



# Enterprise Infrastructure Planning Tool User Guide

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*Basic walkthrough and definition of terms*

*Version 1.05*

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# Revision History

Version 1.0	Initial Release
Version 1.01	Added explanation of Configuration Search, Web saving nuances, deploying modular/shared infrastructure nodes, multi-solution explanation, minor text fixes
Version 1.02	Added “What’s New” section to act as pseudo release notes. Will drive more regular refresh of manual. Added explanation of new PCIe Airflow Adviser.
Version 1.03	Small commodity content update. Primarily a bug fix release. See What’s New.
Version 1.04	Added PowerEdge Launch 2 products (R540/R440, T640/T440, FC/M640). Added feature to suppress erroneous error messages. Various commodity additions to existing products. Updated fan estimation calibration for 900 and 700 series rack products.
Version 1.05	Added Third Party PCIe Card support on 14G 900-400 R-series products. Added SC products (SC3020, SC3000, SC320, SC300). Adding PCIe Airflow Adviser support for R540 and R440. Workload choice information added to printed output. Clones in printed output consolidated to a single line. Power updated for NDC and Mezzanine cards in FC/M640. Modified PSU Adviser for R440 to allow configurations that are fault tolerant. Various commodity updates and defect fixes.

## Purpose

The goal of this user guide is to walk through many common user workflows to emphasize newly added features and efficiency improvements. In addition, we will seek to define terms used in the interface and output of EIPT for clarity.

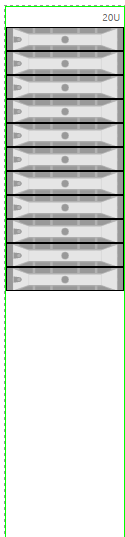
## What's New

- Added Third Party PCIe Card support on 14G 900-400 R-series products.
- Added SC products (SC3020, SC3000, SC320, SC300).
- Adding PCIe Airflow Adviser support for R540 and R440.
- Workload choice information added to printed output.
- Clones in printed output consolidated to a single line.
- Power updated for NDC and Mezzanine cards in FC/M640.
- Modified PSU Adviser for R440 to allow configurations that are fault tolerant.

## Familiarizing yourself with the Interface

### Canvas Interface

A new feature of EIPT is the configuration canvas. Users can now drag elements into and around this space to lay out groups of hardware. A single left click on an element will highlight it and context sensitive metric information will be displayed in the metrics pane. Items can be grabbed and dragged between areas of the canvas. When dragging, a grid will appear to help guide where the product can be dropped. Dropping on other products is not allowed. There is a keep out area around the rack where new products cannot be dropped.



When an item is active, it will have a red border:



If the visible space in the canvas begins to be cramped. You can zoom out with the “minus” magnifying glass icon in the lower right. To zoom back in for a closer view click the “plus” magnifying glass.



If you make a mistake or decide you want to remove a rack, product, etc., simply click it and press the Delete key on the keyboard. A prompt will display in case you press Delete by mistake. You can mimic this functionality by dragging the item to the trash can. Note that any items nested in the container (ex: nodes in a chassis) will also be deleted.



## Modes

### Standard Mode

This is the main mode where you will spend the majority of your time. It is selected by default. This mode controls the central pane and allows you to drag and drop products in the canvas.

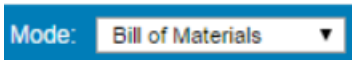
If you are in in Bill of Materials Mode, to get to the Canvas select “Standard” from the Mode dropdown.



### Bill of Materials Mode

This is an alternative mode which may be helpful to review the options chosen at a glance. Power and metrics are itemized in a similar fashion to how they will display in outputs.

If you are in Standard Mode, to get to the Bill of Materials select “Bill of Materials” from the Mode dropdown.



PowerEdge R730	PowerEdge R730	
Input power	249 watts	849.6 btu/h
Maximum potential power	450.3 watts	1536.5 btu/h
Power supply capacity	750 watts	2559.1 btu/h
Input current	2.3 amps	
Sound power level	4.9 bels	
Airflow rate	9 l/s	19 CFM
Weight	29.5 kg	65 lbs
Air temperature rise	23.5 °C	74.4 °F

PowerEdge R730:

PowerEdge R730 Server

Trusted Platform Module (TPM):

No Trusted Platform Module

Chassis Configuration:

Chassis with up to 8, 2.5" Hard Drives

Shipping:

PowerEdge R730 Shipping

Processor:

Intel® Xeon® E5-2630 v4 2.2GHz,25M Cache,8.0 GT/s QPI,Turbo,HT,10C/20T (85W) Max Mem 2133MHz

Additional Processor:

Upgrade to Two Intel® Xeon® E5-2630 v3 2.4GHz,20M Cache,8.00GT/s QPI,Turbo,HT,8C/16T (85W)

## Organization

The tool offers several options to help organize your information and differentiate between different locations, customers, categories, or other organizational units.

