



# SYMKLOUD System Monitor v3.0

Doc. Rev. 1.0

 SYMKLOUD SYSTEM MONITOR V3.0 – USER GUIDE

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## Revision History

Revision	Brief Description of Changes	Date of Issue
1.0	SYSTEM MONITOR V3.0 initial release	September 2016

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## List of Acronyms

<b>API</b>	Application Programming Interface
<b>BMC</b>	Base Management Controller
<b>CLI</b>	Command-Line Interface
<b>IOL</b>	IPMI-Over-LAN
<b>IPMI</b>	Intelligent Platform Management Interface
<b>HubNode</b>	A switching and platform management node
<b>KVM</b>	Keyboard Video Mouse
<b>SEL</b>	System Event Log
<b>ShMC</b>	Shelf Management Controller
<b>SOL</b>	Serial Over LAN


# 1/ About this manual

This document describes current features of the System Monitor web application. It provides a complete description and usage of this web application.

## 1.1. About System Monitor

The SYMKLOUD Shelf Manager host a monitoring, management and maintenance application called System Manager. The functions of the System Manager are available through an API or a web interface. The System Monitor is the web interface also hosted by the Shelf Manager. It provides a graphical representation of the features given by System Manager's API. This manual explains how to use the System Monitor web application.

Refer to the System Manager Programmer's Guide for more information on the API.

## 1.2. About the SYMKLOUD platform

The Kontron SYMKLOUD Series are massively scalable SDN/NFV-enabled converged modular platforms for carrier, cable, and cloud infrastructure deployments. Achieve highly efficient application workloads for Video/Content Delivery, Big Data/IoT, Mobile/Telco, and Cloud/Hosting services. It has the following characteristics:

- ▶ Designed from the ground up to integrate switching, load balancing and processing in a 3-in-1 modular approach
- ▶ Power efficiency for significant OPEX savings
- ▶ Simplified One-Click updates
- ▶ Seamless clustering and rack scalability
- ▶ Designed for cloud service providers and next-generation data centers

The SYMKLOUD platform is composed of two HubNodes to provide hardware redundancy. In this model, one HubNode is "Active" and the other is "Standby" with role switchover if a problem occurs on the "Active" Shelf Manager.

## 2/ Getting started with the System Monitor

### 2.1. Connecting to the application

Each SYMKLOUD's HubNode runs an instance of the web application. To connect to the application, it is recommended to use the latest version of Chrome. It is also strongly recommended to configure and to connect to the "Shared IP" feature as described in the System Manager Programmer's Guide. The "Shared IP" will always give access to the "Active" Shelf Manager.

The application refreshes its information every 5 seconds. Because of this, any change to a state or value of a physical component of the actual 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).

Enter the management IP (or "Shared IP", if configured) of the "Active" Shelf Manager in the browser address bar to open the System Monitor in your favorite browser. Connecting to the IP address of the "Standby" Shelf Manager will display a message that the application can be used only on the "Active" Shelf Manager. This message will provide a direct link to the "Active" Shelf Manager.

### 2.2. Login

The System Manager provides role-based user access for its API. The web application uses the same credentials to manage its access. At first login, use the following default credentials to access the application:

- ▶ Username : admin
- ▶ Password: admin

---

**NOTICE**

The admin password must be changed at first login. Refer to 11.2 Admin view for how to modify the admin password.

---

Once logged in, users can modify their password. Any user with the "Admin" role can access the "General Settings" page "User Management" section to create, delete or modify users for the platform. The API uses the same access credentials as the web interface.

## 3/ System Monitor dashboard

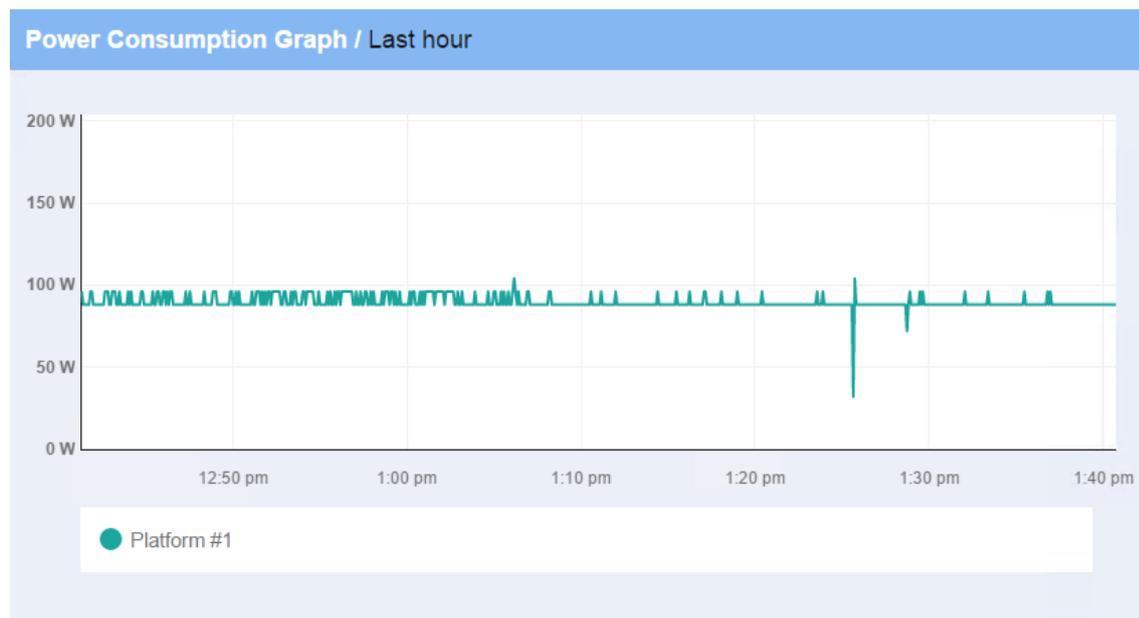
After login, the "Dashboard" page will be displayed, which provides:

- ▶ links to the main sections of the application
- ▶ a graph of the power consumption of the platform(s) in the last hour
- ▶ access to the CLI of the HubNodes

### 3.1. Power consumption graph

The graph data is gathered and displayed in the browser as soon as a user logs in. This data is only kept in the browser session. Logging out will remove all accumulated data from memory.

Figure 1: Power consumption graph



### 3.2. Console Access

Use the "Console Access" drop-down box to select a HubNode to connect to using the web console. Once a HubNode is selected, the frame below the selection box will connect to the HubNode via the remote web shell and a login-prompt will be displayed. There are two possible users available for login, and each will present a different CLI. Refer to Chapter 6/ WEB CLI for more details on the login options.

#### **NOTICE**

The WEB CLI can also be used to access this interface in a dedicated window, without logging into the WebUI. Refer to Chapter 6/ WEB CLI for more details.

Figure 2: Console Access drop-down box

The screenshot displays the SYMKLOUD System Monitor interface. At the top, there is a navigation bar with the Kontron logo, the SYMKLOUD SYSTEM MONITOR title, and user icons. The main content area is divided into several sections:

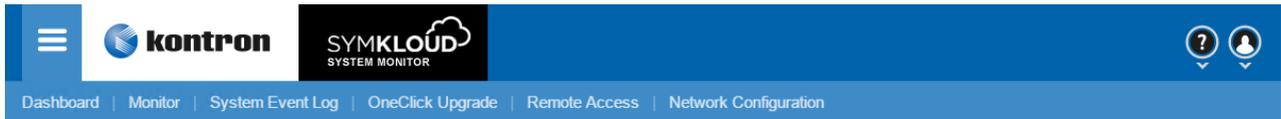
- Dashboard:** A sidebar menu with options: Monitor, System Event Log, OneClick Upgrade, Remote Access, and Network Configuration.
- Tools:** A section containing the OneClick Upgrade tool.
- Multi-Platform:** A section showing 'Platform #1' with a green checkmark icon.
- Power Consumption Graph / Last hour:** A line graph showing power consumption in Watts (W) over time. The y-axis ranges from 0 W to 200 W, and the x-axis shows time from 12:50 pm to 1:40 pm. The graph shows a fluctuating power consumption around 100 W, with a notable spike to approximately 110 W at 1:28 pm.
- Console Access:** A dropdown menu is open, showing the text 'Please select a platform' and a list of options: 'Platform #1 HubNode 1' and 'Platform #1 HubNode 2'.

