

» Quick Start Guide «



Kontron SYMKLOUD MS2900 Platform

Document revision 1.2

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1 Before Getting Started

Caution! The SYMKLOUD MS2900 Platform is ESD-sensitive (electrostatic discharge) equipment. Users must observe precautions for handling ESD-sensitive devices. Also, be sure to read the “Safety Instructions” section, in Chapter 3 of the *SYMKLOUD MS2900 Platform User’s Guide* before handling the equipment.

1.1 About this Guide

This Quick Start Guide will assist with getting up and running with the SYMKLOUD MS2900 Platform. The guide addresses the following tasks:

- » Setting up the system and powering it on
- » Using the system management configuration features
- » Accessing the nodes’ serial consoles
- » Accessing the System Monitor (web interface)

For more detailed information on these topics or additional features of the MS2900 platform, see all the available documentation and select what is needed on the Kontron portal at <http://cbu.kontron.ca/>

NOTE: To ensure the latest information is being used, check the publication dates and version numbers of the documentation against those available on the portal.

1.2 Equipment Needed to Set-up the System

Figure 1 shows the components and accessories required to get started. For instructions on how to install these components, see Chapter 2: “Getting Started”.

Depending on the ordered configuration of the SYMKLOUD MS2900 system, various cables, accessories, or spare components may be included in the shipment. For purposes of accomplishing the tasks described in this guide, aimed at getting the system up and running, only the following items from the box are needed:

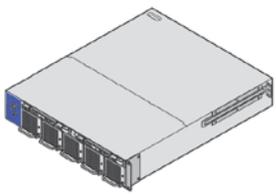
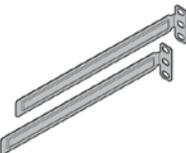
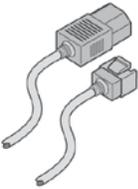
- » The MS2900 system with any protective plastic or Styrofoam packaging removed
- » The two rails that attach to the system chassis so it can be mounted in a cabinet/rack
- » The RJ-45 to DB-9 adapter (used with a straight RJ45 cable) for console connection

The following equipment may also be needed:

- » Standard, straight RJ-45 cable (CAT5 or better)
- » An Internet connection
- » The power cord(s) for the system: AC or DC, according to what was ordered, in the (default) single power supply configuration or the (optional) redundant power supply configuration

NOTE: Each DC power supply ships with a DC mating connector which must be crimped to an appropriate cable and attached to the rear panel before powering up the platform. Instructions on how to wire the provided DC mating connector can be found in the Symkloud MS2900 User’s Guide.

Figure 1: Components for Initial Set-Up

Equipment You Need to Set Up Your System		
1		SYMKLOUD MS2900 Platform
2		Rackmount Rails
3		AC or DC Power Cords <i>(one for each power supply ordered)</i>
You May Also Need the Following		
4		RJ-45 CAT5 Cable <i>(user supplied)</i>
5		RJ-45 to DB-9 Adapter
6		Internet Connection <i>(user supplied)</i>
7		DC Mating Connector

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2 Getting Started

This chapter covers how to set up the MS2900 platform for installation in a cabinet/rack and how to connect the cables.

2.1 Preparing the System for Cabinet/Rack Installation

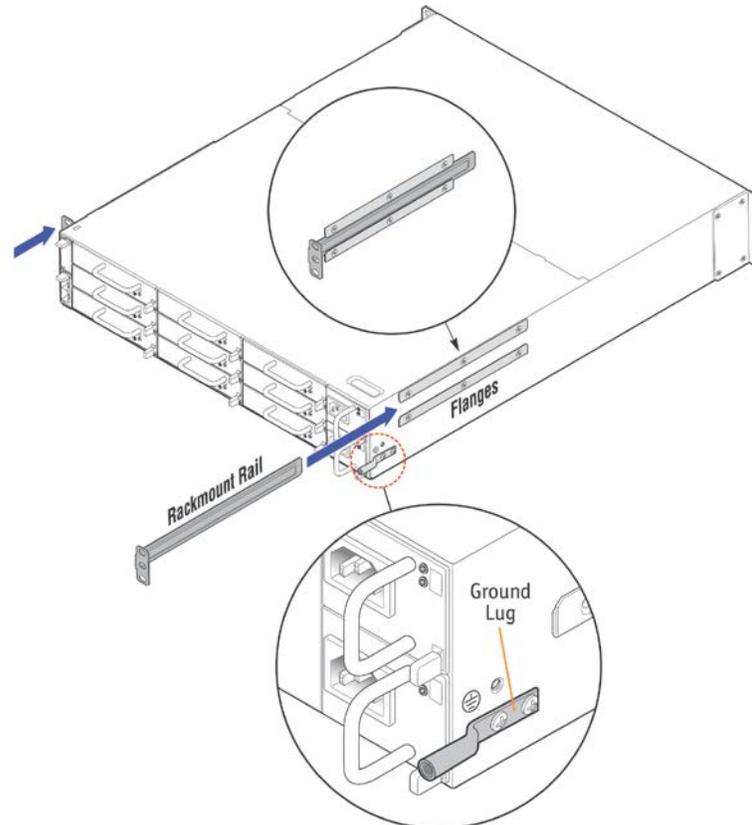
The MS2900 platform comes with both front and rear mounting attachments. The front of the chassis has brackets attached on each side for fastening the system in a cabinet/rack. The system also comes with two slide rails to enable mounting at the rear of the cabinet/rack.

