres -d AMPDB -f C:\AMPDB-Backup.sql**.
3. Start services with *service smx start*.

8.4 Microsoft® SQL Server Backup

For instructions on backing up an SQL Server, refer to "How to Back up a Database (SQL Server)" on the Microsoft web site.

8.5 Connecting to an Existing Microsoft Server Database

This process allows you to connect to a database that already exists on your system.

To connect to an existing Microsoft SQL Server database:

1. During the installation, on the Database Selection screen, select the Connect to existing Microsoft SQL Server database radio button and click *Next*. The Existing Microsoft Server Database Configuration screen opens. A new database will be created at the location of the existing database.
2. Go to the system where the existing database is located and select *Start, Programs, Microsoft SQL Server*. The Microsoft SQL Server Management Studio software opens.
3. Connect to the database engine.
4. Create a Login (optional).
    a. Expand the security folder.
    b. Right-click and select *New Login*.
    c. Enter a login name.
    d. Select *SQL Server authentication*.
    e. Enter a password twice.
    f. De-select *Enforce password policy*, *Enforce password expiration* and *User must change password at next login*.
    g. Click *OK*.

h. Right-click *Databases* and click *New Database*.
i. Enter a database name.
j. Assign an owner.
k. Click *OK*.
l. Exit the Microsoft SQL Server Management Studio software.
m. Close the system where the new database was created.

5. Go back to the installation process at the Existing SQL Server Database Configuration screen and enter the new database information as follows.
   a. Database Server - (Port 1433) - The system where the new database was created.
   b. Database Name - The Database name entered in the previous steps.
   c. Username - Enter the owner assigned to the database.
   d. Password - Enter the password assigned to the database owner.
6. Click *Install*. The installation begins.
7. Upon completion, the Install Complete screen opens.
8. Click *Done*.
9. Continue as instructed in the Installation on page 11 section.

8.5.1 Moving from PostgreSQL to Microsoft SQL

If you previously installed the application using a PostgreSQL database and wish to use MS SQL, you must export your plans to a spreadsheet using the plan exporter and generate .pdf files for your project properties.

To move from PostgreSQL to Microsoft SQL:

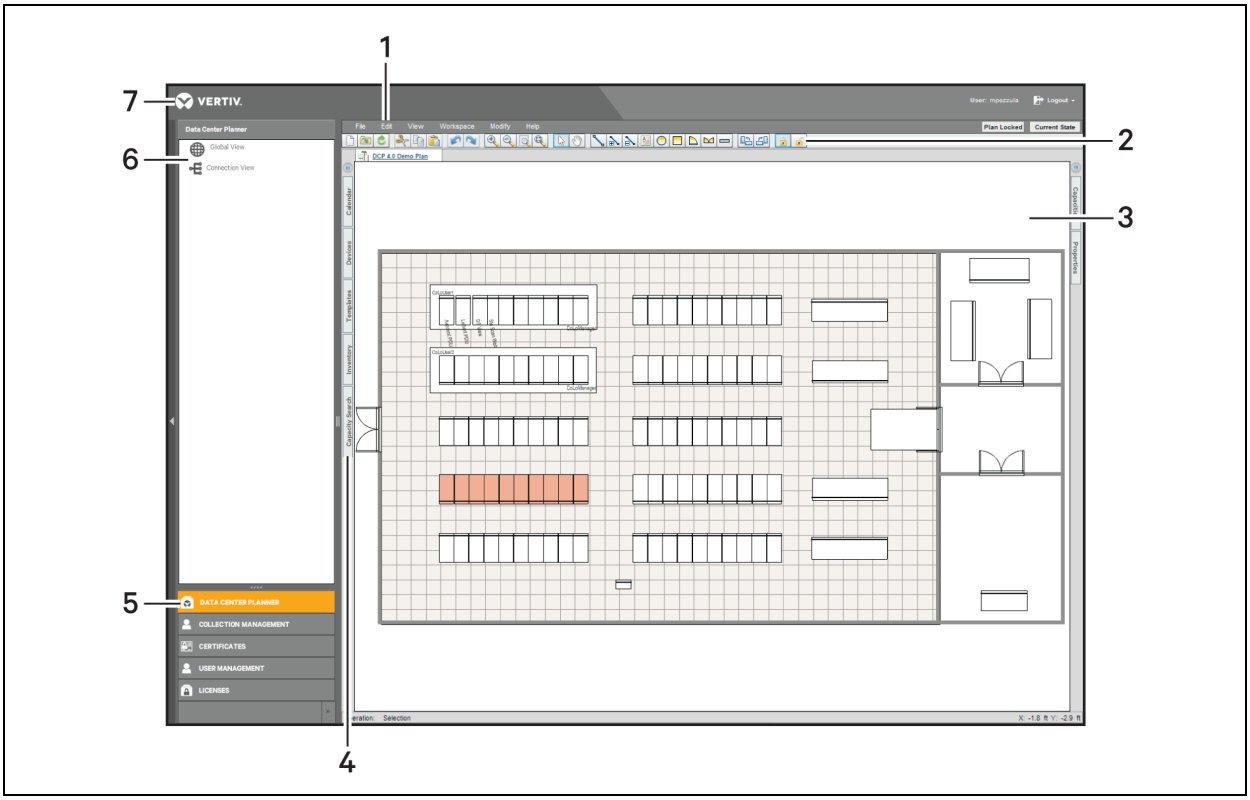
1. Export all plans to a spreadsheet with the plan exporter.
2. For each project, generate a .pdf to save the project information. After the reinstall, you can recreate your projects using the project properties .pdf file as a reference.
3. Import your plans and recreate your projects.

9 FUNCTIONAL COMPONENTS

9.1 Vertiv™ Data Center Planner Console

The Data Center Planner console is divided into the following areas: navigation, information and plan management.

Figure 9.1 Data Center Planner Console



The following table lists the console descriptions.

Table 9.1 Console Descriptions

ITEM	AREA	DESCRIPTION
1	Main Menu	User interface menu functions.
2	Toolbar	User interface toolbar functions.
3	Content Pane	Management area for plans, racks, assets and connections.
4	Tool Panes	Search area for devices, templates inventory, capacities and planning calendar. These panes can be positioned on the left or right sidebars or can be placed on the content area of the console.
5	Primary Navigation Pane	Options to open Data Center Planner, user management or licensing.
6	Secondary Navigation Pane	Options to open global view or connections view. This pane can be closed to allow more room to manage plans.
7	Banner	Contains the logged in username, Avocent Management Platform online Help and log out link.

NOTE: Only AMP functions selectable from the Primary Navigation Pane are recommended for use in Data Center Planner. Other user functions in AMP are not recommended for use by the Data Center Planner user.

9.1.1 Navigating within the console

You can resize the panes by dragging the lines between the panes to new positions. You can position the left line to hide the navigation panes. Using this feature, you can maximize the size of the console and still navigate between views. You can also drag the tool panes as stationary tabs on either the left or the right sidebar, or position the tabs all on one sidebar. You can also drag the tool panes to the content area.

9.1.2 Navigating within panes

Planning, search and information panes can be positioned in any area of the console or within floating dialog boxes. The dialog boxes can be resized to fit the content area as desired.

To reposition and stack panes:

1. Drag a pane to the content area, which then becomes a dialog box.
2. Drag any other panes to the dialog, which adds the panes as tabs within the dialog box.
3. Click the *(x)* on the dialog to close all tabs.
4. To return the panes to the sidebar, select *View* from the main menu and click the desired option.

9.1.3 Tab view navigation

Tab view navigation allows you to navigate to rack and asset views within a plan. As you drill deeper into racks, assets and connections, links are available on the tab to go back to selected views. Two plans can be open simultaneously to better manage plans. Global and connection and resources views are stationary on the tab bar after they are opened the first time. The position of tabs persist across user sessions, so when you log into your next session, the tabs are presented in the same location as when you last set them.

9.2 Main Menu

The Main Menu provides a convenient way to access commands in the Data Center Planner software. The menu displays a list of commands located on the menu bar at the top of the screen. Each menu option contains a drop-down list of commands that accomplishes tasks. This menu is visible in all views, but is dynamic and changes depending on the view and the user rights.

If a user does not have access to certain operations, some menu items, toolbar items and context menu (right-click) may not be available.

Table 9.2 Main Menu Descriptions

FUNCTION	DROP-DOWN
File-New	Create a new floor plan.
Open	Open a current floor plan.
Save As	Save a floor plan with a new name, copy a plan.
Delete Plan	Delete a floor plan.
Templates	Save a new template and open as existing template.
Import	From .xls file: Import a floor plan. Full: Import the entire library.

FUNCTION	DROP-DOWN
	Partial: Import up to 10 symbols.
Export	Export to a .pdf/.png document.
Device Request	Open the new device request dialog box.
Edit	Undo/Redo the last action.
Cut	Cut a selected area and place it in the buffer or paste it at a later time. If the item is cut and not pasted, it will be moved to unplaced assets. After more than one cut, it becomes copy and can be pasted.
Copy	Copy selected area.
Paste	Paste the selected area.
Delete	Delete a selected item.
Add to Connections List	Send the selected asset to the connections list.
Select	Go into selection operation.
Real World Power Scheduler	You can set the application to retrieve real power values from a remote source and have them replace the values in the derate field of the selected rack.
Preferences	Open the preferences dialog box to set preferences for dimensions, power, heat and weight, display labels and set user-defined properties.
Liebert SiteScan™ Web Configuration	The application allows direct access to assets being managed by Liebert SiteScan Web.
DSView Software Configuration	The application allows direct access to assets being managed by DSView software.
View	Refresh - Refresh the current screen.
Go to	Go to Global or Connection view.
Zoom	Increase/decrease the size of the objects in the view.
Calendar	Open the calendar pane.
Devices	Open the devices pane.
Templates	Open the templates pane.
Inventory	Placed assets - Search for assets mounted on floor plans or in other assets. Unplaced assets - Search for assets not mounted on floor plans or in other assets.
Capacity Search	Open the capacity search pane.
Capacities	Open the capacities pane.
Properties	Open the Properties pane.
Connections List	Open the connections List.
Incidents	Open the incidents pane.
History Details	Open the history details pane.
Project Properties	Open the projects Properties pane.
Connections Table	Open the list of connections table.
Workspace	Show/hide status bar at bottom of the screen.
Show Grid	Show/hide grid in a floor plan.
Show Asset Labels	Show/hide asset labels on a floor plan. Asset labels can also be turned on in the preferences, user-defined properties dialog box.
Snap	Snap objects to the grid or no snap.
Reservations	Show reservations in rack view.
Modify	Align at the bottom edge, in the middle, at the top edge, to the left, in the center or to the right edge.

FUNCTION	DROP-DOWN
Rotate	Rotate a rack 90º clockwise or 90° counter-clock-wise.
Move	Move to the left, right, up or down.
Help	Open the online Help. Open the version information.

9.3 Help

Documentation for Data Center Planner is available in two formats: Online Help and .pdf form.

Online Help provides access to all documentation and instructional content available at the time of software shipment. It is available through the Help menu in your software.

Documentation in .pdf format is available and may be printed.

To review the PDF documentation included with your software:

1. From your desktop, select *Program Files - Avocent- MergePoint - Data Center Planner.*
2. Click *Help - About - extended information* to view the application build date, number and version, service pack and FLASH versions, operating system, rack count and asset library version. The URL link to the customer-facing Data Center Planner software download link is also provided.

9.4 Toolbar

The Toolbar provides a quick and easy way to use some menu functions without selecting the drop-down list from the main menu. The toolbar is dynamic and changes depending on the view selected.

Table 9.3 Toolbar Descriptions

FUNCTION/AVAILABLE VIEWS	DESCRIPTION
New Plan	Create a new floor plan.
Open Plan	Open a current floor plan.
Refresh	Refresh the screen. Refresh when multi-user conflict occurs.
Cut	Cut does not delete the device permanently. The cut asset goes to the inventory.
Copy	Copy a selected area and place it in the paste buffer.
Paste	Paste the area just copied or cut.
Undo/Redo	This function allows you to reverse the most recent action. The system backs out the last change and updates the floor plan accordingly. Undo is not available until you have performed at least one update operation. Redo allows you to undo the last undo.
Zoom In	View larger.
Zoom Out	View smaller.
Zoom Window	Draws a box around an area to select and zoom.
Zoom to Fit	Centers items in the content area.
Selection Operation	Turns on selection in the content area. This button must be clicked to select items on any screen. When enabled, a blue border is visible around the button.
Pan/Zoom Operation	This button must be clicked to pan or zoom items on any screen. When enabled, a blue border is visible around the button.

FUNCTION/AVAILABLE VIEWS	DESCRIPTION
Wall	Add a wall.
Add Points	Add points to a wall.
Remove Points	Remove points on a wall.
Annotation	Add a note to a floor plan.
Oval	Add an oval shape to a floor plan.
Rectangle	Add a rectangle shape to a floor plan.
Single Door	Add a single door.
Double Door	Add a double door.
Window	Add a window.
Rotate CCW	Rotate counter-clockwise.
Rotate CW	Rotate clockwise.
Plan Locked	Lock a floor-mounted device that has been placed in the plan. A new device can be placed in any location in the Plan Locked mode, but cannot be moved with a mouse after it is placed. The enabled mode is displayed on the main menu bar. Plan Locked is the default mode.
Plan Unlocked	Unlock a floor-mounted device that has been placed in the plan using a mouse. This mode enables you to move floor-mounted devices. The enabled mode is displayed on the main menu bar.

NOTE: If the Collections Management option is enabled, the Plan Locked and Plan Unlocked icons are visible and the ability to move devices is enabled if you have write permissions to place and move floor-mounted devices for a selected plan and device.

9.4.1 Perimeter walls

This option allows you to manage perimeter walls. When a floor plan is created, the system automatically creates a wall that encompasses the entire floor plan. At each corner a round, white point represents the vertex of the two adjacent walls. These points can be dragged to a new location. The system adjusts the two connected perimeter walls to follow the new location of the point. To create a wall, you must create at least two points.

Table 9.4 Perimeter Walls Properties

FIELD	DESCRIPTION
Thickness	Thickness of the perimeter wall in units.
Closed	Enable a wall with 3 or more points to be closed.
Vertices - Units	Unit of measure between points.
Points	Point identifier beginning at zero and moving right, down then left. The numbered points correspond with the point column in the Properties pane.
x - y Points	The x and y location of points on the walls.

To update perimeter walls:

1. Click *Add Points* on the toolbar.
2. Click on the *Perimeter wall* and add a point to the wall.
3. Click on the *Perimeter wall* again to add another point.
4. Click *Walls* on the toolbar.

5. Drag the line between the two new points to a new configuration.

To delete perimeter walls:

1. Select the wall, right-click and select *Delete*. A confirmation message appears asking if you want to delete the selected item.
2. Click *Yes* to delete the wall.

9.4.2 Interior walls

This option allows you to add, delete and move interior walls on a floor plan. The wall information can be edited in wall properties.

Table 9.5 Interior Wall Properties

FIELD	DESCRIPTION
Wall Thickness	
Thickness	Thickness of the interior wall in units; unit of measure chosen in Preferences.
Closed	Enable a line with three or more points to be closed.
Vertices	
Dimensions	Units of measure.
Points	The vertices on a wall.
x - y Points	The x and y points on a wall.

To add an interior wall to a floor plan:

1. In plan view, click *Walls* on the toolbar.
2. Click on the floor in the desired start position and drag the line to the end position. The Add/Edit operation remains in effect to enable multiple walls to be added.
3. Click the *Selection* button to exit Add/Edit Walls.

To update an interior wall:

1. In plan view, click on the interior wall to be moved. The end-points become visible.
2. Click an end-point and drag it to a new location. The line remains selected with the end-points and new dimensions shown.

To delete an interior wall:

1. Select the wall, right-click and select *Delete*. A confirmation message appears asking if you want to delete the selected item.
2. Click *Delete* to delete the wall.

NOTE: If the wall to be deleted has doors or windows, the doors and windows must be deleted also. They do not delete automatically.

Closed Walls

If one or more points are added to a wall, the wall can be closed. Doors and windows can also be placed on closed walls.

To close a wall:

1. Place a wall on the floor and select *Add Points* from the toolbar. A section point is added to the line.
2. Click on the section between the new points and drag the line to a new position.
3. In the Properties pane, enable the *Closed* checkbox and click *Save*. The line closes.

Wall Points

When points are added to a wall, the wall can be dragged to many configurations. Any number of points can be placed on any location on a wall.

To add points to a wall:

1. Select *Add Points* on the toolbar and click on the wall. A point is added where you clicked.
2. Add a point in locations as necessary.
3. Click *Wall* on the toolbar and click between the two added points to move the wall out to a different configuration.

To delete points on perimeter walls:

Click *Remove Points* on the toolbar and click on the point to be deleted.

9.4.3 Annotations

Annotations can be added to a floor plan at any time and placed in any position. Any number of notes can be added to a floor plan.

To add an annotation:

1. In a current floor plan, click *Annotation* on the toolbar and click on the floor plan.
2. Double-click in the text box. Press Enter to add an additional line. Select the *Properties* pane to view or change the properties.

Table 9.6 Annotation Properties

PROPERTY	VALUE
Rotation	Degrees rotated
Origin X (ft)	Annotation X origin in the upper left corner
Origin Y (ft)	Annotation Y origin in the lower left corner
Units	Units of measure

To update an annotation to a floor plan:

1. Click in the note area and change the text.
2. Click the *Rotation* icon to rotate the note area.

   -or-

   Select *Properties* to make changes. If modifications are made in properties, click *Save*.

To delete an annotation:

1. Click on the text of annotation and click *Delete*.

-or-

Right-click on the text and select *Edit - Delete*.

2. In each case, a confirmation message prompts you to delete the selected item. Click *Yes* to delete.

9.4.4 Doors and windows

Doors and windows can be placed on perimeter and interior walls. Doors can swing inward or outward, left or right.

To add doors or windows to the floor plan:

1. Open a floor plan and click a *Door* or *Window* on the toolbar.
2. Click on the floor plan and place the object on a wall.
3. Select *Properties*, edit the properties and click *Save*.

NOTE: Windows and doors do not remain anchored to walls that are moved. They must be moved independently.

To update doors and windows:

1. Click a *Door* or *Window* on the floor plan and select *Properties*.
2. Edit the information. Click *Save*.

Table 9.7 Door and Window Properties

FIELD	DESCRIPTION
Door Properties	
Width	Width of the door, default is feet.
Units	Units of measure.
Door Swing Properties	
Change swing direction	The standard door can swing in or out of an inter or perimeter wall.
Swap hinge side	The hinges can be mounted on the left or right of a door.
Window Properties	
Width	Width of the window, default is inches
Units	Units of measure.

To delete doors and windows:

1. Select a *Door* or *Window* and press the **Delete** key.

   -or-

   Right-click and select *Delete*. A confirmation message appears asking if you want to delete the selected item.

2. Click *Yes* to delete the item.

9.4.5 Shapes - ovals and rectangles

Shapes can be added to the floor plan in the form of ovals and rectangles. They can be stretched, rotated or moved with drag and drop actions. They can be deleted, moved and changed in the Properties pane.

They can also be resized by using the resize button on the right, bottom of the shape.

Oval and rectangle shapes can be filled with a color when displayed in Plan View. The default color, white, can be changed using a palette of 30 colors.

To add a shape to a floor plan:

1. Click an *Oval* or *Rectangle* on the toolbar.
2. Click on the floor plan to place the shape in the desired location.
3. Use the resize/rotate icons to change the size or rotation of the shape.

   -or-

   Change the information in the Properties pane.
4. Click *Save*.

Table 9.8 Shape Properties

PROPERTY	VALUE
Rotation	Degrees rotated.
Origin X (ft)	Shape X origin is the upper left corner of the rack.
Origin Y (ft)	Shape Y origin is the lower left corner of the rack.
height (ft)	Shape height.
depth (ft)	Shape depth.
Units	Units of measure.
Colorization	Fill color of shape.

To update a shape in a floor plan:

1. Click on the shape and drag it to another position.

   -or-

   Select *Properties* and change the properties as needed.
2. Click *Save*.

To delete a shape in a floor plan:

1. Highlight the shape.
2. Select *Edit - Delete*.

   -or-

   Right-click and select *Delete*, or press the **Delete** key. A confirmation message prompts you to delete the selected item.
3. Click *Yes* to delete the item.

To colorize an oval or rectangle shape:

1. Click to highlight the shape.
2. Click to display the color palette.

To add color to a shape:

1. From the Properties - Shape Properties window, click in the Colorization field to verify the current color.
2. Click in the field again to display the color palette and click the desired color.

9.5 Buttons

The following buttons help navigate within the application and manage information. Depending on your rights, some buttons may not be visible.

Table 9.9 Button Descriptions

BUTTON	VIEW/PANE	DESCRIPTION
Add Project	Calendar	Opens the Create Project dialog box.
Add/Delete Tags	Project Properties	Adds or deletes project tags.
Asterisk	Dialogs	If this symbol appears on a field in a dialog box, it is a required field and information must be entered to continue.
Capacity Search	Devices	Searches for devices with selected capacities.
Clear	Calendar, Devices	Clears all criteria fields.
Commit	Plan, Rack, Asset, Connection	Commits project tasks.
Create Template	Calendar	Creates a template.
Current State	Calendar, Toolbar	Returns you to the current state of the selected floor plan, rack, asset or connection and the calendar to the current date.
Delete	Plan, Rack	Deletes selected actions.
Delete Project	Plan, Rack, Asset, Connection	Deletes a project.
Dock/Undock	Panes	Dock causes the expandable pane to move the main content so that they are visible at the same time. Undock means the expandable pane appears over the top of the content.
Flip	Devices	Flips device orientation.
Front/Back	Rack, Asset, Connection	Change the asset orientation for the front and back view.
Help	All screens	Opens the online Help files and application version information.
Hide	Expandable panes	Hides the expandable pane.
Information	Devices	Hide and shows device image information.
Licensing	Main screen	Validates the license.
Logout	Main screen	Logs you out of the application.
Pin/Unpin	Expandable panes	Pin causes the expandable pane to stay open even when you are working in the main content area. Unpin means that the expandable pane retracts automatically when you perform an action on the main content.
Processing Clock	All screens	When the clock is visible, the application is processing or loading information.
Resize	Plan	Resizes the shapes and shelf space.
Remove All	Global Capacities	Removes plans from the capacities pane.

BUTTON	VIEW/PANE	DESCRIPTION
Revalidate	Project	Revalidates project conflicts.
Rotate	Plan	Rotates a rack or a shape on a plan.
Save	All Panes	Updates an action.
Shelf Space	Devices	Adds shelf space to a rack.
Spyglass	Calendar, Devices	Searches for devices.
Update	Incidents	Updates device export incidents.
User	Main screen	Username of the person logged in.
User Management	Main screen	Administrator uses to manage user rights and rights.
View Dependents	Project Properties	Opens the Task Dependencies dialog.

The browser Back button does not function as expected. It returns you to the browser screen. Click the Forward button to return to the login screen.

9.5.1 Context menus

Context menus contain right-click actions. Each menu option and view may contain different right-click actions. Depending on your rights, these functions are dynamic and may change as the menu items are clicked or views change.

Table 9.10 Context Menu Descriptions for Right-click Actions

PLAN VIEW	RACK VIEW	ASSET VIEW	CONNECTION VIEW	WALLS	DOORS/WINDOWS/ ANNOTATIONS
Cut	Show Rack Timeline	Connect Ports	N/A	N/A	Cut
Copy	Show Asset	N/A	Delete Connection	N/A	Copy
Paste	Show Connection 1	Show Connection 1	Show Connection Assets	N/A	Paste
Delete	Show Connection 2	Show Connection 2	Clear Asset Pane	Delete	Delete
N/A	Add to Connection List	Add to Connection List	N/A	Snap off	N/A
Undo/Redo	N/A	N/A	N/A	Undo/Redo	Undo/Redo
Align	N/A	N/A	N/A	N/A	Align
Show Racks	N/A	N/A	N/A	N/A	N/A

Settings and About Adobe Flash Player are on all context menus if Adobe Flash Player is installed.

9.6 Modes

Data Center Planner launches in current state mode. Depending on your rights, the menu, toolbar and modes change accordingly. Modes appear below the calendar and at the top of the screen.

