

# VERTIV™

## Trellis™ Real-Time Infrastructure Optimization Platform

### Release Notes

VERSION 5.0.1.1, APRIL 13, 2018

#### Release Notes Section Outline

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#### 1 New Features Overview

Version 5.0.1.1 of the *Trellis*™ real-time infrastructure optimization platform creates, uses and changes one line diagrams.

**NOTE:** Product documentation is available through your Engagement Manager.

#### 2 General Features Overview

The following list details existing components of the *Trellis*™ platform software:

- ***Trellis*™ Management Console platform:** The console platform enables the unified management of the data center IT and facilities infrastructure. The platform of hardware, software and services provides the ability to collect and analyze real-time data from managed devices using a single user interface.
- ***Trellis*™ Inventory Manager software module:** This module provides features to better utilize IT and critical infrastructure equipment by managing the inventory of all physical assets and determining used and available space in the data center.
- ***Trellis*™ Site Manager software module:** This module reports the health of the infrastructure to data center personnel, enabling them to recognize and resolve conditions that impact infrastructure availability and system performance.
- ***Trellis*™ Reports and BI feature:** Reports are created by opening a canned report and applying filters. Filters are used to select data and combine multiple values using logical connectors.
- ***Trellis*™ Power Systems Manager software module:** This module provides data center personnel with the ability to monitor the power flow of their building through the one line diagram.
- ***Trellis*™ REST APIs:** The REST APIs allow any third party software system to interact with *Trellis*™ platform. These APIs are available as secure web services.
- ***Trellis*™ Process Manager software module:** Designed around industry best practices and input from our customers, *Trellis*™ Process Manager includes four set processes, as well as a better way to assign/ track work and manage approvals through workflow. These four processes include installing, moving, decommissioning and renaming devices. Each of these is configurable to reflect the user's individual workflow. Through these capabilities, the user has the ability to initiate, analyze and report on core data center processes used to drive the business, and can also more effectively manage his/her environment. The value of *Trellis*™ Process Manager lies in its ability to reduce the risks associated with changes in the data center and at the same time, improve worker efficiency.

- **Trellis™ Audit Events feature:** The Audit Events feature has been enhanced to cover more of the *Trellis™* platform functionality to record Audit Events. Examples are Device Create & Place/Delete, Move, Enable/Disable Monitoring, Create/Delete Power Connection and Update Device/Container Properties. Event Description now contains more details such as device name, container name, username, and so on, to give better insight into the respective event. Event Viewer functionality has also been enhanced to support pagination to improve user experience.
- **Trellis™ Platform Fine Grained Authorization feature:** The Fine Grained Authorization (FGA) feature is used to provide another level of security where roles are granted View or Manage access rights to resources (enterprises, buildings, floors, spaces, zones, devices) that have been created in the *Trellis™* platform. Users will only be able to view/manage resources based on roles assigned to them.
- **Trellis™ Thermal Systems Manager software module:** The *Trellis™* Thermal Systems Manager balances total cooling production with the actual heat load at the room and rack level, which allows facilities management to understand the true thermal capacity for planning and redundancy and reduce wasteful overcooling to lower energy costs.

### 3 Notes and Special Instructions

#### General Information

- For more information and detailed instructions on using the *Trellis™* platform, visit <https://www.vertivco.com/en-us/products-catalog/monitoring-control-and-management/software/trellis-enterprise-solutions/> for accompanying user documentation.
- Version 5.0.1.1 of the *Trellis™* platform supports *Trellis™* Intelligence Engine version 4.6.1.27 and higher, as well as the Avocent® Universal Management Gateway appliance firmware version 4.0.0.19 and higher, containing the embedded *Trellis™* Intelligence Engine version 4.0.3.6.

**NOTE:** Element Library versions 4.0.0.x and lower are supported by the versions listed. The *Trellis™* platform version 5.0.1.1 release supports the following Operating Systems (OS): Red Hat Enterprise Linux (RHEL 7, tested on 7.3) and Microsoft Windows 2012 R2 Standard.

- 5.0.1.1 does not have the ability to see real-time updates on the one line diagram.

### 4 Upgrading the Platform

Prior to upgrading the *Trellis™* platform to version 5.0.1.1, please refer to the *Trellis™* Real-Time Infrastructure Optimization Platform Administrator Guide for Linux or Windows. Also, if you are currently using version 5.0 and are upgrading to 5.0.1.1, contact your Engagement Manager to facilitate the upgrade.