NOTE: Because the heaviest components in the chassis, i.e., the processor nodes and power supplies are at the rear, using the slide rails and L-brackets for rear mounting is mandatory. This method will provide the most stable and secure cabinet/rack installation.

The system has rear mounting flanges for the rails already in place on both sides of the chassis. No screws are needed; just slide the rails between the flanges, with the L-bracket facing the rear of the chassis, as shown in Figure 2.

Depending on the width of the cabinet or rack used, the grounding lug on the left rear side of the chassis may make this a tight fit. If the chassis can't be easily slid into place, it may become necessary to angle or wiggle the chassis to get it into the rack. If unsuccessful, remove the grounding lug by unscrewing the two fasteners and re-attach it from the rear of the cabinet/rack once the chassis is in place. See Section 2.3: "Connecting the Grounding Lug" for possible positions for installing the grounding lug.

Figure 2: Attaching the Slide Rails to the Chassis



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2.2 Connecting Power Cords

NOTE: When using a rack, do not install the power cord(s) until after the system is completely mounted in the rack.

Power cords should be connected to the MS2900 platform as shown in Figure 3 and Figure 4. MS2900 systems with DC power supplies ship the parts for assembling a power cord. Instructions on how to wire the provided DC mating connector can be found in the Symcloud MS2900 User's Guide.

Figure 3: Connecting the AC Power Cord and Grounding Cable

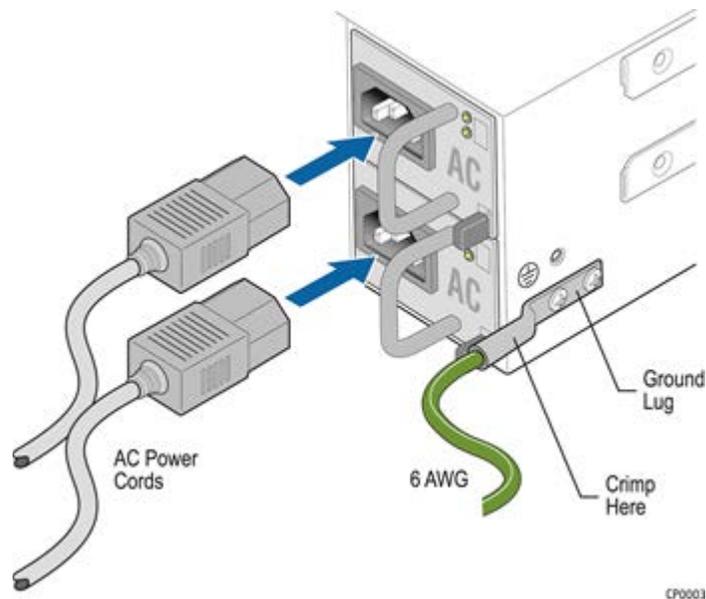
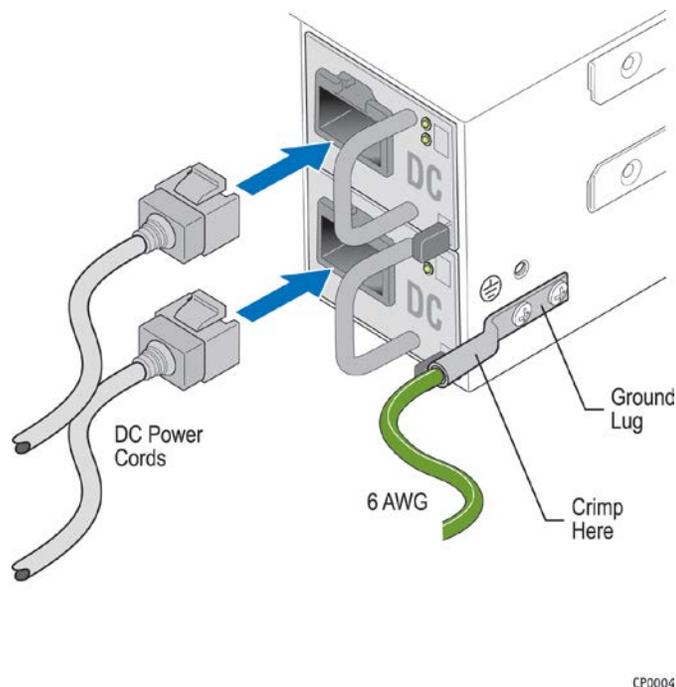


Figure 4: Connecting the DC Power Cord and Grounding Cable

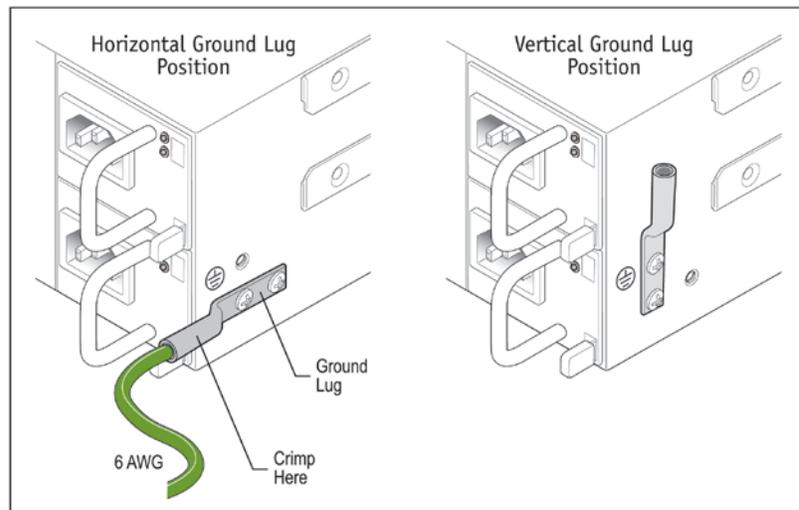


2.3 Connecting the Grounding Lug

In addition to plugging in the power cord, the grounding lug on the chassis' lower right side (viewed from the rear) must be used with DC power supplies (optional for AC power) and connected to earth ground for proper safety grounding of the chassis enclosure.

