Lenovo XClarity Controller

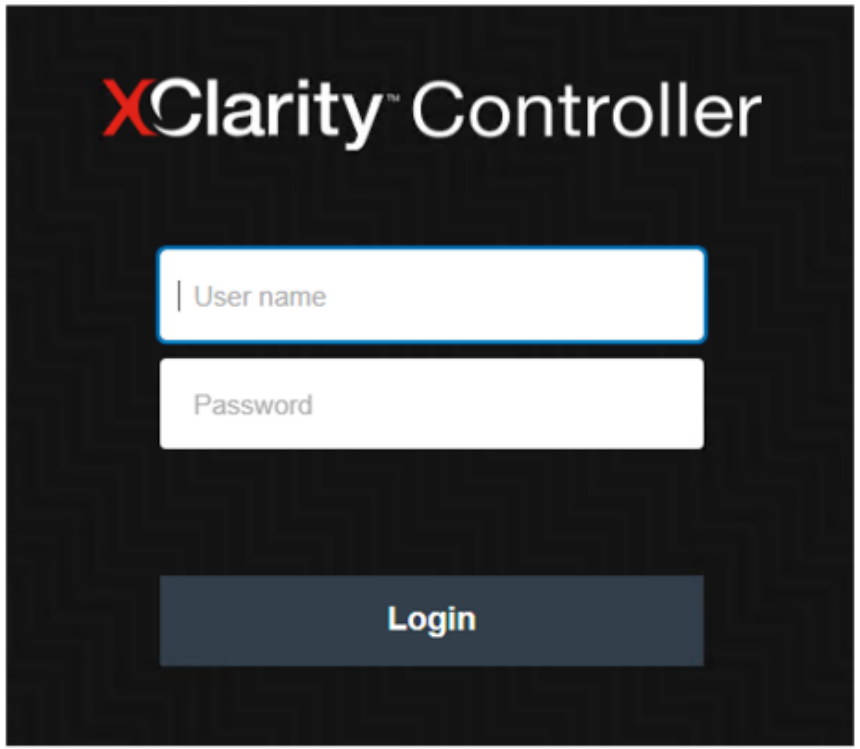
Introduction to Lenovo XClarity Controller, the ThinkSystem server BMC

Lenovo

What is Lenovo XClarity Controller?

Lenovo XClarity Controller (XCC) is the baseboard management controller (BMC) for ThinkSystem servers.
XCC comes standard with all ThinkSystem servers.
XCC key features include:

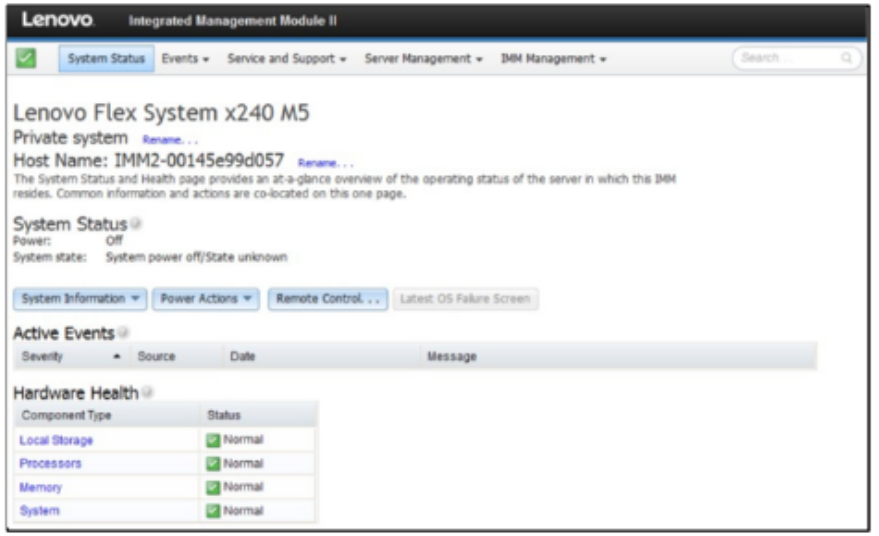
- System health monitoring
- Firmware updates
- BMC setting configuration
- RAID setting configuration
- Remote control (requires an additional license key)
- Watchdog and alerting capabilities
- Event logs and service data collection
- User account management



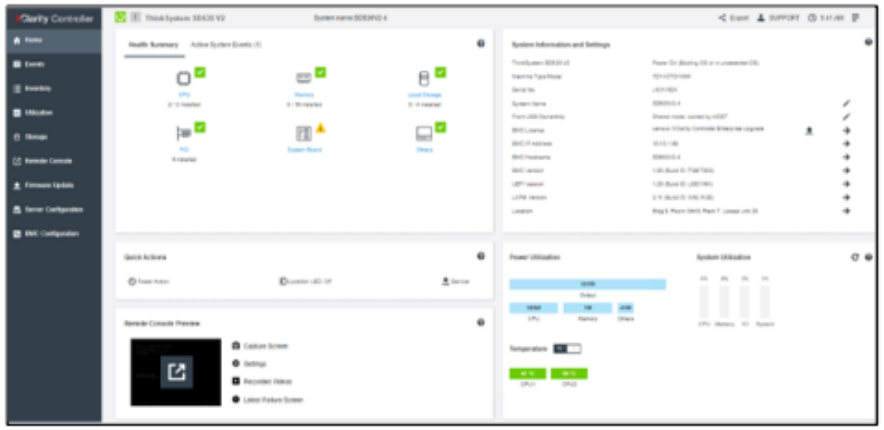
Major differences between XCC and IMM

There are a number of key differences between XCC and IMM, the BMC console for System x servers:

- The XCC GUI supports HTML5
- XCC supports National Language Support (NLS)
- Java and ActiveX clients are not supported to use the XCC remote control feature, which was replaced with HTML5 capabilities
- XCC supports international keyboard mapping
- XCC supports SNMPv3 Trap
- XCC supports Redfish
- XCC does not support Web Services-Management (WSMan)
- XCC supports the latest IPMI 2.0 specification



System x IMM homepage



ThinkSystem XCC homepage

XCC editions

There are three XCC editions: Standard, Advanced, and Enterprise.
The Standard edition is free and bundled with the system, so users do not need to manually install it.
To upgrade XCC from the Standard edition to the Advanced or Enterprise editions, users must buy the corresponding license and then use the license activation key in XCC to enable it.
Click the buttons to see more information about each XCC edition.

Standard | Advanced | Enterprise

Note:

- To upgrade XCC to the Enterprise edition, users must first upgrade to the Advanced edition. If users do not follow this procedure, a warning message will be displayed on the XCC **BMC Configuration** → **License** page. Click HERE to see a screenshot.
- The ST50, ST50 V2, SR635, and SR655 do not support XCC.

XCC editions

XCC Standard edition

The Standard edition offers the following key features:

- System information and inventory gathering
- System status and health monitoring
- Alerts and notifications
- Event logging
- Network connectivity configuration
- Security configuration
- System firmware updates
- Server setting and device configuration
- Real-time power usage monitoring
- Server power remote control (Power on, Power off, Restart)
- Features on Demand (FoD) activation key management
- Ability to capture video display contents when an operating system hang condition is detected

XCC editions

XCC Advanced edition

The Advanced edition adds the following functionality to the Standard edition features:

- Ability to remotely watch video with graphics resolutions of up to 1920x1200 at 60 Hz with 16 bits per pixel
- Ability to remotely access the server using the keyboard and mouse from a remote client
- Ability to record and replay the video from a remote control session
- Ability to remotely deploy an operating system
- Component replacement logs
- Syslog alerting
- Ability to redirect the serial console via SSH
- Security Key Lifecycle Manager (SKLM)
- IP address blocking
- Graphical display of real-time and historical power usage data and temperature

XCC editions

XCC Enterprise edition

The Enterprise edition adds the following functionality to the Advanced edition features:

- Power usage capping
- Ability to map the ISO and image files located on the local client as virtual drives for use by the server
- Ability to mount the remote ISO and image files via HTTPFS, CIFS, and NFS
- Ability to collaborate across up to six users of the virtual console
- Virtual console chat
- Ability to capture and replay the server's boot-up video
- Ability to capture and replay the server's video information leading up to the point where the operating system might hang or crash
- Out-of-band (OOB) performance monitoring
- Ability to control the quality and bandwidth usage of the virtual console

How to access XCC

The default static IPv4 address assigned to XCC is 192.168.70.125.
XCC is initially configured to obtain an address from a DHCP server, and if it cannot, it uses the static IPv4 address. When booting up the server, the booting splash screen includes the BMC IP address that can be used to access the XCC Web interface. Click HERE to see a screenshot.
XCC also supports IPv6, but XCC does not have a default fixed static IPv6 IP address. For initial access to XCC in an IPv6 environment, you can either use the IPv4 IP address or the IPv6 link-local address. XCC generates a unique link-local IPv6 address using the IEEE 802 MAC address by inserting two octets with hexadecimal values of 0xFF and 0xFE in the middle of the 48-bit MAC address and flipping the seventh bit of the MAC address.
For example, if the MAC address is 08-94-ef-2f-28-af, the link-local address would be fe80:0a94:efff:fe2f:28af.

Note: The BMC IP address can be used to access XCC using telnet/SSH and to remotely access XCC with the IPMItool.