**NOTE:** The *Trellis™* platform software version 5.0.1.1 can be applied ONLY on top of version 5.0.1. Do not try to apply 5.0.1.1 from any previous versions other than 5.0.1.

- If you are upgrading from a previous version other than *Trellis™* platform software version 5.0.1, all sequential patches must be applied to move to version 5.0.1 before upgrading to 5.0.1.1.
- Also, customers using the *Trellis™* platform with an integrated SmartCabinet™ are advised not to upgrade to this release since integration has not been tested with this version.

**NOTE:** After the *Trellis™* platform has been upgraded to version 5.0.1.1 on a Windows system, the following folder is no longer used by the *Trellis™* platform: C:\Program Files\EmersonNetworkPower

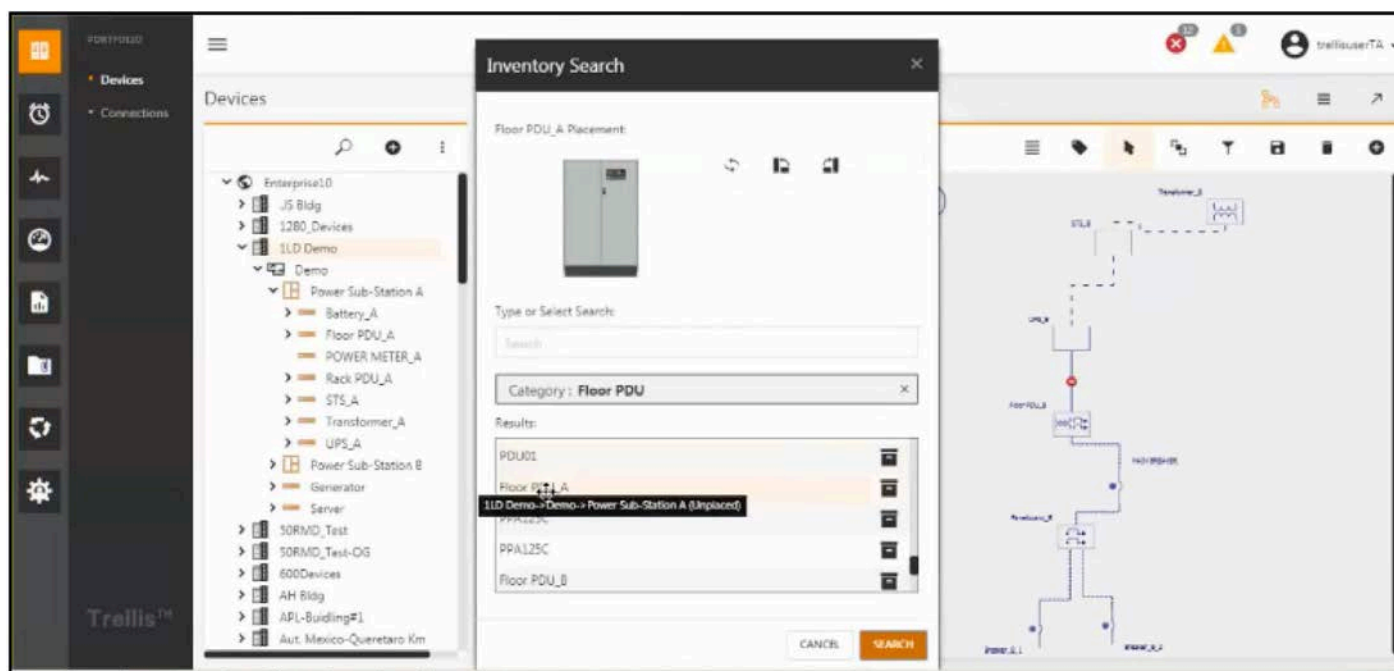
### 5 Understanding One Line Diagrams

Prior to upgrading the *Trellis™* platform to version 5.0.1.1, please refer to the *Trellis™* Real-Time Infrastructure Optimization Platform Administrator Guide for Linux or Windows. Also, if you are currently using version 5.0 and are upgrading to 5.0.1.1, contact your Engagement Manager to facilitate the upgrade.

The one line diagram feature of the *Trellis*™ Power Systems Manager module allows you to efficiently and precisely represent connected devices in your data center environment. One line diagrams are used to illustrate device connections, supplemental metering and instrumentation. This allows you to better understand the energized power path through power equipment.