The grounding lug can be positioned horizontally (parallel with the chassis' side) or vertically (pointing toward the top-cover of the chassis). Both possibilities are shown below.

Figure 5: Grounding Lug Positions

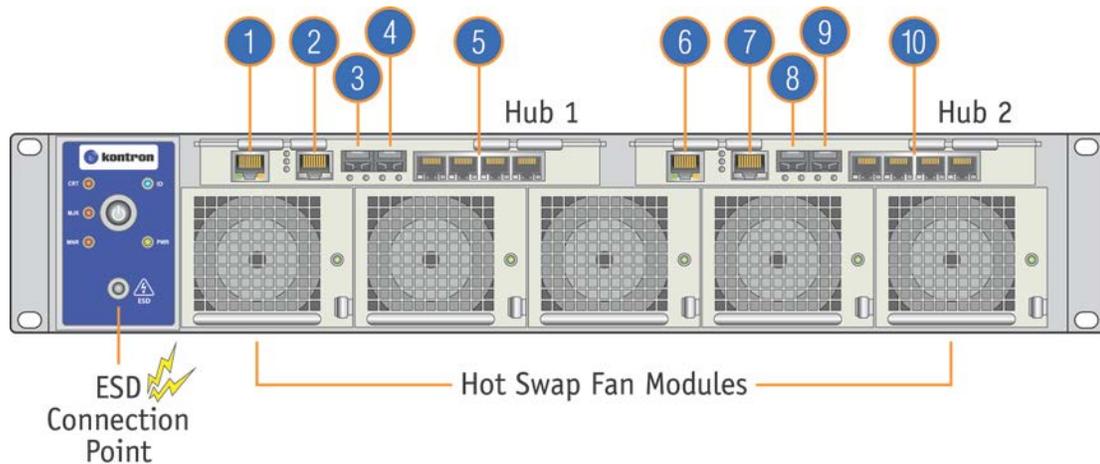


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2.4 Connecting I/O Cables

The MS2900 platform provides I/O connections from both the front and rear of the chassis. There are up to two 10GbE uplink ports, two 10GbE stacking uplink ports, and eight 1GbE RJ-45 LAN ports (four for each Hub Module, *front access only*) in the system. For each hub there is also front panel access for an RJ-45 console port and a management RJ-45 port.

Figure 6: MS2900 Front I/O Connections



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I/O Port	Description
1	Management 1GbE RJ-45 port (Switch/ShMC 1) (Marked "MNGT" on the Hub 1 faceplate)
2	Console RJ-45 port (Switch/ShMC 1)
3	10GbE SFP+ stacking port (Switch/ShMC 1) (Marked "1" on the Hub 1 faceplate)
4	10GbE SFP+ uplink port (Switch/ShMC 1) (Marked "2" on the Hub 1 faceplate)
5	Quad 1GbE RJ-45 ports (Switch/ShMC 1) (Marked "3", "4", "5" and "6" on the Hub 1 faceplate)
6	Management 1GbE RJ-45 port (Switch/ShMC 2) (Marked "MNGT" on the Hub 2 faceplate)
7	Console RJ-45 port (Switch/ShMC 2)
8	10GbE SFP+ stacking port (Switch/ShMC 2) (Marked "1" on the Hub 2 faceplate)
9	10GbE SFP+ uplink port (Switch/ShMC 2) (Marked "2" on the Hub 2 faceplate)
10	Quad 1GbE RJ-45 ports (Switch/ShMC 2) (Marked "3", "4", "5" and "6" on the Hub 2 faceplate)

For information about port mapping for the 10GbE and 1GbE connections, see Figure 11 in the "Configuring Switches subsection under Section 4.1.1.

The MS2900 platform ships with an RJ-45 to DB-9 adapter (shown below) included in the box. Use this adapter with a straight RJ45 cable connected to the console port on the front of the Active Hub Module's faceplate (see callouts 2 and 7 in Figure 6). The Active Hub can be identified by the solid-green status LED on its faceplate (the Standby Hub's status LED will blink).