**Solution Tier**– You are allowed to have multiple active solutions at one time in the interface. We imagine a solution would represent something large like a physical datacenter or a whole offering to a customer.

At present you must select one AC voltage that applies to the solution level of organization. Future development work is planned to add additional voltages.

### Solution 1

Save | Export All | Close

---

AC input voltage:  110V  220V

Temperature  25 °C  77 °F

Hour cost: \$  /kWh

**Configuration Tier** – Each **Solution** can have multiple configurations within it. A configuration is one comprehensive collection of hardware to be estimated. Typically a configuration will have a Rack and Product level estimation summary. If server or storage enclosures are included, it will have Rack, Chassis and Product level estimation summaries.

## Configuration 1

Duplicate | Print | Export | Delete

**Rack Tier** – Each **Configuration** can have one or several racks within it. At present the rack is a standard 42U height based off a purchasable rack, but actual hardware as found in sales catalogs is not available. Appropriate metrics will be summarized at the rack level at the upper right of the interface.

PowerEdge 4220 Rack	
<b>Input power:</b> 249 watts 849.6 btu/h	<b>Maximum potential power:</b> 450.3 watts 1536.5 btu/h
<b>Power supply capacity:</b> 750 watts 2559.1 btu/h	<b>Input current:</b> 2.3 amps
<b>Sound power level:</b> 4.9 bels	<b>Airflow rate:</b> 9 l/s 19 CFM
<b>Weight:</b> 29.5 kg 65 lbs	<b>Air temperature rise:</b> 23.5 °C 74.4 °F

The remaining U count left available in the rack is displayed at the top of the rack.

20U

**Chassis Tier** – Some products such as Shared Infrastructure converged solutions are comprised of a **Chassis** and associated blades, sleds, or nodes. Appropriate metrics for **Chassis** are summarized in the context sensitive metrics pane when a chassis is selected.

**Product Tier** – The most granular area of the organizational hierarchy is **Product**. Here you will find information specific just to your individual rack server, storage controller, network switch, etc.

## Metrics

Metrics are now represented in four tiers.

**Special Note:** If your configuration includes multiple metric tiers where a metric is not supported at all tiers, please be aware that your configuration level summary will not represent all hardware for that tier.

For example, if you have 10 R730s which support Airflow Rate, with 4 FX2 chassis which **do not** support Airflow Rate, the Configuration level summary will only include the R730 information and will be incomplete. Additional margin will need to be added to account for the disparity.

**Configuration** – This represents a summary of all hardware on the active canvas. It will usually include one or more racks. Metrics include:

- Input power
- Airflow rate
- Input current
- Sound power level
- Weight
- Kilowatt hour cost

Input power: 249.0 watts 849.6 btu/h	Airflow rate: 9.0 l/s 19.0 CFM	Input current: 2.3 amps	Sound power level: 4.9 bels	Weight: 29.5 kg 65.0 lbs	Kilowatt hour cost: \$ 0.14 /kWh
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**Rack** – This represents a summary of all hardware within one rack on the canvas. It will usually include several **Chassis** or **Products**, but may include only one for a simple **Configuration**. Metrics include:

- Input power
- Maximum potential power
- Power supply capacity
- Input Current
- Sound power level
- Airflow rate
- Weight
- Air temperature rise

PowerEdge 4220 Rack	
<b>Input power:</b> 249 watts 849.6 btu/h	<b>Maximum potential power:</b> 450.3 watts 1536.5 btu/h
<b>Power supply capacity:</b> 750 watts 2559.1 btu/h	<b>Input current:</b> 2.3 amps
<b>Sound power level:</b> 4.9 bels	<b>Airflow rate:</b> 9 l/s 19 CFM
<b>Weight:</b> 29.5 kg 65 lbs	<b>Air temperature rise:</b> 23.5 °C 74.4 °F

**Chassis** – This represents a summary of all hardware in a server or storage enclosure. Metrics include:

- Input power
- Power supply capacity
- Input current
- Weight

**Product** – Metrics include (note some specific products may deviate from this offering):

- Racks and towers:
  - Input power
  - Maximum potential power
  - Power supply capacity
  - Input Current
  - Sound power level
  - Airflow rate
  - Weight
  - Air temperature rise
- Blades and sleds
  - Input power
  - Input Current
  - Weight



PowerEdge R430	
<b>Input power:</b> 750 watts 2559.1 btu/h	<b>Maximum potential power:</b> 1116.2 watts 3808.5 btu/h
<b>Power supply capacity:</b> 1100 watts 3753.4 btu/h	<b>Input current:</b> 6.8 amps
<b>Sound power level:</b> 7.9 bels	<b>Airflow rate:</b> 19.8 l/s 42.1 CFM
<b>Weight:</b> 19.3 kg 42.5 lbs	<b>Air temperature rise:</b> 32.1 °C 89.8 °F

## Configuration Pane

In the middle right of the screen is the Configuration Pane. This is where you will make all option selections for the product you have actively selected. Where applicable you can select multiple options within a module heading. If only one choice is allowed in the module, it will be a radio button and any choice will invalidate prior choices.