Setting up an XCC network connection using LXPM

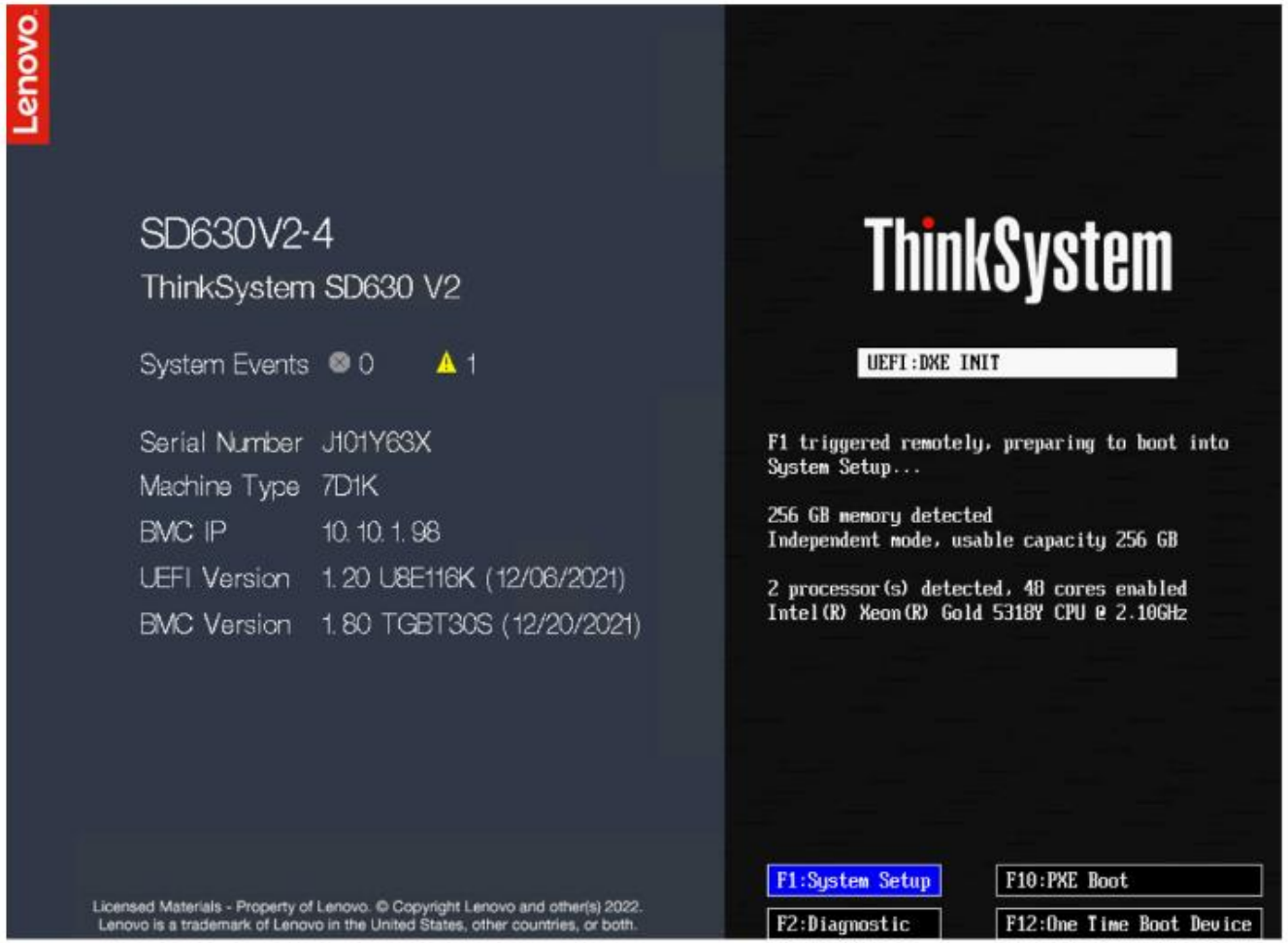
After starting the server, LXPM can be used to configure the XCC network connection settings. The server with XCC must be connected to a DHCP server, or the server network must be configured to use the XCC static IP address.
Work through the following procedure to set up the XCC network connection.

Click each number in turn to see the procedure.

Step 1 2 3 4 5 6

Setting up an XCC network connection using LXPM

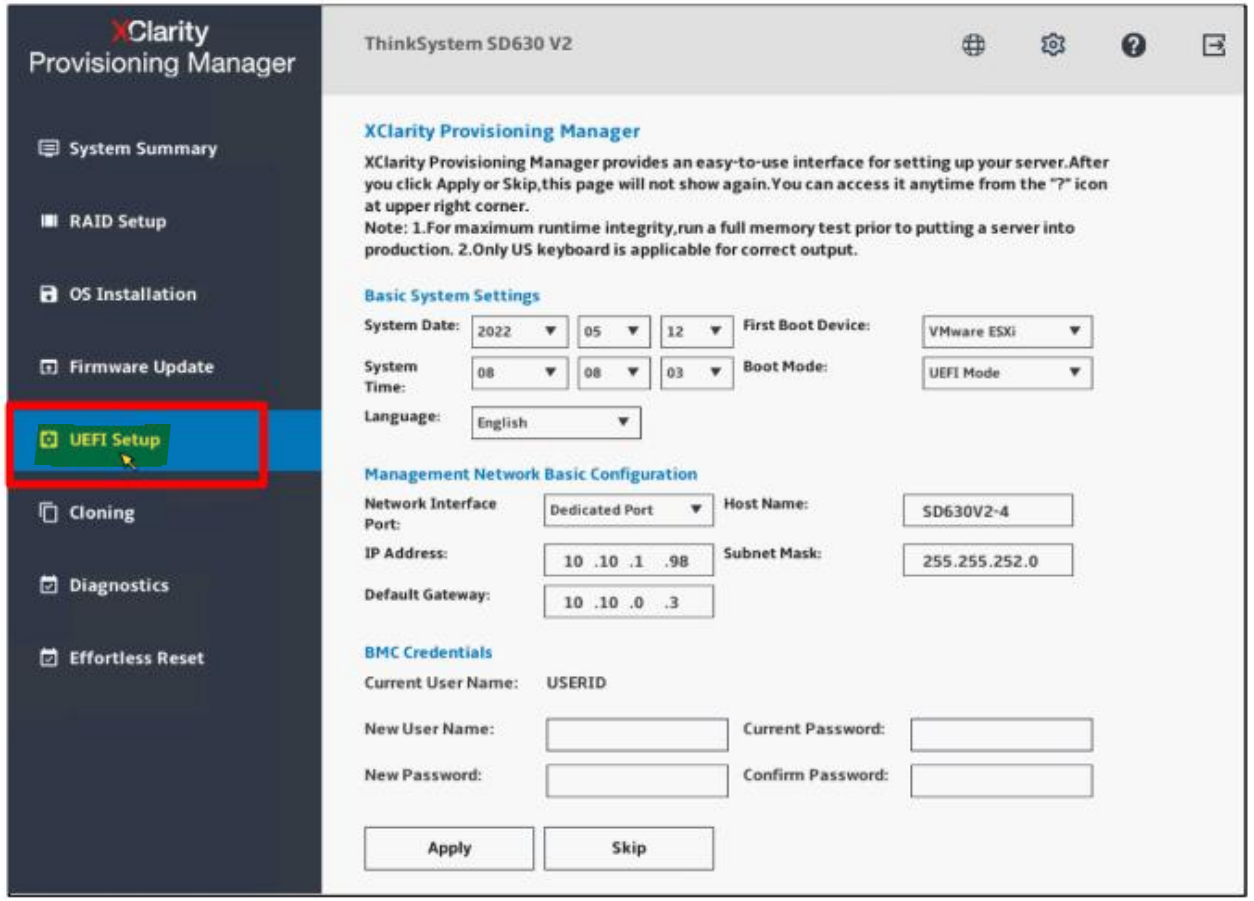
Open LXPM by pressing F1 when you see the splash screen.



Step 1 2 3 4 5 6

Setting up an XCC network connection using LXPM

In LXPM, select **UEFI Setup** from the navigation menu.

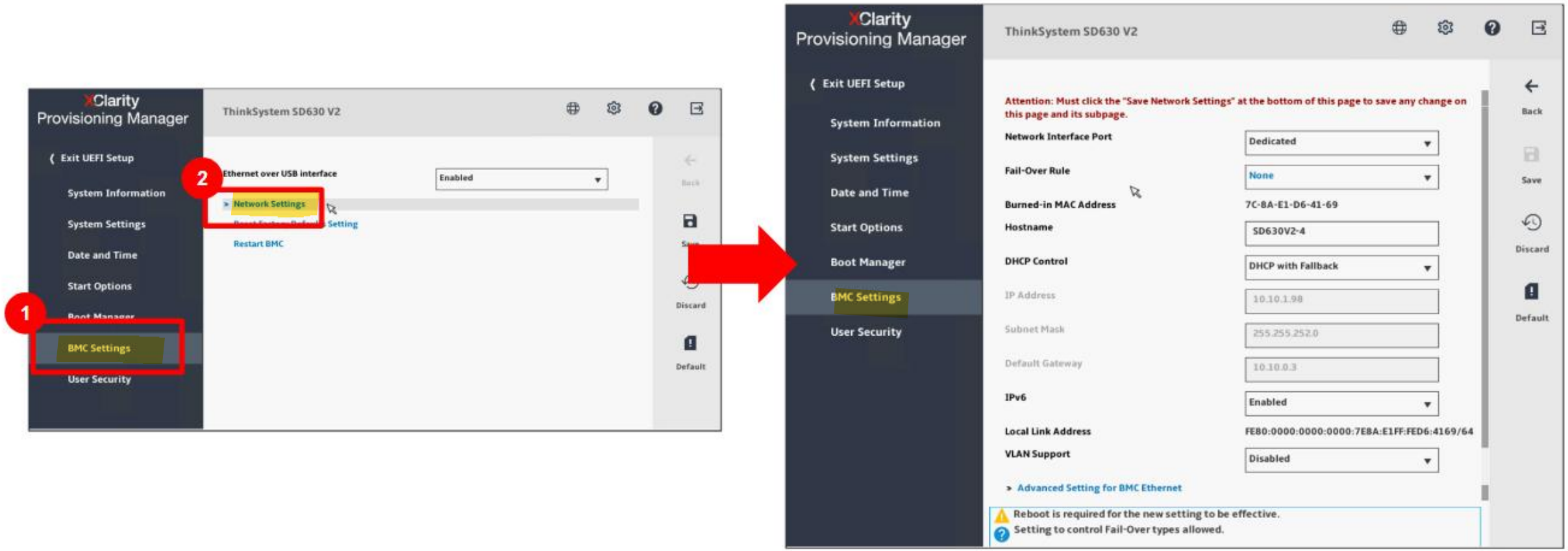


Step 1 2 3 4 5 6

Lenovo

Setting up an XCC network connection using LXPM

Select **BMC Settings**, and then click **Network Settings** in the content area.