Figure 7: RJ-45 to DB-9 Console Adapter

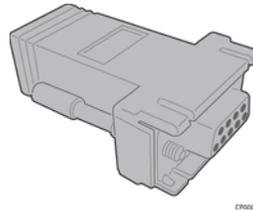
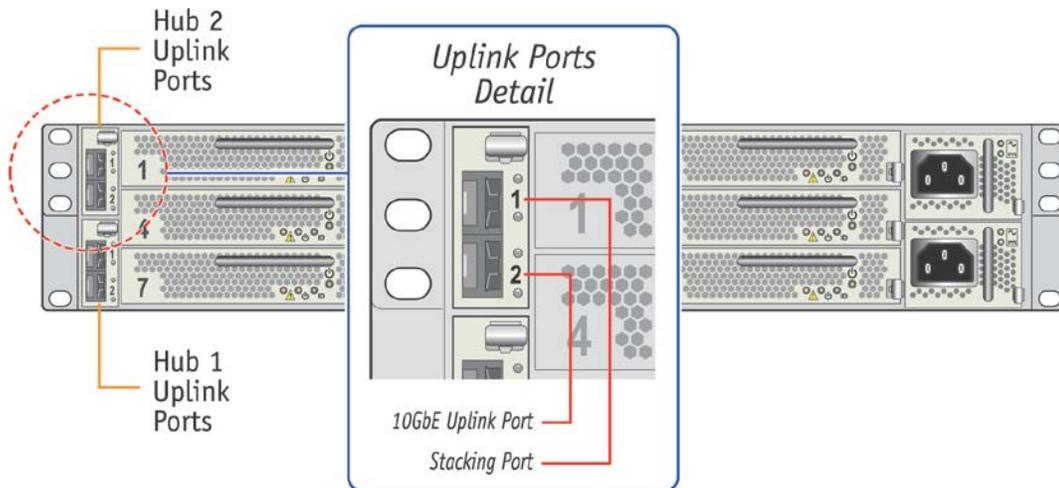


Figure 8 shows the location of the two 10GbE uplink ports and two 10GbE stacking ports (one of each per switch/ShMC hub), when the optional MSU8700 Rear uplink modules are used.

Figure 8: MS2900 Rear I/O Connections



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3 First Power-Up

This chapter covers what to expect when booting up the system for the first time. Both normal and unexpected conditions are described and troubleshooting tips are provided.

At initial power up, pressing the power button is not necessary: simply connect the power cord(s).

Once the system is on, pressing the power button triggers a clean shutdown or standby event on any active nodes. The inactive shelf manager can also go to standby state or off. Holding the power button for four seconds immediately offlines all nodes.

Using the System Monitor is the fastest way to bring up the system, including configuration of the network and nodes. For information about connecting to the System Monitor for the first time, see section 5: "Getting started with System Monitor".

For information about using other access methods, see the *SYMKLOUD MS2900 Platform User's Guide*.

3.1 Normal Behavior

The normal behavior after initial power up is defined as follows:

1. As soon as power is applied to the unit, the fans begin turning at full speed.
2. Each processor nodes will have their ID LED 'ON' (solid-blue) at the rear of the chassis
3. The front panel chassis ID LED will also be 'ON' (solid-blue).
4. After a few seconds, the hub(s) start booting up:
 - Hub 1 (left side): power LED goes 'ON' (green) to indicate the active ShMC.
 - Hub 2 (right side - if installed): power LED blinks green to indicate the standby ShMC.
5. The fan manager on the ShMC takes control of the fans, slowing their speed.
6. The processor nodes start booting up:
 - Each node's ID LED changes from 'ON' (solid-blue) to 'OFF', indicating the node payload has been powered-on.
 - The power LED goes from 'OFF' to 'ON' (green), indicating the payload power is active.
7. Other platform components finish booting up and the switches, shelf managers, and processor nodes can now be interacted with.

3.2 Unexpected Behavior (Troubleshooting)

The following conditions, while unlikely, could possibly occur:

- » A processor node ID LED remains 'ON' (solid-blue).
- » A hub ID LED remains 'ON' (solid-blue).
- » A fan LED is on (amber), indicating a fan fault.
- » Fans speed up to the maximum level and stay there; The fan manager on the ShMC does not slow them down.