## PSU Adviser

Under the **Power Supply** heading of supported products you will find a [Guide](#) link for the EIPT PSU adviser. We recommend you use this pop out modal to determine what PSU options best fit your needs. Note that DC power supplies, though supported in many products, are not budgeted in PSU Adviser at this time. Please do not use PSU Adviser for these supplies.

PSU Option	Estimated Input Power At Workload (W)	Estimated Maximum Potential Power (W)	Estimated Cost At Workload (\$USD)	Annual Energy (Continual Operation) at Maximum Potential Power (\$USD)
<input checked="" type="radio"/> Dual, Hot-plug, Redundant Power Supply (1+1), 550W	750	1117	919.8	1369.89
<input type="radio"/> Single, Cabled Power Supply, 450W	851	1212	1019.14	1486.4
<input type="radio"/> Single, Hot-plug Power Supply (1+0), 550W	766	1117	939.42	1369.89

Warning: Exceeding PSU rated capacity may drive system throttling.

Cost Per kWh: \$0.14/kWh

Cancel

Options that are grey are determined by budgeting logic be insufficient to fit your configuration. For monolithic products such as Racks and Towers we highlight the recommend power supply in green. This recommendation indicates that it is the lowest capacity redundant PSU that fits the chosen hardware selections. Due to complexity and nuance of Shared Infrastructure power supply and redundancy offerings we do not provide an automated recommendation for those products.

In the PSU Adviser window we offer an explanation of the metrics shown and applicable use of the information. For screenshot purposes you may hide or expand the text portion of the window by clicking on the arrow.

**Special Note:** The R440 platform has specialized sizing logic implemented. It maintains the portfolio stance that we would only recommend a redundant power supply policy. The deviation is that logic has been restructured to allow the user to choose options with varying levels of redundancy. Conditionally, choices which previously would have been grey or not allowed are now white and allowed as long as they meet the standard of Fault Tolerant Redundancy. For a definition please consult the R440 Owner’s Manual. As a high level summary, these choices are still redundant and will keep the system up and running even in a PSU fault, but now may result in performance degradation when a supply is lost.

Previously we would have blocked any PSU option which could result in performance degradation when a supply is lost. We modified the logic to allow customers better information to optimize cost versus only optimizing PSU redundancy.

The screenshot shows a 'Power Supply Guide' window with a table of PSU options. A warning message at the top states: '\*Warning: Exceeding PSU rated capacity may drive system throttling.' The cost per kWh is listed as \$0.14/kWh. The table has five columns: PSU Option, Estimated Input Power At Workload (W), Estimated Maximum Potential Power (W), Estimated Cost At Workload (\$USD), and Annual Energy (Continuous Operation) at Maximum Potential Power (\$USD). Three options are listed: Dual Hot-plug Redundant Power Supply (1+1) 550W (selected), Single Cabled Power Supply 450W, and Single Hot-plug Power Supply (1+0) 550W. A tooltip on the right explains that 'Estimated Input Power At Workload' is representative of estimated power consumption under the user's workload condition, while 'Estimated Maximum Potential Power' is representative of the maximum power the PSU can support.

PSU Option	Estimated Input Power At Workload (W)	Estimated Maximum Potential Power (W)	Estimated Cost At Workload (\$USD)	Annual Energy (Continuous Operation) at Maximum Potential Power (\$USD)
<input checked="" type="radio"/> Dual Hot-plug Redundant Power Supply (1+1) 550W	750	1117	919.8	1369.89
<input type="radio"/> Single Cabled Power Supply 450W	831	1212	1019.14	1486.4
<input type="radio"/> Single Hot-plug Power Supply (1+0) 550W	766	1117	939.42	1369.89

## PCIe Airflow Adviser

Under the **Chassis** heading of supported products you will find a [Guide](#) link for the EIPT PCIe Airflow Adviser. This feature is only currently supported on 14G rack products. This adviser provides estimates for the maximum PCIe airflow delivered to each PCIe slot. The estimates are provided in terms of Linear Feet per Minute or LFM. LFM is a measure of the approach/inlet velocity of air to the PCIe slot and is the most commonly used metric to define PCIe card cooling requirements.