## 4/ About the menus

### Features

The top of the System Monitor application contains a "Hamburger Menu" that provides quick access to the application's main features. This menu is available on all pages.

Figure 3: Features



### Help

The Help menu provides a link to API documentation and a link to the version information of both the web application and the application running on the HubNode. The API documentation will open in another tab. "About" will load a pop-up box with version information.

Figure 4: Help menu



### Profile

The Profile menu provides "Settings" and "Logout" options. For more information about settings, refer to 11/ Settings.

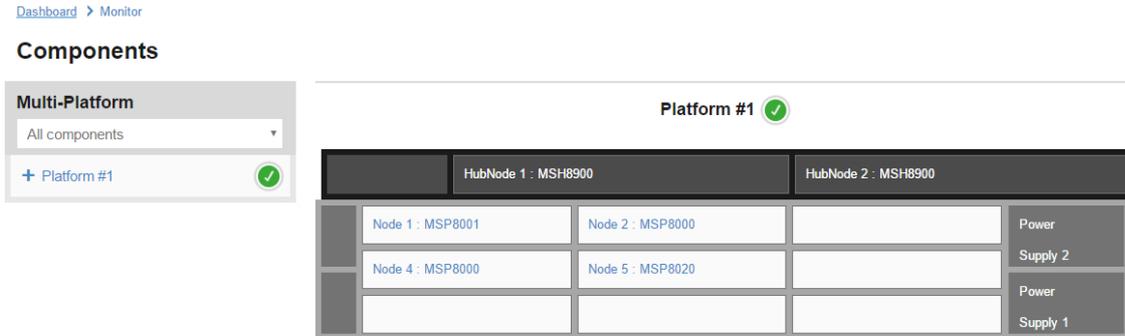
Figure 5: Profile menu



## 5/ Monitor

Monitor view provides a physical representation of the platform and a list of its components. The darker portion of the visual shows the front of the SYMKLOUD, which houses the two HubNodes. The lighter portion of the visual shows the back of the SYMKLOUD, where the nodes, PSUs and (optional) uplink modules are found. Clicking on a component or sub-component name on the platform's visual representation or on the component list will open its detailed component view.

Figure 6: Monitor view



### Component list

The left side of this section provides an expandable list of all the components contained in each platform. Use the filter at the top of the list so that only specific items can be seen, either by "Hardware Type" or by "Model."

Figure 7: Component list filter

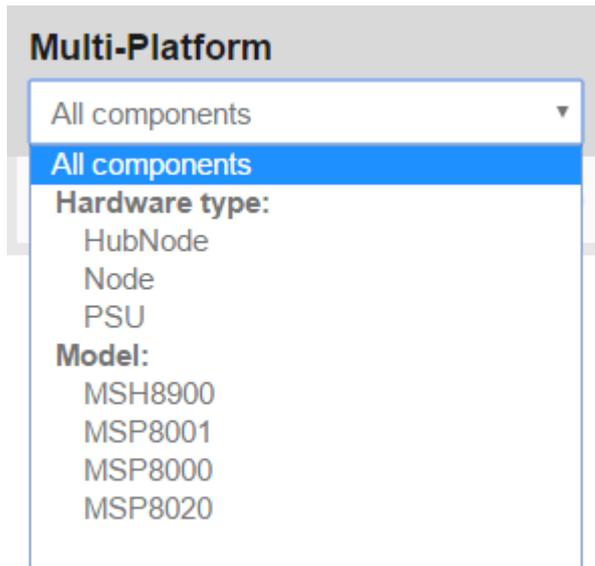
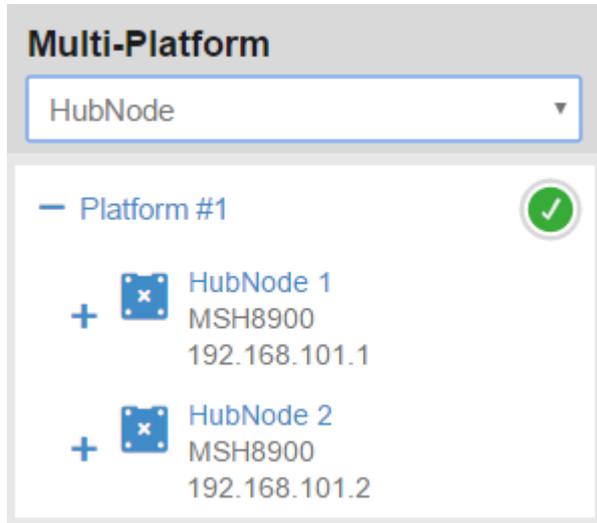


Figure 8: Component list filtered by hardware type

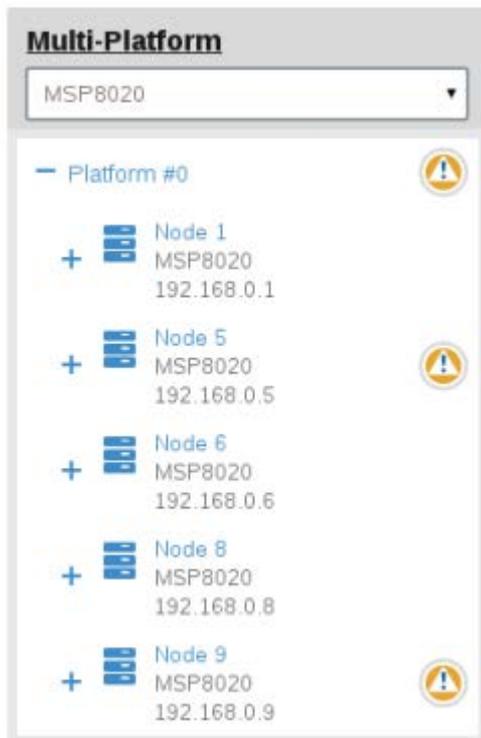


### Alarm indication

A green circle with a white check next to a platform (see above) indicates no alarm.

A yellow warning symbol next to a component and a platform indicates an alarm is detected. The severity of the alarm is not indicated in the web application, but can be obtained with the "Platform System Information" file (Refer to 5.1.16 Tools).

Figure 9: Component and platform level warnings



### 5.1. Detailed component view

The detailed component view displays sections available for each component type. The following describes all the sections available and specifies for which components they are available.

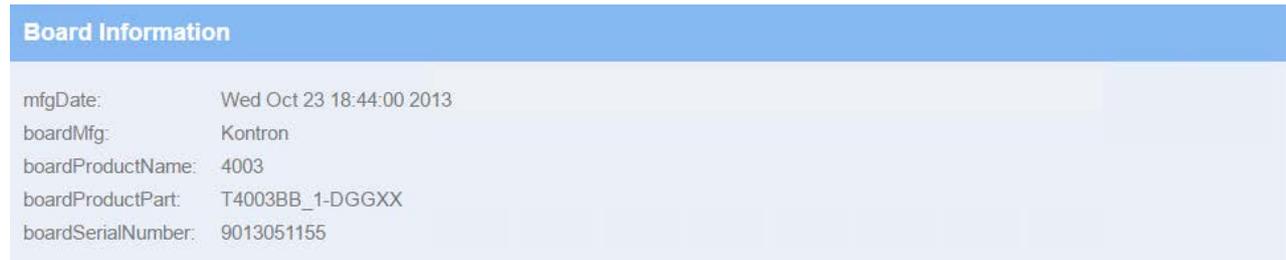
### 5.1.1. Board information

This section is present for:

- ▶ HubNode information
- ▶ Node information

The board information section displays detailed information, such as product part number and serial number.