Table 9.11 Mode Descriptions

MODE	DESCRIPTION
Current State	Make changes in current time to selected plan, racks, assets or connections and view the calendar and history.

MODE	DESCRIPTION
Project	Create, edit and delete projects for a selected plan, but you must have planner rights to manage projects.
History	View history for the selected plan. History Details shows the sequence of executed tasks organized by execution date.

9.7 Keyboard Shortcuts

Keyboard shortcuts are available by pressing two or more keys simultaneously. These shortcuts are functional in plan view only.

Table 9.12 Keyboard Shortcuts

HOT KEYS	FUNCTION	DESCRIPTION
Ctrl + C	Copy	Copy a selected area and place it in the paste buffer.
Ctrl + V	Paste	Paste the area just copied or cut.
Ctrl + X	Cut	Cut a selected area and place it in the paste buffer or delete it.
Ctrl + Z	Undo	Undo the previous action.
Ctrl + Y	Redo	Redo the previous action.

9.8 Pan and Zoom

To zoom and pan the plan in the content are:

1. Click the *Zoom In*, *Zoom Out*, *Zoom Window* or *Zoom to fit* toolbar buttons to change the scale of the plan.
2. The Zoom In (+) magnifying glass moves the area in closer.
3. The Zoom Out (-) magnifying glass moves the area out farther.
4. When the Zoom Window action is enabled, a magnifying glass icon is visible to surround the area to zoom.
5. The Zoom to Fit action places the area in the center of the screen between open panes.
6. The hand icon can be clicked to pan using drag and drop movements.

9.9 Floor Tile Grid

On a selected plan, you can display a Grid Configuration to define the grid settings. You have the option of specifying the horizontal and vertical label conventions, alphabetic or numeric, in ascending or descending order. They can also define the grid origin by specifying the number of tiles to offset from the starting point of the plan. The origin of the plan is in the upper left corner.

NOTE: Only users with appropriate rights can change the grid configuration. A planner user cannot change the grid.

To configure the grid:

Open a floor plan and select *Workspace - Show Grid* from the menu options.

NOTE: The system displays a vertical and horizontal bar on the screen that shows the grid numbering for the Floor Tile System in the floor plan.

To update the grid:

1. Select *Properties* and select the *Grid Configuration* tab.

2. For Label Conventions, select either alphabetic or numeric for the vertical and horizontal axes in ascending or descending order.
3. For Origin Settings, use the radio buttons to position any offset of the grid and select the horizontal and vertical tile offset.
4. Click *Save* to apply the changes. The plan view is refreshed to display the updated labels.

To show the rack labels:

Enable *Show labels* in preferences under user-defined properties.

-or-

Select *Show Asset Labels* from the workspace menu option.

9.10 Operations and Status Bar

Operations control the methods by which an action can be performed. As the action changes, the operation is shown in the lower left Status Bar. This area shows the operation, the snap action and the X and Y coordinate of the floor tiles on a floor plan. It also shows a blue processing bar. Multiple operations are visible on the status bar in plan and rack view, but x and y coordinates are not visible in rack view.

To enable or disable the status bar:

1. Select *Workspace - Status Bar* from the menu options.
2. When the toolbar pointer is selected, selection actions are executed.
3. When the toolbar hand is selected, pan/zoom actions are executed.
4. Current operations:
    - Selection
    - Pan/Zoom
    - Add/Edit/Annotation
    - Add Oval
    - Add Rectangle
    - Add Asset Type
    - Add/Edit Walls
    - Add/Edit Windows
    - Add/Edit Doors
    - Add Shelf Space

9.11 Multiple Users

Data Center Planner allows multiple users to manage the application during the same session across all floor plans. The following is an example scenario.

- User A updates data in any view.
- User B updates the same data of the same view.
- User B receives a conflict warning, "Another user has already updated this view."
- When you click *OK*, the data is automatically refreshed.

9.12 Preferences

This function allows you to configure the device measurement preferences, such as selecting feet or meters. It also allows you to add user-defined properties, such as unique IP addresses, to devices. Preferences are persistent across the application, so when preferences are changed, all devices with assigned preferences are affected. The most recent settings are recalled when you log on.

9.12.1 Preferences - units

The following table provides the available units of measurement for the application. When system preferences are changed, applied and saved, all floor plans are affected. The Cancel button is used to cancel the unsaved changes and close the dialog box.

Table 9.13 Preferences - Units Descriptions

FIELD	DESCRIPTION
Units	Feet, inches, meters, centimeters
Power	kW, W
Heat	BTU/hr, kW
Weight	lbs, kg

To change the default preferences for units:

1. In any view, select *Edit - Preferences* from the menu options.
2. Select *Units* and change the information as needed.
3. Click *Apply* and click *Save*.

9.12.2 Preferences - user-defined properties

This option allows you to add custom properties to the application. A predefined list of asset properties is available with the application. You can add new properties or delete properties from the list. Only custom properties in this list can be assigned to assets in plans. You can make changes to the following properties:

- In the Preferences menu option, you can assign properties from the predefined list or add and delete properties.
- In the asset Properties pane, you can add and delete properties and edit property values.

NOTE: A property cannot be deleted if it is assigned to an asset and property names must be unique.

To add a new user-defined property using Edit - Preferences:

1. In any view, select *Edit - Preferences* from the menu options.
2. Select *User-Defined Properties* from the menu and click *Add*.
3. Enter a name and select a type: date, heat, number, string, power or weight.
4. Enable the Unique checkbox if necessary.
5. Click *Save*. The new property is added to the list in user-defined properties.

NOTE: Device name, consumed and remaining RU capacities are default properties displayed in the pop-up box.

Asset Label Text

In the Asset Label Text section, there are three user-defined properties that can be selected to be displayed in a pop-up box when you hover your mouse over a rack in Plan view. Also, in the pop-up box, there are default properties of the rack that are always displayed.

To add asset label text:

1. Under Asset Label Text, select a user-defined property for each of the three fields.
2. Click the Show Label checkbox to display the three selected properties in the pop-up box.
3. Click *Apply* and click *Save*.

NOTE: Only the user-defined properties that were selected in the pop-up box and assigned to the rack are displayed when you hover the mouse over the rack in Plan view.

The following table describes the available user-defined properties.

Table 9.14 User-Defined Properties' Options and Descriptions

FIELD	DESCRIPTION
Name	Asset property name. Click the column title to sort the column alphabetically.
Type	Asset property type. Click the column title to sort the column alphabetically.
Unique	Check this box to mark the property unique, such as a serial number. In the case of a unique property, the property name and type can be assigned to more than one asset, but the value must be different for each asset.
Add	Adds a new property to the list.
Delete	Deletes a property from the list. If a property is deleted here, there is no delete confirmation message and no option to undo. A property cannot be deleted if it is assigned to an asset.
Asset Label Text	This selection represents the label used throughout the system. In the event an asset does not have the corresponding property associated, a default asset tag label is used. If you change the zoom level, the labels will increase or decrease in scale accordingly. If the zoom level is reduced beyond the ability to render label text, the text disappears and then reappears when the zoom level has returned to an acceptable level. Labels are not able to move or rotate and remain anchored to the asset.
Show label	Click to enable this checkbox or select the *Workspace* menu option and select *Asset Labels*.
Reset to default	Clears the selected property and resets the system to use the default, which is the asset tag.
Save	Saves changes.
Cancel	Cancels the action and close the dialog box.
Apply	Applies changes.

To assign user-defined properties to individual assets:

1. In any view, select an asset and select *Properties*.
2. Select the *User-Defined Properties* tab.
3. Select a Property from the Assign drop-down list. Click *Add*.
4. Click in the Value column, enter a value for the new property and click *Save*.
5. If a link is entered as a value, an icon appears in the properties column to launch a browser. The address in the value column must begin with http:// or https://. Click on the link to open the browser.

To sort the columns alphabetically:

Click the arrow in the column heading.

To delete a property from an asset in either preferences or properties:

1. In the Properties pane, click the *User-Defined Properties* tab, select *Property* in the table and press **Delete**.
2. In preferences, the property is deleted without confirmation. The property is removed from the list.
3. In properties, a confirmation message appears asking if you want to unassign the attribute from asset and is removed from the asset, but not the list.
4. Click *Yes* to unassign the attribute.

10 EXPORT AND IMPORT FEATURES

10.1 Exporting Asset Data

This option allows you to export asset information to a spreadsheet.

NOTE: Upon exporting, non-editable columns appear in color on the spreadsheet.

To export asset information:

1. In asset view, select *File - Export To .xls file.*
2. On the Asset Data Exporter, click the *Export* button.
3. Enter a filename and save to the appropriate location. If problems occur during the export, the screen shows a list of errors.

NOTE: The Cancel button is available only during the export and is grayed out before and after the export.

4. Close the Export screen.
5. Open the .xls file to view the asset spreadsheet.

NOTE: If exporting assets to make changes on the spreadsheet and importing the changes, you must enable the *Import to Update* checkbox for the assets to import properly.

10.1.1 Exporting asset data to a .pdf file

This option allows you to create a .pdf file and is available in rack view and asset view and requires Adobe Reader.

The .pdf file shows a graphic of the assets and all the devices mounted in the asset. It also lists the properties for consumed and remaining capacities. Capacity values are shown based on the user's preferences for metric units of measure.

To generate an asset view.pdf:

1. In rack view, select an asset.
2. Go to *Asset View* and select *File - Export - Asset View to .pdf file.* The .pdf Preferences dialog box opens.
3. Enter a filename.
4. Enable the *Contained Objects Details* checkbox to print details for each asset on a separate page.
5. Select *Paper size* from the drop-down list.
6. For orientation, select the Portrait or Landscape radio button and click *Generate*. The .pdf file is generated.
7. The document contains the following information:
   - .pdf Date.
   - Plan Name.
   - Rack Name.
   - Asset Name.
   - General Details - Manufacturer, model, description, product line, weight.
   - Capacity Type (max) - For power, weight and heat, consumed and remaining.

- Contained Assets - Name and model.
- User-defined Properties - Property and value.
- Connections - Port number, parent name (rack or asset) and RU location.
- Asset Reservations are shown on a separate page with the following information:

  - Asset name.

  - Added - Project name.

  - Added - Project date.

  - Location (RU).

  - Removed - Project name.

  - Removed - Project date.

  - Conflict.

- Header - .pdf generated date.
- Footer - Plan name, rack name, page number.

NOTE: If you select the Export to .pdf file function on a Linux server, an alert displays advising that Export to .pdf is not currently supported on Linux clients. Use a Windows server to perform the export to .pdf function.

10.2 Exporting Connection Data

This option allows you to export connection information to a spreadsheet.

NOTE: Upon exporting, non-editable columns are colored on the spreadsheet.

To export connection information:

1. In connection view, with two assets having connections visible, select *File - Export To .xls file.*
2. On the Connection Data Exporter, click the *Export* button.
3. Enter a filename and save to the appropriate location. If problems occur during the export, the screen shows a list of errors.

NOTE: The Cancel button is available only during the export and is grayed out before and after the export.

4. Close the Export screen.
5. Open the .xls file to view the Connections spreadsheet.

NOTE: The application supports plan-to-plan connections, but does not support connections between different floor plans when importing. You can create a plan-to-plan connection and export it, but if an import is attempted, an error is listed in the Errors section of the Plan Import dialog.

10.3 Exporting Floor Plan Data

10.3.1 Exporting floor plan data to an .xls spreadsheet

This option allows you to export floor plan information to a Microsoft Excel software spreadsheet.

To export floor plan information:

1. In plan view, select *File - Export - To .xls file*.
2. On the Plan Data Exporter, click the *Export* button.
3. Enter a filename and Save to the appropriate location. If problems occur during the export, the screen shows a list of the errors.

NOTE: The Cancel button is available only during the export and is grayed out before and after the export.

4. When the export is complete, the Current Export field reads, "Export Successful!" Close the Export screen.
5. Open the .xls file to view the exported spreadsheet.

NOTE: Upon exporting, non-editable columns appear in color on the spreadsheet.

NOTE: When exporting a very large floor plan to a spreadsheet, the row restriction is 65,536 rows. There is no restriction for columns.

10.3.2 Exporting floor plan data to a .png format

This option allows you to export a floor plan to a .png (portable network graphics) format. This format replaces other formats with high compression. It utilizes less compression, so no image data is lost when saving or viewing the image. It is a universal format that is supported by most web browsers. This format can be opened with any picture editor that supports the .png format.

To export a floor plan to an image:

1. In plan view, select *File - Export - To .png file*.
2. On the File Download dialog box, click *Open*. The picture editor opens with the .png image.

10.4 Exporting Rack Data

This option allows you to export rack information to a spreadsheet.

NOTE: Upon exporting, non-editable columns appear in color on the spreadsheet.

To export rack data to a spreadsheet:

1. In rack view, select *File - Export - To .xls file*.
2. On the rack data exporter, click the *Export* button.
3. Enter a filename and save to the appropriate location. If problems occur during the export, the screen shows a list of errors.

NOTE: The Cancel button is available only during the export and is grayed out before and after the export.

4. Close the export screen.
5. Open the .xls file to view the rack spreadsheet.

NOTE: If exporting a rack to make changes on the spreadsheet and importing the changes, you must enable the *Import to Update* checkbox for the assets to import properly.

10.4.1 Exporting rack data to a .pdf file

This option requires Adobe Reader and allows you to create a .pdf file in rack view and asset view.

The option includes the following features:

- The .pdf file shows a graphic of the rack and all assets mounted in the rack, including shelf space and zero U space (zero U space is not shown as open in the .pdf file).
- It also lists the properties for consumed and remaining capacities. Capacity values are shown based on the user's preferences for metric units of measure.
- If more than one rack is selected, each rack is shown on a separate page.
- The .pdf includes the view of the rack that is selected when the .pdf is created. The contents of the .pdf details include the displayed image aspect in text, back or front.
- If more than one asset is mounted in the same RU position, such as back-to-back, the document shows front-mounted and back-mounted assets.

To generate a rack view .pdf:

1. In plan view, select a rack or multiple racks.
2. Double-click on your selection to go to rack view and select *File - Export - Rack View to .pdf file.*
3. In the .pdf preferences dialog box, enter a filename.
4. Enable the *Contained Objects Details* checkbox to print details for each asset on a separate page.
5. Select *Paper size* from the drop-down list.
6. For orientation, select the Portrait or Landscape radio button. Click *Generate*.

The .pdf file is generated with the following information:

- Plan Name.
- Rack Name.
- General Details - Manufacturer, model, description, product line, weight.
- Contained Devices - Front-mounted and back-mounted assets with RU position, name and model number.
- Shelf space assets.
- Zero U space (front, left) Assets - Name and model.
- Capacities - Capacity Type (max) - Power, weight and heat, consumed and remaining.
- User-defined properties - Property and value.
- Connections - From port, to device, to port, parent, location.
- Asset reservations are shown on a separate page, containing the following information:
    - Rack name.
    - Asset name.
    - Added - Project name.
    - Added - Project date.
    - RU location - Number location.
    - Removed - Project name.
    - Removed - Project date.
    - Conflict.
- Header - .pdf generated date.
- Footer - Plan name, rack name.

NOTE: If you select the Export to .pdf file function on a Linux server, an alert displays advising that Export to .pdf is not currently supported on Linux clients. Use a Windows server to perform the Export to .pdf function.

NOTE: In order to get the complete information associated with the rack and all contained devices mounted in both the front and rear of the rack, it is necessary to perform the Export rack data to pdf procedure twice for any given rack. First, perform the operation with the front view of the rack active and then perform the operation with the rear view of the rack active.

10.5 Importing a Floor Plan

Import current floor plan data by downloading files from the user's specific data center from a spreadsheet.

To import a floor plan:

1. Open a floor plan and select *File - Import* from the menu options.
2. Enable the *Import to Update* checkbox if the floor plan is an update.

NOTE: If the floor plan name already exists and you did not check the "Import to update" checkbox, processing stops and you receive an error that it is a duplicate plan name.

3. Click the *Import* button to open the directory where floor plan files are stored.
4. Select the appropriate file to import and click *Open*. The system uploads the file to the server and populates the database with the floor plan information.
5. Click *Cancel* to stop the import.
6. When the Current Import field reads, "Import Completed!", click the *Close* button.
7. Go to *File - Open,* to view the floor plan just imported.
8. If the import fails, the Current Import field reads, "Import Failed!" and errors are listed in the Errors section.
9. Click *Print Errors* to print the list.

Table 10.1 Plan Importer Descriptions

FUNCTION	DESCRIPTION
Last File	Last file exported.
Import to Update	Check this box if importing a floor plan with changes to the .xls to update a current floor plan.
Last Import	Date of the last import.
Current Import	Current Import can show the following: No Import, Uploading file, Processing Data, Import completed or Import failed.
Elapsed Time Total	These give you an indication of progress in processing and indexing. Indexing time is the time to prepare the data for searches.
If errors occur, the following information is displayed. This may occur when shapes are not available in the database.	
Missing Devices	This area shows a list of devices not currently in the device database upon import.
Errors	A detailed description of any errors that occurred during the import.
Print Errors	Prints a list of errors that occurred.
Cancel	Stops the import. This button is enabled only during the import.
Import	Begins the import.
Close	Closes the import dialog box.

10.6 Importing and Exporting Sheets and Column Values

This information details the Import and Export worksheets and a partial list of recognized column values using Microsoft Excel. The columns depict information and properties associated with each asset.

An import template is available in the doc folder with the installation. Select *Program Files - Avocent - MergePoint - DataCenterPlanner - doc - ImportTemplate.xls*. The template is also available on www.VertivCo.com. The template is a starting point for users who require importing a floor plan from a spreadsheet.

NOTE: Upon exporting data, non-editable columns are highlighted in pink on the spreadsheet. The sheets are not locked, but these columns should not be changed if the spreadsheet will be re-imported.

Table 10.2 Sheets and Column Values

SHEETS	RECOGNIZED COLUMN VALUES	
Settings	Units Type Units Value Column Name	Property Type Property Name
Plans	PLAN ID PLAN NAME ADDRESS 1 ADDRESS 2 CITY, STATE, COUNTRY, ZIP CONTACT NAME CONTACT PHONE MAX HEAT MAX HEAT UNITS DEFAULT HEAT DEFAULT HEAT UNITS	MAX POWER MAX POWER UNITS DEFAULT POWER DEFAULT POWER UNITS MAX WEIGHT MAX WEIGHT UNITS DEFAULT WEIGHT DEFAULT WEIGHT UNITS LATITUDE LONGITUDE
Floor Tile Systems	PLAN ID PLAN TILE SYSTEM FLOOR TILE SYSTEM ID FLOOR TILE SYSTEM NAME GRID ORIGIN FLOOR TILE UNITS TILE WIDTH TILE HEIGHT TILE LABELS TYPE X TILE LABELS ORDER X TILE LABELS OFFSET X	TILE LABELS TYPE Y TILE LABELS ORDER Y TILE LABELS OFFSET Y FIRST COL PARTIAL TILE WIDTH FIRST ROW PARTIAL TILE HEIGHT ORIGIN X (Must begin with 0) ORIGIN Y (Must begin with 0) ORIGIN UNITS ANGLE ANGLE UNITS
Tile Perimeter Points	FLOOR ASSET ID FLOOR ASSET NAME VERTEX ID	POINT X POINT Y ORDER
Walls	PLAN ID PLAN NAME WALL ID WALL NAME WALL THICKNESS WALL UNITS	PERIMETER IS CLOSED ORIGIN X ORIGIN Y ORIGIN UNITS ANGLE ANGLE UNITS
Wall Perimeter Points	WALL ID WALL NAME VERTEX ID	POINT X POINT Y ORDER
Doors	PLAN ID PLAN NAME DOOR ID DOOR NAME DOOR WIDTH DOOR THICKNESS DOOR UNITS SWING LEFT	SWING INSIDE DOUBLE DOOR ORIGIN X ORIGIN Y ORIGIN UNITS ANGLE ANGLE UNITS

SHEETS	RECOGNIZED COLUMN VALUES	
Windows	PLAN ID PLAN NAME WINDOW ID WINDOW NAME WINDOW WIDTH WINDOW THICKNESS	WINDOW UNITS ORIGIN X ORIGIN Y ORIGIN UNITS ANGLE ANGLE UNITS
Annotations	PLAN ID PLAN NAME ANNOTATION ID ANNOTATION NAME ANNOTATION WIDTH ANNOTATION HEIGHT ANNOTATION TEXT	ANNOTATION UNITS ORIGIN X ORIGIN Y ORIGIN UNITS ANGLE ANGLE UNITS
Shapes	PLAN ID PLAN NAME SHAPE ID SHAPE NAME SHAPE WIDTH SHAPE HEIGHT SHAPE UNITS	SHAPE TYPE ORIGIN X ORIGIN Y ORIGIN UNITS ANGLE ANGLE UNITS
Floor Level Assets	PLAN ID PLAN NAME FLOOR ASSET ID FLOOR ASSET NAME FLOOR SHAPE SOURCE MANUFACTURER MODEL PRODUCT LINE ASSET DESCRIPTION SHAPE TYPE ID SHAPE ID DERATE HEAT DERATE HEAT UNITS	DERATE HEAT APPLIED DERATE HEAT AGGREGATED DERATE POWER DERATE POWER UNITS DERATE POWER APPLIED DERATE POWER AGGREGATED ORIGIN X ORIGIN Y ORIGIN UNITS ANGLE ANGLE UNITS Property fields are recognized here also
Rack Shelf Space	SHELF SPACE ID SHELF SPACE NAME SHELF SPACE CONTAINER ID	SHELF SPACE CONTAINER NAME SHELF SPACE FIRST SLOT SHELF SPACE SLOT COUNT
Rack Zero U Space	ZERO U SPACE ID ZERO U SPACE NAME ZERO U SPACE CONTAINER ID	ZERO U SPACE CONTAINER NAME ZERO U SPACE RACK CORNER
Contained Assets	CONTAINED ASSET ID CONTAINED ASSET NAME IS A TEMPLATE ASSET CONTAINER CONTAINER ID CONTAINER NAME CONTAINED ASSET FIRST SLOT CONTAINED ASSET MOUNTING CONTAINED ASSET ROTATION ZERO U ASSET X ZERO U ASSET Y MANUFACTURER MODEL	PRODUCE LINE ASSET DESCRIPTION SHAPE TYPE ID SHAPE ID DERATE HEAT DERATE HEAT UNITS DERATE HEAT APPLIED DERATE HEAT AGGREGATED DERATE POWER DERATE POWER UNITS DERATE POWER APPLIED DERATE POWER AGGREGATED Property fields are recognized here also
Template Assets	TEMPLATE ASSET ID TEMPLATE ASSET NAME TEMPLATE ASSET SOURCE IS A TEMPLATE ASSET CONTAINER CONTAINER ID CONTAINER NAME CONTAINED ASSET FIRST SLOT CONTAINED ASSET MOUNTING MANUFACTURER MODEL PRODUCT LINE	ASSET DESCRIPTION SHAPE TYPE ID SHAPE ID DERATE HEAT DERATE HEAT UNITS DERATE HEAT APPLIED DERATE HEAT AGGREGATED DERATE POWER DERATE POWER UNITS DERATE POWER APPLIED DERATE POWER AGGREGATED Property fields are recognized here also

SHEETS	RECOGNIZED COLUMN VALUES	
Asset Connections	CONNECTION ID CONNECTION NAME CONNECTION TYPE CONNECTION ASSET 1 ID CONNECTION ASSET 1 NAME CONNECTION PORT 1 ID CONNECTION PORT 1 NAME	CONNECTION PORT 1 ASPECT CONNECTION ASSET 2 ID CONNECTION ASSET 2 NAME CONNECTION PORT 2 ID CONNECTION PORT 2 NAME CONNECTION PORT 2 ASPECT
Locked Ports	LOCKED PORT ASSET ID LOCKED PORT ASSET NAME LOCKED PORT ID LOCKED PORT NAME	LOCKED PORT ASPECT LOCKED PORT NAME LOCKED PORT ASPECT

10.7 Importing and Exporting Templates

This option allows you to import and export template information to or from a spreadsheet.