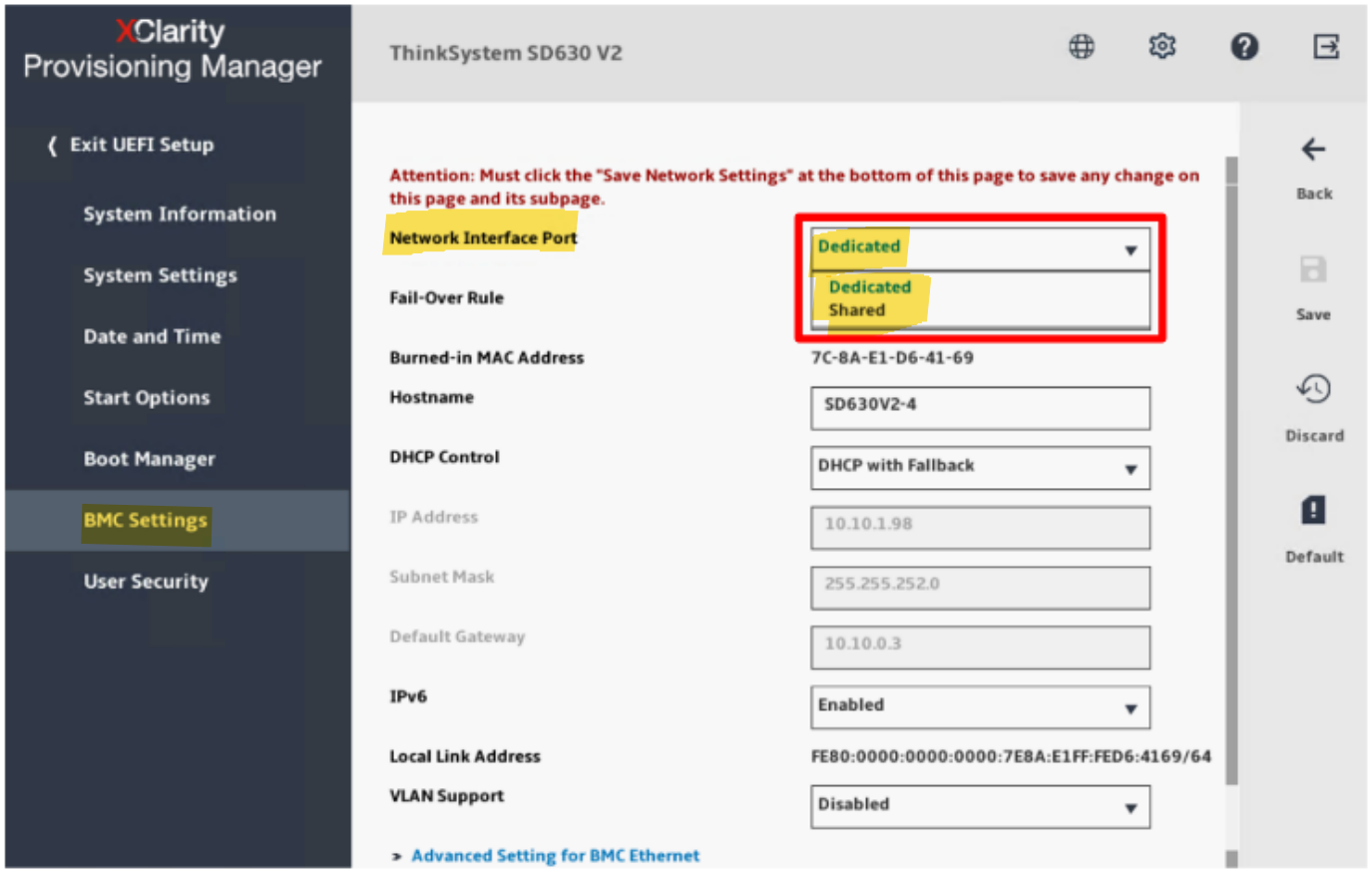


Step 1 2 3 4 5 6

Lenovo

Setting up an XCC network connection using LXPM

On the Network Settings page, select one of the **Network Interface Port** options. The BMC provides the choice of using a dedicated systems-management network connection or one that is shared with the server.

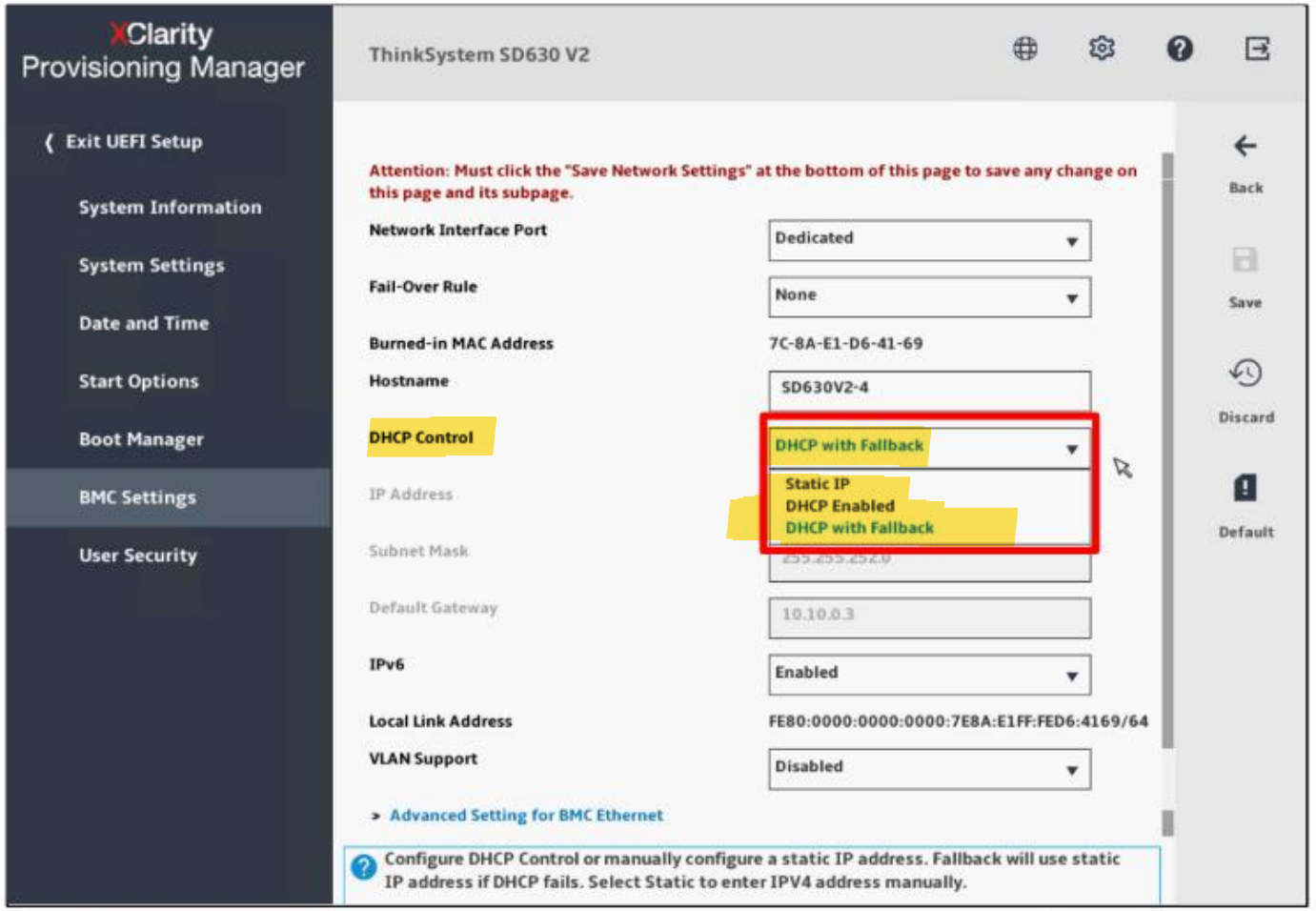


Step 1 2 3 4 5 6

Setting up an XCC network connection using LXPM

In the **DHCP Control** field, choose between **Static IP**, **DHCP Enabled**, or **DHCP with Fallback**. This field affects what IP address is assigned to the BMC interface and whether it will be provided by DHCP or be a user-specified fixed IP address.

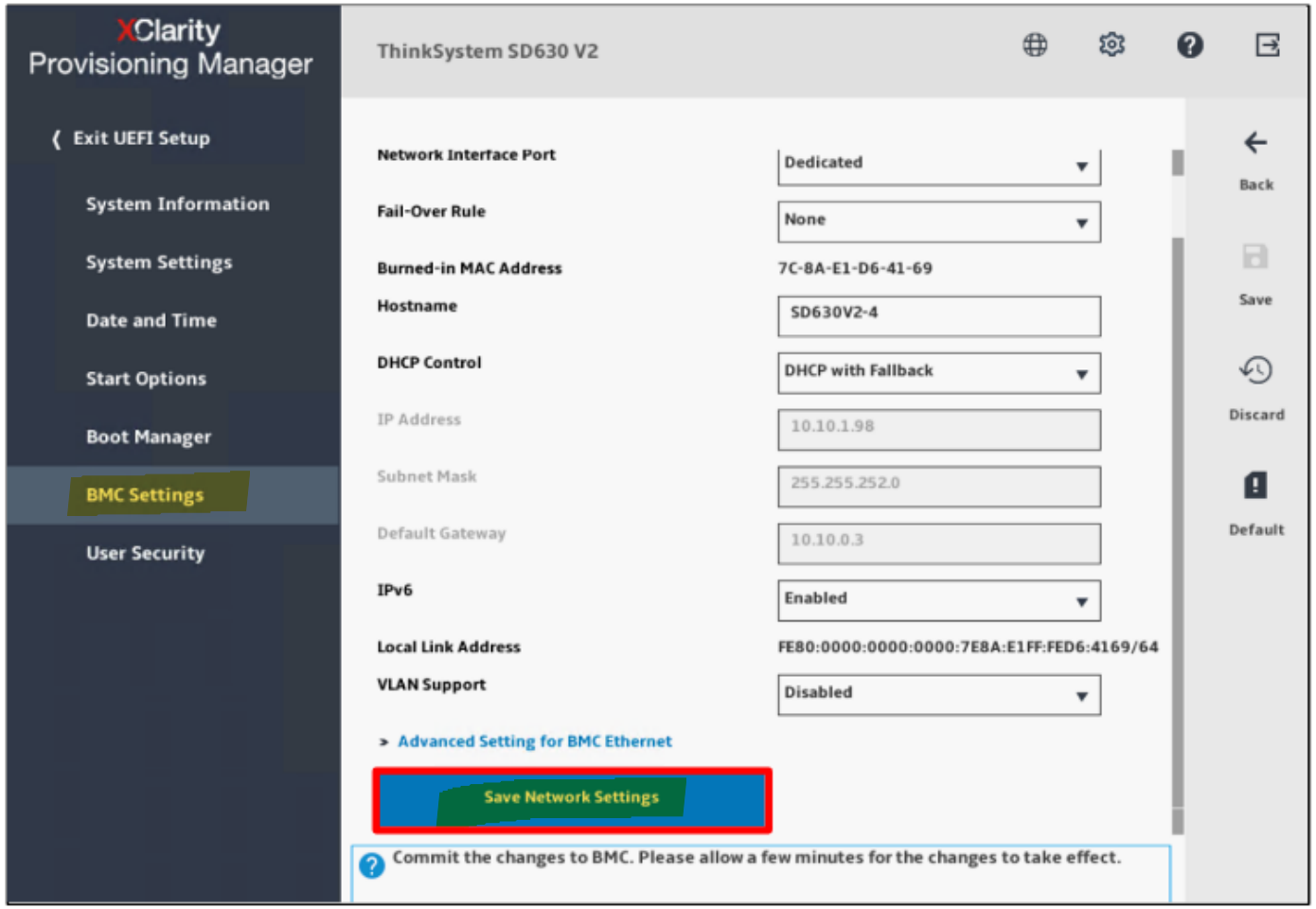
If **Static IP** is selected, the user must specify the IP address, subnet mask, and default gateway.