Figure 10: Board information



### 5.1.2. Fan speeds

This section is present for:

- ▶ Platform information

The fan speeds section displays animated radial gauges that indicate the speed of each platform fan.

Figure 11: Fans speeds



### 5.1.3. General information

This section is present for:

- ▶ Platform information
- ▶ HubNode information
- ▶ Node information
- ▶ Switch details
- ▶ Server details
- ▶ PSU details

For platform information:

Figure 12: General information

**General Information**

Name: Platform #1  
 Platform Number: 1  
 Health: 

Parameter	Description
Name	Composed with the "Platform Number".
Platform number	The stacking number associated with the platform.
Health	If a platform component has an alarm, it will display a warning symbol  .

For all other components:

Figure 13: General information

**General Information**

Name: HubNode 2  
 API Node number: 11  
 Model: MSH8900  
 Board Status: Active, M4  
 Management IP: 192.168.101.2  
 Health:   
 HA Status: Standby

Parameter	Description
Name	<p>A unique name for the component in the platform.</p> <p>This parameter applies to:</p> <ul style="list-style-type: none"> <li>▶ HubNode information</li> <li>▶ Node information</li> <li>▶ Switch details</li> <li>▶ Servers details</li> </ul> <p>PSU details: This is the type name only since this interface contains information for both PSUs.</p>
API Node number	<p>Used in API calls to target this node. (HubNodes are node resources in the API).</p> <p>This parameter applies to:</p> <ul style="list-style-type: none"> <li>▶ HubNode information</li> <li>▶ Node information</li> </ul>
Model	The name of the board model.

Parameter	Description
	<p>This parameter only applies to:</p> <ul style="list-style-type: none"> <li>▶ HubNode information</li> <li>▶ Node information</li> </ul>
Board status	<p>Hotswap status of the board (one of the following):</p> <ul style="list-style-type: none"> <li>▶ Inactive, M1: The board is powered OFF</li> <li>▶ Activating, M2: Activation request sent</li> <li>▶ Activating, M3: Activation in progress</li> <li>▶ Active, M4: The board is powered ON</li> <li>▶ Deactivating, M5: Deactivation request sent</li> <li>▶ Deactivating, M6: Deactivation in progress</li> <li>▶ Communication lost, M7: The shelf manager cannot communicate with the board</li> </ul> <p>This parameter only applies to:</p> <ul style="list-style-type: none"> <li>▶ HubNode information</li> <li>▶ Node information</li> <li>▶ Switch details</li> <li>▶ Servers details</li> </ul>
Management IP	<p>IP Address of the management interface of this component (used for IPMI Over LAN (IOL))</p> <p>This parameter only applies to:</p> <ul style="list-style-type: none"> <li>▶ HubNode information</li> <li>▶ Node information</li> </ul>
Health	<p>Green if there are no alarms or yellow if there are alarms. The details of the sensors can be found in the Platform System Information file (Refer to 5.1.16 Tools).</p> <p>In addition to platform information, this parameter applies to:</p> <ul style="list-style-type: none"> <li>▶ HubNode information</li> <li>▶ Node information</li> </ul>
HA status	<p>HubNodes run in active/standby mode for redundant high availability. This field indicates if the current HubNode is active or standby.</p> <p>This parameter only applies to HubNode information.</p>

### 5.1.4. Network interfaces

This section is present for:

- ▶ Switch details
- ▶ Server details

This allows the user to manually store an IP address associated with this sub-component. Once associated, clicking on the "Configuration Page" button will open another browser tab to the corresponding IP address.

### 5.1.5. Platform graphical representation

This section is present for all components.

Figure 14: Platform graphical representation



This is the graphical representation of the platform. The black background offset section on the top represents the front of a SYMKLOUD where the two HubNodes are located. The rectangle at the bottom with the gray background represents the back of a SYMKLOUD where the nodes and the PSUs are located. As shown in the example above, each HubNode and node component also displays its model next to its name, showing the location of each type of node. Name and model information is also a link to the detailed view of that specific component.

A yellow warning symbol next to a component indicates that an alarm is detected.

When in a component or sub-component detail page, the platform representation displays a different background color for the physical location of the selected component or sub-component.

Figure 15: Platform graphical representation component page



### 5.1.6. Power commands

This section is present for:

- ▶ Node information
- ▶ Switch details
- ▶ Server details

Components	Available commands
Node information	At the node level, power commands will affect the board and sub-components. Available commands may change depending on board model.
Switch details	Only the "Reset" command is available for a switch.
Server details	"Activate", "Deactivate" and "Reset" commands are available for this model.

Figure 16: Power commands

**Power Commands**

Command will be executed on baseboard and all servers it contains

ACTIVATE
DEACTIVATE
RESET

### 5.1.7. Power consumption graph

This section is present for:

- ▶ PSU details

Each PSU has its own data plot on this graph. The values come from the same data as the dashboard graph and are lost when logging out.

### 5.1.8. Remote access

This section is present for:

- ▶ Server details

#### **NOTICE**

---

This section may not be present for all server models

---

A Java KVM/VM (keyboard video mouse/virtual media) is available on some board models. Clicking on the "Remote Access" button will open a new tab to launch Java applet for remote access to this board.

#### **NOTICE**

---

At the first launch, the Java version may require that the BMC IP be added to a security whitelist to allow execution of the Applet.

---

### 5.1.9. Remote access password

This section is present for:

- ▶ Server details

#### **NOTICE**

---

This section may not be present for all server models

---

Set the password for KVM access to this server. Requirements for the password are:

- ▶ Exactly 8 characters long
- ▶ At least 1 upper case letter
- ▶ At least 1 lower case letter
- ▶ At least 1 number
- ▶ At least 1 symbol

Saving alone will not apply the password to the remote server; the CPU/server must also be provisioned and remote access used at least once. Once provisioned, this password will be required to connect remotely to the server.

### 5.1.10. Reset peak/average

This section is present for:

- ▶ PSU details

Clicking on the "reset peak/average" button resets the values of the average and peak consumption data to zero.

### 5.1.11. Sensor values

This section is present for:

- ▶ PSU details

Figure 17: Sensor values

Power Supply 1		Power Supply 2	
Inlet Temperature:	22 °C	Inlet Temperature:	22 °C
Outlet Temperature:	28 °C	Outlet Temperature:	25 °C
Input Voltage:	118 Volts	Input Voltage:	118 Volts
Power Out:	32 Watts	Power Out:	56 Watts
Peak Consumption:	144 Watts	Peak Consumption:	88 Watts
Average Consumption:	55 Watts	Average Consumption:	77 Watts

This section displays the temperature and power consumption information for a given PSU. The following information will be displayed:

- ▶ Inlet temperature
- ▶ Outlet temperature
- ▶ Input voltage
- ▶ Power out
- ▶ Peak consumption
- ▶ Average consumption

Temperature, voltage and power out readings are instantaneous readings.

Peak and average consumption values are calculated and stored in the browser as long the user stays logged in. A maximum of one hour of data will be kept.

The peak and average consumption can be manually reset using the "Reset Peak/Average" button.

### 5.1.12. Servers

This section is present for:

- ▶ Node information

This section provides links to the detail pages of the individual servers. Depending on the model of the board, more than one server may be accessible on a node.

Figure 18: Servers

Servers	
<div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #ccc; margin-right: 5px;"></div> <div> <p>Server 1</p> <p>0.0.0.0</p> </div> </div>	<div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #ccc; margin-right: 5px;"></div> <div> <p>Server 2</p> <p>0.0.0.0</p> </div> </div>

### 5.1.13. Software versions

This section is present for:

- ▶ HubNode information
- ▶ Node information

Versions of the main board components: BMC, FPGA and BIOS.