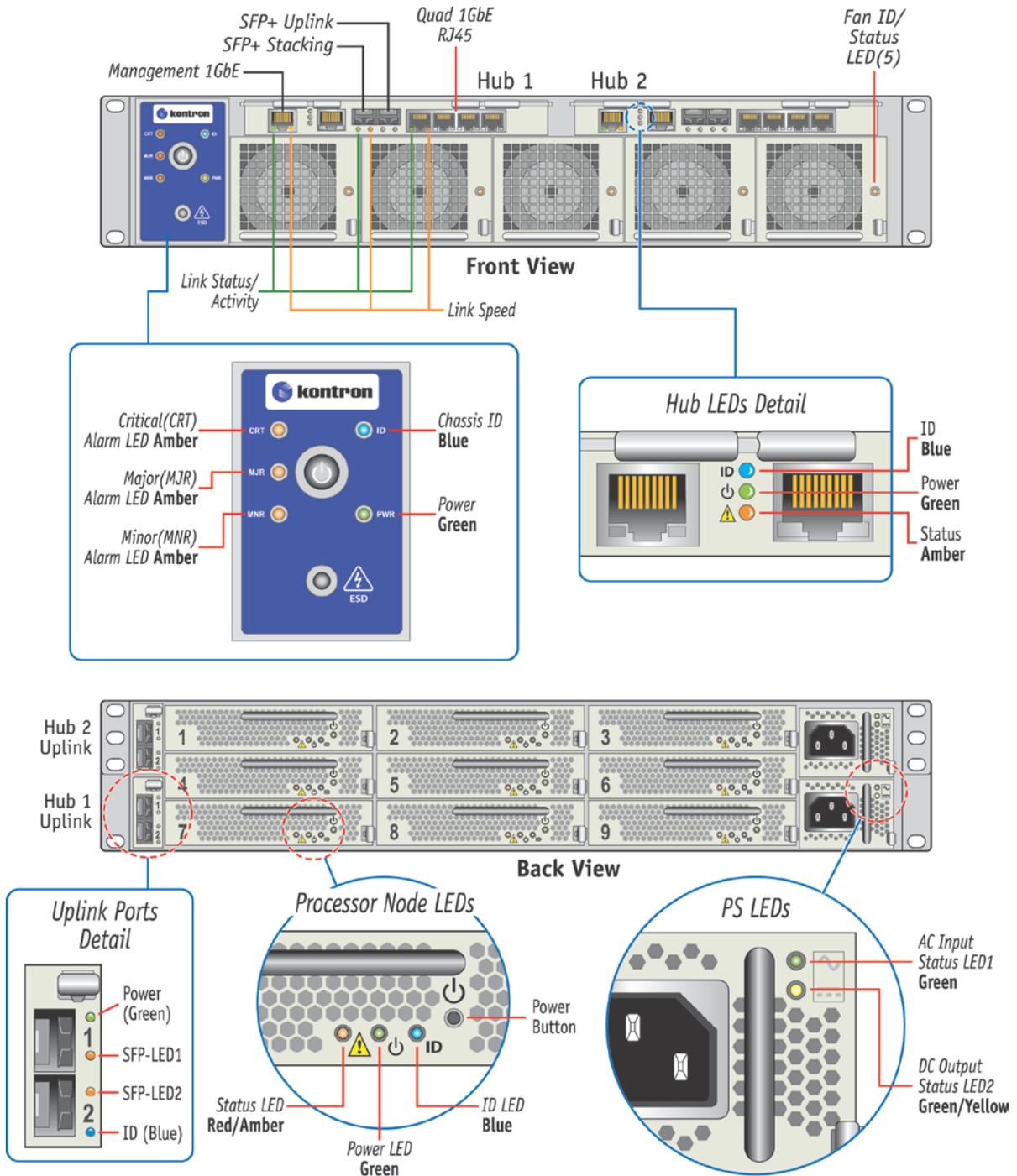
The manufacturing site checks for the presence of these conditions when the unit is built and ensures they are not occurring when the MS2900 platform is prepared for shipment. If any of these problems or other unexpected conditions are encountered, contact Kontron Support for assistance to diagnose/resolve the issue and continue working with the system.

NOTE: If a power failure occurs, the system automatically reboots when power is restored and goes through the normal steps as described in Section 3.1.

3.3 Health and Status Indicators

This section covers all of the LEDs on the MS2900 platform, present on the following components: the hubs' faceplates, the front panel, rear uplink modules, the node sleds, and the power supplies. Figure 9 shows the LED locations in detail.

Figure 9: MS2900 Front and Rear LEDs



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4 Basic Configuration

This chapter covers the following topics:

- » Configuring the system network
- » Configuring the system nodes

There are a few different ways to do the basic system configuration. The subsections in this chapter cover the various methods.

Tasks/topics the System Monitor covers are:

- » Checking system status
- » Upgrading software

Once logged in, the System Monitor presents a system inventory page with all node configuration information. For more information about System Monitor's features, refer to the "SYMKLOUD System Monitor User's Guide".

4.1 Configuring the System Network

The MS2900 platform must be configured for the specific network environment targeted. There are two different ways to access the system components and tailor the networking configuration:

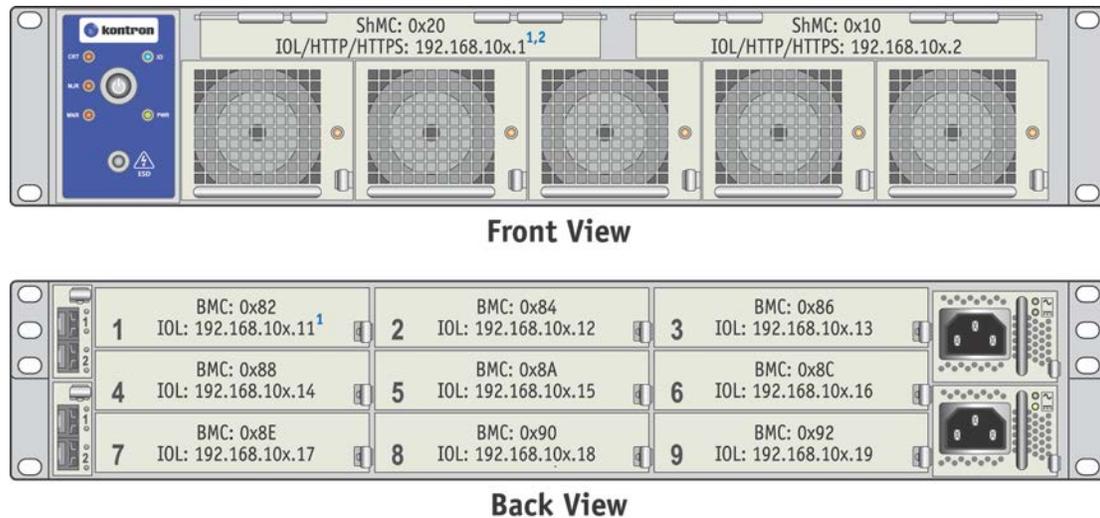
- » Using management networking, as shown in Section 4.1.1
- » Using the serial console, as shown in Section 4.1.2

4.1.1 Using Management Networking

Each device on the MS2900 platform comes pre-configured with a management IP address. The System Monitor displays a list of each device including its management IP address. For help accessing the System Monitor, see section 5: “Getting started with System Monitor” For more information about the System Monitor’s features, refer directly to the “SYMKLOUD System Monitor User’s Guide”.