PowerEdge servers will typically operate at a lower LFM than the maximum value. Cards provided by Dell will be optimally configured for their airflow needs. For 3rd party cards a proprietary algorithm is used to estimate the cooling requirement for that card. For best results it is recommended to consult the 3rd party card’s specification and enter the card cooling requirement into the iDRAC’s PCIe Airflow Configuration. This will automatically ensure the 3rd party card’s cooling requirements are met or exceeded. This may also reduce excessive fan speeds associated with the 3rd party estimated response.

LFM estimates are also provided within iDRAC. These estimates may change as new hardware is added. For example adding more hard drives may reduce the airflow to the PCIe slots and will be automatically represented in this adviser and iDRAC.


Reporting of the maximum slot LFM may also allow for optimal card slot arrangement. Cards that require higher levels of cooling may be placed in the highest LFM slots to minimize the fan speeds required to cool them. This can result in lower fan power consumption, airflow consumption and acoustics.

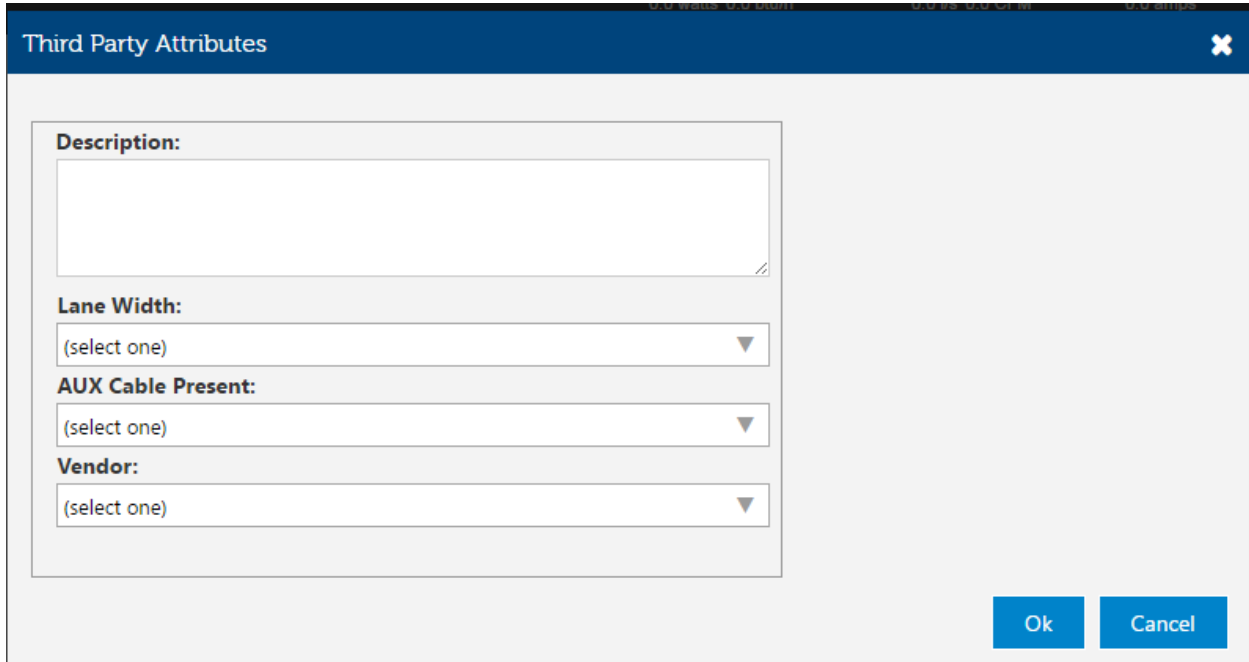
## Third Party PCIe Card Support

Under any PCIe heading on R series 940 to 440 products we have added a series of “third party” options. This will allow users to model their system with cards not directly supported or not offered through Dell EMC factories. The intent is to offer information about the default power and cooling behaviors when cards are added to assist with sizing. The feature is modeling only and does not imply any form of new support by Dell EMC.

When a card is added we assess the default power and cooling behaviors based on the selections made. This will influence Input Power, Input Current, Maximum Potential Power, PSU Sizing, Airflow, Sound Power, and Air Temperature Rise. It will not impact Weight, or PCIe Airflow Adviser output.

Note that Airflow, Sound Power, and Air Temperature Rise are system level metrics. It is possible the card(s) added will be sufficiently cooled by the existing system response of other Dell EMC supported commodities also installed. In such a case these metrics may not change and that is expected.