Figure 19: Software versions

Software Versions	
BMC:	2.18.08FA45E0
FPGA:	2.12.00000000
BIOS:	2.14.00000000

### 5.1.14. Switch

This section is present for:

- ▶ HubNode information

Link to the page of the Switch sub-component:

Figure 20: Switch



### 5.1.15. Switch speed (HubNode model MSH8900)

This section is present for:

- ▶ Platform information

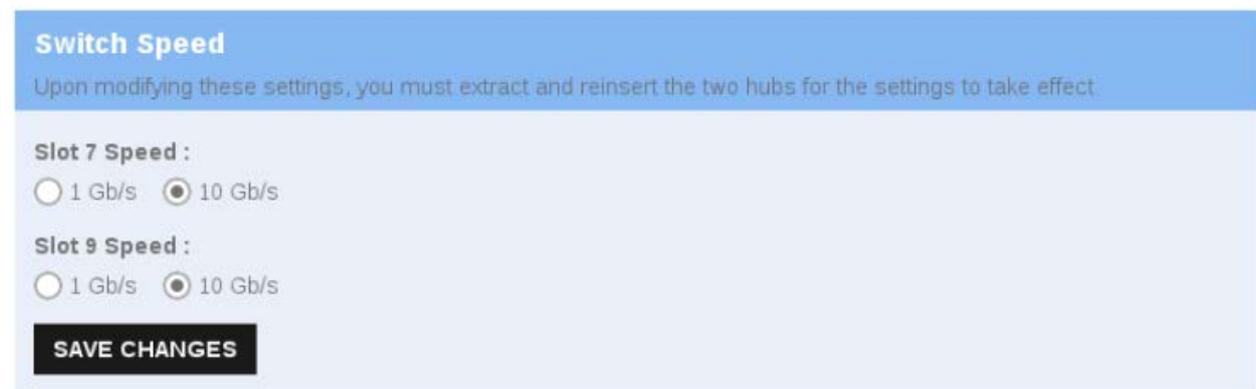
The switches for HubNode model MSH8900 each have 2 ports going to slots 7 and 9: one 1 GB/s port and one 10 GB/s port. Use this view to toggle the physical port speed of the 10 GB/s port between 1 GB/s and 10 GB/s.

If you use the board model MSP8001 or MSP8032 in slot 7 or slot 9, the speed must be set to 10 GB/s.

If you use any other board model in slot 7 or slot 9, the speed must be set to 1 GB/s.

When saving changes to the switch speed, both switches are rebooted to apply the settings. Clicking the "Save Changes" button will display a warning message about the switch reboot and ask for user confirmation to continue.

Figure 21: Switch speed for HubNode model MSH8900



### 5.1.16. Tools

This section is present for all components.

The tools section provides links to useful information on the platform.

Figure 22: Tools



**Platform system information:** Downloads a text file containing detailed information about all the components in the platform. It contains, among other information, the details of the alarms that are reported in the web application for the health of the components. This single document gives a complete view of the state of a platform.

**Log files bundle:** Downloads a file that can be used by Kontron support team to diagnose problems with the solution running on the HubNode.

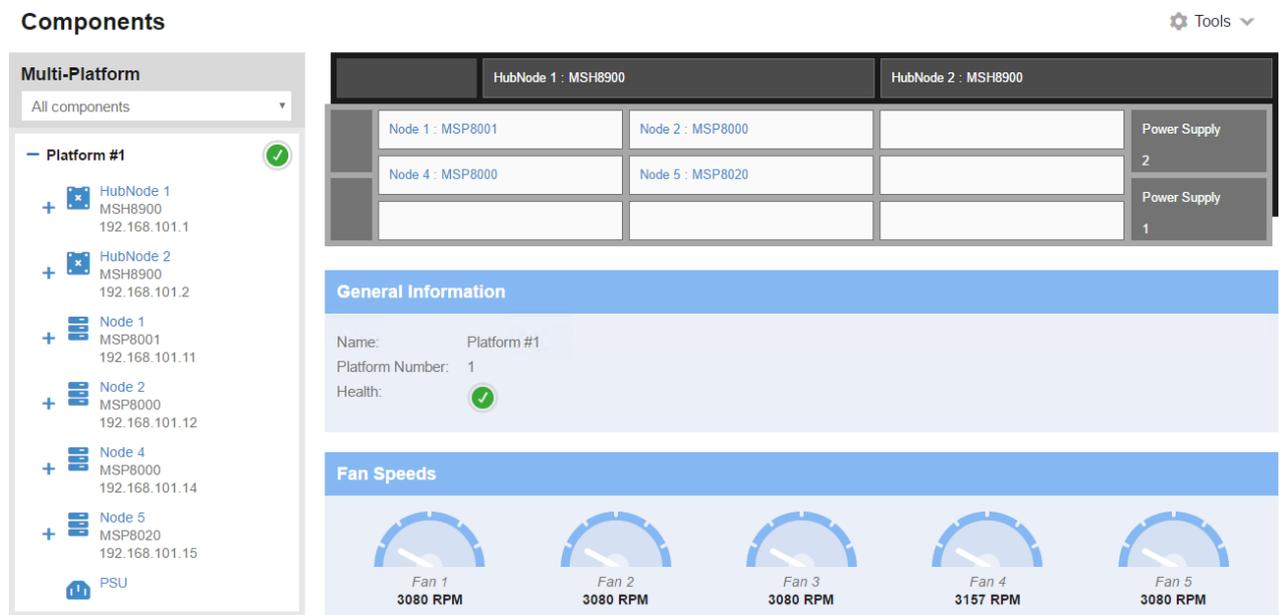
**Upgrade software:** Redirects to the "One-Click Upgrade" page of the web application. The « Upgrade Software » link redirects to the "One-Click Upgrade" page. When this link is clicked from a specific component, the advanced settings of the "One-Click Upgrade" page will be automatically adjusted to target only that component.

## 5.2. Platform information

The figure below shows platform information. It provides the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Fan speeds. Refer to 5.1.2.
- ▶ Switch speed (HubNode model MSH8900). Refer to 5.1.15.
- ▶ Tools. Refer to 5.1.16.

Figure 23: Platform information



### 5.3. HubNode information

The figure below shows HubNode information. It provides the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Board information. Refer to 5.1.1.
- ▶ Software versions. Refer to 5.1.13.
- ▶ Switch. Refer to 5.1.14.
- ▶ Tools. Refer to 5.1.16.

Figure 24: HubNode information

**Components**

Multi-Platform

All components

Platform #1

- HubNode 1  
MSH8900  
192.168.101.1
- Switch 1  
0.0.0.0
- HubNode 2  
MSH8900  
192.168.101.2
- Node 1  
MSP8001  
192.168.101.11
- Node 2  
MSP8000  
192.168.101.12
- Node 4  
MSP8000  
192.168.101.14
- Node 5  
MSP8020  
192.168.101.15
- PSU

HubNode 1 : MSH8900		HubNode 2 : MSH8900	
Node 1 : MSP8001	Node 2 : MSP8000		Power Supply
Node 4 : MSP8000	Node 5 : MSP8020		2
			Power Supply
			1

**General Information**

Name: HubNode 1  
 API Node number: 10  
 Model: MSH8900  
 Board Status: Active, M4  
 Management IP: 192.168.101.1  
 Health: ✔  
 HA Status: Active

**Board Information**

mfgDate: Wed Oct 30 11:54:00 2013  
 boardMfg: Kontron  
 boardProductName: 4301  
 boardProductPart: T4301X\_2-X  
 boardSerialNumber: 9013047417

### 5.4. Node information

The figure below shows node information. It provides the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Board information. Refer to 5.1.1.
- ▶ Software versions. Refer to 5.1.13.
- ▶ Servers. Refer to 5.1.12.
- ▶ Power commands. Refer to 5.1.6.
- ▶ Tools. Refer to 5.1.16.