Step 1 2 3 4 5 6

Setting up an XCC network connection using LXPM

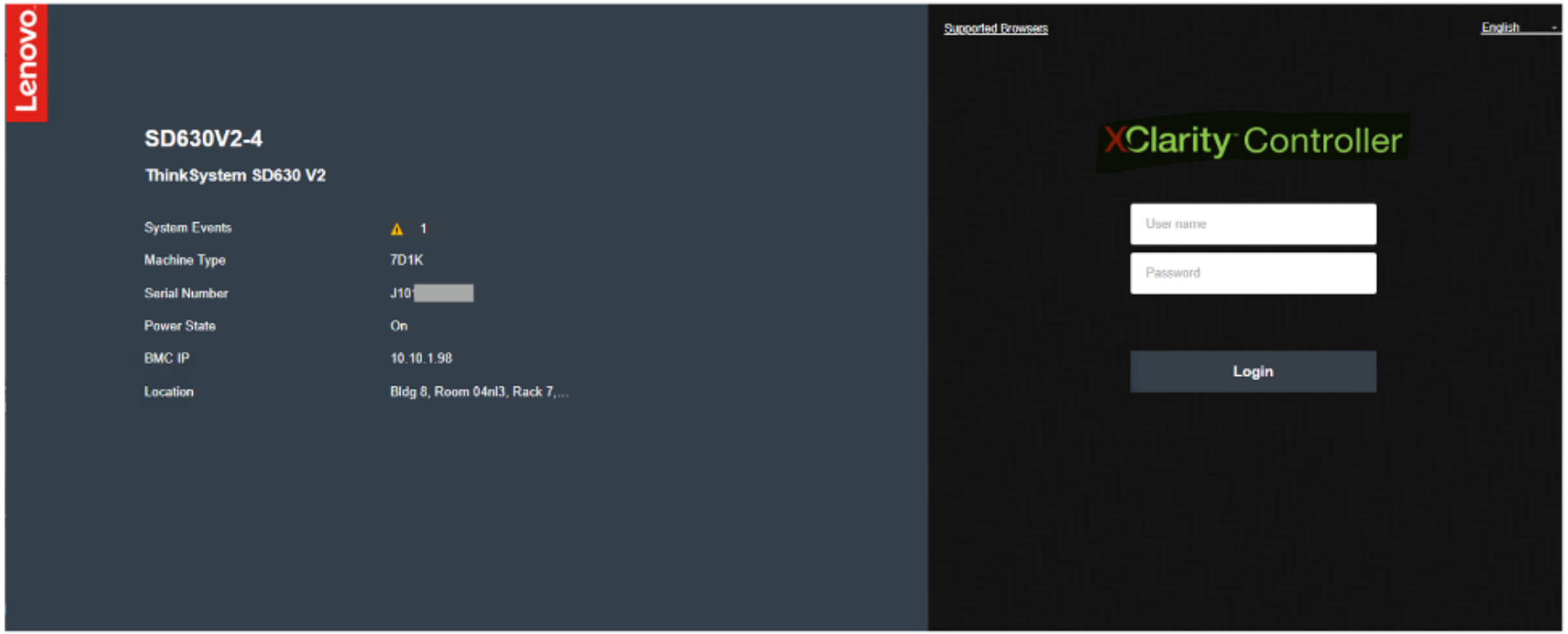
Click **Save Network Settings** to apply the changes, and then exit LXPM. It will take approximately one minute for the changes to take effect.



Step 1 2 3 4 5 6

Lenovo

Logging in to XCC

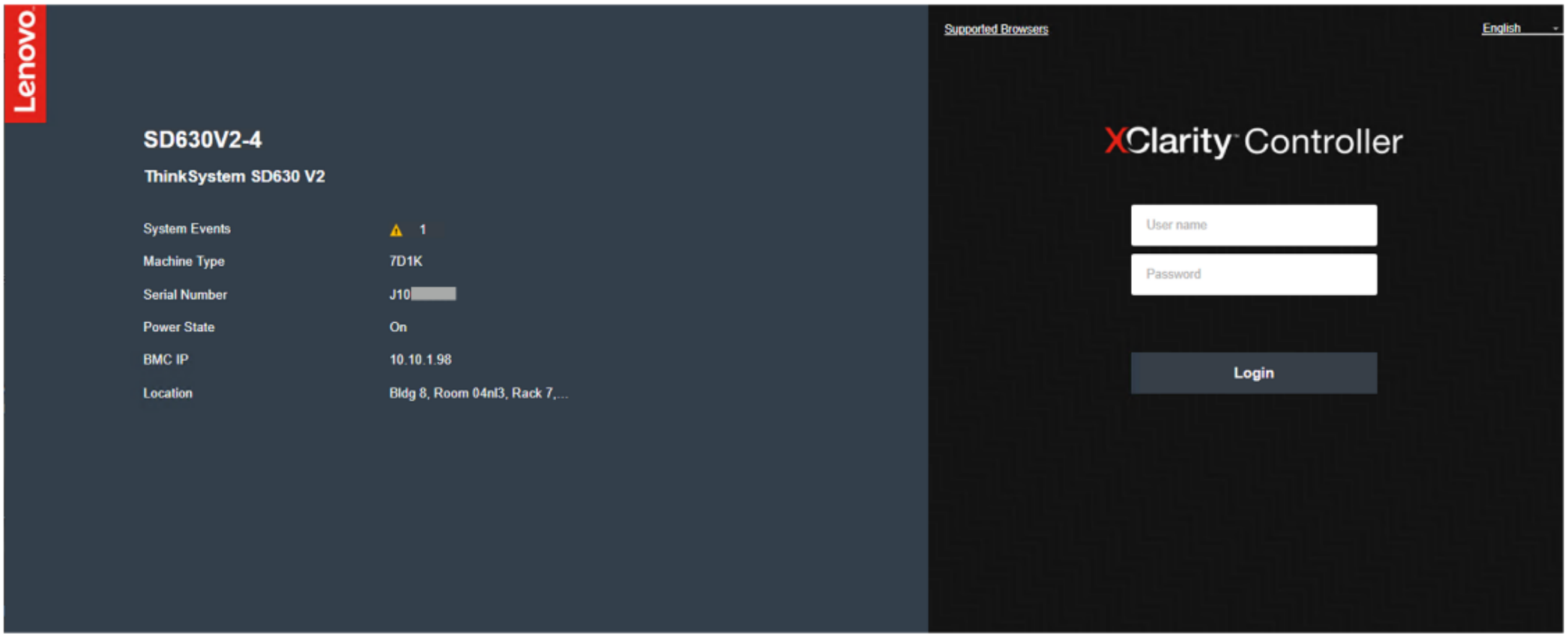


Click each number in turn to see the procedure.

Step 1 2 3 4

Logging in to XCC

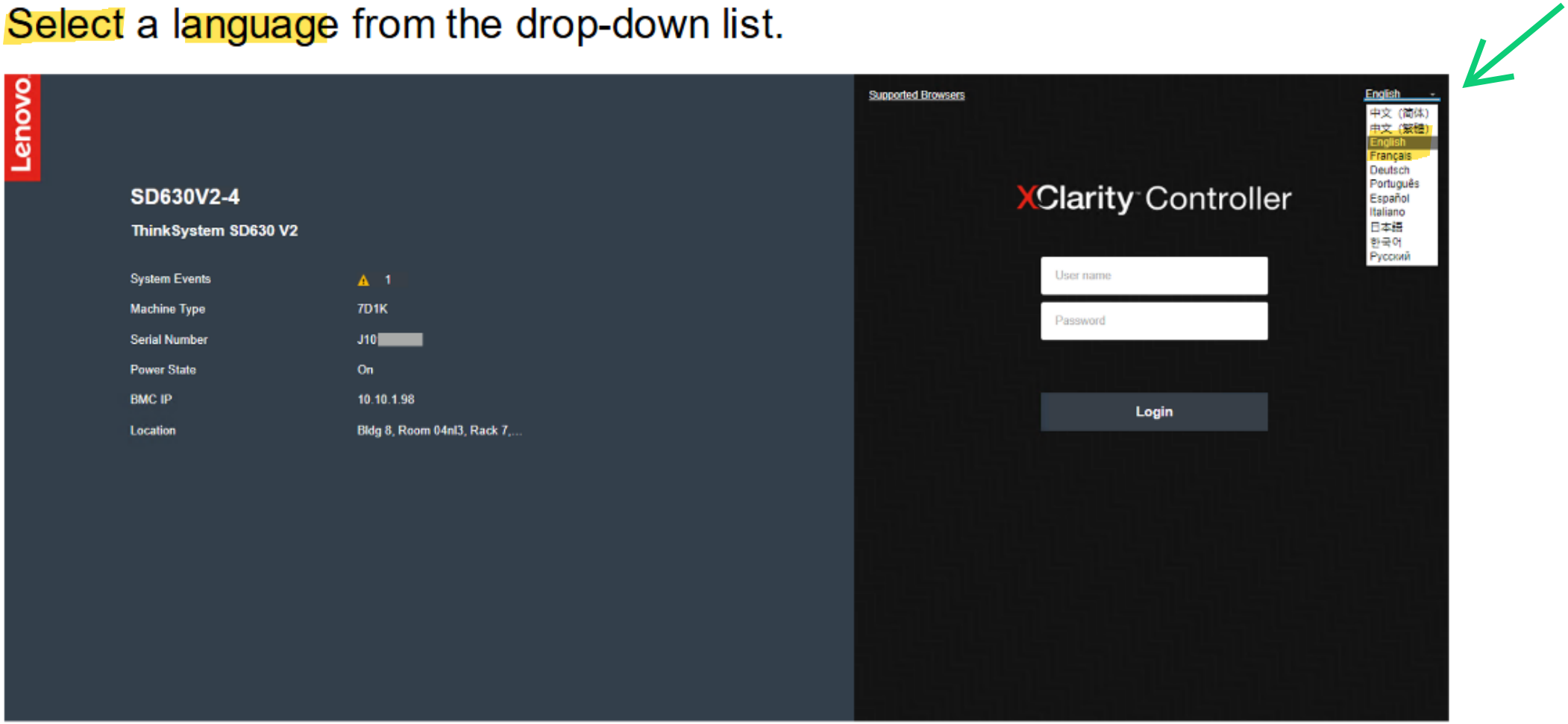
Open a Web browser and type in the IP address or XCC host name.



Step 1 — 2 — 3 — 4

Logging in to XCC

Select a language from the drop-down list.