When a third party card is added please answer all questions in the Pencil icon  that appears.



Third Party Attributes

Description:

Lane Width:

(select one)

AUX Cable Present:

(select one)

Vendor:

(select one)

Ok Cancel

This information will be used to correctly size the power and cooling impact of the adding the card. It will also be useful to identifying the card in your printed output for future reference.

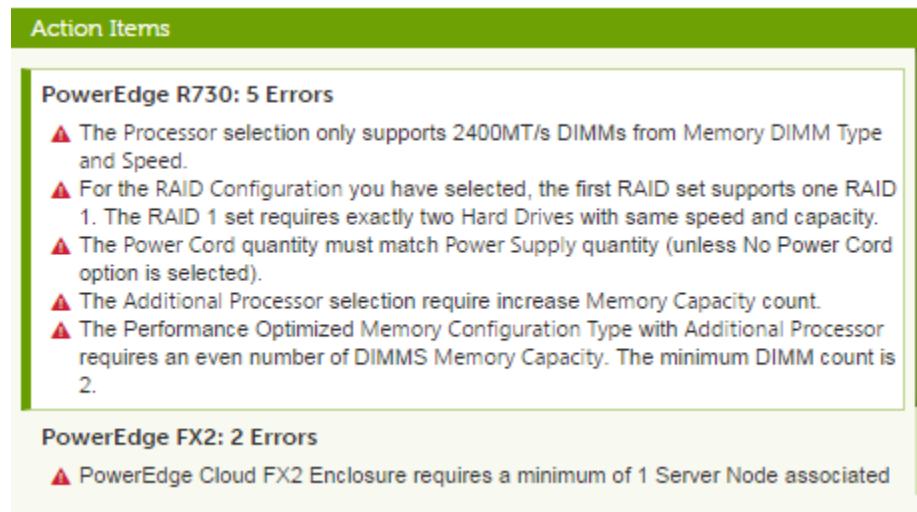
## Action Pane

In the bottom right of the interface is the **Action Pane**. This is the location to review to confirm that the configuration is valid and all hardware and sales rules have been followed. Note that while due care is applied to restrict invalid combinations, but it is assumed users have a working understanding of the

physical and technical limitations of these products. Sales tools and/or Dell.com will be the ultimate authority on valid combination of hardware if there is any delta between EIPT and those resources.

If you have applied a customized name to your product you will see it reflected in this window. To further assist with identifying what product is generating the error messages, you can click on the message and the product will be selected in the canvas.

If you have an error and you are unable to clear it. Consult the FAQ at the end of this user guide for additional information and steps.



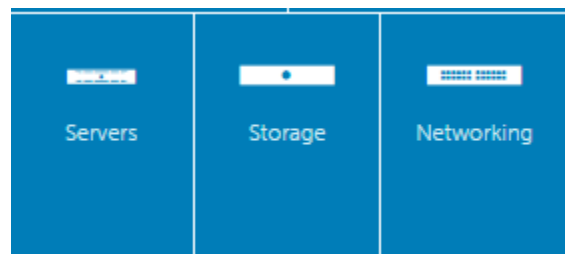
The screenshot shows a window titled "Action Items" with a green header. It contains two sections of error messages:

- PowerEdge R730: 5 Errors**
  - ▲ The Processor selection only supports 2400MT/s DIMMs from Memory DIMM Type and Speed.
  - ▲ For the RAID Configuration you have selected, the first RAID set supports one RAID 1. The RAID 1 set requires exactly two Hard Drives with same speed and capacity.
  - ▲ The Power Cord quantity must match Power Supply quantity (unless No Power Cord option is selected).
  - ▲ The Additional Processor selection require increase Memory Capacity count.
  - ▲ The Performance Optimized Memory Configuration Type with Additional Processor requires an even number of DIMMS Memory Capacity. The minimum DIMM count is 2.
- PowerEdge FX2: 2 Errors**
  - ▲ PowerEdge Cloud FX2 Enclosure requires a minimum of 1 Server Node associated

## Estimation Workflow

### Browse Products

The first option available for you to find a product is to simply browse for it. You must first select the icon for the major business unit you wish to browse (Servers, Storage, Networking). Next you will have a dropdown dynamic to the business unit selection which offers subcategories of interest.



Select your subcategory then browse to your product. A single click on the product will pop out an identification pane with a picture of the product. If you click the “Add Product”, the product will be added to a new rack in the canvas. If instead you wish to decide where it is placed, simply click and drag to your desired location. Note: Modular/Shared infrastructure products are dragged and dropped on top of the picture of the chassis in the interface. If you drop in empty space a chassis will be created automatically.