Figure 25: Node information

**Components**
⚙️ Tools ▾

**Multi-Platform**

All components ▾

— Platform #1 ✔️

- + HubNode 1  
MSH8900  
192.168.101.1
- + HubNode 2  
MSH8900  
192.168.101.2

— **Node 1**  
MSP8001  
192.168.101.11

- Server 1  
0.0.0.0

- + Node 2  
MSP8000  
192.168.101.12
- + Node 4  
MSP8000  
192.168.101.14
- + Node 5  
MSP8020  
192.168.101.15

PSU

HubNode 1 : MSH8900		HubNode 2 : MSH8900		
Node 1 : MSP8001	Node 2 : MSP8000			Power Supply
Node 4 : MSP8000	Node 5 : MSP8020			2
				Power Supply
				1

**General Information**

Name: Node 1  
 API Node number: 1  
 Model: MSP8001  
 Board Status: Active, M4  
 Management IP: 192.168.101.11  
 Health: ✔️

**Board Information**

mfgDate: Wed Oct 23 18:44:00 2013  
 boardMfg: Kontron  
 boardProductName: 4003  
 boardProductPart: T4003BB\_1-DGGXX  
 boardSerialNumber: 9013051155

## 5.5. Switch details

The figure below shows switch details and has the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Network interfaces. Refer to 5.1.4.
- ▶ Power commands. Refer to 5.1.6.
- ▶ Tools. Refer to 5.1.16.

Figure 26: Switch details

**Components** Tools ▾

**Multi-Platform**

All components ▾

— Platform #1 ✔

- HubNode 1  
MSH8900  
192.168.101.1
- **Switch 1**  
0.0.0.0
- + HubNode 2  
MSH8900  
192.168.101.2
- + Node 1  
MSP8001  
192.168.101.11
- + Node 2  
MSP8000  
192.168.101.12
- + Node 4  
MSP8000  
192.168.101.14
- + Node 5  
MSP8020  
192.168.101.15
- PSU

HubNode 1 : MSH8900		HubNode 2 : MSH8900	
Node 1 : MSP8001	Node 2 : MSP8000		Power Supply 2
Node 4 : MSP8000	Node 5 : MSP8020		Power Supply 1

**General Information**

Name: Switch 1  
Board Status: Active, M4

**Network Interfaces**

IP

**SAVE** **CONFIGURATION PAGE**

**Power Commands**

**RESET**

### 5.6. Server details: MSP8000 and MSP8001

The figure below shows server details for the MSP8000 and MSP8001. It provides the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Network interfaces. Refer to 5.1.4.
- ▶ Remote access. Refer to 5.1.8.
- ▶ Power commands. Refer to 5.1.6.
- ▶ Tools. Refer to 5.1.16.

Figure 27: Server details (MSP8000 and MSP8001)

**Components** ⚙️ Tools ▾

**Multi-Platform**

All components ▾

— Platform #1 ✔

- + HubNode 1  
MSH8900  
192.168.101.1
- + HubNode 2  
MSH8900  
192.168.101.2
- Node 1  
MSP8001  
192.168.101.11
- **Server 1**  
0.0.0.0
- + Node 2  
MSP8000  
192.168.101.12
- + Node 4  
MSP8000  
192.168.101.14
- + Node 5  
MSP8020  
192.168.101.15
- PSU

HubNode 1 : MSH8900		HubNode 2 : MSH8900	
Node 1 : MSP8001	Node 2 : MSP8000		Power Supply 2
Node 4 : MSP8000	Node 5 : MSP8020		Power Supply 1

**General Information**

Name: Server 1  
Board Status: Active, M4

**Network Interfaces MAC : 00:a0:a5:7e:fb:de**

Source	IP	Netmask	Gateway
DHCP ▾	<input type="text" value="0.0.0.0"/>	<input type="text" value="0"/>	<input type="text" value="0.0.0.0"/>

SAVE
CONFIGURATION PAGE

**Remote Access**

KVM

### 5.7. Server details: MSP8020

The figure below shows server details for the MSP8020 and has the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Remote access password. Refer to 5.1.9.
- ▶ Network interfaces. Refer to 5.1.4.
- ▶ Power commands. Refer to 5.1.6.
- ▶ Tools. Refer to 5.1.16.

Figure 28: Server details MSP8020

**Components** Tools ▾

**Multi-Platform**

All components ▾

— Platform #1 ✔

- + ✕ HubNode 1  
MSH8900  
192.168.101.1
- + ✕ HubNode 2  
MSH8900  
192.168.101.2
- + ☰ Node 1  
MSP8001  
192.168.101.11
- + ☰ Node 2  
MSP8000  
192.168.101.12
- + ☰ Node 4  
MSP8000  
192.168.101.14
- ☰ Node 5  
MSP8020  
192.168.101.15
- ☰ Server 1  
0.0.0.0
- ☰ Server 2  
0.0.0.0
- 🔌 PSU

HubNode 1 : MSH8900		HubNode 2 : MSH8900		
Node 1 : MSP8001	Node 2 : MSP8000			Power Supply 2
Node 4 : MSP8000	Node 5 : MSP8020			Power Supply 1

**General Information**

Name: Server 1  
Board Status: Active, M4

**KVM password**

Password must be 8 characters long, contain at least 1 upper case and 1 lower case letter, at least 1 number and 1 symbol

**SAVE**

**Network Interfaces MAC : 00:a0:a5:80:30:30**

Source	IP	Netmask	Gateway
Static ▾	<input type="text" value="0.0.0.0"/>	<input type="text" value="0"/>	<input type="text" value="0.0.0.0"/>

### 5.7.1. Network interfaces

Figure 29: Network interfaces

**Network Interfaces MAC : 00:a0:a5:80:30:30**

Source	IP	Netmask	Gateway
Static ▾	<input type="text" value="0.0.0.0"/>	<input type="text" value="0"/>	<input type="text" value="0.0.0.0"/>

**SAVE**
**PROVISION**
**KVM**

For this board model, KVM access must be configured before use. This is a one-time configuration that will retain the settings between reboots.

Configuration cannot survive a loss of power to the board. If the node is extracted or the platform loses power, you will have to reconfigure.

You can configure the source in the following modes.

**DHCP:**

If you choose DHCP, the other parameters do not need to be set. If they are, they will be saved but not have any effect on the solution. Before using this option, you should go into the switch web interface and turn on "DHCP snooping". This will create a table of MAC addresses and the associated IPs assigned by DHCP. The MAC address of the server will be added to this interface. This will make it easier to know which IP was assigned by DHCP in the snooping table of the switch.

If you choose DHCP **and use a MSP8910 switch**, you can also enable snooping and show the snooping binding.

To **enable snooping**, use the following commands in the API:

```
#ip dhcp snooping
#ip dhcp snooping vlan 1
```

**NOTICE**

vlan default is 1. Use custom vlan if applicable.

```
#ip dhcp snooping database write-delay 15
#no ip dhcp snooping verify mac-address
#interface 1/0/1
```

**NOTICE**

<unit>/<port>/<interface>

**unit** is the switch ID where the uplink to DHCP server is connected

You can also use "#show switch" to view all switch IDs in stack.

**port** is always "0"

**interface** can be "1", "2", "3" or "4" and corresponds to the SFP uplink on the front panel)

```
#ip dhcp snooping trust
```

**NOTICE**

You must enable snooping trust on the interface to which the DHCP server is connected. If you do not, the DHCP traffic will be blocked on that port.

```
#end
```

To **show snooping binding**, use the following commands in the API:

```
#show ip dhcp snooping binding
```

This returns:

```
Total number of bindings: 1
```

```
Total number of Tentative bindings: 0
```

MAC Address	IP Address	VLAN	Interface	Type	Lease(Secs)
00:A0:A5:82:0F:4D	10.0.113.113	4093	10/0/33	DYNAMIC	43055

**Static:**

In static mode, all the parameters you enter as IP addresses, netmasks (CIDR notation) and gateway addresses will be applied to the KVM.

For both solutions, you must press the "Save" button for any changes to affect provisioning. Once you have saved all values, click on the "Provision" button. This will apply the KVM settings and reset the server's payload.

Before accessing the KVM with the "Remote Access" button, wait 2-3 minutes to allow the server to reboot completely.

When you click "Remote Access", the password you set in 5/ Monitor will be set as the password for the AMT. The Java applet will be launched, giving you the remote session on the server.