Figure 10 shows the default IP addresses for the Hub Module and the processor nodes.

Figure 10: Management IP Addresses



¹ 'x' in the IOL/HTTP/HTTPS IP addresses is replaced by the chassis ID (1-8) when in a stacking configuration. Default is '1'.

² Master Switch Management IP (HTTP/Telnet): 192.168.10x.10

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To configure the MS2900 system, the external equipment (e.g., a laptop) should be configured to use the same subnet as the MS2900 platform, and be connected via the RJ-45 management port (leftmost, marked “MNGT” on the hub faceplate) on the active hub; This is a 10/100/1000 Mbit connection.

Configuring Processor Nodes

Connect to the nodes via the serial connection (see Section 4.1.2), SSH, or initiate a KVM session from the System Monitor to access their serial console interface (shell).

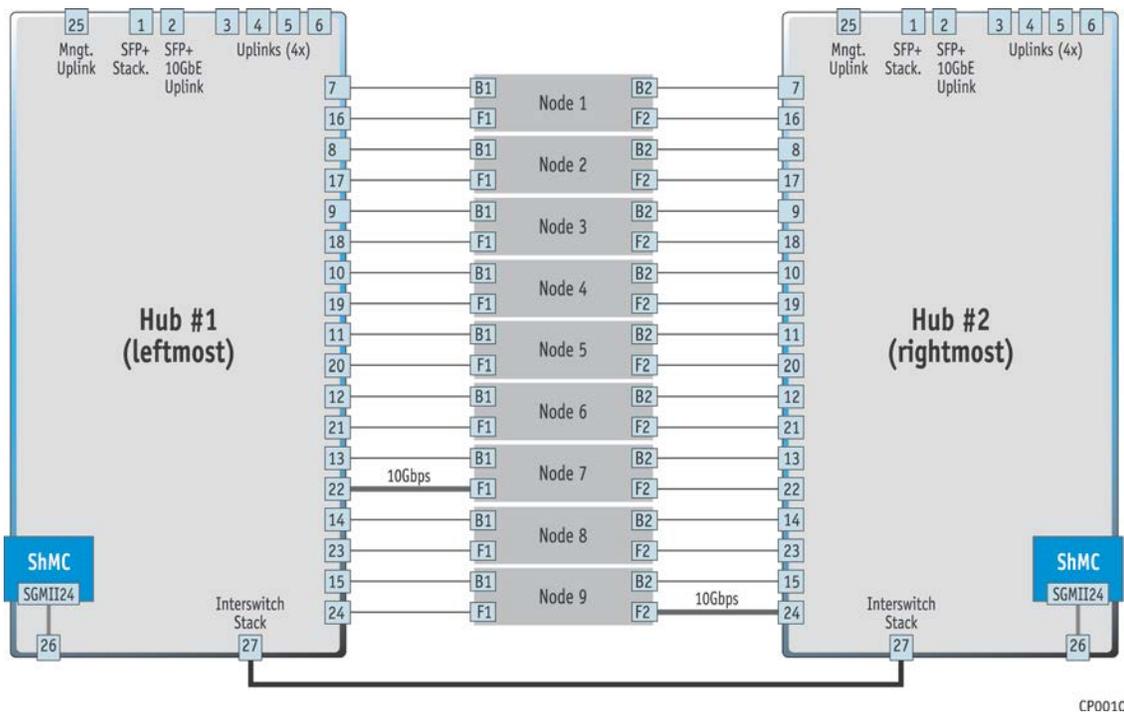
Once the processor nodes are configured, configure the fabric GbE interfaces to meet any specific needs.

Configuring Switches

Type in the pre-configured master switch IP address 192.168.10x.10 (Figure 10, footnote 2) in the external equipment's web browser to access the switches' SMBStaX™ GUI.

Figure 11 shows the port mapping for the switch.

Figure 11: Hub and Processor Node Port Mapping



On both Hub #1 and Hub #2, port 2 (labeled "2" on each hub's faceplate) is the 10GbE uplink port. These ports are identified in the iCLI as 1/2 and 2/2, respectively.

On both Hub #1 and Hub #2, port 1 (labeled "1" on the hubs' faceplate) is for stacking multiple SYMKLOUD MS2900 systems. These ports are identified in the iCLI as 1/1 and 2/1, respectively. They are not shown in certain views of the SMBStaX™ GUI when stacking is enabled.

If the MS2900 system is equipped with the optional MSU8700 rear uplink modules:

- Stacking is performed using port 1 of each uplink module (marked on the faceplate), which is routed to switch port #1.
- A 10GbE uplink port is available on port 2 of each uplink module (marked on the faceplate) and routed to switch port #2.

NOTE: In the SMBStaX™ GUI, ports #1 and #27 are not visible in the default configuration since they are used for stacking.

Chassis slots 7 and 9 have 10GbE pipes to support up to two 10G processor nodes:

- Hub 1, port #22 (node 7 fabric 1)
- Hub 2, port #24 (node 9 fabric 2)

All other ports are 1GbE.