## Search Catalog

For more advanced users who are familiar with the products by name, you may search directly. Click the “Search Catalog” button in the upper left pane. Enter all or a portion of the product name and click “Go”. The search will return all products that are a close match. You may select them in the same manner as with browsing the catalog.

Search Catalog Add Blackbox Product

Advanced search: ?

 Go

PowerEdge R730

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PowerEdge R730xd

---

DSMS R730

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Dell-Nexenta R730

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## Configuring Products

Before you begin configuring products, it is recommended you review Solution level settings and lock in your choices. These can be changed later if you change your mind.

---

AC input voltage:  110V  220V

Temperature  25 °C  77 °F

Hour cost: \$  /kWh

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To configure a product (ex: chassis, storage appliance), first click the product. A red border will highlight the chosen product and controls specific to that product will appear in the right panes.



The first option to configure is product name. This is optional, but customers often indicate it is very helpful to recall the purpose or category of the product as it will be used in the installation. The product branding is maintained so recognition of the hardware persists even if a name is chosen.



Something to note is that the name you choose will translate to the Action Pane so you can quickly identify which products have errors. It will also translate to printed material outputs.

#### Action Items

SQL Server: 5 Errors

The next option is the workload settings. Choose your workload and where applicable subsystem loading.

Workload:

Transactional ▼

CPU Loading:

100% ▼

Once you have your workload configured, the next task is to configure all the commodities and settings of the system hardware. For a pure estimation focus we recommend you use the “Limited Configuration” toggle to address only those modules which will influence your power/thermal estimation.

<b>Limited Configuration</b>	Full Configuration	Advanced search
PowerEdge R730	PowerEdge R730 Server	▼
Trusted Platform Module (TPM)	No Trusted Platform Module	▼
Chassis Configuration	Chassis with up to 8, 2.5" Hard Drives	▼
Processor	Intel® Xeon® E5-2630 v4 2.2...C/20T (85W) Max Mem 2133MHz	▼
Additional Processor	Upgrade to Two Intel® ...Turbo,HT,8C/16T (85W)	▼
Memory DIMM Type and Speed	2133MT/s RDIMMs	▼
Memory Configuration Type	Performance Optimized	▼
Memory Capacity	8GB RDIMM, 2133MT/s, Dual Rank, x8 Data Width	▼
RAID Configuration	RAID 1 for H330/H730/H730P (2 HDDs or SSDs)	▼

However, at times validation messages will trigger (see the Action Pane) indicating your configuration is invalid as configured. This may require accessing modules which do not impact power. To get full access to all modules, click on Full Configuration.

Limited Configuration	<b>Full Configuration</b>	Advanced search
PowerEdge R730	PowerEdge R730 Server	▼
Trusted Platform Module (TPM)	No Trusted Platform Module	▼
Chassis Configuration	Chassis with up to 8, 2.5" Hard Drives	▼
Shipping	PowerEdge R730 Shipping	▼
Processor	Intel® Xeon® E5-2630 v4 2.2...C/20T (85W) Max Mem 2133MHz	▼
Additional Processor	Upgrade to Two Intel® ...Turbo,HT,8C/16T (85W)	▼
Processor Thermal Configuration	2 CPU Standard	▼
Cooling	None	▼
Memory DIMM Type and Speed	2133MT/s RDIMMs	▼

To access configuration information for Modular/Shared Infrastructure nodes, you must click the dropdown arrow followed by “Configure”

PowerEdge FC630
▼

Duplicate
Move
Delete
Configure

## Configuration – Advanced Search

This feature allows users to search directly for a product option rather than browsing for it. Anything in the text string of the option should be a valid search term. EX (not actual quotes) “E5-2690”, “400GB”, “QP”.

Limited Configuration
Full Configuration
**Advanced search**

Advanced search:  Go

Processor
▼

- Intel® Xeon® E5-2690 v4 2.6GHz,35M Cache,9.60GT/s

QPI,Turbo,HT,14C/28T (135W) Max Mem 2400MHz

Additional Processor
▼

- Intel® Xeon® E5-2690 v4 2.6GHz,35M Cache,9.60GT/s

QPI,Turbo,HT,14C/28T (135W) Max Mem 2400MHz

## Multiplying configured content

By this point you have invested time in configuring your product to your liking. There are a variety of efficiency tools to leverage this effort if you need to make copies or permutations.