## 5.8. PSU details

The figure below shows PSU details and has the following sections:

- ▶ Platform graphical representation. Refer to 5.1.5.
- ▶ General information. Refer to 5.1.3.
- ▶ Power consumption graph. Refer to 5.1.7.
- ▶ Sensor values. Refer to 5.1.11.
- ▶ Reset peak/average. Refer to 5.1.10.
- ▶ Tools. Refer to 5.1.16.

Figure 30: PSU details

Components

**Multi-Platform**

All components

Platform #1 ✔

- + HubNode 1  
MSH8900  
192.168.101.1
- + HubNode 2  
MSH8900  
192.168.101.2
- + Node 1  
MSP8001  
192.168.101.11
- + Node 2  
MSP8000  
192.168.101.12
- + Node 4  
MSP8000  
192.168.101.14
- + Node 5  
MSP8020  
192.168.101.15

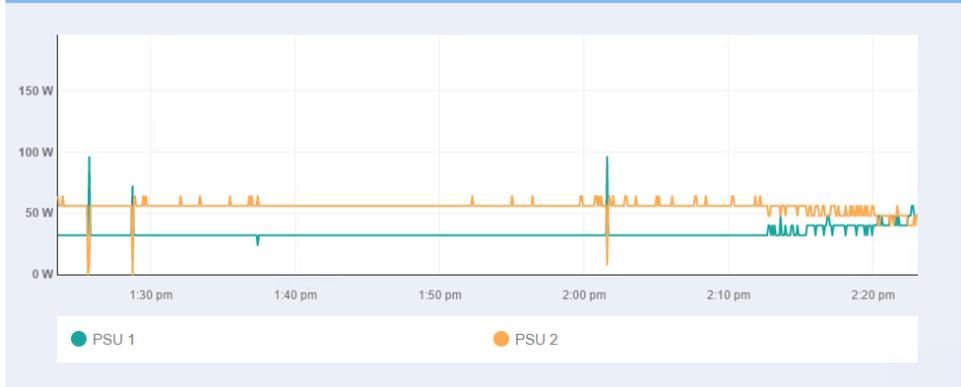
**PSU**

HubNode 1 : MSH8900		HubNode 2 : MSH8900		
Node 1 : MSP8001	Node 2 : MSP8000			Power Supply 2
Node 4 : MSP8000	Node 5 : MSP8020			Power Supply 1

General Information

Name: PSU

Power Consumption Graph / Last hour



## 6/ WEB CLI

The Symkloud System monitor includes a WEB CLI, a web-based wrapper for Serial-over-LAN (SoL) connections to node payloads. The WEB CLI requires IP access to the ShMC and target BMC(s). The WEB CLI gives access to the following components:

- ▶ Shelf Manager (and other ShMC/BMCs via the ipmitool> set "targetaddr" command)
- ▶ Switch CLI
- ▶ Node Payload OS

### 6.1. Connecting to the WEB CLI

To access the WEB CLI, enter the following URL in your browser:

```
http://<ShMC_IP>/shell/
```

#### NOTICE

You can also connect to a HubNode for sending CLI commands using the Console Access section of the System Monitor Dashboard page. Refer to 3.2.

### 6.2. Login

Use the following credentials to access the WEB CLI:

- ▶ Username: **admin** / Password: **admin**. This logs into the ipmitool> shell of the ShMC at <ShMC\_IP> ("Active" ShMC if the SharedIP is used)
- ▶ Username: **console** / Password: **admin**. This provides a series of prompts to connect to the switches or nodes' payload OS

After login, the following message is displayed:

```
[SOL Session operational. Use "~?" for help]
Press [space] to continue.
```

Additional login credentials may be required once connected to switches or nodes' payload OS.

#### NOTICE

Only one session can be open at a time for each payload. It is recommended to close an existing session before opening a new one. Opening an additional session to the same payload will cause any existing sessions (SoL via ipmitool-over-LAN or WEB CLI) to be disconnected. No error message will be generated. The browser of the disconnected session will present the login-prompt to begin launching a new session.

## 7/ System Event Log (SEL)

This section allows viewing the System Event Log (SEL) of each platform.

Figure 31: System event log

### System Event Log

Tools ▾

**Multi-Platform**

Platform #1 ✔

Events per page:

100 ▾

Platform #1							
Date Time	Event ID	Node ID	Sensor #	Sensor Name	Sensor Type	Event Data	Event Description Text
7/14/2016 10:02:28 AM	1455	Active ShMC	41	N/A	Power Supply	0x01ffff	Failure detected
7/14/2016 10:02:22 AM	1454	Active ShMC	42	PSU2:Status Ext	Power Supply	0x810800	Failure detected
7/14/2016 10:02:22 AM	1453	Active ShMC	41	N/A	Power Supply	0xa12000	Failure detected
7/14/2016 9:29:37 AM	1452	Active ShMC	41	N/A	Power Supply	0x01ffff	Failure detected
7/14/2016 9:29:30 AM	1451	Active ShMC	42	PSU2:Status Ext	Power Supply	0x810800	Failure detected
7/14/2016 9:29:30 AM	1450	Active ShMC	41	N/A	Power Supply	0xa12000	Failure detected
7/14/2016 9:26:35 AM	1449	Active ShMC	41	N/A	Power Supply	0x01ffff	Failure detected

The System Event Log (SEL) contains one entry for each event generated by the sensors from all the nodes, PSUs and ShMCs present in the system.

You can use the SEL to:

- ▶ analyze a failure
- ▶ view if there were any activities at a given date and time (node activations, temperature events, etc.)

System Monitor automatically reads the IPMI SEL and displays the events in a list (most recent events are shown first).

At system start-up, it may take up to 15 minutes for System Monitor to read and display all events gathered from the system.

### 7.1. Viewing the SEL

Use the "Events per page" drop-down list to select how many events you want to see per page.

The list contains the following information:

- ▶ **Date Time:** Time at which the event occurred
- ▶ **Event ID:** ID associated with the event
- ▶ **Node ID:** Node holding the sensor that generated the event
- ▶ **Sensor #:** Sensor number
- ▶ **Sensor Name:** Sensor name
- ▶ **Sensor Type:** Sensor type as defined in the IPMI specification (or OEM defined)
- ▶ **Event Data:** Extra information from the event. This information can be used if in-depth analysis is required

▶ **Event Description Text:** Translation of the event and its data to text (when possible)

To export the SEL to a CSV file, select "Tools" and then "Download system event log". Save the file. You can then open it in another program (such as Excel) for further analysis.

Use the **Events per page** drop-down field to configure how many events you want to see displayed per page.

## 7.2. Exporting the events to a CSV file

You can export the SEL content to a CSV file.

To export the SEL to a CSV file, select "Tools" and then "Download system event log". Save the file. You can then open it in another program such as Excel for further analysis.