4.1.2 Using the Serial Console

The MS2900 platform's components can be accessed using the MSH8900 serial console multiplexer (MUX) as follows:

1. Connect an RJ45 serial cable **to the Active Hub's** (with the solid-green status LED) serial console port (on the front of the MSH8900 - see "2" in Figure 6), or use the RJ-45 to DB-9 adapter included and any straight RJ45 cable (Cat5 or better).
2. Run a VT100 terminal emulator with the following serial port communication parameters:
 - 115200 baud
 - no parity
 - 8 data bits
3. To switch the serial console between different **system components** (Hubs/Nodes), press **CTRL+g** followed by the position ID of the component to be connected:
 - 0**: Shelf manager (ShMC) of the connected Hub Module*
 - 1 to 9**: processor node 1 through node 9**
 - (minus): **CLI** of the switch of the connected Hub Module*

For example, to direct the serial console to processor node 7, press CTRL g and then press 7.
4. To switch the serial console between different **components on a Node** (BMC/CPU), hold **CTRL** and press **g, g** (abbreviated **CTRL+g,g**), followed by the component ID:
 - 0**: Node BMC's 'ipmitool>' shell
 - 1**: Payload CPU 1
 - 2**: Payload CPU 2 (for Dual-CPU nodes only)

* These options (0-9, -) will always connect to the physical ShMC/Switch of the serial-connected Hub Module, regardless of role (ShMC: Active/Standby or Switch: Master/Slave). Available functionality is limited from the Standby ShMC and Slave Switch(es) in a chassis/stack.

** Node-serial access is only possible when physically connected to the Active Hub Module

Configuring Shelf Management Controllers (ShMCs)

Note: This is the same interface/IP used to access the System Monitor (web interface)

To connect the serial console MUX to a ShMC, follow these steps:

1. Press **CTRL g** and then press **0** to switch the console to the ShMC
2. Log in with user `admin` and password: `admin`
3. In root mode, use `admin` again for the password

The `ipmitool>` prompt should be displayed.

To instruct the BMC to obtain an IP address from an existing DHCP server, type:

```
lan set 1 ipsrc dhcp
```

or to use a static IP address, type the following commands:

1. `lan set 1 ipsrc static`
2. `lan set 1 ipaddr 192.168.100.X`
3. `lan set 1 defgw ipaddr 192.168.100.X`
4. `lan set 1 netmask 255.255.255.X`

Configuring a Processor Node's BMC from the ShMC

1. Switch the serial console MUX to address the target Processor node, by pressing **CTRL g** followed by the Node's slot number.
2. Press **CTRL g,g** followed by **0** to access the BMC's ipmitool> shell

To instruct the BMC to obtain an IP address from an existing DHCP server, type:

```
lan set 1 ipsrc dhcp
```

or to use a static IP address, type the following commands:

5. lan set 1 ipsrc static
6. lan set 1 ipaddr 192.168.100.X
7. lan set 1 defgw ipaddr 192.168.100.X
8. lan set 1 netmask 255.255.255.X

Configuring the interface IP of the switches

By default, the switch configuration web interface (SMBStaX) can be accessed via the MNGT Ethernet port at address 192.168.10x.10, where "x" is the chassis ID. The "chassis ID" is always '1', unless the switch is configured for stacking with one or more chassis.

Follow the steps below to change the SMBStaX web interface IP:

1. Change the serial console MUX to address the switch (from the Master switch):
 - a. Press **CTRL g** and then press - (minus)
2. Login with user: admin and password: admin
 - a. If presented with a 'Slave_x#' prompt, you are connected to the switch with the 'Slave' role.
Connect your serial console cable to the serial port on the opposite Hub Module
3. Enter the configuration terminal by typing: `configure terminal`
4. Configure the interface IP address:
 - a. Type: `interface vlan 4093`
 - b. Set an IP address via:
 - i. DHCP, type: `ip address dhcp`
 - or**
 - ii. static, type: `ip address dhcp 192.168.10x.X 255.255.255.x`
 - c. Type: `end`
5. To read the IP address obtained the DHCP server type: `show interface vlan 4093`

5 Getting started with System Monitor

Each SYMKLOUD hub runs an instance of the System Monitor web application; it is recommended to use the latest version of Chrome to connect to the application.

To access the System Monitor from a web browser, enter the management IP (or shared IP, if configured) of the "Active" Shelf Manager in the browser's address bar. See section 4.1.1: "Using Management Networking" for the default address (IOL IP address) of the Active ShMC.

It is also strongly recommended to configure and to connect to the "Shared IP" feature as described in the "SYMKLOUD System Monitor Programmer's Guide". The shared IP will always give access to the "Active" Shelf Manager.

NOTE: The application refreshes the information shown on its pages every 5 seconds. Because of this, any change to a state or value of a physical component of the current platform can take up to 5 seconds before being reflected in the web application (e.g.: fan speeds, hotswap status, alarms or power consumption values).

5.1 Login

The System Monitor provides role-based user access for its API and web application. Upon first login, use the following default credentials to access the application:

Username : admin
Password: admin

Figure 12: System Monitor Login Page

The screenshot shows the login interface of the SYMKLOUD System Monitor. At the top, there is a blue navigation bar containing a hamburger menu icon, the Kontron logo, and the SYMKLOUD SYSTEM MONITOR logo. Below this bar, the main content area is white. A 'Connect' form is centered on the page, featuring two input fields: 'Username' and 'Password'. To the right of the 'Password' field is a dark button labeled 'LOGIN >'. Below the form, there is a solid blue horizontal bar.

