



# Release Notes for Connected Grid Design Suite - Substation Workbench, Release 1.0

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# Introduction

The Connected Grid Design Suite (CGDS) – Substation Workbench was created to support electrical and operational engineers as they design, deploy, and monitor new and retrofitted operational, protection, and communications networks. No other solution on the market today addresses the convergence of substation networks and simplifies the process of visualization, design, simulation, and compliance

Benefits include:

- Superior visualization of energy, protection, and communications networks based on easy access to information, helping engineers to make better and smarter decisions
- Streamlined network design processes based on the solutions' recommendations for the telecommunications network and security design
- Improved bottom-line based on the Design Suite's easy-to-use, standards-based approach; speeding up automation deployment, reducing the utility risk profile, and cutting costs

# Benefits

The Cisco Connected Grid Design Suite (CGDS) – Substation Workbench helps utilities to design and implement new automated substations, as well as to maintain and retrofit existing facilities.

Using CGDS – Substation Workbench brings about:

- Improved reliability, security, and regulatory compliance
- Less required training for field personnel
- Lower deployment and ongoing maintenance costs
- Faster project execution

Using the CGDS - Substation Workbench, utilities achieve greater reliability and security, and experience documented productivity gains of up to 50 to 70 percent in designing and operating both new and retrofitted substations.

# Available Product Configurations

The Cisco Connected Grid Design Suite - Substation Workbench Release 1.0 is available in three configurations. These are shown in the table below:

**Figure 1** CGDS - Substation Workbench Release 1.0 Available Configurations

CGDS Configuration	Capabilities	Optimized for:
Substation Workbench (Design, Model, and Configure only)	<ul style="list-style-type: none"> <li>Discovery</li> <li>Design and Modeling</li> <li>Visualization</li> <li>Configuration Assistance</li> <li>Simulation and Testing</li> </ul> (This configuration does not provide monitoring capabilities.)	<ul style="list-style-type: none"> <li>Utility engineering teams</li> <li>Cisco, its partners, and system integrators working with utilities on grid modernization projects.</li> </ul>
Substation Workbench (Monitoring only)	<ul style="list-style-type: none"> <li>Visualization</li> <li>Configuration Assistance</li> <li>Simulation and Testing</li> <li>Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Utilities having an integrated substation model that are interested in monitoring the actual versus the intended configuration, network latencies in support of grid applications, and more.</li> <li>Utilities interested in having Cisco and our partners develop the integrated substation model as part of a services engagement, then monitor the model.</li> </ul>
Substation Workbench (Full Lifecycle)	<ul style="list-style-type: none"> <li>Discovery</li> <li>Design And Modeling</li> <li>Visualization</li> <li>Configuration Assistance</li> <li>Simulation And Testing</li> <li>Monitoring And Alerting</li> </ul>	Utilities planning to build their own substation models, with or without the assistance of Cisco and our partners.

## Hardware Requirements (Client Computer)

The CGDS - Substation Workbench Release 1.0 client software usually resides on a laptop or desktop computer and communicates with the server application over a network connection.

Specifications for an acceptable client computer follow:

**Figure 2** Hardware Requirements (Client Computer)

Attribute	Client Computer
Memory	At least 2 GB
Processor	2 GHz or greater
Disk Size	At least 100 MB available for CGDS - Substation Workbench Release 1.0, and associated components
Operating System / Other requirements	<ul style="list-style-type: none"> <li>Windows 7</li> <li>Microsoft .NET Framework 4</li> </ul>

## Hardware Requirements (Server)

The CGDS Appliance software resides on one of two types of currently approved servers. Other server hardware may be substituted, once it is validated by Cisco or our partners.