### Clones

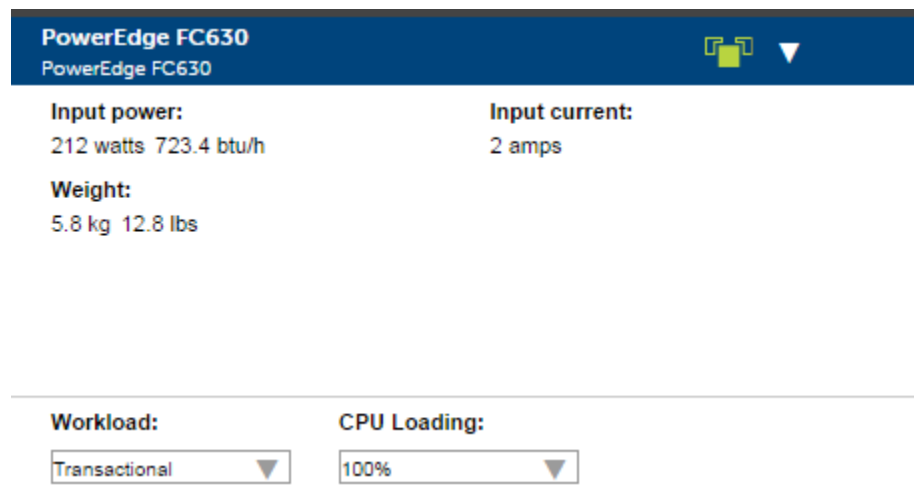
EIPT has the ability to make identical **Product, Chassis, or Rack** clones. When a group of items is identified as a clone group, all configuration elements of hardware and options will be inherited between all items in the group. For example, if the processor in a server clone changes, the processor will change for all other linked clones. The only configuration element that isn't linked is Name, so that you can identify meaningful names without being constrained to keep them all identical.

To create a clone group, click on an item in the canvas and click the "Clone" icon and choose "Create new clone". You will be limited to the number of clones that fit in the existing rack. If you need more, you can then clone the racks themselves.



At a later time, if you decide you need to separate one of several items from a clone group, you are free to do so. Simply select the item, click the Clone icon, and choose "Unlink selected clone". This can be very useful if you want to branch variations from a common product archetype.

Take note that for Modular/Shared Infrastructure nodes you must first click "Configure". At this point, the pane which was supporting the chassis will change to the selected node product. From this point you can make these nodes clones or unlink them using the same "Clone" icon.



PowerEdge FC630  
PowerEdge FC630

Input power: 212 watts 723.4 btu/h  
Input current: 2 amps  
Weight: 5.8 kg 12.8 lbs

Workload: Transactional  
CPU Loading: 100%

### Duplicates

Specific to Modular/Shared Infrastructure Nodes and Storage nodes we have provided the ability to Duplicate. This is a static one-time copy of an existing node. You are free to Duplicate up to the available node capacity in your chosen chassis. After a Duplicate action is complete, any changes to nodes **will not** be linked in any way.





## Output

When you have reached a point where you have finished configuring the solution and wish to collect your output you have a few options.

Currently you have the ability to Export to PDF or XLS formats. To export all the data of all configurations in your **Solution**, choose “Export All” from the active Solution bar. To export only the active **Configuration** choose “Export” from the active Configuration bar. Finally, to store a copy of the rack canvas you have created, choose “Print” from the Configuration bar.

Note that the Web UI version of the tool only offers XLS format at this time. MS Excel has readily available plugins to convert to PDF.

## Save/Load

You may save your solution at any time by clicking “Save” on the Solution bar. The first time this will create a prompt asking you to provide a file name in the JSON format to be stored on your local system. Afterwards, you will continue to save to this file. If you wish to choose a new name or location, choose “Save Solution As” from the file menu.

To load a saved JSON solution, simply click “Load Solution” from the File menu.

## Offline Caching

For the offline version of the tool, your unsaved progress is cached locally on your system in the directory specified below. Note that a new folder will be created when you upgrade to a new version and the prior folders will no longer be used. With that in mind, please save any changes before upgrading. In the event your system restarts or you close the program and forget to save, you will restart where you left off based on a cached copy of your solution.

**C:\Users\user\_name\AppData\Local\Dell\Enterprise Infrastructure Planning Tool**

Where “user\_name” is your system login user name. A folder will be created with the name of the release (ex: 1.06.000) with “Cache” and “Data” information stored within.

**Take note you may need to clear out this cached data in some recovery scenarios. Doing so will destroy unsaved changes to your active solutions. We recommend you save products you will be using for a long time via the Save prompt.**

## Web Caching

Web caching is currently disabled.