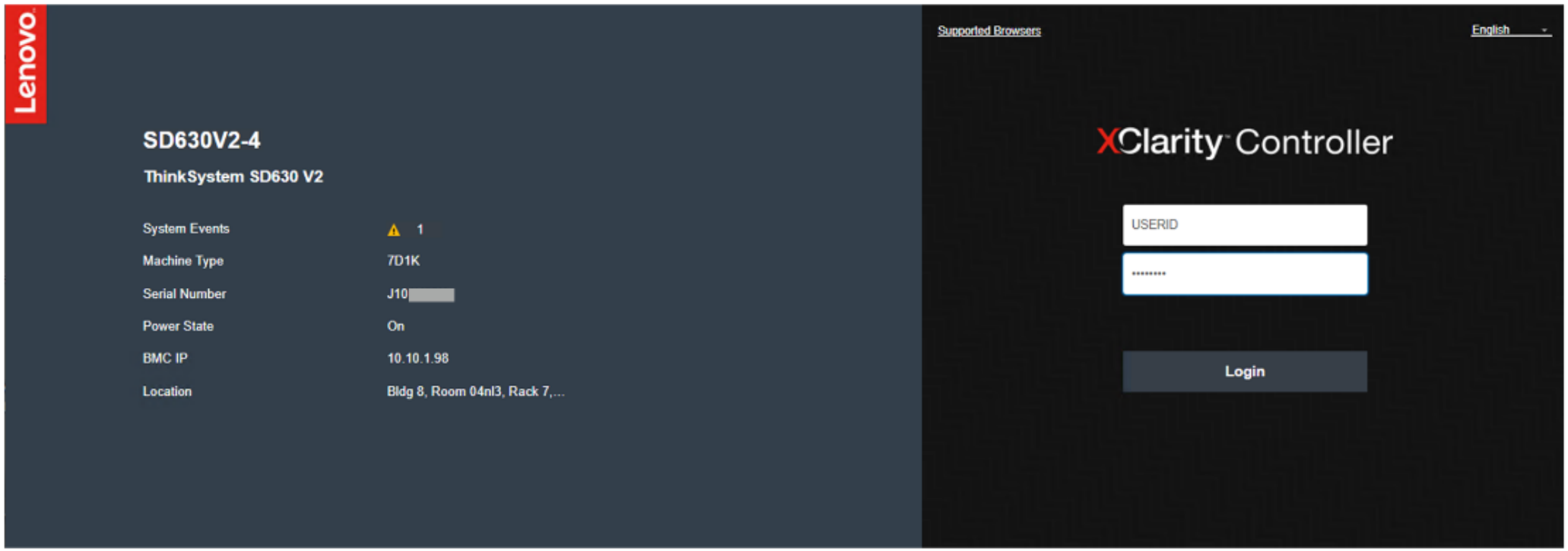


Step 1 — 2 — 3 — 4

Logging in to XCC

Type in the username and password. The default username is **USERID**, and the default password is **PASSW0RD** (with a zero, not the letter O).

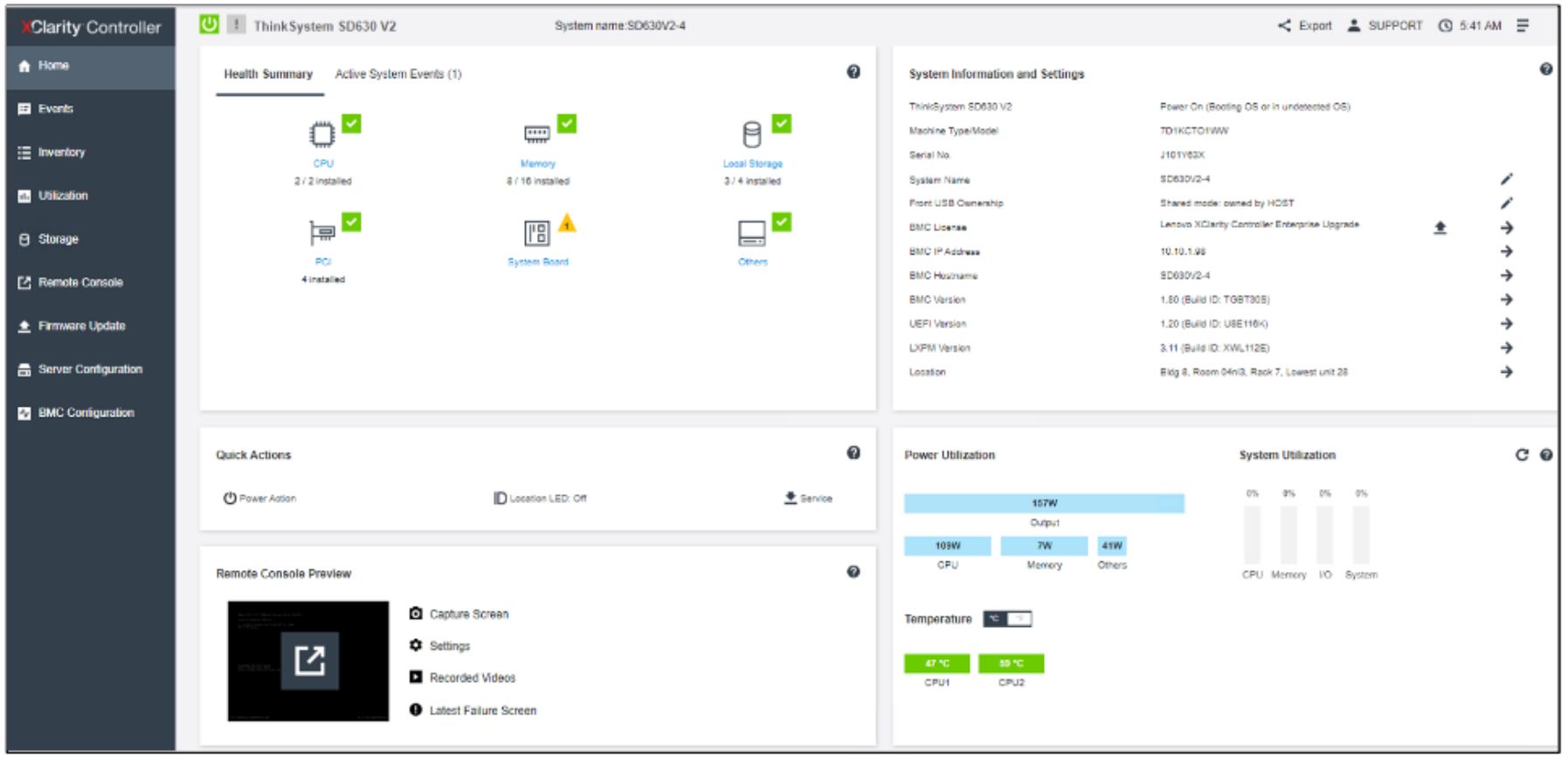
For better security, change the username and password during the initial configuration.



Step 1 — 2 — 3 — 4

Logging in to XCC

Click **Login** to start the session. The browser will open the XCC homepage.