NOTE: Upon exporting, non-editable columns appear in color on the spreadsheet.

To export template data to a spreadsheet:

1. In plan, rack or asset view, select the *Templates* pane.
2. Double-click on the template to export.
3. Click the *Export All* button.
4. Click *Export*. A directory opens to save the file.
5. Enter a filename and save to the appropriate location. If problems occur during the export, the screen shows a list of errors.

NOTE: The Cancel button is available only during the export and is grayed out before and after the export.

6. Close the export screen.
7. Open the .xls file to view the template spreadsheet.

To import template data from a spreadsheet:

1. In asset view, select *File - Export - From .xls file*.
2. Click the *Import* button.
3. A directory opens to select a file.
4. Select the file to be imported. Click *Open*.
5. Select *Templates* to view the imported template.

10.8 Importing Assets with No Containment

This function allows you to import assets that are not placed on a floor plan or in other assets. You can import unplaced assets by creating a spreadsheet using Microsoft Excel software and listing the assets to be stored in inventory.

A custom Vertiv spreadsheet is available with the application or can be obtained from Vertiv Professional Services.

The columns in this worksheet must have the required cells. In addition, when adding properties to the assets being imported, optional cells can have the property information, according to the following table.

To import assets with no containment:

1. Open the spreadsheet and go to the Settings worksheet. Verify that the information is listed in the required columns, A and B.
2. Select the Contained Assets worksheet and enter information in the following columns:
   - Contained Assets Name - For example, Server-24.
   - Shape Type ID - For example, DELL462.
   - The Asset Container column must be blank for the asset to be treated as unplaced upon import. All other columns may be blank.

To enter properties for the assets being imported:

1. Select the Settings worksheet and enter information for the optional columns, D, E and F.
2. If a rack is being imported, go to the Floor Level Assets worksheet and enter information in the columns, for example:
   - maxPower Property
   - maxHeat Property
   - maxWeight Property
3. Select the Contained Assets worksheet and enter information in the columns as you did for the Floor Level Assets worksheet in Step 2.
4. Save the worksheet and go back to the application to import the updated spreadsheet.
5. Select *File - Import* from the menu options. The Plan Import dialog box opens.
6. Click the *Import* button and select the file to import and click *Open*.
7. After the import is complete, search for the assets by name in the Unplaced pane.

Table 10.3 Columns in Worksheet

UNIT TYPES	UNIT VALUE	COLUMN NAME	PROPERTY TYPE	PROPERTY NAME
(Required)	(Required)	(Optional)	(Optional)	(Optional)
Column A	Column B	Column D	Column E	Column F
Length	inches	maxPower Property	POWER	maxPower
Angle	degrees	maxPower Property Units	POWER	maxPower
Power	kilowatts	maxWeight Property	WEIGHT	maxWeight
Heat	BTU/Hr	maxHeat Property	HEAT	maxHeat
Weight	L	IP address Property	STRING	IP address
		support Property	STRING	support
		DSView software name Property	STRING	DSView software name

10.9 Importing User-Defined Properties

If a large number of user-defined information is being added to assets, this can be accomplished easily by exporting the floor plan to a spreadsheet, adding the information and importing the floor plan back into the application as an Import to Update.

To add large amounts of data to a floor plan:

1. Open the desired floor plan.
2. Select *File - Export to .xls file* from the menu options.

3. Click *Export*, name the file and save it.
4. Log out of the application.
5. Open the *Spreadsheet*.
6. Navigate to the appropriate worksheet and add the information. An example would be adding IP Addresses to a list of devices, which would be added to the floor-level assets worksheet.
7. Save the spreadsheet.
8. Log back in to the application. Do not open the floor plan yet.
9. On the Available Plans dialog box, select *Import a plan*.
10. Enable the *Import to Update* checkbox.
11. Click the *Import* button.
12. Select the updated .xls file.
13. When the import is complete, click the *Close* button.
14. Open the updated floor plan to view the changes.

10.10 Downloading and Importing Symbols

From the Symbols Order Portal, you can request, download and import individual symbols. See Requesting, downloading and importing device symbols on page 111.

11 VIEWS

This chapter describes the views and how they are managed on the console. Vertiv™ Data Center Planner has a different view for functions in plans, racks, assets, connections, global and resources views.

When you log in, the application opens to a dialog box with the list of available plans. Depending on your rights, you may not have the option to create plans and import plan.

NOTE: If you click *Cancel* on this dialog box, you cannot place anything on the content area or export a plan. You can select *Open Plan* from the toolbar or import a plan in the dialog.

If you select a plan, the application opens in plan view and current state and the Secondary Navigation menu is open with global, connection and resources views available. Click on either option to display the tab on the menu bar. You can close the Secondary Navigation menu to view more space on the console.

When you select a plan, it opens on the tab bar. With the tab selected, you can switch between plan, rack and asset views in a single tab. You can open another plan, which places that tab in the menu. Both tabs support plan, rack and asset view behavior. The current limit on plan tabs is two and each tab button includes a delete icon to close the tab.

The position of tabs persist across user sessions, so when you log into your next session, the tabs are presented in the same location as when you last set them.

11.1 Global View

Global view offers a geographical view of the infrastructure, formed by the combination of a static map overlay, locations, data elements and a visual representation of relationships between locations. In global view, the Capacities and Proprieties panes are functional.

In this view, you can perform the following functions:

- Select from static map overlays of the world, continents and largest countries.
- Select from a set of icons to represent locations (branch office, data center, headquarters, closets, server room and customer site) and label each location.
- Look up geographic position, longitude and latitude, from an external mapping tool based on address.
- View a plan location.
- View total capacities of plan markers chosen by multi-selection.

In Global view, you can see multiple floor plans that fall in the same or close proximity to the GPS coordinates. The locations appear on the map as a marker with the number of floor plans near that location.

To manage data center locations:

1. Select *Global View* from the Secondary Navigation pane. A global view map appears on the menu bar.
2. To resize the map, use the navigational arrows at the top of the screen.
3. Click on a marker to expand individual data center locations.
4. Click on an individual marker to view contact information in the Properties pane.
5. The Add button allows the location to be listed in the Capacities pane.
6. Click on the arrow next to the selected floor plan name to show the plan's contact information.

7. Select the *Properties* pane to view plan contact and global coordinated information.
8. Double-click on an expanded marker to open the floor plan for that location.

11.1.1 Global view capacities and properties

These panes shows capacities for selected floor plans in data centers. As you select locations, the maximum, consumed, remaining and percent utilized capacities are calculated for power, heat and space. Floor plans can be added to the capacities area or removed to recalculate different combinations of data center locations.

The Properties pane shows the contact information and global coordinates for a selected floor plan. Information can be edited in this pane.

11.2 Plan View

This view is a real-time view of the data center floor and rack and device positions. Many operations are available in this area. Depending on your rights, you may not see all plans.

In this view, you can perform the following functions:

- View application options, such as floor plans
- Create, update, copy and delete plans
- Import custom plans
- Open two plans at the same time using tab view navigation
- Manage facility objects, such as walls, doors and windows
- Add annotations to floor plans
- Zoom in and out, pan and snap to grid options
- Find assets on a floor plan
- Move assets on the floor and rotate floor-mounted assets
- Copy racks from one floor plan to another
- Double-click on a rack to see its details in rack view
- Multi-select floor-mounted assets
- View and edit asset names and maximum values in the Properties pane
- View capacities calculations for a floor plan in the Capacities pane
- View color representation of assets on a floor plan by consumed and remaining capacities in the Capacities pane

Once you are logged in and authenticated, the Data Center Planner window opens to a plan dialog box where floor plans can be imported, created or a current plan opened.

Figure 11.1 Plan View

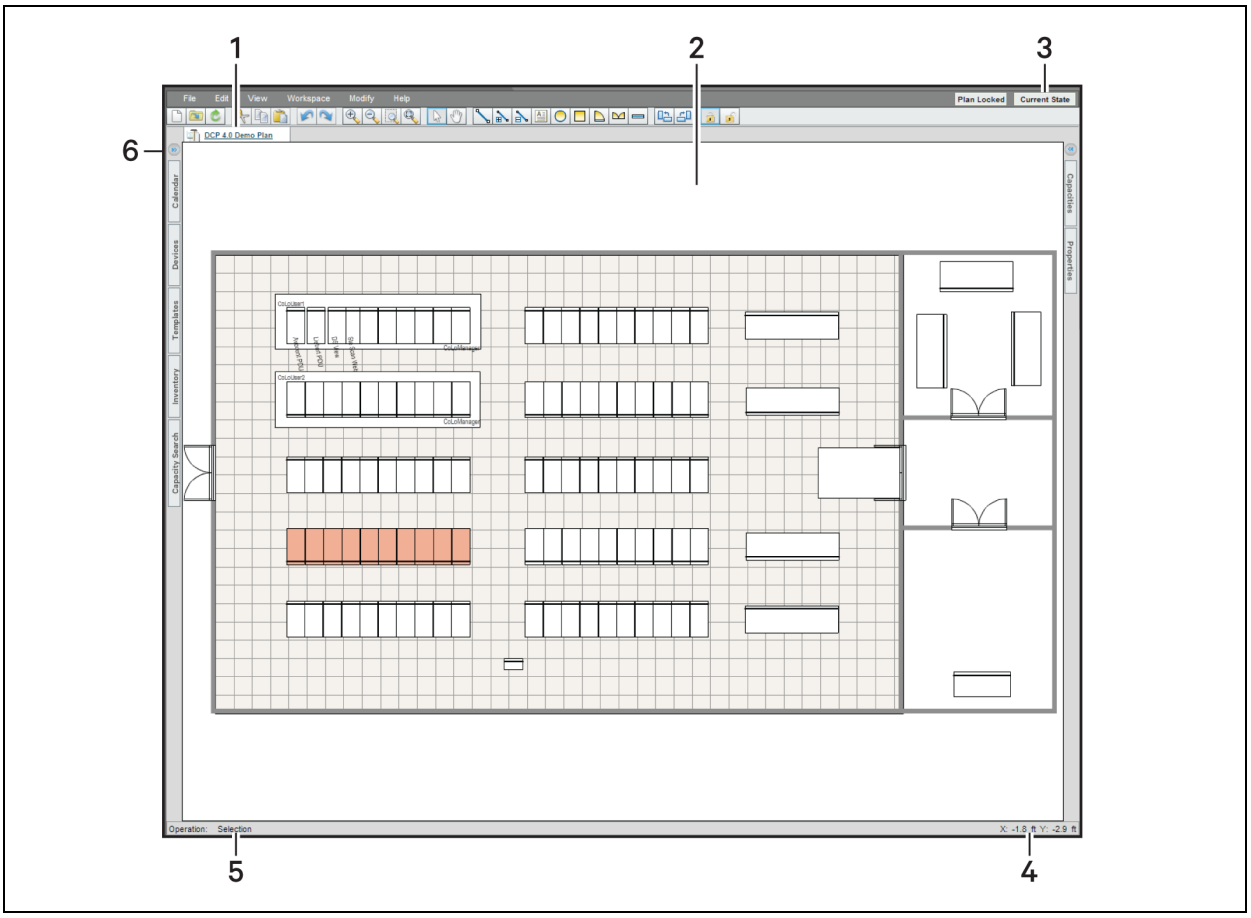


Table 11.1 Plan View Descriptions

ITEM	FUNCTION	DESCRIPTION
1	Plan name	A link back to the plan if you are in another view
2	Content pane	Contains information related to plans, rack assets and connections
3	Plan status	Shows the application, current state, project name/date or history date
4	x and y	Shows the x and y coordinates on a plan
5	Status bar	Shows the current operation, such as selection or pan/zoom
6	Sidebar arrows	Shows a drop-down list of the panes docked on either sidebar

NOTE: You can hover over a rack to see the device name, consumed and remaining RU capacities and up to three UDPs assigned to that rack. See Asset Label Text on page 59.

11.2.1 Adding a rack to a plan

To add racks to a floor plan, select a rack from the Devices pane and drag it to the floor plan. The system highlights the rack and shows the rack information in the Properties pane if it is open. If you hover over a rack, a pop-up displays the three fixed properties: Device Name, Consumed and Remaining capacities and up to three user-defined properties. See Plan colorization on page 82 for details to add a fill color to the rack in Plan View.

To add a rack to a floor plan:

1. In plan view, select *Devices*.
2. Use the category drop-down list or click the *Search* button to open the detailed search dialog box.
3. Enter search criteria in one of the fields: manufacturer, type, product line or model.
4. Click *Search*. The search dialog box closes and a result list opens.
5. Select a rack from the list and drag the image to the floor plan. You may drag the rack from the list if you place your cursor on the name of the rack. If your cursor is on the small image next to the name, it will not place.
6. Click and drag the rack to the desired position.

   -or-

   Press the keyboard Arrows to move the rack.

   -or-

   Click the *Rotate* button to turn the rack to the desired position.
7. Double-click on a rack to view it in rack view.

To delete or cut a rack or multiple racks:

1. Click one or more racks in the floor plan and select *Edit - Delete*.

   -or-

   Right-click and select *Delete*.
2. If deleting a rack containing assets, a confirmation message displays asking if you want to move to inventory or delete permanently.
3. Select one of the options and click *OK*.

NOTE: If unplaced assets open when you move a rack to inventory, you must click the *Search* button again to see the rack in inventory.

To copy and paste multiple racks:

1. Select one or more floor-mounted racks on the floor plan and click *Copy* on the toolbar.
2. The system copies the racks from the floor plan into the paste buffer as planned assets. The selected racks remain selected.
3. Select *Paste* from the toolbar.

NOTE: The system creates planned floor-mounted racks at the same positions and orientations as those in the paste buffer and places them on the floor plan. The new racks stay selected so they can be immediately moved.

Selecting multiple racks on a plan

This function allows you to select multiple racks while in the selection operation. You can click and drag an expanded frame to surround the racks to be selected. All desired racks must be included inside the frame for the selection to take effect.

Selecting multiple racks provides a quick and easy way to perform actions such as copy and paste, delete, zoom, align and go to rack view.

To move a selection of racks:

Surround the desired racks, hold down the Shift key and move the selection vertically or horizontally in a straight line.

To select multiple racks in a floor plan:

1. Ctrl-click to select multiple racks. As the racks are selected, a bounding box extends to surround the selections. Each selected rack is individually highlighted.

   -or-

   In the selection operation, click *Edit - Select* from the menu options.

2. Using the mouse, drag the frame to surround the desired racks and release. The frame disappears and the racks remain selected. The Properties pane shows the common properties for the selected racks. You can edit these common properties and check the box to save.
3. Click *Save* for the changes to take effect.

11.2.2 Aligning assets on a plan

This function allows you to align floor-mounted assets on a floor plan.

Align tools work in the following manner:

- Align top - the top most points of each asset are aligned horizontally.
- Align center - the horizontal center points of each asset are aligned horizontally.
- Align bottom - the bottom most points of each asset are aligned horizontally.
- Align left - the left most points of each asset are aligned vertically.
- Align middle - the vertical center points of each asset are aligned vertically.
- Align right - the right most points of each asset are aligned vertically.

When the alignment is completed, the assets remain selected. The aligned group can be moved, rotated, copied or deleted.

To align selected items in a floor plan:

1. Open a floor plan and select a collection of racks by using the Selection operation on the toolbar to surround the racks.

   - or-

   Ctrl+click on the racks.

2. Select *Modify - Align* from the menu options and select one of the Align tools.

   -or-

   Right-click and select one of the align context menu options.

11.2.3 Rotating a rack on a plan

After placing a rack on the floor, the orientation can be changed by using the keyboard arrows, the rotate icon or by changing the rotation in the Properties pane. You can also select multiple racks and change

the orientation of all the selected racks.

NOTE: Ovals and rectangles multi-selected with racks cannot be rotated using the rotation field in the Properties pane.

To move a rack in a floor plan:

1. Select the appropriate rack in a floor plan.
2. Drag and drop the rack to a different position.

   -or-

   Use the keyboard arrows to move it up, down, left or right to the desired position.

   -or-

   Click *Modify- Move* from the menu options and select one of the move tools.

To rotate a rack:

Click the rack and use the rotate icon to turn the rack clockwise or counter-clockwise.

NOTE: For new and existing plans, floor-mounted devices can be locked or unlocked after they are placed on a floor. The default setting locks floor-mounted devices and they cannot be moved. You can only use and see the Plan Locked and Plan Unlocked icons on the toolbar if Collections Management is enabled and you have write permissions to place and move floor-mounted devices for a selected plan and device.

11.2.4 Position and angle of racks on a plan

The rotation and x and y origin of floor-mounted assets on a floor plan can be modified by selecting a rack and changing the values within the Properties pane. The rack name is the only editable field in the Properties pane.

To modify the position and angle of a rack on a floor plan:

1. Click on the desired rack and rotate or move the rack to a different position on the floor plan.

   -or-

   In the Properties pane, change the appropriate fields, such as rotation, origin x, origin y.

2. Click *Save*.

11.2.5 Colorization capacities and metrics

Capacities

There are four levels of capacity measurements:

- Maximum is a measurement on floor-level assets that defines the consumption limit for the asset. This value may be left at zero to indicate no maximum. These limits are the result of the data center environment. The application neither computes nor suggests maximum capacity values. This analysis is left to the user.

  For example, if the breaker feeding a rack trips with power exceeding 5 kW, you would define the maximum capacity for the rack to be 4 kW, leaving a 1 kW margin for error.

  - Weight is limited by the materials and construction of the floor.

    - Power is limited by cabling and breakers.
    - Heat is limited by cooling infrastructure.
    - Space and network capacities are determined by the rack and its contents, so there is no ability to specify maximums.
- Default maximum is a measurement defined by the plan as the default maximum capacity for any newly placed floor-level assets.

  For example, if the data center's cooling infrastructure cannot handle a rack producing more than 3000 BTU/hr of heat and the default maximum capacity for the floor plan would likely be 2500 BTU/hr, leaving a 500 BTU/hr margin for error.

- Plan maximum is a measurement defined by the plan as the aggregate consumption limit of all assets on the floor plan.
- Remaining is the difference between maximum capacity and consumption. For example, if a 4 kW rack is filled with 50 light bulbs (60 watt), the remaining capacity would be (4000 - 50 * 60) watt or 1 kW.

NOTE: When capacities' maximum values for power, heat and weight have not been set on an asset, there will be no metric for calculating remaining capacities for them, respectively. If there is no maximum value for power on an asset, the asset will not be colorized for Power-Remaining; it will be white. This is the same for weight and heat.

Metrics

The application measures five capacity metrics:

- Power - Measured in W (watts) or kilowatts - Real world power consumption varies radically depending upon configuration and usage.
- Heat - Measured in BTU/hr - A measure of the heat produced by the devices. Technically, it is heat production and cooling consumption; the heat produced by a device related to its power consumption.
- Weight - Measured in pounds or kilograms - Typically not derated.
- Space - Measured in rack units - This is determined directly from the asset type, with no opportunity to derate.
- Network - Measured in number of ports - This is determined by the network switches installed in a rack, with no opportunity to derate.

Color range

Colorization is shown for one metrics at a time with no attempt to consolidate metric visualizations into one view. Floor-level assets are colored based on a color scale, evenly distributed over a continuous range of colors. The colors range from green (for good) through yellow to red (for bad). Red should only be used as an indication that something is wrong, such as a floor-level asset being beyond capacity.

While the application automatically chooses the upper and lower limits for the color scale, you have the capability of adjusting the range. This helps in situations where outliers distort the colorization.

Color legend

The color range is visualized by a color legend. The legend gives you details as to what the particular colors mean. The colors on the floor plan are actually a continuous range of colors, so the legend is just a sampling of colors throughout that range.

To visually indicate consumption on the plan, floor level assets are colorized based on consumption. The color range is based on the minimum and maximum values.

11.2.6 Consumption

Consumption is a measure of how much of a particular metric is being consumed. For example, a 60-watt light bulb has a power consumption of 60 watts.

Faceplate - Metric information as provided by the manufacturer. This is the maximum consumption of the device when it is fully loaded with modules.

- User-Defined - Metric information provided by the user, either broadly on the asset type or specifically on a particular asset. This is commonly referred to as derating.
- Measured - Metric information provided by devices and sensors in the data center and regarded as the most accurate consumption metric. Measured consumption is provided through integration with certain technologies.
- Aggregate - The consumption value for a floor level asset is the consumption for the asset itself, aggregated with the consumption of all of its contained assets. In many cases, the user-defined and measured data are pre-aggregated. This means you do not aggregate them with contained assets again.

Consumption details

When computing the consumption of a floor level asset, there are two primary policies to consider as follows:

- Consumption metric policy: Many consumption metrics are available. The consumption metrics are in order of priority.
- Measured Consumption - This is considered the most accurate source of consumption data.
- User-Defined Consumption (Asset) - This is the next best source for consumption information. When defined on an asset, it is likely that you obtained the information through your own measurements. When defined on an asset, you can take into account configuration and usage.
- User-Defined Consumption (Asset Type) - When exact consumption data for a particular asset is not available and user-defined consumption for the asset type is the best source.
- Faceplate Consumption - When measured consumption is not available, resort to user-defined data (first on the asset and on the asset type). When none of these are available, resort to the faceplate data.
- Aggregate Calculations Policy: When the chosen metric does not represent the aggregate consumption of the asset and its contained assets and the metric should be aggregated with the consumption metrics of its contained assets at compute time.
- If the metric includes the consumption of the contained assets and you measure power at the power strip feeding a rack and you should enter a user-defined consumption value for that asset and disregard any consumption values of contained assets.
- If the metric does not include the consumption of the contained assets and you measure the power consumption of an empty blade chassis and then measure the incremental power consumption of adding additional blades, you should set user-defined consumption values for the blade chassis and blade asset types. As blades are populated into the blade chassis, power consumption is aggregated to provide the overall consumption of the populated blade chassis.
- Existing faceplate data works well by aggregating consumption metrics. However, faceplate metrics for modules is usually not available. Instead, the faceplate metrics for the containing

asset is the maximum possible if it is fully loaded with modules. To account for this, metrics should indicate whether they are an aggregate metric or not. All faceplate data can be assumed to be non-aggregate.

11.2.7 Space and network computation

- Power, heat and weight metrics are provided directly as fields on asset and asset types. Space and network metrics must be computed.
- Space maximum capacity - Specified directly on the floor level asset's rack asset type. The intention is that a 42-unit rack has a maximum capacity of 42 rack units (RU).
- Space Consumption - Sum of a rack's contained asset's RU count, plus the total RU size of all contained shelf spaces.
- Network maximum capacity - A count of producer data ports on a rack's contained assets. The intention is that a 48-port network switch has a maximum capacity of 48 ports.
- Network consumption - Of the ports counted toward the maximum capacity, this is a count of the subset that has connections or was locked.

11.2.8 Copying a plan or using Save As

To copy a floor plan, you must use the Save As option from the menu options. A duplicate of the floor plan is created including every object and asset contained in the original floor plan. The two floor plans are independent of each other but contain the same information.

NOTE: When saving a large floor plan, the browser ssl session will time out after one hour, but the process will continue in the background.

To copy an existing floor plan:

1. Select *File - Save As* from the menu options. Note that for large floor plans, this action may take several minutes.
2. Enter a name for the new floor plan and click *Save*. The new floor plan opens zoomed to fit the screen.
3. Changes can be made in properties, such as contact information, capacities for power, weight and heat and the grid configuration.

11.2.9 Creating a new plan

Creating new plans is performed by setting up floor plans with custom properties and capacities. When naming a new floor plan, a unique name is required. There is only one floor tile system per floor plan. Its size, offset, legend and visibility can be modified but it always exists in the floor plan. The properties of the floor tile system are made available for editing along with the floor plan properties.

NOTE: If you create a new plan, all users have access to it until collections and roles are assigned to the plan and its assets.

When creating a new plan, depending on your preferences, the minimum and maximum sizes you can enter are:

Table 11.2 Minimum and Maximum Plan Sizes

UNIT	MINIMUM	MAXIMUM
Feet	2	2000
Inch	24	24000

UNIT	MINIMUM	MAXIMUM
Meter	6096	609.6
CM	60.96	60960

If you enter a size too small or too large, a tool tip shows the correct size to enter.