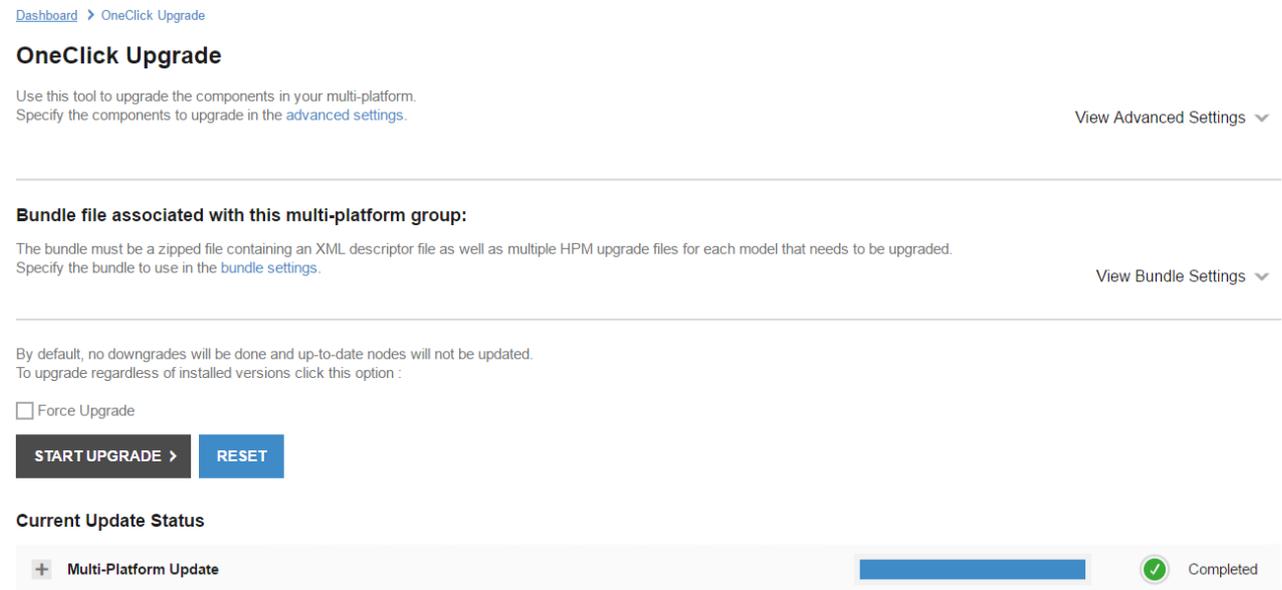
## 8/ OneClick upgrade

Use the One-Click Upgrade function to upgrade the firmware of one or more SYMKLOUD components.

The OneClick Upgrade function contains:

- ▶ Advanced settings
- ▶ Bundle settings
- ▶ Launching an upgrade
- ▶ Upgrade status

Figure 32: OneClick upgrade



### 8.1. Upgrade sequence

When launching an upgrade, the upgrade sequence is as follows:

1. Upgrade the standby HubNode
2. Upgrade the active HubNode
3. Upgrade all nodes simultaneously

### 8.2. Advanced settings

Figure 33: Advanced settings



Use the Advanced Settings option to select which component(s) to upgrade. By default, this page will upgrade all components of the platform. If you come to this page after clicking on the "Upgrade Software" link on a component or

sub-component page, settings in this section will already be selected. The upgrade will target only the selected component.

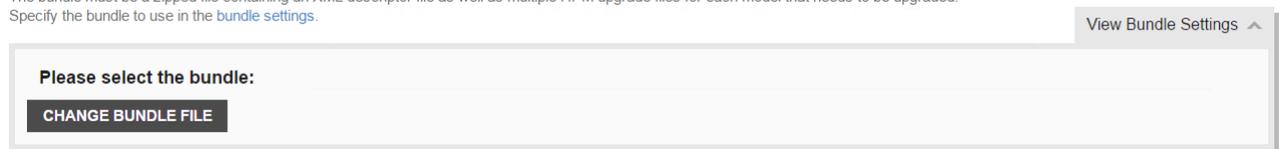
Use the three drop-down menus to configure the different types of upgrades:

- ▶ All platforms, specific node model: select a model in "Choose a model to upgrade"
- ▶ Specific platform all node models: select a platform in the first drop-down menu
- ▶ Specific platform, specific node model: select both a platform in the first drop-down and a model in "Choose a model to upgrade."
- ▶ Specific platform, specific component: select both a platform and a component in the second drop-down. The model corresponding to that component will be selected automatically.

### 8.3. Bundle settings

Figure 34: Change bundle

The bundle must be a zipped file containing an XML descriptor file as well as multiple HPM upgrade files for each model that needs to be upgraded. Specify the bundle to use in the [bundle settings](#).



When uploading a bundle file to a SYMKLOUD, it is automatically used by all the upgrades for that platform. To associate a new bundle to the system, use the "change bundle" function.

### 8.4. Launching an upgrade

Figure 35: Start upgrade

By default, no downgrades will be done and up-to-date nodes will not be updated. To upgrade regardless of installed versions click this option :

Force Upgrade



By default, the upgrade will only apply to components with one version incremented. If the versions of the component are already up-to-date with the versions in the bundle, or if the versions in the bundle are lower than the versions on the component, the upgrade will not be performed for these components.

If you wish to force the upgrade of the components regardless of their versions, you must check the "Force Upgrade" box.

Once all the settings are set to the appropriate values, click "Start Upgrade" to launch the upgrade.

### 8.5. Upgrade status

The upgrade status displays the last upgrade status or the current upgrade status while an upgrade is in progress. The upgrade status has multiple levels of details that can be selected.

Figure 36: Upgrade status

**Current Update Status**

Multi-Platform Update	<div style="width: 100%; height: 10px; background-color: #007bff;"></div>	✓ Completed
Platform 1	<div style="width: 100%; height: 10px; background-color: #007bff;"></div>	✓ Completed
Node8	<div style="width: 100%; height: 10px; background-color: #007bff;"></div>	✓ Completed

### 8.5.1. Platform level

When the first level is expanded, one entry will be shown for each platform being upgraded. This level will display information about the component being upgraded for that platform and its model. This level's progress bar will indicate the completion of the components versus the total number of components being upgraded in this platform.

### 8.5.2. Component level

This level has one entry per HubNode/Node being upgraded. It will also display details about the action in progress for each component being upgraded. The progress bar at this level varies depending on the action currently executed. The state of the upgrade will also change at the right-hand side. Below are the different final states that can result from an upgrade:

- ▶ Completed
- ▶ Skipped
- ▶ Failed

## 9/ Remote access

This section groups the remote access features of all components in a condensed view with filtering enabled. This makes it easier to start multiple sessions targeting different components.

Figure 37: Remote access

### Remote Access



## 10/ Network configuration

This page presents an overview of the configuration of all management interfaces.

### NOTICE

If ShMCs and BMCs do not remain on the same VLAN and subnet at all times, undesired operations may occur. This includes, but is not limited to:

- ▶ Interruption of redundancy, and;
- ▶ Interruption of monitoring and management functions such as Virtual-serial (WebCLI), Firmware upgrades.

Figure 38: Network configuration

### Components

**Multi-Platform**

Platform #1 ✔

**Platform #1**

**System Monitor Shared IP**

Base IP	Netmask
<input type="text"/>	<input type="text"/>
<b>SAVE</b>	

**IPMI Over Lan Configuration**

Settings for all nodes and hubs:  Manual  DHCP

Hub/Node	Source	Base IP	Netmask	Gateway	VLAN
HubNode 1	Auto ▼	192.168.101.1	255.255.255.0	0.0.0.0	<input type="text" value="4093"/>
HubNode 2	Auto ▼	192.168.101.2	255.255.255.0	0.0.0.0	<input type="text" value="4093"/>
Node 1	Auto ▼	192.168.101.11	255.255.255.0	0.0.0.0	<input type="text" value="4093"/>
Node 2	Auto ▼	192.168.101.12	255.255.255.0	0.0.0.0	<input type="text" value="4093"/>

### 10.1. System monitor shared IP

The System Monitor's shared IP is an address used to access the "Active" HubNode's System Monitor for the selected platform. This IP address is shared between both HubNodes (the "active" and "standby") but only the active ShMC will respond at any moment. Only static IP is supported for the Base IP and netmask. The IP address will be activated in the same VLAN and using the same gateway as that assigned to the HubNodes in the "IPMI over LAN" section.



The System Monitor's Shared IP only provides access to the Web Interface, API and SNMP calls. For ipmitool-over-LAN commands, you must use the "Active" ShMC's IP address.

### 10.2. IPMI Over LAN configuration



If ShMCs and BMC are not maintained on the same VLAN and subnet at all times, undesired operations may occur. This includes, but is not limited to: interruption of redundancy; interruption of monitoring and management functions, such as Virtual-serial (WebCLI); Firmware upgrades; etc.

Intelligent Platform Management Interface (IPMI) Over LAN (IOL) can be used to communicate with all node BMCs in a platform. IOL can be used to access the System Monitor as well as IPMI functionalities. You can configure the IOL settings for all nodes and HubNodes to "Manual" or "DHCP". When "Manual" is selected, the "Source" is automatically set to "Static". "Base IP", "Netmask", Gateway" and "VLAN" must be configured for all HubNodes/nodes. When "DHCP" is selected, the "Source" is automatically set to "DHCP" but "VLAN" must be configured for all HubNodes/nodes.