The specifications of the approved servers follow:

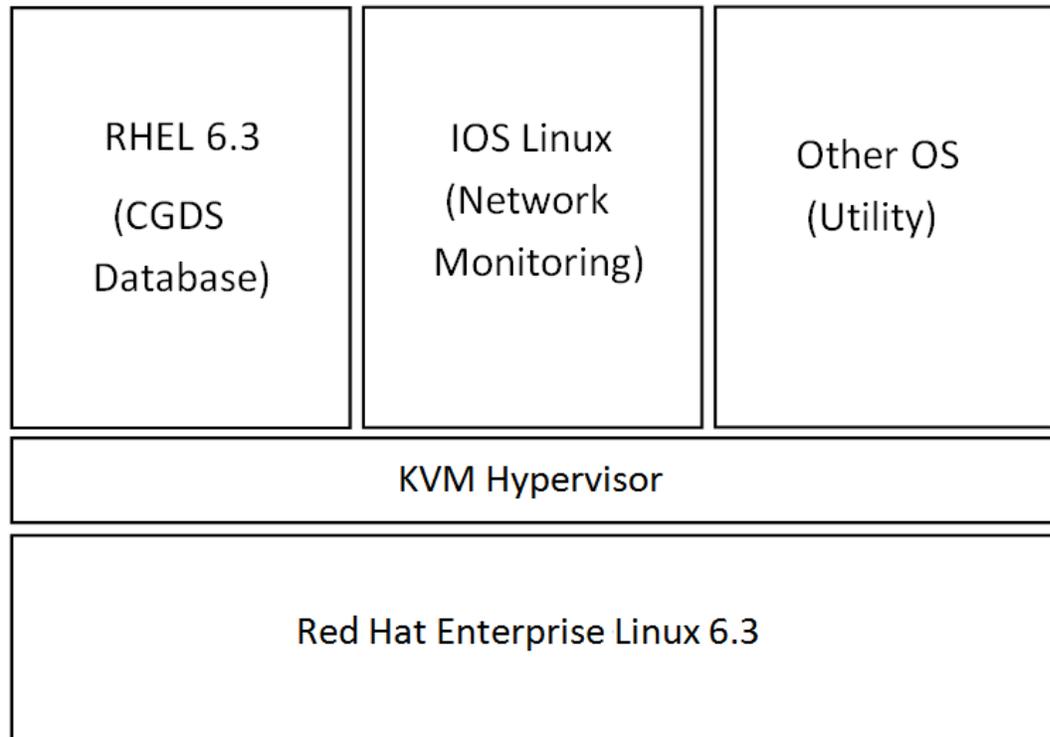
**Figure 3** *Hardware Requirements (Server)*

Attribute	Cisco UCS C220 M3 SFF Rack Server (Non-hardened Server)	Advantech UNO 4863 (Hardened Server)
Memory	At least 4 GB	4GB DDR3 SDRAM
Processor	One or two Intel® Intel® Xeon® E5-2600 series processor family CPUs / Intel® C600 series chipset	Intel Core i7 2.0 GHz processor
Disk Size	At least 300 GB	At least 300 GB
Operating System / Hypervisor /bus width	Red Hat Enterprise 6.3 / KVM / 64-bit	Red Hat Enterprise 6.3 / KVM / 64-bit
Utility-centric Certifications	N/A	IEEE 1613 IEC 61850-3
Network Ports / USB	<ul style="list-style-type: none"> <li>• 1 Gigabit Ethernet management port, and dual 1 Gigabit Ethernet ports</li> <li>• 3 x USB 2.0 (1 x internal), used for external DVD during installation</li> </ul>	<ul style="list-style-type: none"> <li>• 2 x 10/100/1000Base-T (supports teaming function) and 4 x 10/100Base-T</li> <li>• 6 x USB 2.0 (1 x internal), used for external DVD during installation</li> </ul>
Product URL	<a href="http://www.cisco.com/en/US/products/ps12369/index.html">http://www.cisco.com/en/US/products/ps12369/index.html</a>	<a href="http://www.advantech.com/products/UNO-4863/mod_C563A97C-44A3-4BD5-979A-7F98C061D6E2.aspx">http://www.advantech.com/products/UNO-4863/mod_C563A97C-44A3-4BD5-979A-7F98C061D6E2.aspx</a>

# Software Organization

The arrangement of the CGDS - Substation Server Software Stack is shown here:

**Figure 4** *CGDS - Substation Workbench Software Organization*  
CGDS Server Appliance Software Stack



The base Red Hat Enterprise Linux is the host upon which the other guest operating systems ride, as facilitate by the KVM Hypervisor. Applications such as the CGDS Database and network monitoring systems are hosted by the guest operating systems.