To create a new floor plan:

1. Select *File - New* from the menu options.

   -or-

   Click *New Plan* on the toolbar.

2. The new plan dialog box opens containing fields for the plan information including the initial width and height of the room.
3. Enter the appropriate information for the new floor plan and click *Create*. Required fields are indicated with an asterisk (*).

NOTE: Floor plan names are unique. If you try to use a current floor plan name, an error message displays. Change the plan name and try again.

NOTE: You must enter width and depth. If you omit these fields, an error message displays stating the width must be between 2 and 2000 feet and depth must be between 1 and 1000. The only way to change floor plan dimensions is to export the floor plan, change the dimensions in the spreadsheet and import to update.

4. The system opens a new floor plan with a tile system of the specified size. The plan includes a grid that consists of two-foot square tiles representing the floor tile system.
5. Select *Devices* to add racks. Use the toolbar to add walls, doors or windows.

Table 11.3 New Floor Plan Properties

FIELD	DESCRIPTION
*Plan name	New floor plan name. This is a required field.
Contact	
Name	Contact name.
Phone	Contact phone number.
Address	
Street 1	Contact address.
Street 2	Contact address.
City	Contact city.
State	Contact state.
Zip	Contact zip code.
Country	Contact country.
Global Coordinates	
Latitude	Plan latitude.
Longitude	Plan longitude.
Initial Plan Size	

FIELD	DESCRIPTION
*Width (ft)	Floor plan width. This is a required field.
*Depth (ft)	Floor plan depth. This is a required field.

To update floor plan contact information and global coordinates:

1. In plan view, select *Properties*.
2. In the plan Properties tab, edit the information and click *Save*.

11.2.10 Opening an existing plan

To open a floor plan:

1. Select *Open* from the File menu options.
2. Select the appropriate floor plan and click *Open*. The floor plan opens zoomed to fit the screen.

11.2.11 Cutting, copying and pasting assets on a plan

Assets can also be copied from one floor plan to another. If the original and destination floor plans have the same dimensions, the paste function will attempt to maintain the original spacing and alignment of the assets on the original floor plan. The pasted assets will still be selected.

If the destination floor plan has different dimensions than the original floor plan and the paste function will arrange the assets in a fan-stacked fashion from the center of the floor plan towards the lower right corner of the floor plan. The pasted assets will still be selected. The same functionality for both cases applies to the cut and paste functions.

To copy and paste assets on a floor plan:

1. Click on the rack to be cut or copied.
2. Use the Cut or Copy toolbar option.

   -or-

   Right-click and select *Cut* or *Copy*.
3. Click on the floor and click *Paste*. The rack appears on the floor.

To position the rack:

Drag the rack to the desired position or press the keyboard **Up** and **Down** arrows to move it.

-or-

Click the *Rotate* button to turn the rack clockwise or counter-clockwise.

11.2.12 Deleting a plan

To delete a floor plan, you must have the desired floor plan open.

To delete a plan:

1. Select *File - Delete Plan* from the menu options. A confirmation message displays asking if you are sure you want to delete this plan.
2. The dialog box gives the option to move the assets to inventory or permanently delete the floor plan and all of its assets.

3. Select one of the options.
4. Click *OK*. Create, import or open another floor plan.

11.2.13 Multiple asset properties in plan view

you can update a number of racks with common properties simultaneously, such as name, rotation, origin x and origin y. When racks are selected and the Properties pane is open, if the selected racks have common properties, the fields display the information.

To update rack with common properties:

1. Open a floor plan and select multiple racks and select *Properties*.
2. To modify fields, enable the corresponding checkbox and modify the information as needed.
3. Click *Save*. The system updates only the common properties with enabled checkboxes for the selected assets.
4. Changing the rotation in the Properties pane affects each selected asset individually. If three racks are selected and the rotation property is changed, each rack will change rotation individually.

NOTE: Multiple asset properties are shown for assets only, not for facilities shapes such as ovals, rectangles, windows and doors.

11.2.14 Plan colorization

Plan view features capacity colorization that gives you the ability to visualize both consumption and capacity for the floor level assets in your floor plan.

This information defines the scope and usefulness of capacity colorization. It explains how different metrics, such as faceplate, user-defined and measured capacities interact with one another. It also defines how these computed values are presented.

User-defined property colorization

You can add color to individual floor-mounted assets in the Properties - User-Defined Properties pane by using colorization as an asset label. Thirty colors are available and the default color is white.

To add color to racks with user-defined properties:

1. In Plan view, highlight a rack to be colored.
2. Select *Properties - User-Defined Properties*.
3. Select *Colorization* from the Assign drop-down list and click *Add*. The Colorization property and value are added to the list.
4. Click on the color value field to open the color palette, select a color and click *Save*.

Zero U space and shelf space colorization

Zero U space and shelf space provide an interesting effect to the calculations. The contents of these special spaces contribute to power, heat, weight and network consumption, but not space consumption.

Space is only consumed by the shelf space itself and not the contents of the space. For example, if a rack contains a single shelf space, which is 4-RU high and nothing else and the space consumption is 4-RU, regardless of the contents.

11.3 Rack View

This view offers an eye-level view of racks formed by the display of one or more racks from devices.

In rack view, you can perform the following functions:

- View one rack or multiple racks with zoom and panning capabilities.
- Add and delete assets in a rack.
- View rack properties.
- View properties of assets in a rack.
- Toggle between front and back views of racks.
- Place assets in a rack with the back view facing front.
- Place shelf space in a rack for assets that do not mount in rack unit spaces.
- Add zero U space to a rack for assets that are not rack mountable, such as power distribution units.
- Set default capacities for racks.
- Drag and drop assets from one rack to another.

Figure 11.2 Rack View

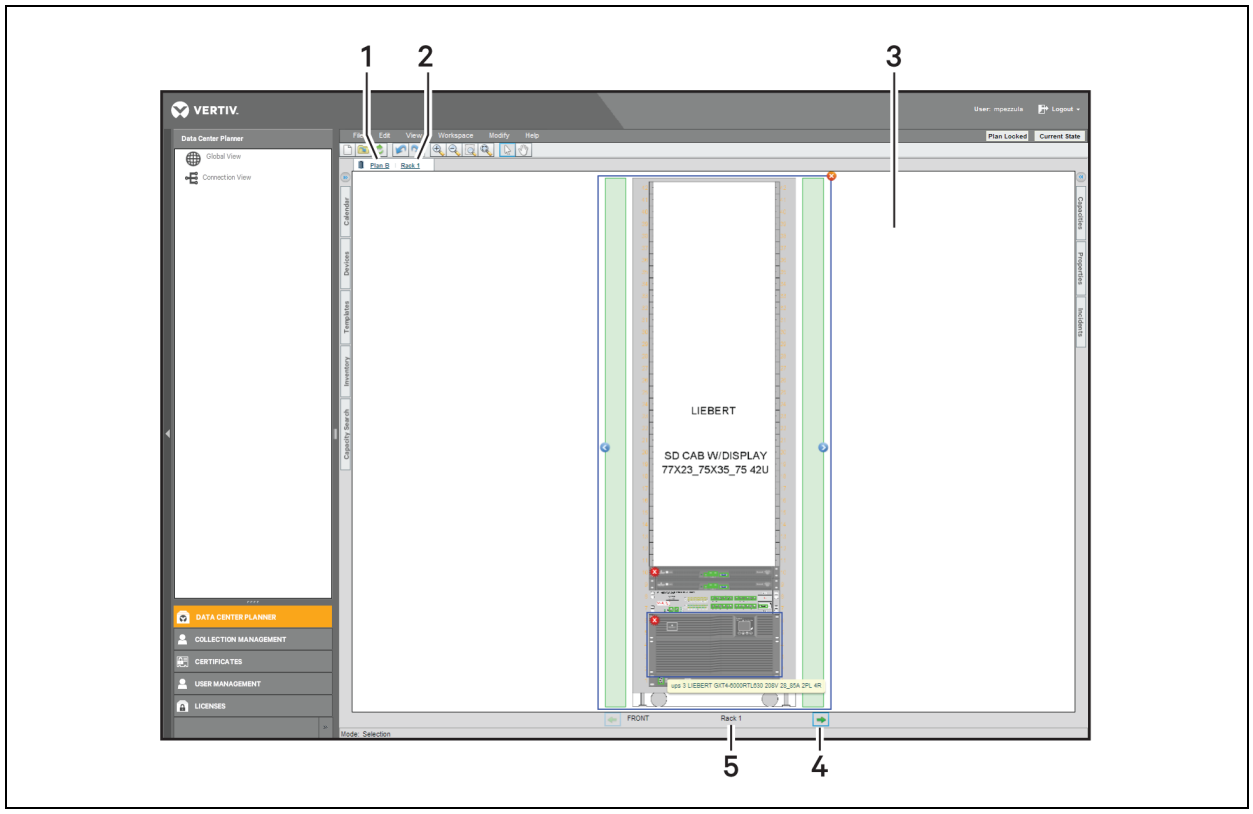


Table 11.4 Rack View Descriptions

ITEM	FUNCTION	DESCRIPTION
1	Plan name	Plan link.

ITEM	FUNCTION	DESCRIPTION
2	Rack name	Rack name/link.
3	Rack view	Selected rack with containment.
4	Flip front to back view	Use these buttons to toggle between front and back views of an asset. Note that in back view, if an asset is front facing it is grayed in the back and if an asset is back facing it is grayed in the front.
5	Rack name	Selected rack name.

11.3.1 Adding assets to a rack

To add assets to a rack:

1. In rack view, highlight the rack and select *Devices*.
2. Use the category drop-down list or click the *Search* button to open the detailed Search dialog box.
3. Enter search criteria to one of the fields: manufacturer, product line, type or model.
4. Click *Search*. The Search dialog closes and a result list opens.
5. Select an asset from the list and drag the image to the rack. You may drag the asset from the list if you place your cursor on the name. If your cursor is on the small image next to the name, it will not place.
6. Click and drag the asset up or down to the correct RU (rack unit) position.
7. Double-click on the asset to open it in asset view.
8. A visual image is displayed.
9. Select *Properties* to view the asset information.

NOTE: When mounting an asset, a border surrounds it until nearing the rack and a green border appears where the asset can be dropped. If a particular asset cannot be placed, the green border is not visible in the rack.

10. To rotate or change the back/front view before placing assets into a rack, shelf space or zero U space, click *Flip* or *Rotate* located in the shape information area.

NOTE: In rack view, the asset name, manufacturer and model number are displayed as a tool tip by holding the mouse over an asset.

To delete an asset from a rack:

1. Click on the asset, select *Edit - Delete* from the menu options.

   -or-

   Click the *Delete* button on the asset. A confirmation message prompts you to delete the selected items.

2. Click *Yes* to delete the rack.
3. If you select *Delete*, the racks are removed from the floor plan and added to unplaced assets.

To permanently delete a rack:

Select *Unplaced Assets* pane, search for the asset and delete it.

11.3.2 Adding assets to racks with different configurations

In this view, assets can be mounted in a rack with the following configurations.

- front-mounted, front-facing
- front-mounted, back-facing
- back-mounted, front-facing
- back-mounted, back-facing

To add an asset to a rack with the front-mounted, back-facing configuration:

1. In plan view, select a rack and double-click to open rack view.
2. Select *Devices* and select an asset to add to the rack.
3. In the information area, click the *Flip* button or the *Front/Back* button to rotate the asset.
4. Drag and drop the asset into the rack.

11.3.3 Asset properties in a rack

Upon dropping an asset into a rack, you can view the asset properties in the Properties pane. This pane contains information for assets in racks, which includes sub-panes for general properties, DSView software, user-defined properties, derates, capacities, port connections, slots and reservations.

To view asset properties in a rack:

1. Select an asset in a rack and open the Properties pane. The Properties pane opens with the asset information.
2. Open the tabs to manage the selected asset's properties.

NOTE: In rack view the asset name, manufacturer and model number are displayed as a tool tip by holding the mouse over an asset.

To modify an asset name:

1. Click on the asset in a rack.
2. Select the *Properties* pane.
3. Click in the name field and enter the new name.
4. Click *Save*. If shelf space is selected, a list of contained assets is shown in the Properties pane.

11.3.4 Placing two assets in the same RU position

The application allows you to place two assets in the same rack unit position, such as front and back facing, mounted back-to-back. Assets with the same aspect cannot be placed in the same rack unit; that is, if the first asset is front-facing, the second asset must be mounted back-facing.

To place an asset in the same RU position as an existing one:

1. In rack view, flip the rack to the back view.
2. Select *Devices* and select the asset to be placed in the same RU as an existing asset.
3. Place the new asset on top of the existing one. The asset is shown as front-facing.
4. Flip the rack back to the front view and note that the existing asset is shown front-facing also. The assets are mounted back-to-back.

11.3.5 Device placeholders

When new assets are requested for a data center that are not listed in the Device Library, it may be necessary to mount a blank placeholder to reserve RU positions until the new assets are available. The types of placeholders available in the Device Library are as follows.

- Placeholders - The placeholders range in size from 1 RU to 42 RUs and can represent assets not in the database. You can change the name and set capacities, user-defined properties reduce the power ratings (derate) calculated for heat, power and weight.
- Rack Placeholders - 42 RU placeholders are available. You must be in rack view to convert a placeholder to a rack.
- Generic Equipment Set - The blank panes range in size from 1 RU to 6 RUs and can be placed in a rack unit position to create space for air flow. Weight can be calculated or derated to zero, but these panes do not consume space or power.
- Templates - When replacing multiple new assets, it is a good practice to use a template as a placeholder. Properties, capacities and user-defined properties can be assigned for ease in locating the placeholder to be converted when the new assets arrive. The placeholder template can be used as many times as needed without having to manually assign properties to each new asset.

To add a placeholder to occupy space for a requested asset:

1. Open the appropriate plan and rack to where the requested asset will be placed upon arrival.
2. Select *Devices* and search for placeholders by entering Placeholder in the Type field. The list of placeholders displays with a number of RU size shapes.
3. Drag the desired RU size placeholder to the rack.
4. Open the Properties pane and add user-defined properties (UDP) that are unique to the placeholder being converted to assets.

CAUTION: A UDP must be assigned to each placeholder in order to search for all placeholders with the same UDP when replacing with new assets.

5. Add other properties as needed, such as changing the name of the placeholder and derating it.

Converting placeholders to new assets

This function allows you to convert placeholders when the requested new asset arrives. When the target placeholder is replaced by the new shape, the new shape is configured with the previous placeholder's name and user-defined properties. The system validates the replacement asset to determine that it does not violate spatial constraints, such as the received asset being larger than the placeholder. This operation is allowed in both current state or project plans but can only be performed by a user with manager rights.

When you drag a new asset onto a placeholder, the system determines whether the asset has any user-defined properties. If so, it presents a dialog box to allow replacing multiple placeholder assets with the same device.

To convert a placeholder to a new asset:

1. After downloading the new asset to the device library, select *Devices* and search for the new asset.
2. Drag the new asset over the placeholder. The dialog box opens with a list of placeholders that meet the specified criteria (size and UDP).
3. From the top list, select a UDP to see matching placeholders.
4. The number of matching placeholders displays in the bottom table.

5. From the bottom list, you can highlight the name to view the location of the placeholder in the rack.
6. To convert a placeholder, enable the corresponding checkbox and click *Replace*. The selected placeholder is converted with no confirmation.
7. To convert more than one placeholder, click *Replace All*. A confirmation message asks if you are sure you want to replace all placeholders and not just the one checked.
8. Click *Confirm* and close the dialog box.

The replace action occurs only for the current floor plan and not across multiple plans.

11.3.6 Rack order in rack view

This feature results in two types of selection interactions between plan view and rack view.

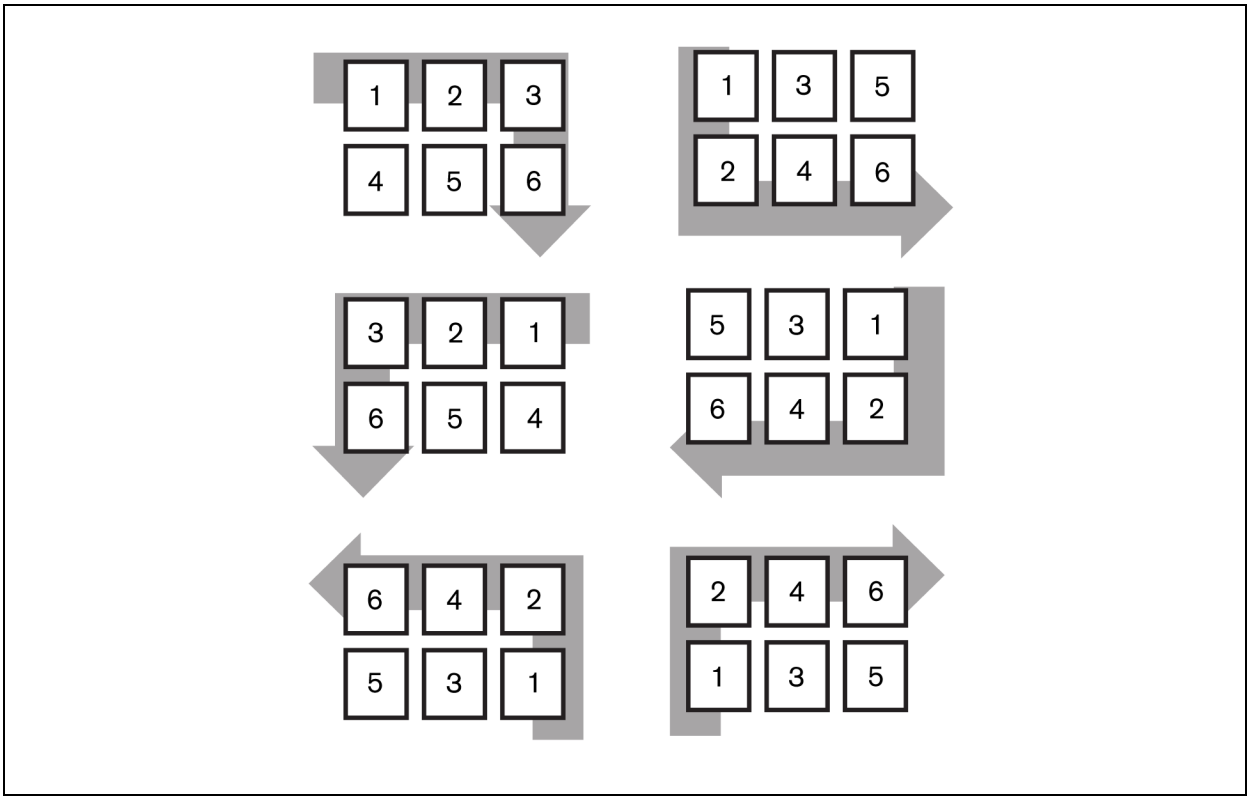
The first interaction allows you to stress a direction during the selection process, which helps the application understand the intended presentation order. This involves eight areas of emphasis that can be used. Order is determined by which axis of the selection receives the most attention. For example, if you drag to the right and then down, the application responds by ordering the x coordinate and then the y, which is useful in selecting a horizontal row.

In addition to the drag method, the arrow keys can also be used to determine the presentation order. If you create a new selection and then add to that selection using the click method in conjunction with the control key, the racks are ordered in the same order as they were selected.

The image shows how you can use the multiple selection method to set the order of racks in rack view. The numbered boxes show the rack in plan view. The arrows show the direction of selection for presentation of racks in rack view. The following lists ways to drag racks in a plan view:

- If you select and drag from left to right or right to left and then down, the order is horizontal over vertical.
- If you select and drag from top to bottom or bottom to top and then drag from right to left, the order is vertical over horizontal.

Figure 11.3 Set Rack Order



11.3.7 Rack timeline

In order to better visualize the changes made to a rack over time, you can display a rack timeline for a selected rack at a point in time. The timeline is only invoked at the current time or on a project in the future. Reserved space can be turned off or on, but you cannot manipulate the contents.

The display is a dialog box showing the rack, along with up to nine successive states of the rack, representing changes made for projects in the future. Each presentation of the rack shows the project and time for that state of the rack. You can select the racks from this dialog box in order to quickly navigate to the projects that imposed the changes to the rack.

The timeline retains the point in time set at the time of creation, as long as you keep the display active and it remains unaffected during this navigation, so you can go to any of the ten selected points in time for more details. The dialog box is movable and resizable so that you can position it conveniently.

Manipulating the rack view at a point in time may change the rack shown in the rack timeline and selecting any rack from rack view can change the rack. The timeline immediately changes to show the selected rack in rack view and its snapshots over time.

The timeline also responds to selecting the front and back view of a rack in the same manner. Also, if you change the state of reservation display from on to off, the timeline will respond accordingly.

NOTE: Zero U space does not show as being open in the rack timeline.

To display a rack timeline:

1. Open the appropriate rack in rack view.
2. Highlight the rack. If the rack is not selected, the Show Rack Time option is not visible.

3. Right-click and select *Show Rack Timeline*. The name and date of the project in the timeline is located below the rack.
4. Click on the project name to move to project details.
5. The rack becomes visible in rack view in projects where the changes are due.
6. If a change is made to any project while the timeline is open, it takes effect immediately.
7. Click the *x* to close the timeline.

11.3.8 Shelf space in a rack

You can add shelf space to a rack, which is equal to rack units. This space can be used to hold any assets listed in devices or templates. The default size for the shelf space is one rack unit and can be resized to any amount of rack units, even to the size of the entire rack. The space can also remain one rack unit size to represent airflow. Any number of shelf spaces can be added to a rack. Assets placed in shelf space cannot be rotated after placement.

To add shelf space to a rack:

1. In rack view, select *Devices*, click the green *Shelf Space* button and drag the space to the rack. The shelf space is visible in the rack as a green, shaded area with delete and resize controls. If the Properties pane is open, the Contained Assets properties opens with shelf space information.
2. To expand or reduce the space, click the *Resize* button and drag it down.

Placing assets in shelf space is the same as adding assets to a rack.

NOTE: When dragging an asset into a shelf space that contains one or more assets, the target is the visible asset unless the mouse is over the shaded region or an open region of the space, in which case the target is the shelf space.

To add an asset to shelf space:

1. In rack view, select *Devices* and add shelf space to a rack.
2. Select an asset to add and drag it to the shelf space shaded area. The system displays the asset in the middle of the space at its appropriate scale factor.

NOTE: In the Properties pane, a list is visible with the asset name and model. As more assets are added to the shelf space, the list is updated. The system shows a scroll arrow on the shelf space to allow scrolling through the devices.

To delete assets in shelf space:

1. In rack view, select the asset to be deleted.
2. Select *Edit - Delete* from the menu options.

   -or-

   Click the *Delete* button on the asset.
3. In the confirmation message, select an option and click *OK*.

To update an asset in shelf space:

1. Select an asset in shelf space to be updated.
2. Move the asset in shelf space to another location in the rack or to another rack. The list of assets in shelf space is updated in the Properties pane.

To update shelf space in a rack:

1. Select the shelf space in a rack and resize or move to another empty space in the rack. The space can also be moved to another rack.
2. Select the *Properties* pane to view a list of the assets.

To delete shelf space in a rack:

1. Select the appropriate rack, go to rack view and highlight the shelf space.
2. Select *Edit - Delete* from the menu options.

   -or-

   Click *Delete* on the shelf space.
3. In the confirmation message, select an option and click *OK*.

NOTE: If the shelf space contains assets, the assets are moved to inventory or are permanently deleted. The shelf space does not go to inventory.

11.3.9 Viewing multiple racks

In rack view, you can view more than one rack by surrounding the racks using the *Selection* operation.

To view multiple racks:

1. In plan view, with racks visible, press the **Ctrl** key.
2. Click the first and last racks needed to view in a consecutive row and double-click to open rack view.

   -or-

   Use the *Selection* operation to surround desired racks and double-click on the selection to open in rack view.

   -or-

   Select multiple racks in plan view and click *Rack* in the menu. The selected racks open in rack view.

NOTE: The application only supports a maximum of 20 rack cabinets in rack view.

11.3.10 Rotating an asset

To rotate an asset before placing it in another asset:

1. In rack view, select the desired rack to place an asset.
2. Click the *Flip* button located in the Shape Information pane.