A one line diagram, accessed from the building level, can be created for all equipment in the data center from the utility entrance to floor PDUs, power panels and standalone panelboards. Images for the devices and supplemental metering are contained in the catalog and added from the inventory list. Symbols are provided to indicate electrical components and more. Labels can be created to identify devices and add additional information to the diagram.

### Adding a Device to a One Line Diagram



One Line Diagram Icons provide the following functions:

- Align - Drop-down menu of the following eight options used for device placement; Align Left, Align Right, Align Top, Align Bottom, Align Center, Align Middle, Align Vertical and Align Horizontal options
- Label - Used to create free-form, blank text labels allow you to add
- Select - Displays the drop-down menu to choose the following options; it also deselects the Select icon when clicked a second time:
  - Select - Selects a component in the one-line diagram
  - Pan - Moves the one line diagram in the window
  - Zoom window - Zooms in on a specific area in the one-line diagram or zooms out for a wider view; activated with the scrolling mouse button
- Arrange - Allows you to straighten the connection lines to 90 degrees
- Filter - Displays the drop-down menu to display or hide Text, Text Annotation, State, Status and Data Points
- Save - Saves the one line diagram with your changes
- Delete - Removes the selected device from the one line diagram only
- Add - Used to add devices located in Inventory

## Using One Line Diagram Symbols

Connection nodes are not visible and are only provided in the following table as a reference to the location of the connection line intersections with the device images. The equipment device name string is visible when symbols are placed on a diagram. The string is movable, so it can be placed in the best viewing area. The default location is to the right of the symbol.

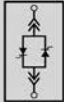



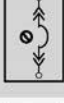
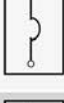



IMAGE	DESCRIPTION
	Automatic Transfer Switch (ATS).
	Centralized Static Switch.  NOTE: This symbol does not change state.
	Chiller.
	Circuit breaker, low-voltage-draw out type (Closed).
	Circuit breaker, low-voltage-draw out type (Open).
	Circuit breaker, low-voltage-draw out type (Not Monitored).  NOTE: The state of the disconnect is displayed if known. If the state cannot be detected, use the "Not Monitored" version of the disconnect.
	Circuit breaker, low-voltage-fixed position type, subfeed breaker (Closed).
	Circuit breaker, low-voltage-fixed position type subfeed breaker (Open).
	Circuit breaker, low-voltage-fixed position type, subfeed breaker (Not Monitored).  NOTE: The state of the disconnect is displayed if known. If the state cannot be detected, use the "Not Monitored" version of the disconnect.
	Circuit breaker, medium-voltage-fixed position (Closed).
	Circuit breaker, medium-voltage-fixed position (Open).
	Circuit breaker, medium-voltage-fixed position (Not Monitored).  NOTE: The state of the disconnect is displayed if known. If the state cannot be detected, use the "Not Monitored" version of the disconnect.








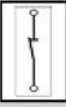

















IMAGE	DESCRIPTION
	Circuit breaker, medium-voltage-draw out type (Closed).
	Circuit breaker, medium-voltage-draw out type (Open).
	Circuit breaker, medium-voltage-draw out type (Not Monitored). NOTE: The state of the disconnect is displayed if known. If the state cannot be detected, use the "Not Monitored" version of the disconnect.
	Condenser or drycooler.
	Coolant Distribution Unit (CDU), also known as a Modular Pumping Unit (MPU).
	CRAC, CRAH; also known as a Modular Cooling Unit.
	Generator.
	Isolator, low-voltage switch-fixed position type (Closed).
	Isolator, low-voltage switch-fixed position type (Open).
	Isolator, low-voltage switch-fixed position type (Not Monitored). NOTE: The state of the disconnect is displayed if known. If the state cannot be detected, use the "Not Monitored" version of the disconnect.
	Isolator, low voltage switch-draw out position type (Closed).
	Isolator, low voltage switch-draw out position type (Open).
	Isolator, low-voltage switch-draw out position type (Not Monitored). NOTE: The state of the disconnect is displayed if known. If the state cannot be detected, use the "Not Monitored" version of the disconnect.
	PDU (floor) without panelboards, with subfeeds and breakers.