Detailed instructions for installing the CGDS – Substation Workbench Release 1.0 Server and Client software are available in the CGDS - Substation Workbench Release 1.0 Installation Guide (Documentation Part number 78-21154-01).

# Open Caveats

The following caveats may appear to be problems within the CGDS system, but in fact are features of the various systems, and no resolution is foreseeable.

## Hardened Server

### Hardened Server Has No Fan

The Hardened server is designed for service in rugged environments, and is designed to be self-cooling without a need for fans on internal components or the processor.

This means it is imperative that the chassis vent spaces be left open, that the chassis is not exposed to water or moisture, and that at least one Rack Unit of clear space is left above and below the server in any equipment racks.

### Hardened Server Has Movable Power Input Wiring

The Hardened Server has a terminal strip at the point where the power cord meets the chassis, and the installer is supposed to install the power cord wires according to local standards and practices. Using a terminal strip accommodates various power input voltages and power plug configurations. Of course, this makes it critical that the installer understand the local power cord conventions, and wire the cord to the chassis accordingly.

## Non-hardened server

### VGA Output Unavailable if Monitors Are Plugged Into Both the KVA Cable and the Rear Panel

The Non-hardened server is equipped with a single VGA output, but has the option of routing that output to a more convenient position (away from the chassis rear panel) via the KVA cable. The system is not equipped with dual VGA outputs. The user must chose one or the other. Attaching a monitor to the rear panel VGA connector disconnects the video feed to the KVA cable.

## Related Information:

Check these resources for more information about Cisco Connected Grid Design Suite (CGDS) – Substation Workbench:

- Visit [http://www.cisco.com/web/strategy/energy/substation\\_automation.html](http://www.cisco.com/web/strategy/energy/substation_automation.html)
- View the whitepaper found at:  
[http://www.cisco.com/web/strategy/docs/energy/connected\\_grid\\_design\\_suite\\_overview.pdf](http://www.cisco.com/web/strategy/docs/energy/connected_grid_design_suite_overview.pdf)
- Read the case study at: [http://www.cisco.com/web/strategy/docs/energy/state\\_grid\\_china\\_cs.pdf](http://www.cisco.com/web/strategy/docs/energy/state_grid_china_cs.pdf)
- Watch the CGDS Overview video at  
<http://www.youtube.com/watch?v=49NuGMzNMUA&feature=youtu.be>
- Watch the Substation Workbench Detailed Video at:  
<http://www.youtube.com/watch?v=Te26gTaNukQ>
- Contact the CGDS product management group at [ask-cgds@cisco.com](mailto:ask-cgds@cisco.com).

## Related Documentation

The following documentation will assist you in the maintenance and operation of the CGDS - Substation Workbench in any of its operating roles:

- CGDS - Substation Workbench Release 1.0 Guide to Documentation (78-21152-01)
- CGDS - Substation Workbench Release 1.0 User Guide (78-21153-01)
- CGDS - Substation Workbench Release 1.0 Installation Guide (78-21154-01)
- CGDS - Substation Workbench Release 1.0 Configuration Guide (78-21155-01)
- CGDS - Substation Workbench Release 1.0 Frequently Asked Questions (78-21156-01)
- CGDS - Substation Workbench Release 1.0 Troubleshooting Guide (78-21157-01)
- CGDS - Substation Workbench Release 1.0 Release Notes (78-21158-01)
- CGDS - Substation Workbench Release 1.0 Data Sheet (78-21159-01)

This information is available for download on Cisco.com.

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the What's New in Cisco Product Documentation as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

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