The asset can rotate from 0°, 90°, 180° and 270°. The ruler in the information pane shows the degree of rotation.

If the device is mountable with the new rotation, it will show in the RU space of a rack. Otherwise, it is not mountable and will not be placed in the rack. Most devices can be placed in shelf space or zero U space with any rotation.

11.3.11 Zero U space in a rack

This function allows you to place assets in a rack that do not occupy rack unit positions. These assets, such as power strips, can be placed in the zero U space in a rack. The assets located in this space have information in the Properties pane and are calculated the same as rack-mounted assets.

Assets in this space do not have special placement and can be repositioned to any area of the space. They can also be placed in the same area of the space, essentially on top of one another.

To add zero U space to a rack:

1. In rack view, select *Devices* and select an asset to place in the rack.
2. Drag the asset to the rack edge, which causes the zero U space to become visible in the form of a green rectangle along the side of the rack.
3. Drop the asset. A green side pane opens, denoting that the zero U space contains something. If the Properties pane is open, the contained assets' Properties pane opens with zero U space information.

NOTE: Assets cannot be flipped and added to zero U space. If flipped, the back view will show on the information pane, but when dragged to the zero U space, it will be front-facing.

NOTE: When importing zero U space containing assets, they may be overlapped. Move them over to view all assets in the space.

After adding assets to the zero U space, racks are shown with the green space along the edge of the rack.

To add another asset to zero U space:

1. In the selected rack with the zero U space edges visible, drop another asset into the space.
2. Click the arrow to open the expandable pane.
3. Select the *Properties* pane to view a list of assets in the zero U space. These fields are not editable.

To update an asset in zero U space:

1. Select the desired rack.
2. Click the zero U space area in the rack.
3. Click and drag the asset to another location or rack or to another rack. The system updates the display of the zero U space.

To delete an asset in zero U space:

1. Open the zero U space area.
2. Click the asset to be deleted and select *Edit - Delete* from the menu options.

   -or-

   Click the *Delete* button on the asset in the zero U space.
3. At the confirmation message, select an option and click *OK*.
4. Click on the zero U space and select *Properties*. The list of assets is updated in the contained assets pane.

To delete zero U space with assets:

1. In rack view, open the rack with zero U space.

2. Open zero U space and click the *Delete* icon.
3. Because the space contains assets, a confirmation message appears.
4. Select an option and click *OK*.

11.4 Asset View

This view allows you to view single assets in order to manage properties and connections. This view is functional for tangible assets only.

In this view, you can perform the following functions:

- View the list of assets
- View single asset properties
- View front and back of a single asset
- Zoom in and out and pan
- Add assets to connections view
- Add assets to the connections list

11.4.1 Configuring a single asset

Configuring an asset in asset view is the same as rack or plan view.

To configure an asset in asset view:

1. In rack view, double-click on an asset in a rack to open asset view, for example, a blade enclosure.
2. Select *Devices* to add an asset, for example, a blade server. The module asset can be moved from one server to another in this view. The Properties pane shows properties for each of the selected assets.

Asset properties include the following values:

- Name
- Manufacturer
- Model
- Description
- Product line
- Voltage range
- Power range
- Height
- Width
- Depth
- Weight

The only editable field is Name.

11.4.2 Deleting an asset in asset view

To delete an asset in asset view:

1. In rack or asset view, click on the asset, select *Edit - Delete* from the menu options.

-or-

Click the *Delete* button on the asset.

2. In the confirmation message, select an option and click *OK*.

NOTE: If unplaced assets is open when you move an asset to inventory, click the *Search* button again to refresh the inventory list.

11.5 Connection View

This view allows you to make connections from one asset to another with the two assets visible.

In this view, you can access the following functions:

- Left and right panes to view a single asset and its ports and connections.
- A table that corresponds with each asset, which includes the port name, type, locked, connection, destination and cable.
- The assets can be flipped front to back and zoomed using the zoom control.
- Create a line between two assets, which shows the connection.
- Properties pane, which shows the connection properties.
- The Connections List, where a list of assets can be stored for future connections.

Ports are highlighted with the following colors:

- Green - Available ports
- Yellow - Connected ports
- Red - Locked ports
- Red shaded - Selected ports

Figure 11.4 Connection View

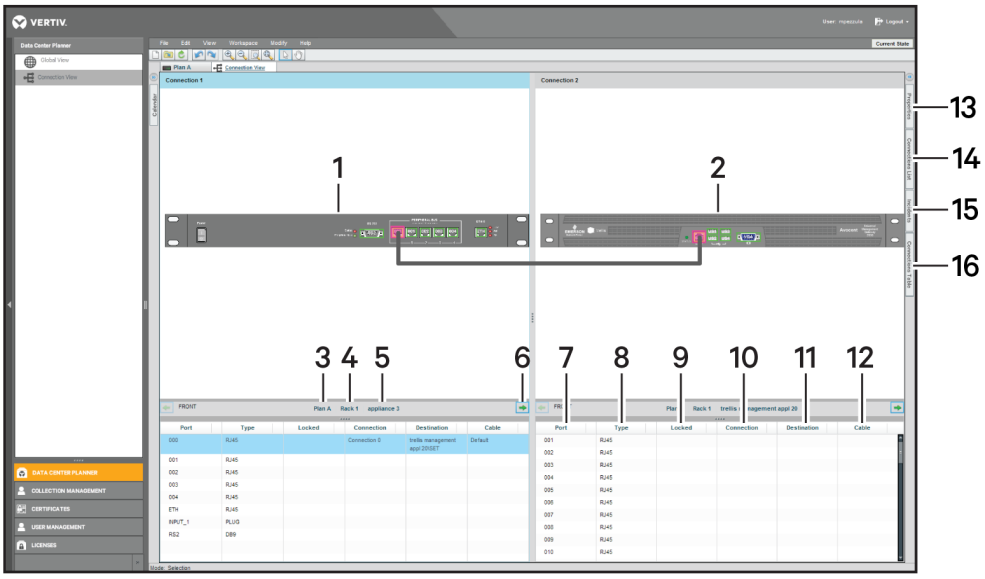


Table 11.5 Connections View Descriptions

ITEM	FUNCTION	DESCRIPTION
1	Connection 1	Asset from connection
2	Connection 2	Asset to connection
3	Plan Name	Breadcrumbs to asset floor plan
4	Rack Name	Breadcrumbs to asset rack
5	Asset Name	Breadcrumbs to the asset in asset view
6	Flip Button	Flip to back or front view
7	Port	Port name
8	Type	Port type.
9	Locked	Shows locked port
10	Connection	Connection destination
11	Destination	Connection type
12	Cable	Cable type
13	Properties	Shows properties of a selected object
14	Connections List	Opens the pane to view the list of connections that are to be connected
15	Incidents	Shows asset-related incidents
16	Connections Table	A list of connections between assets

11.5.1 Connections list

This option allows you to place devices in a container for connections within a session. The list contents are persistent between views. These assets can be from different floor plans or racks.

The connections list is displayed as a pane with a list of each asset added. Both plan view and rack view support right-click menu items and drag and drop can be used to add assets.

Assets in the connections list can be dragged to the connection panes.

To add assets to the connections list pane:

1. In rack or asset view, select an asset to send to the connections list.
2. Right-click on the asset and select *Add to Connections List*.
3. In connection view, the assets listed can be dragged to Connection 1 or Connection 2.
4. Click the *Clear* button to clear the list.

11.5.2 Creating a Connection

This option allows you to make connections between two or more placed assets in a view with the two assets visible. A line is drawn between the connected ports on the graphics and the assets are highlighted in the tables. Only one connection is shown with a line.

NOTE: For a better view of the tables, use the toolbar's pan/zoom hand to move each assets up and use the pane resizer to move the tables up to a higher position.

To connect one asset to another:

1. In rack or plan view, select the desired assets.

2. Right-click and select *Show Connection 1* and *Show Connection 2* to place the assets into connection view.

   -or-

   Select the asset, right-click and select *Add to Connection List* to create a list of assets for connections. The system brings up connection view and shows the asset in the connection list.

3. Click on a *Port* on an asset in the connection 1 pane.
4. Click on a *Port* on the asset in the connection 2 pane.
5. Click on a connection 1 port and drag it to a connection 2 port.

   -or-

   Right-click and select *Connect Ports*. A line is shown between the two connected ports and the connected assets are highlighted in the tables.

6. When a port has multiple connections, right-click on the asset name in the table and select *Show Connected Asset*. A dialog box allows you to select the asset to view. The table also shows the multiple connections under the selected port by clicking on the arrow.

NOTE: If you try to make a connection between a placed asset and an asset in a template, a message appears advising that you may not connect template ports to ports on a tangible asset. You must first place the template on a floor plan or in a rack.

To update a connection:

1. Open the connected assets in connection view and click on a connected port on the asset or in the table.
2. Select *Properties* and edit the connection properties as necessary.
3. Click *Save*.

To delete a connection:

1. In Connection View, open the two assets with connections.
2. The system highlights the connection in the table and on the connections screen.
3. Select one of the connections, right-click on the connected port and select *Delete Connection*.

NOTE: If an asset is deleted in connection view, the connection is deleted.

Locking ports

If a port is bad or should not be used, you have the option to lock it.

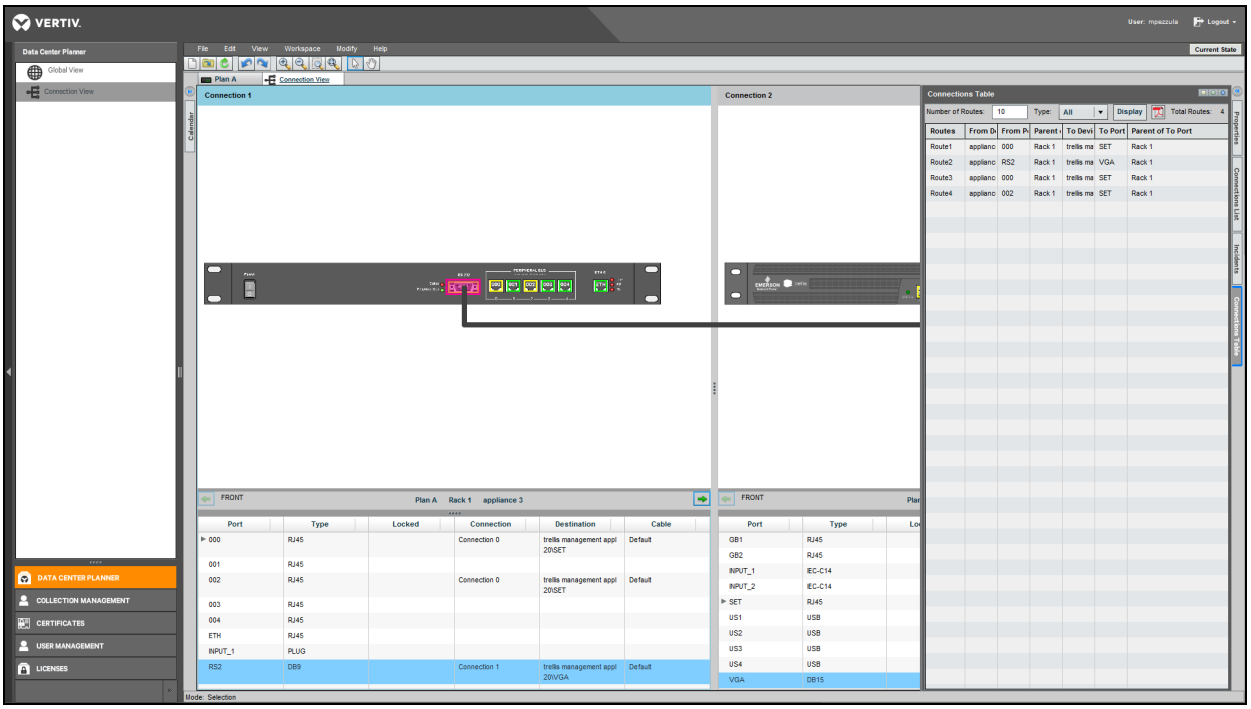
To lock a port:

1. In Connection View, have the asset with the port to be locked visible.
2. Select the port in the table and select *Properties*.
3. In connection properties, under current port, enable the *Locked* checkbox.
4. Click *Save*. The locked port is shown with a red border.
5. The table corresponding with the asset shows the locked port in the locked column.

11.5.3 Connections table

This option allows you to view the connections between two devices, including intermediate devices. When the Connections Table is opened in Connection View, the port-to-port connections are shown in a table. You can also export the connection information to a .pdf file.

Figure 11.5 Connections Table



To view the Connections Table:

1. In Connection View, with devices connected, click the *Connections Table* tab.
2. In the Number of Routes field, enter a number. This limits the number of routes shown.
3. To view a type of connection:

   Select *All*, *Power* or *Data* from the Type drop-down list.

   - All is the default and includes all connection types. Unknown type is only available in the All category.
   - Data generates routes that consist only of data port type connections for both port 1 and port 2 of each connection. For each 2-port connection, if one port is data and the other port is power or unknown, the routes associated with this connection are not included in the reported routes.
   - Power generates the routes that consist only of power type connections for both port 1 and port 2 of each connection. For each 2-port connection, if one port is power and the other port is data or unknown, the routes associated with this connection are not included in the reported routes.
4. Click *Display* to view the number of routes and type for the connections specified.

As an example, the following table shows all connections between device A and B including intermediate devices C and D.

Table 11.6 Connections Table Descriptions

ROUTES	FROM DEVICE	FROM PORT	PARENT OF FROM PORT	TO DEVICE	TO PORT	PARENT OF TO DEVICE
Route 1	Device A	Port 1	Rack 1	Device C	Port 1	Rack 1
Route 1	Device C	Port 2	Rack 1	Device B	Port 1	Rack 2
Route 2	Device A	Port 2	Rack 1	Device D	Port 1	Rack 2
Route 2	Device D	Port 2	Rack 2	Device B	Port 2	Rack 2

Exporting connections table details to .pdf file

Exporting a file allows you to send the connection information to a .pdf file and requires Adobe Reader.

To generate a .pdf file:

1. In the Connections Table, with connection routes displayed, click the *.pdf* icon at the top of the table.
2. Enter a filename.
3. Select the paper size from the drop-down list.
4. For orientation, select the Portrait or Landscape radio button.
5. Click *Generate*. The .pdf file is generated.
6. The .pdf file contains the following information:
    - .pdf date
    - Plan name
    - Asset image
    - General details
    - Capacities
    - Connections
    - User-defined properties

NOTE: On a Linux server, if you select the *Export* icon, an alert displays: *Export to .pdf is not currently supported on Linux clients*. Use a Windows server to perform the Export to .pdf function.

NOTE: The Connections Table is not available in Project Mode.

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12 MANAGING PANES

Panes are dialog boxes that open to show information for selected operations, such as placing assets, creating templates, searching for assets and capacities and viewing capacities and properties. The Calendar pane is available to create and review projects, search for tags and view history.

You can drag panes from one sidebar to the other and to floating dialog boxes. When a pane is opened from the menu or dragged to the content area, it appears in the dialog box or sidebar where it was last located. The size and position of dialog boxes persist across user sessions, so when you log into your next session, the Tool pane buttons are presented in the same location as when you last set them.

The floating dialog boxes are organized as tabbed panes to support multiple tool panes and are persistent. The pane dialog boxes can be resized and they always stay on the top of the desktop. Each dialog box can be minimized easily to hide them as desired. The panes stay open when you navigate from one view to another as long as the pane is available for that view.

12.1 Moving Panes Between Sidebars

All panes can be dragged from one side of the screen to the other and remain stationary. They can be moved while in open or closed status. A drop-down list is available in the sidebar showing what panes are located on that sidebar.

To move panes from one sidebar to the other:

Click the pane tab and drag it to the other sidebar. A small green rectangle is visible where the pane will be placed.

NOTE: If all panes are moved to one sidebar, the tabs are truncated, such as Capac…. and all pane names are partially visible.

12.2 Removing Panes from the Sidebars

When panes are removed from the sidebar, they are visible in the View menu and are unchecked.

To remove panes from the sidebar:

1. Place the cursor over the pane tab. A delete symbol (x) displays on the tab.
2. Click the delete symbol. The tab is removed from the sidebar.

12.3 Restoring Panes to the Sidebars

When panes are restored to the sidebars, they are visible in the View menu and are checked.

To restore panes to the sidebar:

1. Select *View* from the menu.
2. Click the unchecked pane name. The pane is restored to the original sidebar from which it was removed and in the original order.

12.4 Moving Panes to a Floating Dialog

Panes can be moved to the content area of the console and are visible as a floating dialog. All tabs can be dragged to the content area of the console as independent dialogs.

To move panes to the content area of the console:

1. Click on the tab and drag it from the sidebar to the content area of the console. The pane is visible as a dialog with the pane name as the first tab.
2. Drag additional panes to the dialog as needed. Restore panes from the view menu as needed.

Table 12.1 Panes and Descriptions

PANE	DESCRIPTION
Calendar	This function allows you to select a date to view existing projects, create projects or view change history. You must have planner rights to manage projects. Users without planner rights can only open the calendar pane and view projects and history.
Devices	The device library is a repository for all assets stored in the application database. The devices pane is available in plan, rack and asset views. Devices can be placed on floor plans, in racks and other assets. In rack and asset views, a shelf space button is also available to mount assets in space other than RUs.
Templates	The templates pane has a repository for templates created for future or repeated use. The templates pane is available in plan, rack and asset views. Assets can only be saved as a template in asset view and are not considered tangible assets until the template is placed on a floor plan or in another asset.
Inventory	This function allows you to perform a simple or detailed search for tangible assets, either placed or unplaced and select them on a floor plan.
Capacity Search	This function allows you to search for remaining capacities with any combination of power, heat, weight, space, user-defined property and value. Search results are limited to racks in floor plans that meet the search criteria and may be conducted across multiple floor plans or a current floor plan.
Capacities	The capacities pane is available in plan and rack views and shows the maximum capacities, consumed, remaining and utilized capacities for the selected floor plans and racks.
Properties	The Properties pane in each view shows the properties for floor plans and their floor-mounted assets and connections.
Connections List	This option allows you to place devices in a container for connections in connection view within a session. The list contents are persistent between any of the views but will not persist to the database. These assets can be from different floor plans or racks. The connections list displays as a pane with a list of each asset added. Both plan view and rack view support right-click menu items and drag and drop can be used to add assets.
Connections Table	This option allows you to view all the connections between two connected devices including intermediate ones. Your port to port connections can be in a table or exported as a .pdf to show all the connections between multiple devices.
Incidents	When importing new devices, there is the possibility that updates can cause minor inconsistencies in imported data. While they are not automatically corrected, they can be detected and solved. Incidents are only visible on the sidebar when incidents occur.
Project Properties	This option allows you to view all information for a selected project. The pane opens with tabs for details, tags, tasks, status (conflicts) and the option to print the information to a .pdf file.
History Details	This option allows you to view information for selected project tasks that were committed and changes made to current floor plans.

12.5 Properties

The Properties pane in each view shows the properties for floor plans, their floor-mounted assets and connections.

To view properties for a selected item:

1. Open the desired view and select *Properties*.
2. Select the appropriate tab.

Table 12.2 Properties Tabs

TAB	DESCRIPTION
Global View	
Plan Properties	This tab shows the contact information and global coordinates.

TAB	DESCRIPTION
Plan View	
Plan Properties	Same as global view.
Capacities	In this tab, set plan maximum capacities and rack default capacities for power, heat and weight.
Grid Configurations	This option allows you to configure the floor tile grid.
DSView software, User-defined Properties, Derate, Ports, RU Numbers, Reservations	In plan view, if a rack is selected, these additional panes are visible.
Rack, Asset, Connections Views	
Properties	This shows the properties for the selected asset including the name, manufacturer, model, description, product line, voltage range, power range, heat range, height, width, depth and weight. If multiple racks are selected, only common properties is shown in the properties tab and likewise, total capacities are shown for the racks selected. If an asset in the rack is selected, the properties for that asset are visible.
DSView Software	This option allows you to open multiple DSView software sessions.
User-Defined Properties	This option allows you to assign custom properties to assets and is available is all views.
Derate	Derating is the technique wherein assets are operated at less than their rated maximum power dissipation taking into consideration the temperature and the type of cooling mechanism used.
External Source Setting for Real Poser	This option allows you to configure an external source with respective parameters. You can select one source from external sources and set the parameters for each rack.
Capacities	In this tab, set maximum plan or rack default values for power, heat and weight.
Ports	This shows the from port, to asset and to port connections for the assets.
RU Numbers	This shows the rack unit position and name of the selected asset.
Slots	If an asset is selected in a rack, this tab is visible and shows slot and item names.
Reservations	This shows the reservation information for the selected asset.

NOTE: In rack, asset and connection views, if an asset is not selected, a message is visible on the Properties pane that says, "Select a view object to show its properties."

12.6 Avocent® DSView™ Software Managed Assets

Vertiv™ Data Center Planner allows direct access to assets being managed by DSView software. You can establish a mapping from Data Center Planner to the DSView software by assigning the user-defined property DSView Name to the Data Center Planner asset and providing the DSView software asset name. You can then launch a DSView software session from Data Center Planner to manage the asset.

Before configuring a device for DSView software, it is necessary for a user to be created in User Management with the same username as their log in for DSView software. It is not recommended to install Data Center Planner on the same system as LANDesk Asset Lifecycle Manager or DSView software. For additional information on setting up DSView software, see Integration With Other Vertiv™ Products on page 23.

To establish a mapping from Data Center Planner to DSView software:

1. In Rack or Asset View, click on the desired device to connect with DSView software.
2. Open the Properties pane and open the DSView pane.
3. Enter the name, which is the same device name used in the DSView software and click *OK*.
4. Depending on your credentials, DSView software session buttons appear in the pane. Click the appropriate button to open a session to the target device and proceed according to DSView software functions.

5. If changes were made in the DSView software, click the *Refresh* button to update the pane.

The following is a list of available sessions:

- Launch Browser Session
- Launch Dell Drac KVM Session
- Launch DVC KVM Session - Dambrackas Video Compression(DVC)KVM session
- Launch IBM RSA II KVM Session
- Launch IPMI Session
- Launch KVM Session
- Launch NEC Session
- Launch Serial Session
- Launch Serial over LAN Session
- Launch Telnet Session
- Launch Terminal Services Session
- Launch VNC Session
- Display Units View - Displays the primary DSView software Units View window
- Launch Unit Overview - Displays the Unit window
- Unknown Session Type - Unknown services

12.7 Derate

Derating is the technique employed in power electronic devices wherein the device is operated at less than its rated maximum power dissipation taking into consideration the temperature and the type of cooling mechanism used. You can enter derated power, heat and weight for devices. The default values are set by the manufacturer, but derated settings override manufacturer provided data. This option is available in all views.

The individual asset derating will always take precedence over any other derate. For example if you have server X inside rack A and derate it. The server derating takes priority.

To derate assets:

1. Select the asset to derate and select *Properties*.
2. Select the *Derate* tab.
3. Enable the *Heat, Power or Weight* checkbox and enter the appropriate value.
4. Enable the *Derate Heat, Power or Weight* in an aggregate checkbox if needed. Asset Roll-up is the original total value for the heat, power and weight.

NOTE: The warning message indicates that the derate settings for the device will be overridden by a containing asset that has an aggregate derate setting already.

12.7.1 Real world power

Real world power usage provides visibility into the energy consumption of equipment, the largest consumer of energy in a data center. It provides the capability to centrally manage large deployments of rack PDUs. The power for the devices mounted in each rack is provided through the PDUs associated with that rack. By retrieving the Real world power usage values for each PDU of the rack and summing these values up and a snapshot of the total power consumed by the devices of that rack can be provided at the time the readings were taken.

The Real world power values of each PDU can be obtained in several ways. For supported PDUs, the application can get readings directly communicating with the PDU via SNMP. Indirectly, Data Center Planner can be set up for integration with other software applications to retrieve the Real world power readings from the PDUs managed by these applications via web services. For additional information, see Integration With Other Vertiv™ Products on page 23.