IMAGE	DESCRIPTION
	PDU (floor) with panelboards, without subfeeds and breakers.
	PDU (floor) with panelboards, without subfeeds and breakers. The subfeeds should be displayed below the symbol connected to the openings.
	RPP with panelboard.
	RPP with panelboard, subfeeds and breakers. The subfeeds should be displayed below the symbol connected to the openings.
	UPS with remote battery string (dual input UPS).
	UPS with remote battery string (single input UPS).
	Power meter.
	Surge protection device.
	Static switch (STS).
	Switchgear with busbar. This device(s) container including multiple buses showing upstream and downstream connection nodes. There can be multiple buses within a container. The bus can be extended and connected devices can be moved along the bus. The container itself can be extended vertically and horizontally. The bounding box for these enclosures are built dynamically by the application.
	Transformer.

## Creating and Reading a One Line Diagram

With the *Trellis™* Power Systems Manager module, you can build dynamic one line diagrams that illustrate the flow of power through your data center. The flow of power and arrangement of elements and symbols on a one line diagram follow a standard left-to-right and top-to-bottom sequence. Animated dashes indicate the connection is active and responding to the connection expressions.

Only a single, one-line diagram is allowed per building. All devices used in your one line diagram must exist in your *Trellis™* platform inventory so you can search for them and add their image to the diagram. After you drag the image to the diagram, you can move the image to a specific location, align multiple images and add a label for the images.

When the one line diagram becomes larger than what can be shown on the screen, a panoramic view appears in the upper-left corner to assist in navigating the larger drawing being viewed.

**NOTE:** If you remove devices from the diagram, the devices and connections continue to exist in the Portfolio Device Table and Connections windows.

To create a one line diagram:

1. Click the Portfolio pivot bar icon and select a building in the Devices panel.
2. Click the One Line Diagram header icon, click the Add icon located in the header and select *Inventory*.
3. In the Type or Select Search field, enter a keyword, category or manufacturer and click *SEARCH* to find a device in the inventory.
4. Scroll to and select the device and note the displayed message that provides the device's location for placement.
5. Click the Select header icon and click *Select* in the drop-down menu.
6. Select and drag the image to the one line diagram and place the device as desired.  
**NOTE:** The image has a red box around it when it is placed, or if the device is not compatible and cannot be placed.
7. After the device is placed, click the Select header icon and choose *Select* to deactivate the icon.
8. Repeat adding devices, as necessary, to complete the diagram.

To align devices:

1. In the one line diagram, click multiple devices.
2. Click the Align header icon and select the applicable icon to align the devices.

To add a label:

1. In the one line diagram, click the Label header icon and enter text in the active box.
2. While the text box is still active, position the label as desired.
3. Click the Select icon and choose *Select* from the drop-down menu.

To move a device:

1. In the one line diagram, click the Select header icon and choose *Select*.
2. Click the device, and when the cross appears, move the device as desired.
3. Click the *Select* header icon and choose *Select* to toggle the icon off.

To pan the one line drawing:

1. In the one line diagram, click the Select header icon and choose *Pan*.
2. Click the drawing and move it in the window.

To zoom the one line diagram in and out:

1. In the one line diagram, click the Select header icon and choose *Zoom window*.
2. Use your mouse's scrollbar to zoom in or out as desired.
3. Click the Select header icon and choose *Zoom window* again to fit the one line diagram in your window.

To filter annotations:

In the one line diagram, click the Filter header icon and click to display or hide the Text, Text Annotation, State, Status and/or Data Points.

To delete a device from the one line diagram:

1. In the one line diagram, click the device.
2. Click the Delete header icon.

-or-

Right-click and select *Delete*.

## Creating Port Expressions

Port expressions can be configured for monitored ports and displayed in one line diagrams. One of the features created with port expressions are the animated dashes that emulate the direction of power. Expressions can be created to show device port openings, lock/unlock openings and add user-defined properties. The opening state expression components are active or energized. These expressions are created by selecting specific components.

To create or remove a port expression:

1. Click the Portfolio pivot bar icon and click *Connections*.
2. Click the monitored port's name and click the Edit header icon in the same panel.
3. If desired, in the Opening panel, enter a new label name, change the lock status and click *SAVE*.
4. If you want to create or remove an active port expression, click the Edit icon in the Opening State panel and perform one of the following steps:
  - a. Click the Add Expression icon under Active and select the applicable state expression components.

-or-

Select an existing active expression and click the Remove Expression icon.
5. If you want to create or remove an energized port expression, click the Edit icon in the Opening State panel and perform one of the following steps:
  - a. Click the Add Expression icon under Energized and select the applicable state expression components.

-or-

Select an existing energized expression and click the Remove Expression icon.
6. Click *SAVE*.