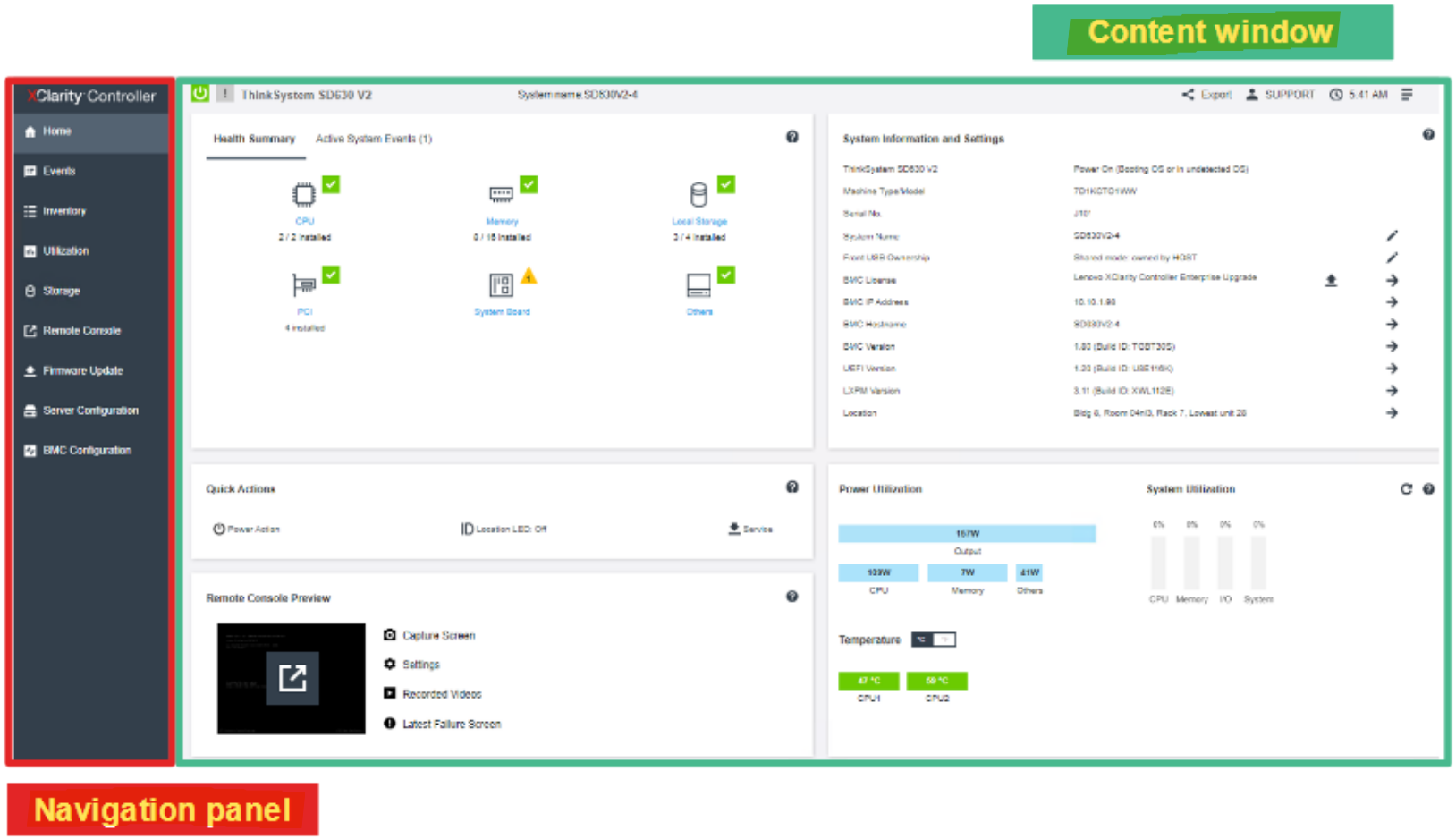


Step 1 — 2 — 3 — 4

XCC GUI overview

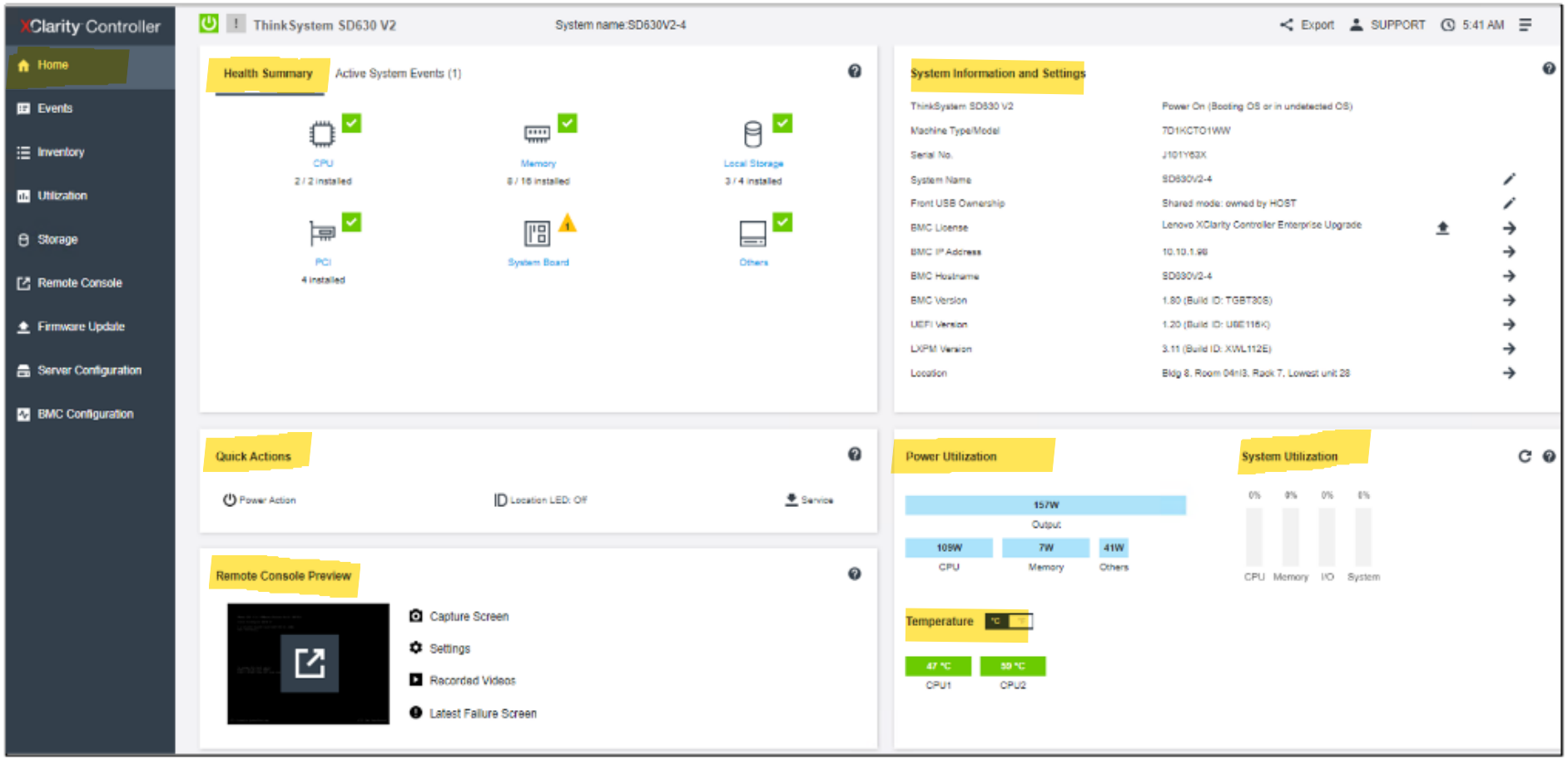
The XCC GUI is divided into two sections: the navigation panel, which lists possible actions, and the content window on the right.

The content window uses a modular layout to give users a quick view of the server status and further actions that can be performed.



XCC Homepage

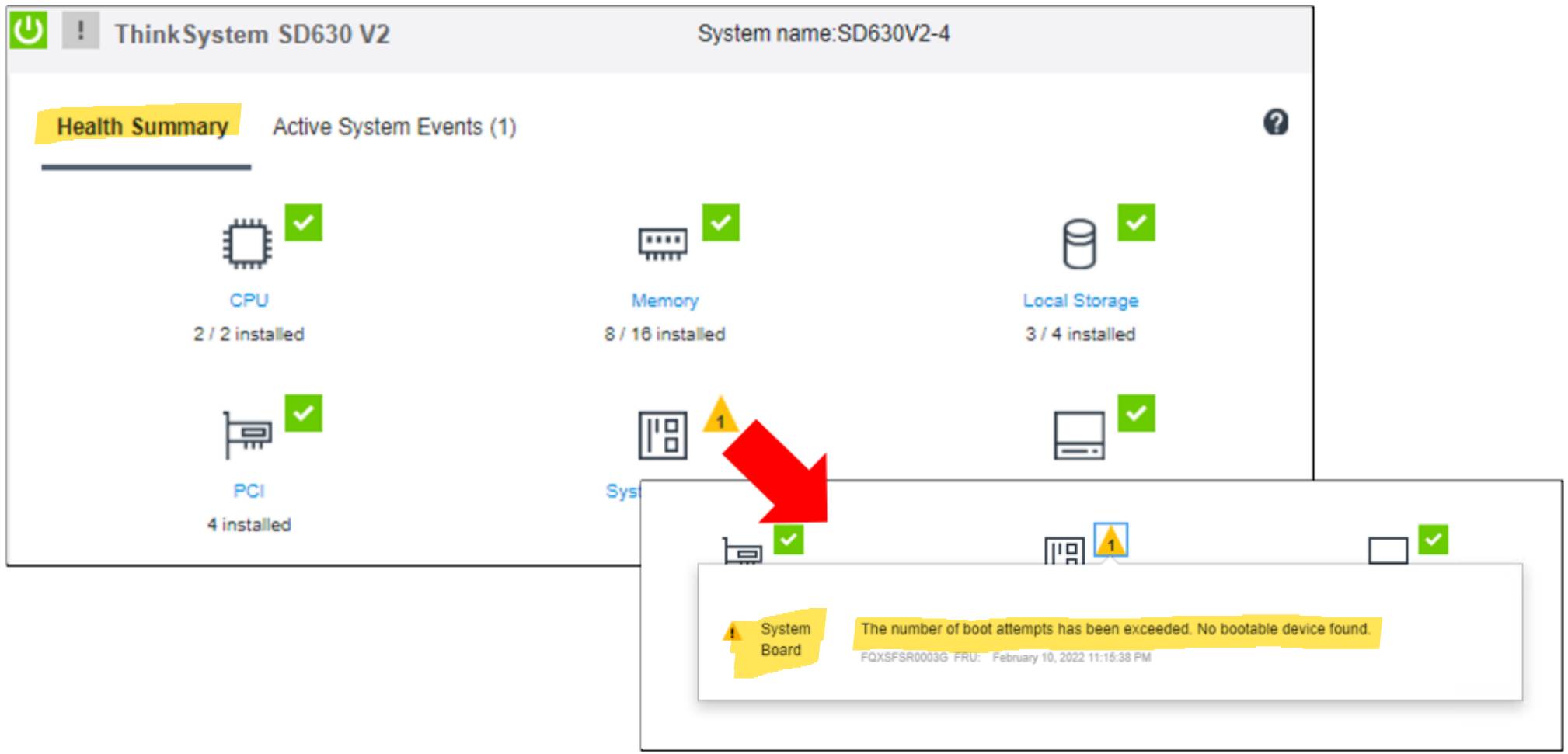
The **Homepage** dashboard contains common system status information and actions.



Click here to see more information.

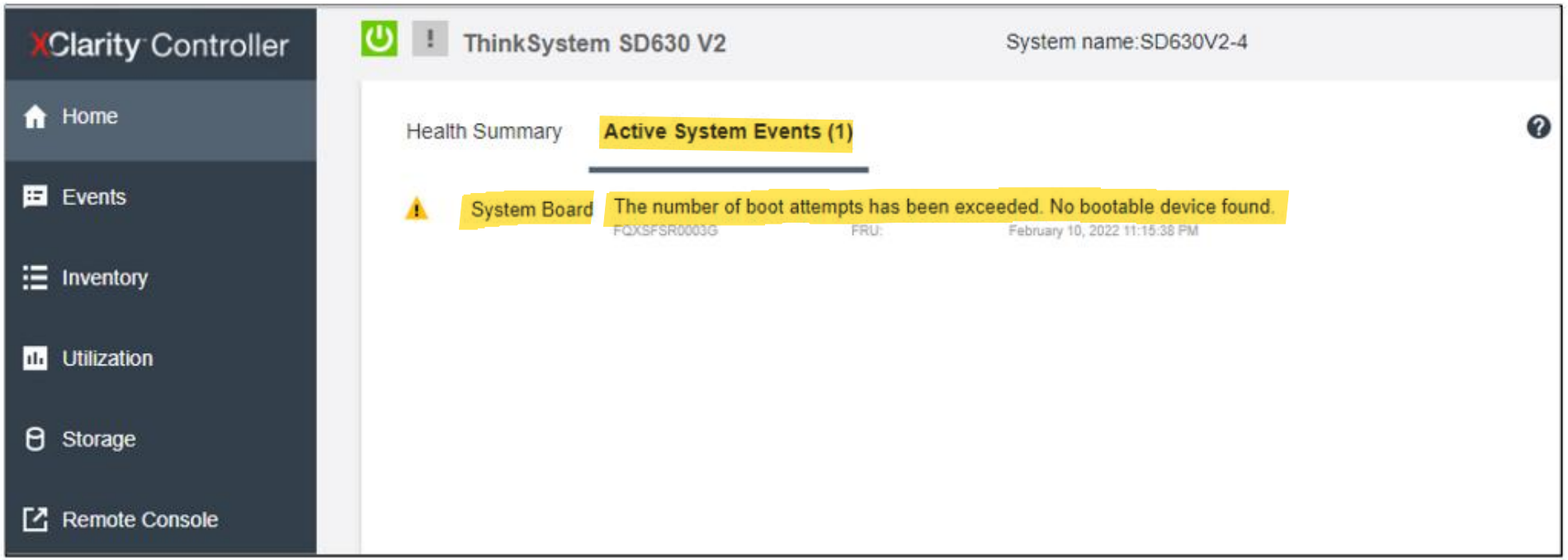
XCC Homepage

The **Health Summary** section contains common system status information. If any warning (yellow) or error (red) icons are displayed, users can click the icon to see more information.



XCC Homepage

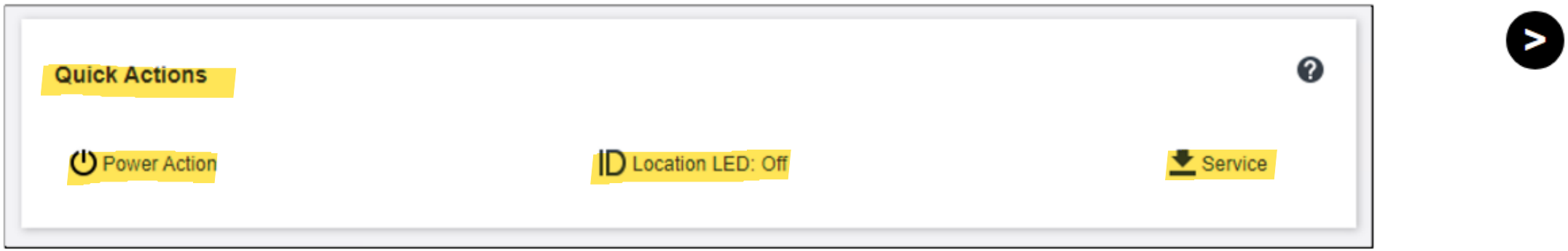
Users can also find detailed system warning and error information in the **Active System Events** tab.