The Real world power reading of the PDUs is used to replace the value in the derate fields of the PDU. This is available in the PDU asset view, using the properties' derate panes. Once the real world power usage value is retrieved, the application overwrites the derate value for each PDU automatically. Also, by summing the real world power usage of each PDU associated with the rack, the derate value of the rack is automatically updated.

NOTE: The history of derate values is not saved.

To configure real world power for PDUs:

1. In plan view, double-click on a rack to open rack view.
2. Double-click on the desired PDU to open asset view.
3. Open the *Properties- Derate* pane and select a source type under the External Source Setting for Real Power. Source types are listed in the following table.
4. Check the Auto-Overwrite derated power checkbox and click *Test* to send the requested parameters to the PDU and retrieve the real world power usage.
5. After the PDU is enabled for access, check the Power checkbox at the top of the Derate pane and check the Derated power is an aggregate checkbox to use the usage value for the Power value of the PDU.
6. If the power value is retrieved, click *Save*.

   -or-

   If the test fails, verify the input parameters are correct and the destination PDU is available.
7. Configure the Real world power usage of each individual PDU of the rack to be summed up and reported at the Power value for the rack. To do this, follow steps 4 and 5 in this procedure at the Derate pane of the rack view and check the same checkboxes.

Table 12.3 External Source Setting for Real Power

SOURCE TYPE	ACCESS METHOD VERSION	PARAMETERS
Avocent PDU	SNMP v1/v2 v1/v2 for IPv6 v3	Community IP address PDU OID
	SNMP v3 Security level NoAuthNoPriv	Security name IP address PDU OID
	SNMP v3 Security Level AuthNoPriv	Security name Authentication type: MD5 or SHA Authentication password IP address PDU OID
	SNMP v3 Security Level AuthPriv	Security Name Authentication type: MD5 or SHA Authentication password Privacy password For DES IP address PDU OID

SOURCE TYPE	ACCESS METHOD VERSION	PARAMETERS
Liebert MPX/MPH	SNMP v1/v2	Community IP address PDU OID
DSView Software	Web Service	PDU Name PDU OID PDU IP address Parameter value
Rack Power Manager	Web Service	PDU Name PDU OID PDU IP address Parameter value
Liebert SiteScan™ Web	Web Service	Expression
Test/PDU Power	When you click the Test button, the system sends the requested parameters to the PDU and retrieves the real world power usage. Once the PDU is enabled for access, the value is retrieved and displayed in Real Power field under the Properties, Derate pane.	
Last Sample Time	This value displays the date and time the last real power usage was retrieved.	
Auto-Overwrite Power Value	Enable this option to overwrite the derated power value each time data is retrieved.	

12.7.2 Real world power scheduler

The application provides components for each plan to retrieve real world power usage for racks. You can set the interval and start or stop the retrieving process. Once the retrieving process is started, the Retrieving Status is displayed as On. Once the interval is set and the process is started, the application retrieves real world power usage from external source periodically for all the racks in the plan.

To set the intervals:

1. Select *Edit, Real World Power Scheduler*.
2. Confirm that the plan name is correct.
3. In the Interval field, enter the number of hours, days or weeks.
4. In the Unit field, select *Hours, Days or Weeks* and click *Start*.
5. To stop scheduled data retrieval, select *Stop*.

12.8 Capacities

The Capacities pane is available in plan and rack views and shows the maximum capacities, consumed, remaining and utilized capacities for the selected floor plans and assets that have collections assigned.

12.8.1 Plan capacities

This function shows the plan-level consumed and remaining capacities for power, space, weight, heat and networking. When the capacities pane is open, the plan view shows the color corresponding with the capacity usage for each floor-mounted asset as assets are added and deleted. The rack colors change from green (all available) to red (none available) as usage is consumed, with yellow, green and orange being the mid-range usage.

To view floor plan capacities:

1. Open a plan.

2. Select *Capacities*.
3. Use the drop-down list to view capacities:
    - Power - Consumed - Remaining
    - Space - Consumed - Remaining
    - Weight - Consumed - Remaining
    - Heat - Consumed - Remaining Networking - Consumed - Remaining
    - Plan Level Capacities

Color range control

The Color Range control located in the status bar allows you to adjust the distribution of capacity colorization. This control is not visible in plan level capacities. The following results are rendered based on movement:

- As the left control is moved toward the right, the range of values that will be colored green will increase.
- As the right control is moved toward the left, the range of values that will be colored red will increase.

The color range control determines where the green range (minimum) should end and where the orange range (maximum) should begin. You should only see an asset colored red when the asset has exceeded the given capacity such as power-remaining.

As the controls are moved, you will see tool tips appear that represent the value of the left and right controls. These values are always between the outer range values appearing to the left and to the right of the color range control.

For example, using power-consumed in properties and sliding the left control to the right will place more assets in the green color band. If there is a single high-power asset that consumes considerably power more than the other assets in the plan, sliding the right controller to the left would compress the color distribution to the range of assets that fall between the values of the two controls.

Plan level capacities

This area shows maximum, consumed, remaining and utilized capacities for the entire plan. The following list defines the capacity categories:

- Maximum shows the maximum capacities for power, heat and weight that were set in the plan's properties.
- Consumed shows the total consumed capacities for power, heat and weight that are being used in the entire plan.
- Remaining shows the remaining capacities for power, heat and weight for the plan.
- Utilized shows the percentage of consumed capacities compared to the maximum that can be used.

Plan maximum capacities

The plan properties option allows you to set plan maximum capacities.

To set plan maximum capacities:

1. Open a plan and select *Properties*.

2. Select *Capacities* tab.
3. Enter the plan maximum capacities in the plan section. You can also enter rack default capacities.
4. Click *Save*.

NOTE: The Save and Cancel buttons are grayed out until a change is made.

12.8.2 Rack capacities

This pane shows the total consumed or remaining capacities for a selected rack. If more than one rack is visible in rack view, the total capacities are calculated for that number of racks. In the per rack section, capacities are calculated for each rack.

Use the consumed and remaining radio buttons at the bottom of the pane to toggle these two calculations.

To view rack capacities:

1. Open a plan, select one or more racks and go to Rack View.
2. Select the *Capacities* pane.
3. The pane lists capacities for power, space, weight, heat and networking.
4. If more than one rack is visible on the screen, the total capacities are calculated for that number of racks.
5. In the per rack section, capacities are calculated for each rack. Click the arrow to view individual rack capacities.
6. Click the Consumed or Remaining radio buttons at the bottom of the pane to toggle between these two calculations.

Rack default capacities

The plan properties option allows you to set rack default capacities.

To set default capacities:

1. Open a floor plan and select a floor-mounted asset and select *Properties*.
2. Select the *Capacities* pane.
3. Enter the rack default capacities in the rack section. You can also enter the plan maximum capacities.
4. Click *Save*.

NOTE: The Save and Cancel buttons are grayed out until a change is made.

12.8.3 Capacity search

Capacity search allows you to search for remaining capacities with any combination of power, heat, weight, space, user-defined property and value. Search results are limited to racks in floor plans that meet the search criteria and may be conducted across multiple floor plans or a current floor plan.

The search is limited to floor plans and assets that have collections rights assigned and to the space in front of the rack. In the case of double column racks, the results may display racks that accommodate the units as a combination of both columns if the contiguous space carries over from one column to another.

If you wish to identify the asset's location, the location appears in color in the same fashion as the existing asset locator functionality found in placed assets. If you check the corresponding checkbox, the asset is highlighted with a blue bounding box in the view.

A space search is limited to the first available matching space in each rack. The search identifies racks that can accommodate more than one asset of the specified size.

The units of measurement associated with entered criteria are determined by the application preferences. For example, if you select kilowatts as the preferred unit of measurement in the Preferences dialog box, the search field reflects kilowatts.

Capacity search is also available in the devices, inventory and templates panes if devices with capacities are selected. If a device with no capacities is selected, the capacity search option is not visible.

12.8.4 Capacity search in plan view

Plan view search results are consistent with existing search results for placed assets. Once you enter criteria in one or more fields and submit the search, the application performs the search and returns identified racks in a table. The table allows you to check racks that can be added to a selection in the corresponding view.

To search for available capacities:

1. Select *Capacity Search*.
2. Enter information in one or more of the category fields for power, heat, weight, space, user-defined property or value.
3. Select *Current* or *All* plans from the drop-down list.
4. Click *Search* to begin. The results pane returns a list of racks on the floor plans that correspond with the criterion. Double-click on a result in the table to go to rack view. If no racks on the floor plan meet the search criteria, the results table is blank.
5. Click *Cancel* to clear the search fields.
6. In the results table, click the checkboxes or *Select All* for the desired device and click *Select* to show the racks on the floor plan.
7. To disable checkboxes, click *Deselect*.

Table 12.4 Capacity Search Field Descriptions

FIELD	DESCRIPTION
Power	Search for remaining power capacity. For example, you can find a rack that has two remaining kilowatts to accommodate an additional asset. An available rack will meet this criterion if its assigned maximum power or assigned derate minus the sum of the power for all assets in the rack is more than or equal to the requested value.
Heat	Search for remaining heat capacity. For example, you can find a rack that can accept an additional kilowatt of heat. An available rack will meet this criterion if its assigned maximum heat or assigned derate minus the sum of the heat for all assets in the rack is more than or equal to the requested value.
Weight	Search for remaining weight capacity. For example, you can find a rack that can support an additional fifty pounds to accommodate an additional asset. Searching for weight is typically performed in plan view, unless you have multiple racks visible in rack view. An available rack will meet this criterion if its assigned maximum weight or assigned derate minus the sum of the weight for all assets in the rack is more than or equal to the requested value.
Space	Search for contiguous remaining rack space. Enter one or more units in the search field to return racks that can accommodate the number of units entered. This search is limited to the space in the front of the rack and not the back. In the case of double-column racks, the results may display racks that accommodate the units as a combination of both columns, if the contiguous space carries over from one column to the other. A space search is limited to the first available matching space in each rack. The search identifies racks that can accommodate more than one asset of the specified size.
User-Defined	The search includes fields to specify a single user-defined property type and value to limit the results of the search to racks that meet

FIELD	DESCRIPTION
Properties/Value	this additional criterion. These fields match similar fields in the asset search tool and behave in the same way. When this criterion is specified, only those racks that meet this criterion and all the other capacity criteria are returned for display and selection.

12.8.5 Capacity search in rack view

Rack view capacity search results highlight a space in the corresponding rack with a blue bounding box. When space is entered as one of the search criterion, the first identified contiguous space that matches the criterion is selected. If space is not specified, the entire rack is highlighted. Capacity search is also available in the devices and templates panes.

To search for available capacities:

1. In rack view, Select *Capacity Search*.
2. Enter information in one or more of the category fields for power, heat, weight, space, user-defined property or value.
3. Select *Current* or *All* plans.
4. Click *Search* to begin the search. The results pane returns a list of devices that correspond with the criterion from the bottom of the rack to the top. If no racks meet the criterion, the results table is blank.
5. To select all results in the table, use Ctrl+mouse click. Click *Cancel* to clear the results.
6. Click the checkboxes for the desired device and click *Select* to show the devices in the racks.
7. Click *Clear* to clear the selections.

NOTE: Searching for weight is typically performed in Plan View, unless you have multiple racks visible in Rack View.

12.9 Device Library

The Device Library is a repository for all assets stored in the application database. The devices pane is available in plan, rack and asset views. Devices can be placed on floor plans, in racks and in other assets. In Rack and Asset Views, a shelf space button is also available to mount assets in space other than RUs.

When the devices pane is open with an asset selected, the bottom pane shows the image and information for that asset with its back, front and rotate orientation. Click the information icon to open more detailed information.

The assets in this list are not placed in inventory until they are mounted on a floor plan or in another asset. You can open the Properties pane to view the selected device's properties.

Table 12.5 Device Library Options

FIELD	DESCRIPTION
Search	Device fields where you can search for a list of assets using Show All for are assets in the current floor plan or Used for all assets available in the database library. You can search by the following categories: Manufacturer - Grouped by manufacturer name, such as Dell. Product Line - Grouped by manufacturer product line, such as PowerEdge. Model - Grouped by manufacturer model number. Type - Grouped by Device type, such as server.
Sort	A mechanism which uses a drop-down list by manufacturer, product line or type. When one of these categories is selected, the result is a sorted list of Devices.
Shelf Space	Click and drag to add shelf space to a rack.
All	Click here to search all devices in the database.

FIELD	DESCRIPTION
Used	Click here to search only placed devices in the selected plan.
Devices List	This shows the search results. Click the arrow next to the name to view an expanded list by model number.
Information	This area displays a graphical image, along with the name, description, height, weight, depth and number of RUs occupied by the device being placed. Click the icon to hide or unhide the information area. In rack and asset views, the image in this area can be flipped to back or front and rotated in 90° increments.
Capacity Search	Search for a particular set of capacities.
Create Template	Create a template using the selected devices.

12.9.1 Device properties

Device Properties displays properties for the individual shapes listed in the devices pane. It also allows navigation within some related shapes by clicking on the asset in the can contain column.

Table 12.6 Device Properties Field Descriptions

FIELD	DESCRIPTION
Property/Value	
ID	Device type number assigned by the shape manufacturer.
Type	Type of device; for example a server, rack or PDU.
Description	Description of the device.
Scale	Relative image scale for Vertiv internal use only.
Last Modified	The date the device was last modified.
Placement	Where the device is mounted.
Manufacturer	Manufacturer name.
Model	Manufacturer model number.
Product Line	Manufacturer product line.
Height/Width/Depth	Device dimensions.
Can Contain	Devices that can contain the device. Click the device in this field to show the image and its properties.
Contained By	Assets that can be contained by this device. Click in this field to show the image and its properties.
Capacity Properties	
Min Power (W-kW)	Click to set the minimum power.
Max Power (W-kW)	Click to set the maximum power.
Min Heat (BTU/hr-kW)	Click to set the minimum heat.
Max Heat (BTU/hr-kW)	Click to set the maximum heat.
Weight (kg-lbs)	Weight of the device.
Derate Power (W-kW)	Click to add derated power value.
Derate Heat (BTU/hr-kW)	Click to add derated heat value.
Min Volts	Minimum volts used by the asset.
Max Volts	Maximum volts used by the asset.
Rack Units	Number of rack units consumed by this device. Zero means it does not consume RU space. This applies to any floor-mounted devices that do not consume RU space such as a PDU.

FIELD	DESCRIPTION
Shapes - Front and back graphical image of the shape and port information. Racks have top and front shapes.	
Part Name	Part name.
Port Name	Port Name.
Port Type	Port Type.
Gender	Male or female port.
Prod/Cons	Either a producer or a consumer port.
Front/Back	Flip to view front or back of device.
Save	Click this button to save any derate changes.
Cancel	Click this button to cancel any derate changes.
Rack Properties - If a rack is selected, additional rack information is available.	
Base Depth	Base depth.
Base Plate Depth	Base plate depth for one side.
Base Width	Base width.
Cable Capacity	Cable capacity.
Center Mount Width	Width between centers of mounting holes.
Channel Depth	Door channel depth.
Front Door Swing	Front door swing.
Front Reserved Depth	Front reserved service depth.
ID	Device type number assigned by the shape manufacturer.
Inner Edge Width	Depth between anchor holes.
Inside Width	Inside door width.
Load Capacity	Load capacity.
Rear Door Swing	Rear door swing.
Rear Reserved Depth	Rear reserved service depth.
Rack Type	Type: 2 for 2 ports, 4 for 4 ports, C for cabinet, I for integrated rack.
RU Spacing	Rack unit spacing.
Side Reserved Width	Side reserved width.
Total RU	Total number or rack units.

12.9.2 Device search

The search function in devices has a dialog box that allows you to search for devices using a detailed search. This function is available in Plan, Rack and Asset views. In Plan view, when a device image appears in the information pane, it can be flipped to view the front or the back. In Rack or Asset view, the image can be flipped front to back or rotated.

To search for a device:

1. In Plan, Rack or Asset view, select *Devices*.
2. Click *Search* and enter information in one of the category fields, Manufacturer, Product Line, Model or Type.
3. Click *Show All* to download all devices from the database.
4. Click *Show Used* to download devices used in the selected floor plan.

5. Click *Search* to begin the search. The Results pane returns a graphical view and properties of the selected device.
6. Click *Cancel* to cancel the action.
7. Click *Clear* to clear the category fields.
8. Click the drop-down list to sort by Manufacturer, Product Line or Type. The list shows devices for that category.
9. If the device is not found, the system displays a Request Devices button to request new devices.

12.9.3 Requesting, downloading and importing device symbols

Specific device symbols can be downloaded and imported directly from the external Symbols Order Portal. Up to ten symbols will be accepted per request. To access the Symbols Order Portal, you must be current on maintenance and submit a request for a user ID and password.

NOTE: The Symbols Order Portal supports only Internet Explorer 8 and 9. For more information, contact Technical Support.

Accessing the Symbols Order Portal

To request access to the Symbols Order Portal:

1. Submit a request by email to avocent.symbols@vertivco.com.
2. Complete and return the information form. Your user ID and password will be emailed to you.

Downloading and importing symbols from the Symbols Order Portal

You can search the existing symbols for a symbol before you submit a request.

CAUTION: If you are importing a new child device symbol, you must also import the parent device symbol where this child will be contained.

To download symbols from the Symbols Order Portal:

1. Log in to the Symbols Order Portal, click *Request Symbols* on the sidebar and follow the instructions on the next screen.
2. Search for the specific device symbols needed.
3. Save the symbol to a file and download it to your local server. Up to 10 device symbols can be selected and saved to this file.
    a. Open Data Center Planner and select *File - Import - Devices*.
    b. Click *Import* to navigate to the directory where the file was saved. Select the file and click *Open* to begin the import.
    c. When the import is complete, verify the new symbols are in your local device library.

NOTE: If the symbol is not found, you can request a new symbol.

Requesting new symbols from the Symbols Order Portal

To request new device symbols, you must be current on maintenance and have already received a user ID and password to access the Symbols Order Portal.

To request new device symbols:

1. Open your browser to http://symbolsorder.vertivco.com.
2. Enter your user ID and password and click *Login*.
3. Click *Symbol Requests*.
4. Select your country, enter your location and click *Add* to open the New Symbol Detail.
5. Complete the symbol information and click *Create*.
6. On the Symbols Request screen, add comments and supporting documentation and click *Submit Request*.
7. When the symbols are available for download, you will receive an email confirmation. You can also check your request status in the Symbols Order Portal by clicking *Requests List*.

Importing incidents

When importing new devices, updates can cause minor inconsistencies in imported data. While they are not automatically corrected, they can be detected and solved. The system creates an incident list, which displays any inconsistencies detected in the data with instructions for correcting the problems.

To view a list of incidents during a device import:

1. After completing a device import, a list of problems may be visible in the table on the import devices dialog box.
2. Print the list if needed and close the dialog box.
3. Select *View - Incidents* from the menu options to view the list of assets and incident type, plus resolution instructions.
4. Select *Update* to run the report.
5. If rack symbol was imported with an incorrect rack unit size, a report is generated stating that a certain asset is consuming an incorrect number of rack units. Reposition the asset to consume the correct number of rack units.
6. Select *Devices* to search for the asset and adjust the position to the correct rack unit size.

12.10 Inventory

The inventory allows simple or detailed searching for tangible assets, either placed or unplaced and selecting them on a floor plan.

12.10.1 Placed assets

You can search for tangible assets and highlight them on a selected floor plan. Once the results are displayed in the table, the assets in the list can be selected on the floor plan or rack by clicking on the column data. Columns can be sorted numerically or alphabetically. This search function is available in plan, rack and asset views.

NOTE: Depending on your rights, simple search may not be visible, such as for a planner in project mode.

Search options

The search functions are not case-sensitive. For a simple search, enter search criteria in the field next to the hourglass icon. For detailed search, select *Options*. If you perform a search using the Options function and try to perform a simple search, you must clear the previous options fields before searching again.

If more than one field is populated, "and" is implied, such as name and model. If you click *Search* without entering anything in the fields, a message appears stating that it will take a few moments to load all placed assets.

To search for placed assets:

1. Select *Inventory* and select *Placed Assets* from the drop-down list.
2. Enter criteria in the simple search field and click the hour glass icon.
3. For a detailed search, click *Options*.
4. Enter search criteria in one or more of the category fields for name, manufacturer, description, product line, model, property or value.
5. Select *Current Plan* or *All Plans*.
6. Click *Search*. The system adds any floor-mounted assets that meet the criteria to the results table.
7. To select assets on the floor plan, click *Select*.
8. To add additional racks to the selection, click *Add To*. The additional racks are highlighted on the floor plan along with the first selection. This multiple selection function is only available in plan view. The first asset selected in the table is shown in the information area.
9. The asset can be rotated or flipped.
10. Select *Capacity Search* to search for an asset with the same capacities.
11. To export to a spreadsheet, select *Export Selected* or *Export All*.
12. Select *Properties* to view the selected placed asset's properties.

Table 12.7 Placed Assets Descriptions

FIELD	DESCRIPTION
Name	Name that was assigned when placed in the asset or on the floor.
Manufacturer	Manufacturer name.
Description	Description of the asset.
Product Line	Product line of the asset.
Model	Model number of the asset.
Property	User-defined property types, such as IP address. If searching with user-defined properties of type date, you will get a date field to provide the input value.
Property Value	Value of the user-defined property.
Current Plan/All Plans	Search in current floor plans or all floor plan.
Clear	Click to clear the search fields.
Search	Begin the search.
Items found	Number of items found in the results.
Racks Selected	Number of racks selected in the results.
Table Results	The table contains the following information: rack name, asset name, plan name, manufacturer, model, description and product Line.
Clear	Clear the checkboxes in the results.
Delete	Disabled. You cannot delete an asset from this pane.
Add to Selection	Click to add the selected rack to the highlighted racks on the floor plan.

FIELD	DESCRIPTION
Select	Click to highlight racks on the floor plan.
Capacity Search	If this option is selected, the capacity search pane opens with the selected assets' capacities populated in the search fields.
Export Selected	Export the selected placed assets to a spreadsheet.
Export All	Export all placed assets in the list to a spreadsheet.

12.10.2 Unplaced assets

You can search for inventory assets that are not on a floor plan or in other assets. Once the results are displayed in the table, columns can be sorted numerically or alphabetically. This option is available in plan, rack and asset views and can only be searched in Current State mode.

NOTE: Depending on your rights, simple search may not be visible, such as for a planner in project mode.

Search options

The search functions are not case-sensitive. For a simple search, enter search criteria in the field next to the hour glass icon. For a detailed search, select *Options*.

If more than one field is populated, 'and' is implied, such as name and model. If you click *Search* without entering anything in the fields, a message appears letting you know that it will take a few moments to load all unplaced assets.

NOTE: Unplaced assets cannot be added to a template. You must first place the template on a plan and add unplaced assets to it.

To search for unplaced assets:

1. Select *Inventory* and select *Unplaced Assets* from the drop-down list.
2. Enter criteria in the simple search field and click the hourglass icon.
3. For a detailed search, click *Options*.
4. Enter search criteria in one or more of the category fields for name, manufacturer, description, product line, model, property or value.
5. Click *Search*. The system adds any assets that meet the criteria to the results table.
6. To view an asset, highlight it in the table and it will display in the information area.
7. The asset can be rotated or flipped.
8. Select *Capacity Search* to search for an asset with the same capacities.
9. To export to a spreadsheet, select *Export Selected* or *Export All*.
10. Select *Properties* to view the selected unplaced asset's properties.

Table 12.8 Unplaced Assets Descriptions

FIELD	DESCRIPTION
Name	Name of the asset.
Manufacturer	Manufacturer name.
Description	Description of the asset.
Product Line	Product line of the asset.
Model	Model number of the asset.

FIELD	DESCRIPTION
Property	User-defined property types.
Property Value	Value of the user-defined property. If searching with UDP of type date, you will get a date field to provide the input value.
Clear	Clears the search fields.
Search	Click to begin the search.
Items found	Number of item found in the results.
Table Results	Rack, name, manufacturer, model, description and product line.
Clear	Click to clear the asset image.
Delete	Click to delete the asset from the inventory.
Add to Selection	Disabled.
Select	Disabled.
Rotate	Rotates the asset clockwise 90°.
Flip	Flips the asset to front or back view.
Capacity Search	If this option is clicked, the Capacity Search pane opens with the selected asset's capacities populated in the search fields.
Export Selected	Export the selected unplaced assets to a spreadsheet.
Export All	Export all unplaced assets in the list to a spreadsheet.