## 11/Settings

### 11.1. Tech view

Users with the "technician" role can only change their password in this section.

Figure 39: General settings for a technician

#### General Settings



The screenshot shows a web interface for changing a password. On the left, there is a sidebar with a 'My Profile' section containing a 'Change Password' link with a right-pointing arrow. The main content area has a blue header 'Change Password'. Below the header, there are two text input fields: 'New password :' and 'Confirm new password :'. At the bottom of the form is a dark button labeled 'CHANGE PASSWORD'.

### 11.2. Admin view

- ▶ Users with the "administrator" role can change their password and have access to the "Administration" tools:
- ▶ Interface preferences
- ▶ User management
- ▶ Security

Figure 40: General settings for an administrator

**General Settings**

**My Profile**

Change Password >

---

**Administration**

Interface Preferences >

User Management >

Security >

**Change Password**

New password :

Confirm new password :

**CHANGE PASSWORD**

---

**Interface Preferences**

Header Logo :

PNG, JPG or GIF files only. Must have a height of 72px, a maximum width of 380px and a maximum size of 100 kB.

**UPLOAD IMAGE FILE**

---

Favicon :

ICO files only. Must have a maximum size of 100 kB.

**UPLOAD IMAGE FILE**

---

Company Name :

Primary Color : #0063AB      Light Primary Color : #3E8BC8

Secondary Color : #85B8F2      Light Secondary Color : #D5E0F2      Lighter Secondary Color :

**SAVE CHANGES**   **DEFAULT**

---

**User Management**

User	Role	Actions
admin	Administrator	
smmgnt	IPMI	<a href="#">Modify</a> <a href="#">Delete</a>

**CREATE NEW USER**

---

**Security**

Enable HTTPS

**SELECT CERTIFICATE FILE**

**SELECT PRIVATE KEY FILE**

Enable Strict SSL Validation

**SELECT CA CERTIFICATE FILE**

**APPLY**

### 11.2.1. Change password

Users with the "administrator" role can change their own password.

Figure 41: Change password

#### General Settings

**My Profile**

- Change Password >

**Administration**

- Interface Preferences >
- User Management >
- Security >

**Change Password**

New password :

Confirm new password :

**CHANGE PASSWORD**

### 11.2.2. Interface preferences

This section provides options for customizing the branding of the web application. These options allow you to change the main logo, the browser icon and the company name used in the browser page title. Most of the colors used in the application can also be customized here.

Use the "Default" button to reset the colors to the well-coordinated colors shown below. This allows you to experiment with the colors without having to take note of the original settings. Once you press "Default", you must click on "Save Changes" to apply the color rollback.

Figure 42: Interface preferences

**Interface Preferences**

Header Logo :





PNG, JPG or GIF files only. Must have a height of 72px, a maximum width of 380px and a maximum size of 100 kB.

UPLOAD IMAGE FILE

---

Favicon :



ICO files only. Must have a maximum size of 100 kB.

UPLOAD IMAGE FILE

---

Company Name :

Kontron

Primary Color :

#0063AB

Light Primary Color :

#3E8BC8

Secondary Color :

#85B8F2

Light Secondary Color :

#D5E0F2

Lighter Secondary Color :

#EAEFF8

SAVE CHANGES

DEFAULT

### 11.2.3. User management

An administrator also has access to the "User management" section, which lists the system's current users.

All users can be deleted or modified except the user with the name "admin" and the user with the role "IPMI".

The user with the name "admin" and the user with the role "IPMI" cannot be deleted. They also cannot be renamed or be assigned another role. Only their passwords can be modified. This ensures the presence of at least one user with the "admin" and the "IPMI" roles. Other users with the "admin" role can be modified.

There can only be one user with the "IPMI" role and its name is predefined and fixed as "smmgt". It can be used for IOL access to the system.

Users with the "admin" role can change the name, password and role of other users.

Users with the "technician" role can only change their password, not their name or their role.

Figure 43: User management

User Management			
User	Role	Actions	
admin	Administrator		
smmgnt	IPMI	Modify	Delete

**CREATE NEW USER**

Use the "Create New User" button to create a new user. The pop-up window is shown below.

Figure 44: Creating new user

**Create new user**
✕

User: (alpha-numeric characters only)

Password: (excluding ", ', \)

Confirm password :

Role :

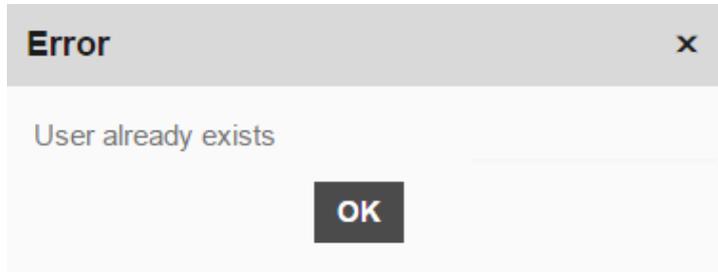
Administrator
▼

---

**CREATE USER**

Each user name must be unique. User names must only contain letters and numbers. The password does not allow the following characters: "", "", and "\". An error message will be displayed if the name being created or modified already exists.

Figure 45: Error message: user already exists



## 11.2.4. Security

This section allows enabling secure communication using the HTTPS protocol.

Figure 46: Security



## 11.2.5. Certificate and private key

An administrator can optionally supply his own certificate and private key using the "Select certificate file" and "Select private key file" buttons. By default, a self-signed certificate is used in the secured communication.

## 11.2.6. Strict SSL Validation and CA Certificate

When enabling "Strict SSL Validation", exchanges between SYMKLOUD platforms will use the supplied CA certificate for validation that the remote platform has a valid certificate (Not yet available in the current release). The CA certificate can be selected with the "Select CA certificate file" button.

## 12/ Help

### 12.1. API documentation

This link will open a new browser tab with a one page documentation of every available call in the API.

Figure 47: API documentation example

**AUTHENTICATION**

---

**AUTH**

---

**GET / POST**

Description: The API 3.0 uses a [Basic http Authentication](#) on nearly all request. The Auth call is used to authenticate the user and generate a temporary token that expires after 30 minutes of inactivity. The token is used as the password for every subsequent API requests that require Authentication.

Call: /v3/Auth

Return:

Success: JSON object containing attributes:

- status
- code
- token : The token to use for other request that need authentication
- roleKey : The role key of the authenticated user
- roleText : The role text for the authenticated user.

Possible errors:

```
{ "status": "Failure", "code": 23, "message": "Invalid password for user" }
```

```
{ "status": "Failure", "code": 29, "message": "Basic HTTP Authentication required" }
```

Example cURL command :

```
curl --user <user>:<password> http://<platformIP>:9090/v3/Auth
```

### 12.2. About

Version information about the web and core applications.

**NOTICE**

The version displayed in the next figure is an example only. It does not reflect the actual system version.

Figure 48: About window

**Version Information** ✕

**System Monitor** : 6.1.0.2016-03-24\_18:08:49

**System Manager** : 6.6.0.2016-02-26\_15:29:06

**Current API** : 3.0

**Supported APIs** : v2, v3



## About Kontron

Kontron, a global leader in embedded computing technology and trusted advisor in IoT, works closely with its customers, allowing them to focus on their core competencies by offering a complete and integrated portfolio of hardware, software and services designed to help them make the most of their applications.

With a significant percentage of employees in research and development, Kontron creates many of the standards that drive the world's embedded computing platforms; bringing to life numerous technologies and applications that touch millions of lives. The result is an accelerated time-to-market, reduced total-cost-of-ownership, product longevity and the best possible overall application with leading-edge, highest reliability embedded technology

Kontron is a listed company. Its shares are traded in the Prime Standard segment of the Frankfurt Stock Exchange and on other exchanges under the symbol "KBC". For more information, please visit: <http://www.kontron.com/>



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