XCC Homepage

The **Quick Actions** section includes the following:

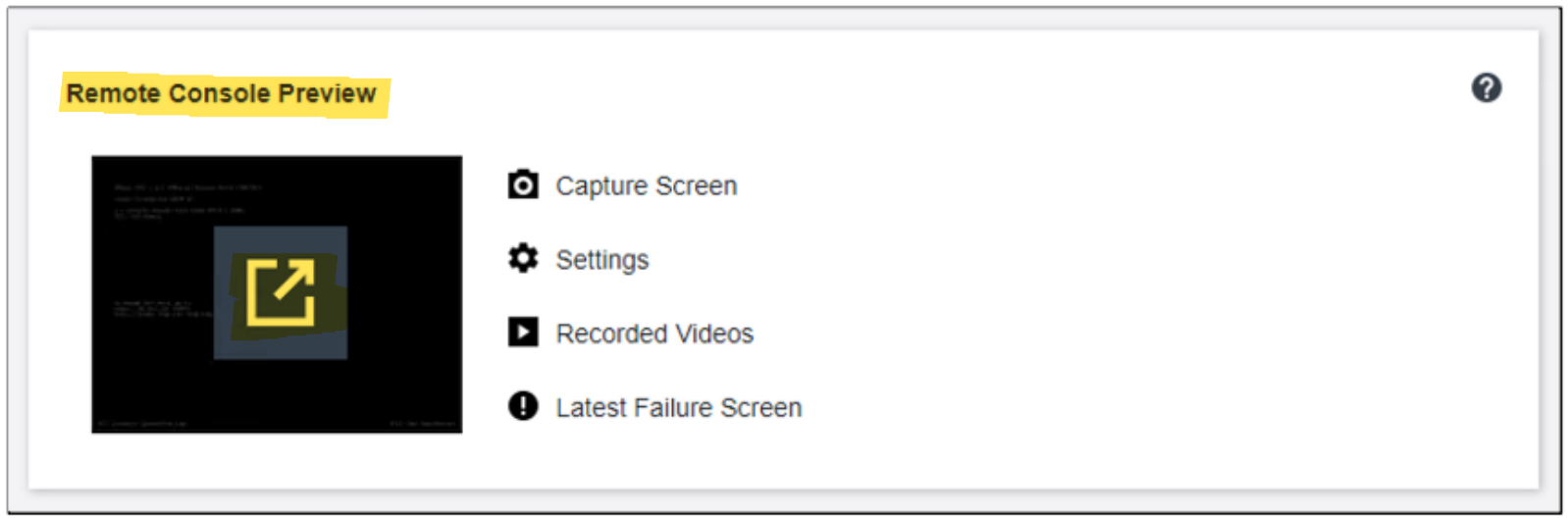
- Power Action: Use Power Action to control the server power or restart the server.
- Location LED: Use this button to control the location LED (turn on, turn off, or set to blinking) to help with locating the server.
- Service: Click this button to get the service data for problem determination use.



Note: The XCC service data does not include OS-level logs. To collect the complete FFDC log with OS-level logs, use OneCLI instead.

XCC Homepage

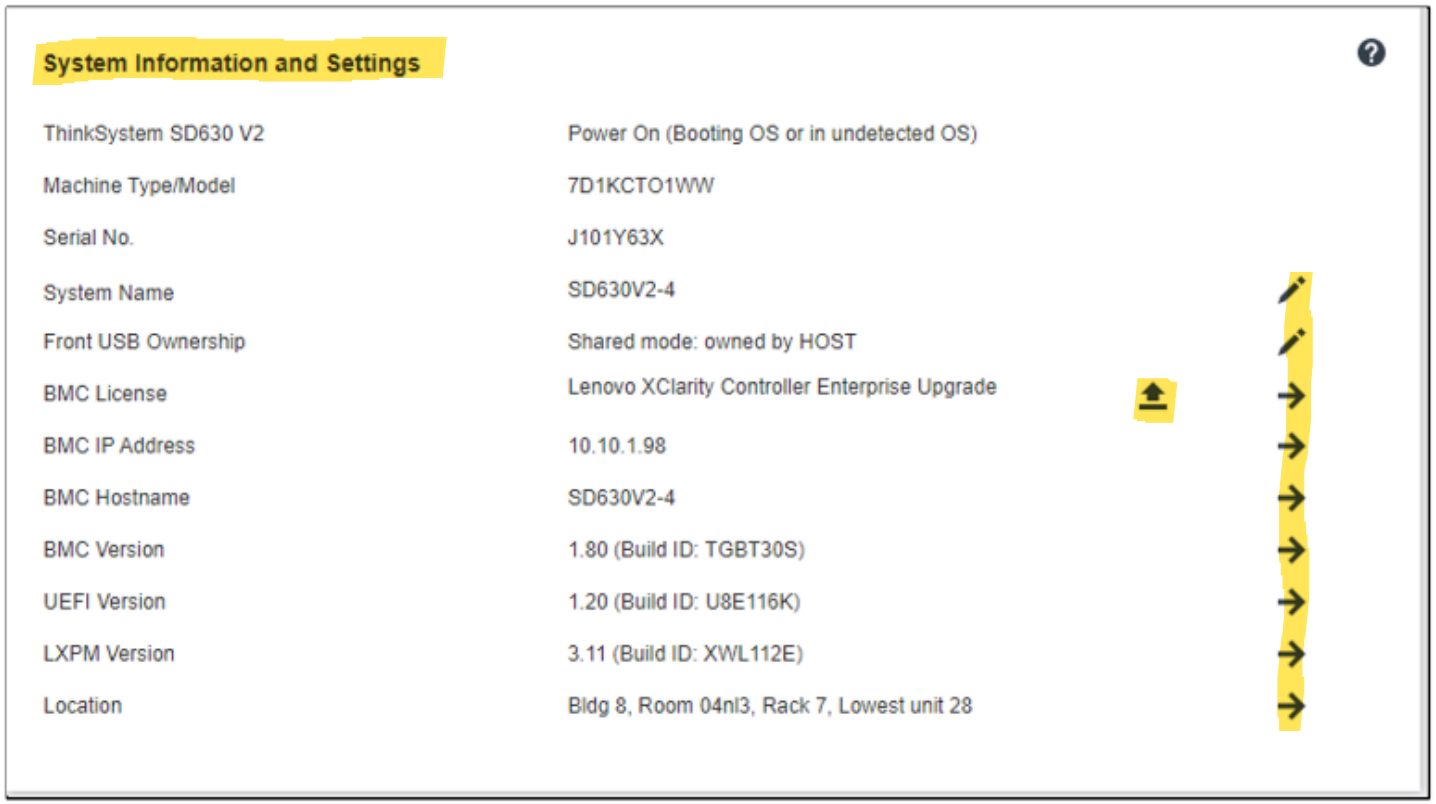
The remote console feature allows access to the server's operating system. Click the window to open a pop-up window in which users can configure virtual media and launch a remote console session on a new Web page.



Note: The remote console feature requires an XCC Advanced edition license.

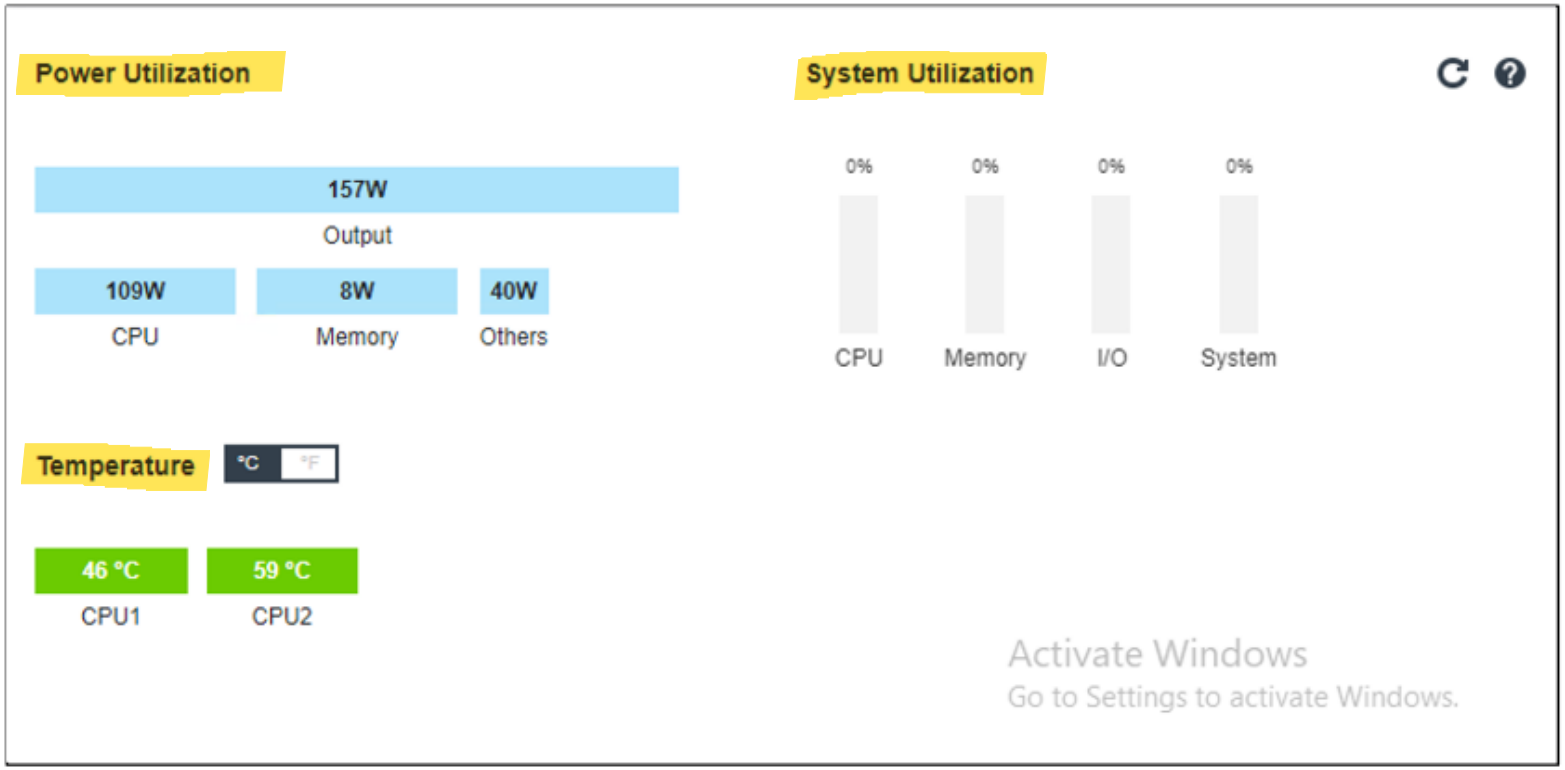
XCC Homepage

The **System Information and Settings** section contains a summary of common system information. Click the pen icon to change the property or setting. Click the arrow icon to see additional information. Click the upward-pointing arrow icon to upgrade the XCC license.