To delete unplaced assets from inventory:

1. Select the assets to be deleted and click *Delete*.
2. On the confirmation message, click *Yes* to delete the assets from inventory.

12.11 Templates

The Templates pane is a repository for templates created for future or repeated use. They are created by using the device library or placed devices. Depending on the rights, you may not be able to create templates. Devices saved as a template are not considered tangible assets until the template is placed on a floor plan or in another asset.

When the template editor is open and you are in Asset View, links are available on the tab to return to the editor or the template. You can move the Templates pane to a different sidebar of to the content area.

Templates can also be created and deleted in projects. If changes are made to a template in a project, the changes span time, but they do not show as tasks in the project properties.

12.11.1 Creating a template

To create a new template:

1. With the devices pane open, select the desired asset and click *Create Template* below the information pane.
2. Click in the name field and enter a name for the template.
3. Click *Create*. The new template opens in template editor.

NOTE: A user with planner rights can only create templates in the context of a project. However, unlike the manipulation of assets and their properties in project planning, the templates created by a planner are available across all plans and time and can be used by anyone in current state, providing they have rights. The template creation or changes to a template do not show in the tasks pane in the project properties.

To open an existing template:

1. In any view, select *File - Templates - Open an Existing Template.*

   -or-

   Select *Templates*. Double-click on the template in the list. The template opens in the template editor.

12.11.2 Adding a template

To add a template:

1. Select *Templates* to view the list of available templates.
2. Click on a *Template* and drag it to the floor plan or rack. A new set of assets is created that completely match the assets in the template if placed on the floor plan or in a rack.

12.11.3 Deleting a template

To delete a template:

1. Select *Template* and highlight the template name and click *Delete.*

   -or-

   In the template editor, click the *x* on the template.

2. In the confirmation message, click *Yes* to delete the template.

13 PLANNING

Planning allows you to create future changes to your data center. Changes are organized into projects by due date and contain groups of tasks that will be executed together. You can select projects to see the effect of changes on the currently selected floor plans. The user must be logged in with the planner role to create and change projects.

13.1 Projects

A project is a named and optionally tagged collection of tasks, representing future work. The tasks in a project typically have some logical connection with one another.

A project's tasks are a list of actions. When tasks from a project are committed, it causes the current state to be updated. Committed tasks are stored in history so you know when changes were made and what each change included.

13.2 Calendar

When the Calendar pane is open, it shows a calendar, projects and history. The projects are represented on the calendar and designated by colored images, which show the status of a project.

- Green dot - Future project
- Red dot - Late project
- Clock face - Project history
- Circle with green check mark - Partially committed project

13.3 Project Properties

Projects are listed in a table under the calendar. When the Project Properties pane is open, it shows the project name, description and due date. It also shows three tabs contains information about the project.

- Tags assigned to the project
- Tasks associated with a selected project
- Status which lists conflicts within the project
- A .pdf icon is located at the bottom of the pane allowing you to send the project properties to a .pdf file

13.4 History

History is the record of committed tasks in projects or changes made to current floor plans. An entry in history is time-stamped and provides a count of tasks for that action. History is always read-only.

13.5 Current State

To return to the current floor plan, select *Current State* at the bottom of the Calendar pane or on the toolbar. The view updates to reflect the current state of the floor plan and returns to the current date on the calendar.

13.6 Project Properties

This option allows you to view all information for a selected project. The pane opens with tabs for details, tags, tasks, status (conflicts) and the option to print the information to a .pdf file.

- The Details tab shows the project name, description and due date.

- The Tasks tab shows each change performed in a project with details of that change. The tasks can be committed or deleted here by enabling the corresponding checkbox. This tab also shows committed tasks and the date committed.
- The Tags tab shows a list of tags that are used to group projects. You can also add new tags or delete tags here.
- The Status tab shows conflicts with other projects. The tab bar changes color according to the type of conflict that occurred:
  - Green - no conflict.
  - Yellow - soft conflict.
  - Red - hard conflict, cannot commit.
- The Print to .pdf icon is available to generate project information to a document. It contains the following information:
  - Project name.
  - Status.
  - Description.
  - Due Date.
  - Tags.
  - Tasks.
  - Status - Conflicts.

13.6.1 Exporting project properties to a .pdf file

Exporting to a .pdf file allows you to create a .pdf in a report type document. It is available in all views and requires Adobe Reader. The .pdf file shows the project properties, due date, tasks, tags and status.

To generate a project properties .pdf file:

1. Select *Calendar* and select a *Date*.
2. Select a *Project* in the list.
3. Select the *Project Properties* pane.
4. Click the *.pdf icon* at the bottom of the screen.

   -or-

   Select *File - Export - Project Properties to .pdf file*.
5. Enter a filename.
6. Select the paper size from the drop-down list.
7. For orientation, select the Portrait or Landscape radio button.
8. Click *Generate*. The .pdf file is generated.
9. The .pdf file contains the following information:
   - .pdf date
   - Project name
   - Status
   - Description
   - Due date
   - Tasks

- Task details
- Tags
- Task notes
- Status - Level of conflict if appropriate

NOTE: On a Linux server, if you select the Export to .pdf file function, an alert displays advising that "Export to .pdf is not currently supported on Linux clients." Use a Windows server to perform the Export to .pdf function.

13.6.2 Creating a new project

This function allows you to create projects containing future changes for a selected floor plan and date. Changes are organized into projects by due date and contain groups of tasks that will be executed together. You can select projects to see the effect of changes on the currently selected floor plans.

NOTE: Projects cannot be created in the past. The Add Project button is disabled when a date prior to the current date is selected.

Upon completion of tasks in a project, the tasks are committed and reflected in History.

To create a project:

1. Select *Calendar* and select a *Date*.
2. Click *Add Project* below the calendar. The add project dialog box opens.
3. Enter a project name (required).
4. Select a project end date.

NOTE: There are two sets of arrows on the pop-up calendar. The large arrows move the calendar by month and the small arrows next to the year move the calendar by year.

5. Enter a tag if needed (optional).
6. Enter a project description (optional).
7. Click *Create*. The new project is added to the list of projects.

13.6.3 Editing a project

You can edit planned changes for your data center. You must be logged in with appropriate rights.

To edit an existing project:

1. Select *Calendar* and select the appropriate date in the calendar. Click on the *project* in the list.
2. Select the *Project Properties* pane to edit the project details, tasks, tags, status or export the project information to a .pdf file.
3. To return to the current mode, click *Current State* in the Calendar pane or on the toolbar.

13.6.4 Deleting a project

This function allows you to delete projects. You must be logged in with at least Planner Rights. If deleting the project conflicts with other projects, you will be notified and the delete will not happen. If you delete a project that has committed changes, you will receive an error message advising that the projects containing committed tasks cannot be deleted. If the project is obsolete and no other tasks exist, it will move into history on the due date.

To delete an existing project:

1. Select *Calendar*.
2. Select the appropriate date in the calendar.
3. Click on the desired project and click *Delete*. A confirmation message displays asking if you are sure you want to delete the selected project.
4. Click *Yes* to delete and the project.
5. To return to the current mode, click *Current State* on the calendar pane or on the menu bar.

NOTE: The Commit button is not available if you do not have executor rights.

13.6.5 History

History is the record of tasks committed in projects or changes made to current floor plans. An entry in history is time-stamped and always read-only. If you open a floor plan in History mode, the application returns to current state.

Depending on the user's rights, changes made in current floor plans or project plans are recorded in history. The following describes the manager and planner rights:

- If you have manager or read-only rights, as you click a time stamp in history, the current floor plan is reloaded and revalidated.
- If you have planner or plan review rights, as you click a time stamp in history, the future floor plan is reloaded and revalidated.

To view change history:

1. Select *Calendar* and select a *Date*.
2. Select the *History* tab and click on a time stamp date in the list.
3. Select the *History Details* pane to view execution date and time, plus a list of tasks and task details.
4. To return to the current floor plan, select *Current State*.

History details

This option allows you to view information for selected project tasks that were committed and changes made to current floor plans.

To view history details:

1. Select *Calendar*.
2. Select the *History* tab.
3. Select a *Time Stamp*.
4. Select the *History Details* pane.

Table 13.1 History Details Task Descriptions

FIELD	DESCRIPTION
Execution date	The date the change was made.
Execution Time	The time the change was made.
Tasks	The task for that date and time. Click to view details.
Details	Details of the change with a link to the floor plan or asset where the change was made.

13.7 Project Calendar

In the project calendar, you can select a date to view existing projects, create projects or view change project history. You must have planner rights to manage projects. Users not having planner rights can only open the calendar pane and view projects and history. A floor plan does not have to be open to view the calendar.

13.7.1 Project calendar features

The project calendar has the following sections and features associated with projects.

- A calendar area which shows project due dates in future or past dates.
  - Green dot - Contains a project that is inactive with no tasks committed, but is not overdue.
  - Red dot - Contains projects that are overdue and at least one task is not committed.
  - Clock face - Contains only projects that are completely committed.
  - Green circle with black dot - Contains projects that are active, one or more tasks were committed and none overdue.
  - Gray dot - Signifies that the date in a previous or following month visible in the calendar contains a project.
- A Selected area which shows the selected project name and due date or history date.
- A Projects tab provides the following:
  - The add project button opens the add project dialog box.
  - The delete button deletes a project.
  - The projects table contains the name, due date, percent done and conflicts.
- A history tab which shows a time stamp of all changes on the selected date and a count of actions for that time.
- A project search tags tab where you can search for groups of projects.
- A current state button that takes you back to the current floor plan and out of project or history mode and returns the calendar to the current date.
- Click on the month/year bar at the top of the calendar to view all projects or history for the entire month.
- If you hover over a calendar date containing projects, a tool tip shows project information for that specific date.
- If you click on a date in the past, an alert message opens stating that the current floor plan did not exist on the selected date.

13.8 Project Status

Conflicts are the result of exceeding capacity limits in space, heat, weight and power between projects. In each metric, it is determined whether the conflict is soft or hard. You are alerted when your changes conflict with changes already planned.

For example, two projects may both plan to use the same space in a rack for two different assets. Some conflicts are minor enough that the project may be committed without adjustment. This is referred to as a soft conflict. If a conflict is severe enough that the project cannot be committed, such as contradicting the current floor plan, it is in a state of hard conflict.

13.8.1 Soft conflicts

Change Conflict - When the preconditions of a project change, the project is in change conflict. The precondition of a change is its original value. For example, if a change changes the name of rack Sal to Hal, the precondition for this change is that the name of the rack is Sal. This is an error checking mechanism, which helps you coordinate your changes and not accidentally overwrite one another.

A project goes into change conflict when:

- A new project with an earlier due date makes a conflicting change.
- An instant change is made that causes previously saved project actions to become invalid due to that projects preconditions.
- An existing earlier project with a required change is rescheduled for a later date, or is deleted.

Resource Conflict - If a project increases the consumption of power, heat or weight resources and this increase causes consumption to exceed capacity, the project is in resource conflict. This is an error checking mechanism, which helps you coordinate your changes and how those changes consume resources.

NOTE: When adding racks to a plan in a project that have a default weight set to zero in plan properties, a soft conflict will be detected since the rack has inherent weight when empty. It is recommended that the default weight capacity setting in plan properties set to exceed the weight of an empty rack in order to avoid this conflict.

13.8.2 Hard conflicts

- Existence Conflict - An existence conflict occurs when the precondition requires the existence of an object that no longer exists.

  These conflicts occur when:

  - A new project with an earlier due date deletes a modified object.
  - An instant change deletes a modified object.
  - An existing earlier project that creates the modified object is rescheduled for a later date, or is deleted.
- Space Conflict - A resource conflict occurs when a project attempts to consume resources that are physically impossible to consume, such as two assets in the same physical space. The user interface attempts to avoid letting this happen but in special circumstances it is possible through project reorganization or deletion of project actions.

  These conflicts occur when:

  - A new project with an earlier due date adds an object into a reserved space.
  - An instant change adds an object into a reserved space.
  - An existing, earlier project that makes the space available is rescheduled for a later date, or is deleted.

NOTE: The application detects conflicts in projects when you perform any of the following actions: move a project, delete a project, delete a task or use the undo option.

NOTE: In rare circumstances, a shelf space may remain visible in future projects even though it was deleted prior to that project's due date. This "phantom" shelf space is the result of deleting the shelf space prior to the project task that relies on its existence, thus producing a hard conflict. For example,

consider adding a shelf space to a rack in the current floor plan. If this shelf space is modified in a future project by moving it, the move becomes dependent on the existence of the shelf space prior to its move. Deleting the shelf space from the current plan will trigger a hard conflict when the project is revalidated. The user is then presented with a current plan that has an empty rack position and a future project that still indicates the existence of a shelf space in the rack but with a hard conflict. In order to avoid this problem, which may result in a project conflict that cannot be resolved, it is advised that shelf spaces not be moved or modified in future projects.

NOTE: When an asset is placed in a rack in a project, any projects created earlier on the calendar cannot utilize that rack space. To make the same space available for prior projects, you must remove the task in project details that added the asset, rather than simply deleting it from the rack view of that project. Deleting an asset in a project that also adds the asset creates two tasks: one to add and another to delete. Therefore, any project that tries to use what appears to be an open rack space will encounter a hard conflict.

13.8.3 Conflict revalidation

When a project is committed and conflicts occur, the conflicts must be resolved and the project revalidated for a new commit. You must have planner rights to resolve conflicts and revalidate projects.

NOTE: A project reviewer can click the *Revalidate* button to refresh a project, making sure the project is current.

It is assumed that the executor committing the tasks where conflicts occurred notified the planner of the status and advised that the conflicts be resolved and revalidated before the project is committed.

To revalidate conflicts:

1. Select the project with conflicts and select *Project Properties*.
2. Open the tasks tab to view the conflicts.
3. Adjust project tasks to resolve conflicts.
4. Open the *Status* tab and click *Revalidate* to update the project.
5. If no other conflicts are listed, the project can be committed.

13.9 Project Tags

A tag is a text label that can be applied to multiple projects, providing a simple and efficient organization system. Tags can be assigned at the time a project is created or in the project Properties pane in the tags tab. Tags can also be deleted in this pane.

To assign a tag:

1. With a project selected, select *Project Properties*.
2. Select the *Tags* tab.
3. Enter a tag in the field and click *Add Tag*.
4. Click *Save*.

13.9.1 Project tag search

This function allows you to search for associated projects. Large projects may be planned in phases of smaller tasks with the same tag assigned for quick review. The tag search function filters projects by tag and the projects can be sorted by name and date. You can use text, numbers or symbols as values for tags or any combination.

To search for a project tag:

1. Select the *Calendar* pane to search for tags in current state or project mode.
2. Select the *Search Project Tags* tab.
3. Enter tag information in the search field and click the *Search* icon. The results display projects having the same tag, along with the project name, due date, percent done and conflict status.

NOTE: The search information may be partial. For example, if the tag is mytags, you can enter my in the field, but to search for a tag with more than one name and a space, place the tag inside quotes. For example, "my tags."

4. If no results display, the tag does not exist. No message opens.
5. Click the (x) in the search field to clear the results.

13.10 Project Tasks

Tasks represent future work to be performed in the data center. Details within the Project Properties, Task pane show information associated with each project task. As the user performs actions in the project, such as adding a new device to a rack or moving a device from one location to another, project tasks are created. Each task describes the action being performed. You can add a note to a task by selecting a task.

Some tasks allow direct navigation via a hyperlink back to the asset affected. For example, if a server is added to a rack, the details list shows the server model number and manufacturer and the device path to the rack. This device path includes the rack name, first slot location within the rack where the server will be placed along with the plan name where the rack is located. This information is set up as hyperlinks to allow direct navigation to these assets.

NOTE: Tasks involving templates do not have a link back to the template.

To view project task details:

1. Select *Calendar*.
2. Select *Projects* to view the list of projects.
3. Select a project in the table.
4. Select the *Project Properties* pane.
5. Click *Tasks* to view the task details and links back to the asset and the floor.

Table 13.2 Project Task Details

TABS	FIELD
Details	Name. Project Description. Due Date.
Tasks	Task Description. Details - Click on the task to see details with links back to the asset and the floor. A list of the tasks for the selected project along with the task dependents that may cause conflicts. You can also add task notes and commit tasks in this pane. Date Committed.
Tags	Add/Delete Tags.

TABS	FIELD
Status	Status - If the project is in conflict, a list of the conflicts displays. Revalidate - If a project conflict is resolved, the task must be validated.
.pdf icon	Click to export the Project details to a .pdf file. The .pdf file shows the following information: Project Name Active or inactive Project Properties Tags, Tasks -Task Details Committed Commands - Date Committed Status - Soft or Hard Conflicts.

To add task notes:

1. Open the appropriate project, click Project Properties and click *Tasks*.
2. Enable the checkbox next to the task where you want to add a note. If the note applies to more than one task, enable each checkbox to receive the note.
3. Enter the note and click *Save*.

To view dependent tasks:

1. Open the appropriate project with dependents.
2. Select *Project Properties* and select the *Tasks* tab by checking the corresponding checkbox.
3. Click *View Dependents*.
4. The dependent task dialog box opens with a list of the tasks dependent on the selected task.

13.10.1 Committing tasks

This process moves tasks from a project state to history. You must have access rights to perform the commit function. The commit dialog box has a user specific comment, allowing for a high-level description. The history entry for the commit records the date the tasks were committed. If you commit a project that causes conflicts, you can resolve the conflicts and revalidate the status to allow committing tasks.

If you commit changes, all users have access to the changes until collections and roles are assigned to the plan and its assets.

NOTE: If a project is partially committed, it cannot be moved ahead of another project that is associated with it.

To commit tasks from a project:

1. Select *Calendar*.
2. Select a date from the calendar.
3. Click on the desired project.
4. Open *Project Properties*.
5. Select the *Tasks* tab.
6. In the Select column, check the boxes for the tasks to commit and click *Commit*.
7. In the Commit Task Confirmation dialog, select a task and enter a comment. You must enter a comment to complete the commit action.

If no conflicts occur:

1. The date committed and task committed fields are populated.
2. In the calendar pane, the projects list for that project, shows the percent of the project done.

If a soft conflict occurs:

NOTE: The conflicts notification dialog box opens with a list of conflicts and the Status tab is colored yellow.

3. You can delete the conflicted tasks or edit the settings of plan or devices for resolving the conflict, or click *Continue* to continue with the commit.

If a hard conflict occurs:

NOTE: The conflicts notification dialog box opens with a list of conflicts and the Status tab is colored red. If both soft and hard conflicts appear on the Status tab, the color remains red.

4. You must delete the conflicted tasks in the Tasks tab.
5. When the conflicts are resolved, open the Status tab and click *Revalidate* to allow committing tasks. The Status tab changes to green.
6. The status tab changes color to reflect the severity of the conflicts. The list of conflicts is shown in the table and the status, either a hard or soft conflict.

NOTE: If the executor does not have planner rights, they must contact a user with planner rights to resolve the conflicts and revalidate the project.

13.10.2 Deleting tasks

To delete a task in a project:

1. Select *Calendar*.
2. Select the appropriate date in the calendar.
3. Click on the appropriate project to in the project list.
4. Select *Project Properties*.
5. Select the *Task* tab.
6. Enable the corresponding checkbox and click *Delete*. In the confirmation message, click *OK*.

13.11 Reservations

Reservations allow you to reserve space in a rack, in current state, creating a visual representation for anyone else that may try to use the same space. The primary user of this feature is a planner, but depending on the policy that determines hard and soft conflicts, a manager may override reservations in current state.

You can toggle the visibility of reservation colorization by checking reservations in the workspace menu.

13.11.1 Reservation properties

Each reservation block in this pane represents future additions, moves or removers for one or many assets. When you select an asset that contains reservations, a reservation tab appears in the Properties pane showing all reservations for the selected asset.

The contents of the reservation properties are organized by assets involved with the reserved space. Each action is shown, along with the reservation information.

You can also select a single reservation block to see the assets involved with a single space. In this case, the Reservation tab is the only one available in the Properties pane.

The following information is included in the asset reservation properties:

- Asset name
- Project name of asset added; a link to the project
- Date added
- Number of rack units occupied
- Project name of asset removed; a link to the project
- Date removed

13.11.2 Zero U and shelf space reservations

Zero U space always exists and does not constrain you with the specific allocation of space. For that reason zero U space is not considered a part of reservation visualization.

Shelf space is represented as the height and position of the space. Its contents are not represented; therefore, shelf space never constrains you with specific allocation of space.

13.11.3 Reservation colorization

In Rack and Asset Views, space reservation is identified by a colorization of the affected space, whether it is in a rack or another asset. The colorization appears as a blue-bordered box. A reservation is shown on a view for the selected period of time and view aspect (front or back).

For example, if you are looking at the front of a rack, only reservations of front space are colorized. If you wish to see space reservation on the back of the rack, flip the rack to see the back view.

All reservations that affect a contiguous space in a rack are represented as one colorization block with a single outline. This block may be selected to show the properties of all the reservations that it includes. Component reservations work the same as rack unit reservations.

13.11.4 Visualization of reservation removes

If you remove an asset in the future, the application visualizes it in the same manner as it would for adding an asset in the future. When you select the reservation, the Properties pane shows whether the reservation includes an "add" or a "remove." Additions are shown with start dates and removes are shown with end dates.

Removes that occur within the same project do not render reservations for removes that occur within the same project as the asset addition. This is done in order to avoid a confusing display with excess data. If you create an asset and remove it in the same project, no reservation is shown for that project.

If the visualized reservation contains past due project activity, the visualization is modified to reflect it.

13.11.5 Reservation roll-up

Reservations appear in the current view and project views, but not in historical views. Reservations are shown for the selected view by accumulating all future project activity into contiguous blocks of space on the selected assets. Project activity includes additions, moves and removes.

The illustration depicts a rack that has been selected by the user with a current state and four subsequent projects. Each future project changes the assets in the rack. What the user sees for the rack as its current state is an accumulation of all the activity of all the future projects.

13.11.6 Cumulative reservations

Cumulative reservation is the result of all reservation space occupation past the reference point, but does not include a visualization of removes and moves. You cannot drop assets into reserved spaces. The drop

target, a green rectangle, only shows possible drop spots.

13.11.7 Manager reservation override

Managers can override reservations in current state. Reservations are visible but do not prevent a manager from adding assets into the reserved space. If a manager adds an asset in a reserved space, the application puts the affected reservation into a conflicted state resulting from the dual occupation of space in the future.

If two assets occupy the same space at the same time, the only option available is to delete the action in conflict. The conflict is a part of the project that was forced into conflict and is visible with a color change in the properties reservation tab. The planned asset that was forced into conflict is shown as a red box. This would also apply to a back view where the planned asset would not appear. This condition exists until the reservation or the override asset is removed.

In a state of conflict where the asset is no longer available, you can remove the action to rectify the issue or delete the asset using an option in the status tab of the project properties.

APPENDICES

Appendix A: Best Practices

The following best practices are suggestions to enhance application usage.

Migrating to a Newer Version of Data Center Planner

If you uninstall the application, you will lose your plans, projects and database. Before migrating to a newer version, you should backup the database and floor plans.

Backing up the Database

The recommended procedure for backing up your database is to include an automated daily incremental backup and a weekly full backup to ensure a recovery point is obtainable, if the database becomes corrupted.

Minimizing Loading Risks

While Vertiv makes every effort to provide accurate and complete information, it is the customer's responsibility for the safe placement of devices and power usage in the data center.

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Appendix B: Changing Configured Database Password

This section provides the parameters for dbconn.bat(.sh) for each supported Avocent Management Platform database type.

PostgreSQL

The following lists PostgreSQL parameters:

- username - pass the provided username.
- password - the password for the user.
- driver - org.postgresql.Driver.
- vendor - postgres.
- dbname - ampdb - The database to connect to. The test runs against the postgres database.
- port - localhost:5432 - You can replace the localhost with the ip address or dns name of the database host.
- servicename - This is not used for Postgres.