# Upgrading

New versions of the tool will be posted on the landing page [HERE](#). **Please save any active solutions before upgrading. Any unsaved changes will be lost.**

## FAQ

**Q: I added up all the items in my configuration and the numbers do not tie out. Why?**

A: There are a few key reasons for this:

- **Chassis** fan power is calculated dynamically based on size and type of node. An empty **Chassis** consumes very little fan power and we do not calculate fan for empty chassis as they are not a valid use case. When the first node is added fan power is calculated and added to the chassis metric. When the second node is added a comparison is done to see if the fan power is higher than the estimate of the first and if so the estimate is increased. And so on...
- Node are displayed in DC Power. They do not have a power supply directly attached so you are seeing a break in the calculation to give a general impression of the impact of adding or modifying hardware installed. When converting to AC power at the **Chassis level** the tool will add anywhere from 4% to 12% of additional power to account for the efficiency loss converting AC power DC power in system.
- Given that the user cannot directly access the fan power information or the estimate power supply efficiency, it will not be possible to add up each item to match up to the total AC Input.

**Q: There are errors in the Action Pane that I cannot resolve.**

A: As a first step, please swap to Full Configuration and confirm the needed choices are not available in that view. If that does not resolve the issue consider the following known issue:

- Validation of **Chassis** node quantity is currently defective. We are working to correct this. You may get Action Pane messages in the chassis that indicate you have not met a minimum node count or that a node (like a FN IOA switch) must be added. You may get Action Pane messages in the node indicating it needs options set to accommodate stand-alone distribution. If you have the proper node count, **these can be ignored**.

**Q: Can I export this content into Online Solution Configurator?**

A: Not at this time. We are working with the OSC team to develop a method for importation in the future. Please request this feature through your management chain.

**Q: Can I export from Online Solution Configurator and import into EIPT?**

A: Not at this time, but the feature is scoped and in progress.

## Definition of terms

**Input Power** – This is an average runtime AC power value. A notable exception is for modular/shared infrastructure nodes. These are average runtime, but displayed in DC power as this is a break in calculation to show the node information. Summary input AC in these cases is shown at the **Chassis** level. Note this includes all power conversion efficiencies, including power supply and voltage regulators. It also includes fan power of the products and/or components included.

**Maximum Potential Power** – This is representative of the worst instantaneous power seen at the circuit breaker. The time domain is around one second and therefore of interest in breaker sizing. If this value is higher than acceptable, you can use power capping features to cap the node or in the case of modular/shared infrastructure solutions you can also cap the chassis. Take note this is not a runtime load and we do not expect most customer workloads to approach this value for appreciable time. For runtime guidance consult **Input Power**.

**Input Current** – This is simply the **Input Power** divided by the chosen AC voltage.

**Sound power level** – The upper limit A-weighted sound power level (LwA-UL) calculated per section 4.4.2 of ISO 9296 (1988) and measured in accordance with ISO 7779 (1999). This estimation is based on the total input power of the organization tier (ex Product, Configuration) under the user configurable workload condition and parameters selected in the Solution bar (ex 110V).

**Airflow Rate** – This is the cubic airflow rate per meter (CFM) for the volume of air traveling from the inlet through the chassis. This metric is influenced by user selected configurable workload conditions and parameters selected in the Solution bar. This metric is primarily supported only on monolithic rack and tower systems. In most cases there are too many combinations of hardware in modular/shared infrastructure products to make an accurate prediction of airflow.

**Weight** – This is the combined weight of the solution. Note that in many cases we do not itemize weight. For example we do not itemize hard drive weight in most racks and we do not itemize sled weight in chassis. Instead we take the worst case at launch of the product. This information is therefore for ballpark guidance and actual weight may be higher or lower.

**Air temperature rise** – This is a metric of the amount the inlet air temperature rises as it travels over the heated components in the chassis and exits the exhaust. Take particular note that it is not a metric specifically of the exhaust temperature and that the Celsius to Fahrenheit conversion for such a temperature delta is different ( $9/5 * \text{Temp in Celsius}$ ) than for absolute temperature ( $9/5 * \text{Temp in Celsius} + 32$ )

**Amp** – Also known as Ampere. A unit of electrical current which is a measure of the amount of electric charge passing a point in an electric circuit per unit time with  $6.241 \times 10^{18}$  electrons, or one coulomb per second constituting one ampere.

**bels** – A unit of sound measurement equal to 10 decibels.

**btu/h** – British Thermal Unit/hour, unit of energy equal to about 1055 joules.

**CFM** – Cubic Feet per Minute, unit of airflow

**Decibels** – Unit of sound. Ratio of a physical quantity relative to a specified or implied reference level.

**kWh** – Kilowatt hour, a unit of energy equal to 1000 watt-hours or 3.6 Mega-joules.

## **Feedback**

For feedback or questions not found in this guide, please submit a request to [EIPT Business Partners@dell.com](mailto:EIPT_BusinessPartners@dell.com).

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