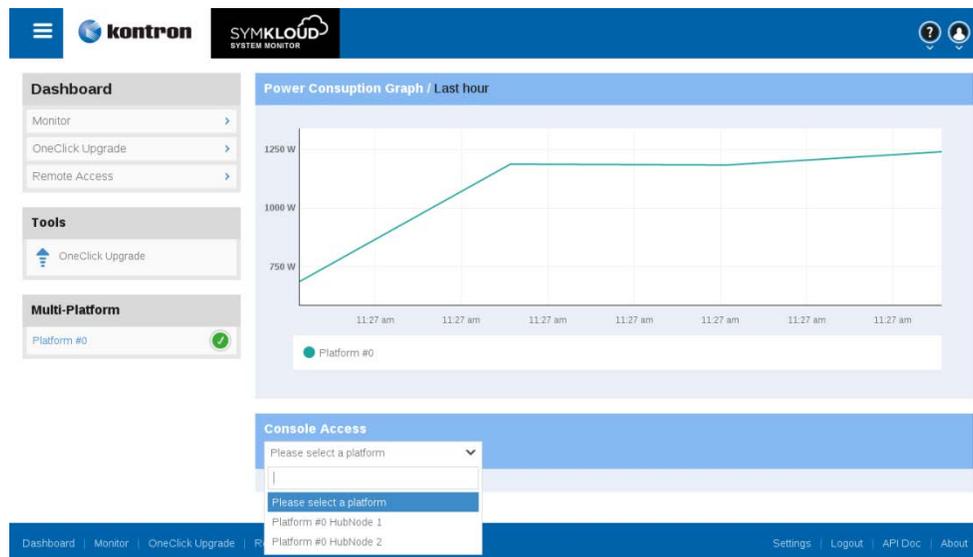
NOTE: You should change the admin password at the first login. Refer to the "System Monitor User's Guide" for details on how to modify the admin password. Once logged in, you can modify your password and perform other management tasks.

5.2 System Monitor dashboard

At login, you will be redirected to the "Dashboard" page, which provides (among others):

- » links to the main sections of the application (System Monitoring, OneClick Upgrade, Remote Access, etc.)
- » a graph of your platform(s)' power consumption
- » a drop-down menu to access the CLI of your hubs/nodes

Figure 13: System Monitor Main Page



5.3 Other System Monitor features

The System Monitor includes many other features for managing the SYMKLOUD appliance, including (but not limited to):

- » Platform inventory (for the single system, or all systems in a Multi-Platform setup)
- » Physical layout of hubs and nodes
- » Power-control and monitoring of hubs and nodes
- » Detailed firmware versions
- » "One-click Upgrade" tool for applying new firmware to platform elements
- » Remote access to payloads
- » Fan speed monitoring and more

Refer to the "SYMKLOUD System Monitor User's Guide" for additional explanations and details on features.

5.4 API Features

The SYMKLOUD System Monitor is built using a RestFul API running on the Shelf Manager. All of the data and actions provided by the web interface are provided by this API. This allows you to create scripts to interact with an individual platform or, in some cases, a cluster of platforms. Refer to the "SYMKLOUD System Monitor API Programmer's Guide" for additional details.

6 Running an Operating System

The SYMKLOUD MS2900 platform can be shipped with or without a pre-installed operating system.

If the system was ordered with a pre-installed OS on the processor nodes, supplementary instructions and information to this Guide will have been included.

If the system was ordered without a pre-installed OS on the processor nodes, a supported OS will need to be installed now.

Accessing Processor Nodes

The system payload varies depending on the application. Examples using generic access points and OS installation tips are presented below:

For MSP8xxx processor nodes, use the serial port, IOL or a KVM/VM session to access the node OS.

6.1 First Boot-Up

If an operating system was pre-installed on the MS2900 platform, the processing nodes' OS (if factory-installed by Kontron) will have booted up as part of the power-up process.

6.2 BIOS Configuration

The BIOS configuration described below refers to x86 nodes and is Unified Extensible Firmware Interface (UEFI) compatible.

To access the BIOS Menu:

1. Power on or reboot the node or system.
2. During POST (first output on the serial console), press the <F2> or key to enter the BIOS setup

The Setup default values are the optimum performance settings for all devices and system features; it is possible to change some of the settings, namely the device boot order, as needed.

Refer to your Processor nodes' User's Guides for more details on default boot-order, etc.

7 Additional Resources

This chapter provides information about where additional SYMKLOUD MS2900 Platform product information can be found and how to contact Kontron technical support.

7.1 MS2900 Platform Documentation

For more detailed information about this platform, see all the most recently published documents on the Kontron portal at <http://cbu.kontron.ca/>. In addition to manuals and marketing literature, other documentation may be included, such as Product Change Notifications (PCNs, which are published in case of system changes after the release date).

7.2 Contact Information

7.2.1 Technical Support

Technicians and engineers from Kontron and/or its subsidiaries are available for technical support. We are committed to making our product easy to use and will facilitate use and integration of our products.

Consult our website at <http://www.kontron.com/services/post-sales-support/contact-support> for the latest product documentation, utilities, drivers and support contacts. Please contact your board supplier for technical support.

8 Trademarks and Copyright

8.1 Copyright Notice

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8.2 Quality Standards

Kontron is certified to ISO 9000 Quality Standards.

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