Microsoft SQL Server

The following lists Microsoft SQL Server parameters:

- username - pass the provided username.
- password - the password for the user.
- driver - com.microsoft.sqlserver.jdbc.SQLServerDriver.
- vendor - microsoft.
- dbname - ampdb - The database to connect to. The -test runs against the master database.
- port - <server name>:1433 - The port number takes precedence but this parameter can be replaced with the instance name like this: <server name>\INSTANCE.
- servicename - This is not used for SQL Server.

Windows Command

The following lists the windows command to use for PostgreSQL or Microsoft Server SQL:

- PostgreSQL - dbconn.bat postgres password org.postgresql.Driver postgres ampdb dbServerName:5432.
- Microsoft Server SQL - dbconn.bat dbuser password com.microsoft.sqlserver.jdbc.SQLServerDriver microsoft ampdbName dbserverName:1433.

Appendix C: External Authentication and Authorization

Lightweight Directory Access Protocol (LDAP) is a vendor-independent protocol standard used for accessing, querying and updating a directory using TCP/IP. Based on the X.500 Directory Services model, LDAP is a global directory structure that supports strong security features including authentication, privacy and integrity.

If individual user accounts are stored on an LDAP enabled directory service, of which there are several to choose from you can use the directory service to authenticate users.

To create an external instance, you must have administrator credentials in Data Center Planner.

Prerequisites:

- An external Authentication Source (Active Directory Domain, LDAP Server) must be configured and available.
- A user account for creating the instance that can log into the external authentication server.
- The Vertiv server must be installed.
- The external authentication server must be obtainable (Ping or DNS resolution) from the Vertiv server.

To add an authentication type:

1. Launch the application and login as an administrator.
2. Select *User management* from the bottom menu.
3. Select *Authentication* from the top menu.
4. In the Actions/Authentication pane, click *New*. The Authentication service dialog opens.
5. Select *Authentication type* from the drop-down list.
6. Enter the applicable information as referenced in the following table.
7. Click *OK*.
8. The authentication type is added to the Authentication service table.

C.1 Authorization Type and Descriptions

AUTHORIZATION TYPE	FIELD	DESCRIPTION
AD/LDAP	Instance name	The name by which the instance will be identified in the Available authentication instances pane and in the login dialogs in the authentication source drop-down list. The entry field is limited to AD domain naming conventions. This is a required field.
AD/LDAP	Domain name	The name of the domain to which you will allow users to authenticate against. This field supports dot delimited domain names. Users must exist in this domain to authenticate in the Vertiv console. You do not need to add AD users to the Avocent Management Platform. You may simply point them to an authentication instance and the instance will manage the authentication for them. This is a required field.
AD	User container	The location in the AD domain containing the user accounts. You may enter this field to direct the authentication instance to use this location for user accounts. If the field is left blank, the default behavior is for the authentication instance to look for user accounts beginning at the root of the tree.
AD	Group container	Similar to the users container. The location in the AD domain containing the group accounts. You may enter this field to direct the authentication instance to use this location for group accounts. If the field is left blank, the default behavior is for the authentication instance to look for group accounts beginning at the root of the tree.
AD/LDAP	username type	These are commonly known AD authentication name types. However, specifying a username type will require this style of authentication to be provided at log in time to the Vertiv console by the user. Users will need to know their domains for “Full” name types, Pre-windows 2000 partial (username), Pre-windows 2000 full (domain\username), Windows 2000 partial (username), Windows 2000 full (username@domain), Pre-windows 2000 partial (username), Pre-windows 2000 full (domain\username) Windows 2000 partial (username), Windows 2000 full

AUTHORIZATION TYPE	FIELD	DESCRIPTION
		(username@domain).
AD/LDAP	username type	Use Kerberos for user authentication (checkbox): This allows users to authenticate through Kerberos if they have enabled DES types for their accounts in the AD domain. The Avocent Management Platform supports the following Encryption types to negotiate Kerberos authentication: des.des-cbc-md5 (3), des-cbc-crc (1), rc4-hmac (23), aes128-cts-hmas-shal-96 (17), des128-cts-hmas-shal-96 (17). To create an AD authentication instance that uses Kerberos, in the A D users account, ensure "Use DES encryption types for this account is disabled. Microsoft des encryption types are not the same as other Kerberos des types. If this option is selected, it requires proprietary Microsoft des types to be used during authentication. You may receive errors from the KDC stating 'unsupported encryption type' during attempted authentication. Enable chasing referrals: This allows using LDAP referrals between clients and servers where the client request cannot be serviced locally. Use an Active Directory global catalog: This enables the instance to utilize an A Global Catalog server. Browse anonymously: This enables the browsing of the directory with an anonymous bind.
LDAP	Host	Enter the host name you will be authenticating against. This field supports IP or DNS naming. This is a required field.
LDAP	Port	Enter the port number as an integer for authentication against the LDAP server. The default port is 389. This is a required field.
AD	SSL mode	Use No SSL or SSL Trust All.
AD/LDAP	username	Enter the FQDN of the user creating the authentication instance. This is required for authentication during instance creation.
AD/LDAP	Password	The password of the user account that will be used during instance creation for authentication.
LDAP	LDAP user properties	The LDAP User and Group properties and Group base DN are used to specify containers for user and group accounts. The remaining attributes are based on the schema of the particular LDAP authentication service. User base DN, User key attributes, Object class, User display.
LDAP	LDAP group properties	Group base DN, Object class, Group member, Group user member.

Setting the Authentication Type

Setting the authentication order allows you to display the authentication instances in the login dialog in the order in which they were set.

To set the authentication type:

1. In User management, click *Authentication*.
2. In the Actions/Authentication pane, click *Set authentication order*. The Set authentication order dialog opens.
3. Reorder the items by selecting an item and moving it to the wanted order. Repeat until you have the authentication order properly set.
4. Click *OK*.

Using Authentication Resolution

When the *Use authentication resolution* checkbox is enabled, the application allows multiple external authentication instances to be created and allows users who exist in these multiple instances to be presented with an option to select one of these instances for authentication in the login dialog.

To use authentication resolution:

1. In User management, click *Authentication*. The Set authentication order dialog opens.
2. Enable the Use authentication resolution checkbox.
3. Click *OK*.

When a user exists in multiple authentication instances and opens the login dialog, it allows selection of one of the instances for authentication.

To refresh the user authentication services page:

1. In User management, click *Authentication*.
2. In the Actions/Authentication pane, click *Refresh*. The Authentication table is refreshed.

Appendix D: Importing Plans using the Command Line

Data Center Planner is a Java application with a command line interface, which provides a method for integration with a user's current automation capabilities. It requires Java version 1.7, a plan file in a Microsoft Excel .xls format, a valid user account and a Data Center Planner server accessible on port 8443. As a command line tool, it can be used alone or in conjunction with scripts.

To import a floor plan with the java application:

1. Open a command line on your operating system. For Windows, this can be reached by searching *Start- Run - cmd* and click *OK*.
2. At the prompt, go the directory where the dvr-planimport.jar file exists. To get a list of commands to import a floor plan, enter **-help**.

Example (Windows) - C:\DataCenterPlanner\planImport>java -jar dvr-planImport.jar –help

3. The following information displays.

Usage: java -jar dvr-planImport.jar [-avh] [-p password] -u name -s server -f file
A utility for importing a plan into Data Center Planner
Required arguments:
-s (or --server) a_servername
Name of the Data Center Planner server to import the plan to. Must be a valid DNS name or IP address.
-f (or --file) a_filename
Path of the excel file that represents the plan to import, including filename. Must be on a locally mapped drive, meaning URLs won't work
-u (or --username) a_name
The name of the user who has rights to import the plan. This is the same as the Data Center Planner login.
-p (or --password) a_password
Password corresponding to the supplied user. If not supplied as an argument, the program will prompt for a password and the password will NOT be echoed to the console.
-a (or --allowSelfSignedCerts)
If present, this argument allows the utility to allow SSL connections with servers that sign their own certificates. While technically optional, this argument is necessary unless a non-self signed certificate has been installed on the Data Center Planner server.
Optional Arguments:
-i (or --importToUpdate)
If present, the plan importer will update the plan with the same name. After initial import of a plan, this option is required.
Attempts to import the same plan without this option will result in an error with no change to the Data Center Planner plan. Please note that the import utility will not allow deletion of data in the Data Center Planner plan. To delete an asset or move it to unplaced assets, you must perform the operation using Data Center Planner client application
-v (or --verbose)
Prints information while the utility runs, otherwise the utility is quiet if there are no errors.
-h (or --help)
Prints this information and quits.
Example:

For Windows: C:\DataCenterPlanner\planImport>java -jar dvr-planImport.jar -a -v -u joe_user -p elmoRocks -s 172.1.1.1 -f c:\plans\firstFloor.xls -i
For Unix: java -jar /User/joe_user/bin/dvr-planImport.jar -a -v -u joe_user -p elmoRocks -s 171.1.1.1 -f /User/joe_user/plans/firstFloor.xls -i
Troubleshooting:
Make sure the server name is reachable on port 8443. Ensure that given user has the proper rights. Use the -a option if needed. To import a plan, use the following steps:

4. Enter the command as described previously.

Example (Windows) - C:\DataCenterPlanner\planImport>java -jar dvr-planImport.jar -a -v -u [username] -p [password] -s [servername] -f [filename]

5. Since the verbose option (-v) was given, the following output is displayed. If the -v options was absent, no output would occur unless there was an error.

Feb 11, 2009 10:37:32 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: Preparing to authenticate against hsv-dvr-k3test1 with username user
Feb 11, 2009 10:37:32 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: Executing authentication request
Feb 11, 2009 10:37:32 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: SSL Exception while connecting for authentication
Feb 11, 2009 10:37:32 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: Self signed certs allowed, reconfiguring protocol
Feb 11, 2009 10:37:32 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: Executing authentication request with reconfigured protocol
Feb 11, 2009 10:37:33 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: Done executing authentication request with reconfigured protocol
Feb 11, 2009 10:37:33 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: SessionID is 5b878ee9-9608-4ac2-ab74-384532361b64
Feb 11, 2009 10:37:33 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: About to upload file: ImportTestPlan.xls
Feb 11, 2009 10:37:43 AM com.avocent.dvr.PlanImporterWorker logInfo
INFO: Done uploading file: ImportTestPlan.xls
To import an existing plan, enter -i after -f [filename].
Example - C:\DataCenterPlanner\planImport>java -jar dvr-planImport.jar -a -v -u [username] -p [password] -s [servername] -f [filename] –i[importtoupdate]

Appendix E: Stopping and Starting the Vertiv Services

When stopping the Avocent services, stop the Avocent Management Platform ESB service and the Avocent License Manager service. When starting the Avocent services, start the Avocent License Manager service first and start Avocent Management Platform ESB service. Also make sure that applicable database services (such as PostgreSQL) is started.

To stop or start the Avocent services in Windows:

1. On your desktop, click *Start*, right-click *Computer* and select *Manage*.
2. In the Computer Management tree, click on Services and *Applications*.
3. Double-click *Services*.
4. Right-click on *Avocent Management Platform ESB* and select *Stop*.
5. To start the Services, reverse the steps.

To stop or start the Avocent services on Linux:

1. To stop the Avocent ESB service, enter the following:

   /etc/init.d/smx stop

2. To stop the Avocent License Manager service, enter the following:

   /etc/init.d/lmgrd stop

3. To start the Avocent ESB service, enter the following:

   /etc/init.d/smx start

4. To start the Avocent License Manager service, enter the following:

   /etc/init.d/lmgrd start

Appendix F: Creating a Server Certificate

You can access the Data Center Planner application from any supported web browser with access to the installed server. The URL is: https://{servername}:8443/console/console.html?root=mergepoint, where {servername} is replaced with the host name or IP address of the server upon which the application was installed.

The Data Center Planner software uses SSL (Secure Sockets Layer) to securely communicate between the Data Center Planner software and Data Center Planner software client accessing the server thru a web browser. SSL provides secure authentication using certificates, which is data that identifies the site with which communication will occur. A certificate is typically verified that it was issued by a trusted party such as a trusted Certificate Authority (CA).

When the Data Center Planner software is initially installed, it generates a self-signed certificate for use with Data Center Planner software clients. Since this certificate is not from a CA, a Security Alert dialog box will appear indicating there is a problem with the website's security certificate. At this point, the user is given the choice of "Closing this webpage" or "Continuing to the website".

One approach to eliminate the Security Alert dialog box is to replace this certificate with a security certificate from a CA. A Data Center Planner software administrator may create a Certificate Signing Request (CSR) to submit to a trusted third party Certificate Authority for signature. The administrator can then replace the generated self-signed certificate with the new one received from the CA.

To create a certificate signing request:

1. Select *Certificates* from the primary navigation pane.
2. In the bottom pane, under the Actions, Certificates, select *GetCSR*.
3. Enter the information and click *Generate* and click *Download* when the button changes.
4. Select a directory, enter a filename and click *Save*.
5. Submit the CSR generated request to a CA to obtain a signed server certificate.

To replace the current signed certificate:

1. Select *Certificates* from the primary navigation pane.
2. Select the Signed Certificates Name to be replaced.
3. Select *Replace* under the Actions, Certificates pane (lower right). The Replace Certificate form will open.
4. If replacing the current certificate with a signed certificate, check the CA Signed Certificate radio button and select *Choose File*.
5. Select a directory and the filename of the signed certificate from the CA and click *Open* to fill in the Signed Certificate file entry.

   -or-

   If replacing the current certificate with a self-signed certificate, check the Self-signed Certificate radio button, complete the form and click *OK*. The existing certificate is replaced with the new entry submitted.
6. Restart Data Center Planner to make the certificate is available.

Appendix G: Security Protocols

Java runtime environment has been updated to Java 7 in AMP 4.2.0/Data Center Planner 4.0 SP9. Java 7 supports the SSLv2Hello, SSLv3, TLSv1, TLSv1.1 and TLSv1.2 protocols. An administrator can use executable scripts to disable the TLS 1.0 protocol and enable TLS 1.1 and TLS 1.2 protocols. Configuration files can also be used to enable or disable any of the security protocols.

G.1 Using executable scripts

In the Vertiv™ Data Center Planner 4.0 Service Pack 9 or higher, the TLS 1.0 protocol can be disabled using executable scripts provided in the $DCP_HOME\doc\DisableTLSv1.zip file.

To run the executable scripts on a Windows OS:

1. With Administrator credentials, log in to the Windows server running Data Center Planner and AMP.
2. Extract the *DisableTLSv1.zip* file, double-click *DisableTLSv1.bat* and wait approximately two minutes for the Data Center Planner service to start.

To run the executable scripts on a Linux OS:

1. As user root, extract the *DisableTLSv1.zip* file.
2. In a terminal window, enter **cd <path to the file>** and press **Enter**.
3. Enter **chmod +x DisableTLSv1.sh** and press **Enter** to change the executable permissions.
4. Enter **./DisableTLSv1.sh** and press **Enter**.
5. After the shell script is finished, wait approximately two minutes for the Data Center Planner service to start.

G.2 Using configuration files

NOTE: The valid protocol values for configuration file are SSLv3, TLSv1, TLSv1.1 and TLSv1.2.

To configure the security protocols for GUI access:

1. Go to the installed directory *$AMP_HOME\webapp\etc*.
2. Click to open *jetty-ssl.xml* using a text editor.
3. Add the protocol to the enabledProtocols list to enable it.

   -or-

   Remove the protocol from the enabledProtocols list to disable it.

NOTE: Do not use the <!-- --> command to disable the value item. An inline entry is not valid.

4. After the configuration files are updated, restart the Data Center Planner service to apply these changes.

To configure the security protocols for AMP web service:

1. Go to the installed directory *$AMP_HOME\esb\conf*.
2. Click to open *ampcxf.xml* using a text editor.
3. Add the protocol to the enabledProtocols list to enable it.

   -or-

Remove the protocol from the enabledProtocols list to disable it.

4. After the configuration files are updated, restart the Data Center Planner service to apply these changes.

NOTE: For optimal file management, use the same protocols list for the jetty-ssl.xml and ampcxf.xml files.

NOTE: If you are enabling only the TLS 1.1 or TLS 1.2 protocols for AMP/Data Center Planner web browser access, you must update your environment to the appropriate browser versions and Window OS versions.

NOTE: Contact your IT administrator or Microsoft support for instructions to enable TLS 1.1 and TLS 1.2 protocols for older versions of Internet Explorer.

NOTE: If accessing Data Center Planner by Firefox on a Linux OS, the Linux OS must be version 6.x or later and Firefox must be version 27 or later.

Appendix H: Error Messages

H.1 Application error messages

The following list of error messages may appear in the application.

H.1 Application Error Messages

ERROR	DESCRIPTION
Error performing update - A plan with that name already exists. Change the plan name and try again.	When trying to create a new plan with the name of an existing plan.
You may not connect template ports to ports on a tangible asset.	When trying to connect server ports to a template.
Update error - A plan with that name already exists. Change the plan name and try again.	When trying to create a plan with the same name as a current plan.
No Properties available - Select a view object to show its properties.	In rack view, if a rack or devices in the rack is not selected.
Import failed - A Plan with that name already exists. Change the plan name and try again.	When trying to import plan with the name of an existing plan.
Exceeded License - You have exceeded the maximum number of racks allowed by your current license. Please purchase additional licenses or reduce the number of racks in your system.	Upon log in, if you have more racks in your plans allowed by a current license.
Rack view must contain at least one rack in order to generate a .pdf file	When trying to generate a .pdf file if no racks are visible.
Search may take a few moments. Continue?	When searching for an asset in Devices.
No results found.	When searching for an asset in Devices and an incorrect term is entered into the search field.
Error finding asset.	Asset not in Devices or on a plan.
Error requesting shapes.	Shape not available.
Error finding permissions.	User does not have appropriate permissions.
Error performing undo.	Undo not allowed for that action.
Error performing update.	Update not allowed for that action.
Error requesting Version Info.	About not updated.
You may not connect locked ports.	When trying to connect a locked port.
Locking a port with connection is prohibited. Delete all connections before attempting to lock.	When trying to lock a connected port.
Rack view must contain at least one rack in order to generate a .pdf file.	When trying to export to .pdf with no rack selected.
Exceeds acceptable zoom level for .pdf creation. Please adjust zoom extent and try again.	When trying to export to .pdf with zoom too far out.
Template names must be unique. Please choose another name.	When trying to create or save with a duplicate name.
Connections are not allowed on locked ports. Unlock the port before making changes	When trying to create a connection on a locked port.
Locking a port with connections is prohibited. Delete all connections before attempting to lock.	When trying to lock a port with connections.
Session expired. Please log in again.	Timeout in process.

H.2 DSView software error messages

The following list of error messages may appear during interface with DSView software.

H.2 DSView Software Error Messages

TYPE OF PROBLEM	ERROR MESSAGE
Credentials	The DSView software is not permitting this action because of mismatched rights. Verify that your username matches a username on the DSView software and check the Service Account Name and Password in your configuration settings.
Certificate	The DSView software certificate has not yet been accepted. Please install the certificate using the instructions in the Help documentation and try again. (Tip: In Help, select Search and type in 'export dsview certificate'.)
Host name	The DSView software is not permitting this action because the hostname entered is invalid. Check your configuration settings and try again.
URL	The DSView software is not permitting this action because the URL entered is invalid. Check your configuration settings and try again.
Communication	There was a problem communicating with the DSView software. Check your configuration settings and try again
License limit	The DSView software is not permitting this action because the maximum number of allowed user sessions has been reached. Other users must log off of the DSView software before this action can be performed.
Service account	The DSView software is not permitting this action because the Service Account entered is not authorized. Check with your DSView software administrator.
System error	The DSView software is not permitting this action because it is experiencing a system level error. Check with your DSView software administrator or try again later.
Disabled user account	The DSView software is not permitting this action because the Service Account has been disabled or locked. Check with your DSView software administrator.
DSView software name	The DSView software Name does not match a unit name on the DSView software. Please correct the name and try again.
Password expired	The DSView software is not permitting this action because the Service Account password has expired. Check with your DSView software administrator.
Session expired	The DSView software is not permitting this action because the user session for this request has expired. Please try again or check with your DSView software administrator.
Web Service not available	The DSView software is not permitting this action because it's web services have been disabled. Check with your DSView software administrator.

H.3 Import and export error messages

This following information defines error messages that may occur in the Import and Export feature of the application using Microsoft® Excel:

- Known Exceptions:
  - No valid data found
- Settings Sheet Decoding issues:
  - Duplicate user-defined column name
  - Reserved column name used for user-defined property
  - Could not decode user-defined property type
  - Could not decode units type
  - Units type is not defined
  - Could not decode units value
- Cell Decoding Issues:
  - Unable to decode Angle Units in column …
  - Unable to decode Dimension Units in column …

    - Unable to decode Mounting in column …
    - Unable to decode Heat Units in column …
    - Unable to decode Power Units in column …
    - Unable to decode Grid Origin in column …
    - Unable to decode Grid Label type in column …
    - Unable to decode Grid Label Order in column …
    - Unable to decode Facilities Shape Type in column…
    - Unable to decode Weight Units in column …
    - Unable to decode Rack Corner in column …
    - Expected number in column …
- Invalid Data Issues:
    - Asset name (<name>) is already used
    - No asset type specified
    - Invalid asset type specified - asset type
    - Parent plan does not exist
    - Parent asset does not exist
    - Parent shelf space does not exist
    - Parent zero U space does not exist
    - Connection needs two valid ports
    - Connection needs two valid assets and ports
    - Object name (<name>) is already used
    - Parent object does not exist
    - Plan <plan name> already exists
    - Shelf Space name (<name>) is already used
    - Zero U Space name (<name>) is already used
    - Invalid port shape for this asset
    - Asset could not be found
    - Could not resolve asset reference for: <name>
    - Could not resolve object reference for: <name>
    - Could not resolve plan reference for: <name>
    - Could not resolve property type reference for:<name>
    - Could not find existing object
    - Parent containment does not exist
    - Could not find existing perimeter vertex
    - Could not find existing plan
    - Could not find shelf space
    - Could not find zero U space
    - Could not find first port
    - Child cannot be contained by the parent
    - Asset has not been placed in its parent
    - Parent asset has no ports

- Asset has no type
- Too many slots specified for the asset
- Specified slots overlap consumed slots

H.4 Installation error messages

The following list of error messages may appear during installation.

H.3 Installation Error Messages

ERROR	DESCRIPTION
Unsupported Operating System	You are attempting to install Vertiv Data Center Planner on an unsupported platform. Proceed at your own discretion. Vertiv Data Center Planner is only supported by the following platforms: Windows 2003 and Red Hat Linux 5.0. You may either cancel your installation or proceed on this unsupported platform. Vertiv Technical Support will not be able to provide help for installations on unsupported platforms.
Avocent Data Center Planner Installation Error	Vertiv Data Center Planner installer experienced a fatal error while installing the AMP program. Please review the installation log (<installation drive>/amp_install_debug.txt) and contact Vertiv Technical Support.
Installation Error with DBConn	Vertiv Data Center Planner installer experienced a fatal error while running the DBConn program. Please see the installation logs (<installation drive>/amp_install_debug.txt and <installation drive>/amie_install_debug.txt). Please contact Vertiv Technical Support.
Installation Error with Migrations	Vertiv Data Center Planner installer experienced a fatal error while running the Migrations program. Please see the installation logs (<installation drive>/amp_install_debug.txt and <installation drive>/amie_install_debug.txt). Please contact Vertiv Technical Support.
Installation Error with Web Services	Vertiv Data Center Planner installer was unable to start the AmpEsb service. For the application to launch successfully, please go to Control Pane and Administrative Tools and Services. Highlight Avocent Management Platform ESB service. Right-click and select Start.
Installation Error with Web Services	Vertiv Data Center Planner installer was unable to start the AmpWebServer service. For the application to launch successfully, please go to Control Pane and Administrative Tools and Services. Highlight Avocent Management Platform Web Server. Right-click and select Start.
	Vertiv Data Center Planner installer was unable to start the Linux smx web service. For the application to run successfully, please create a terminal session and type /sbin/service smx start to start the service.
	Vertiv Data Center Planner installer was unable to start the Linux jetty web service. For the application to run successfully, please create a terminal session and type /sbin/service jetty start to start the service.

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