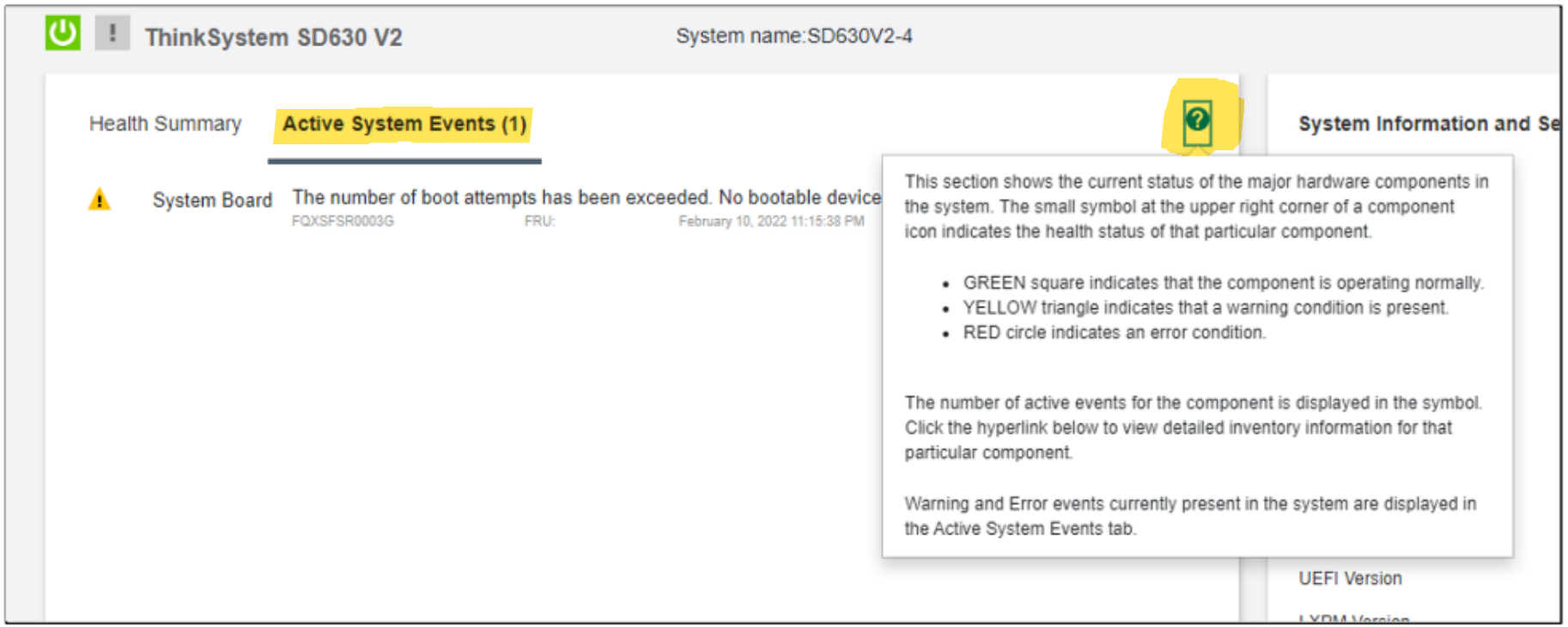
XCC Homepage

This section contains a summary of the current system power consumption, compute utilization (system, CPU, memory, and I/O subsystem), and temperature readings.



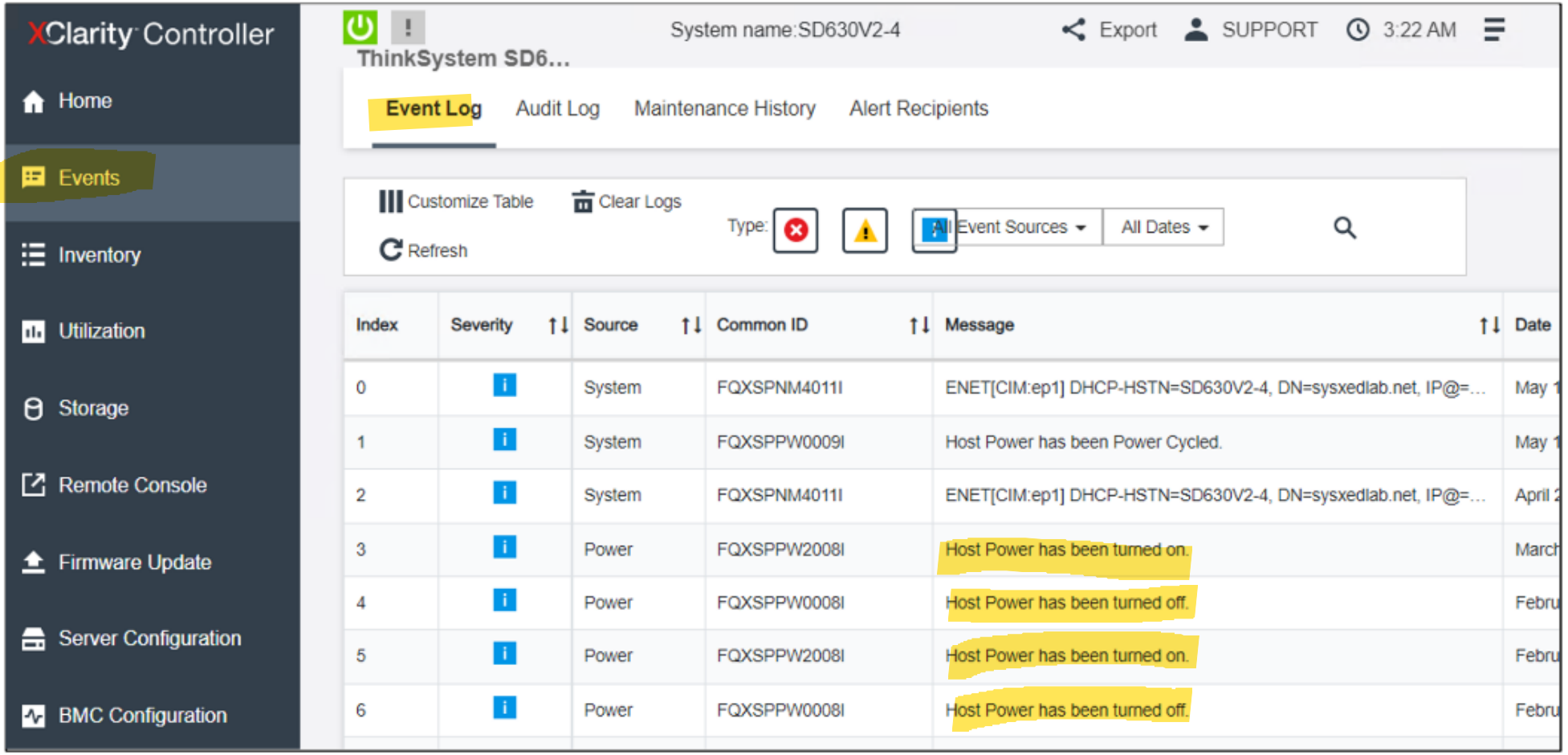
XCC Homepage

In any section, click ? to see a description of the corresponding XCC function.



Events page

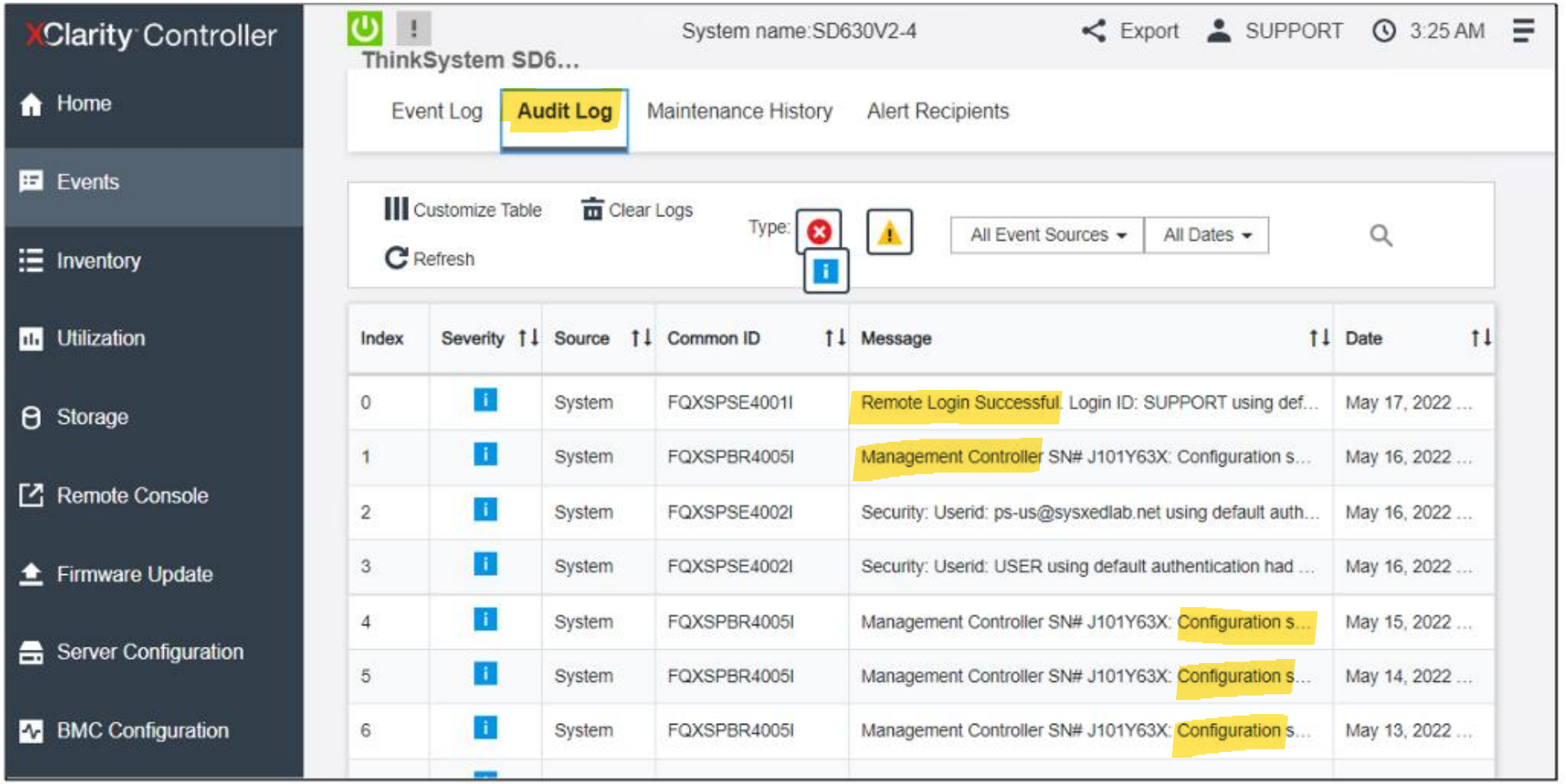
The **Events** page → **Event Log** tab contains a historical list of all hardware and management events.



Click here to see more information.

Events page

The **Audit Log** tab contains a historical record of user actions, such as logging in to XCC, creating a new user, and changing a user password.



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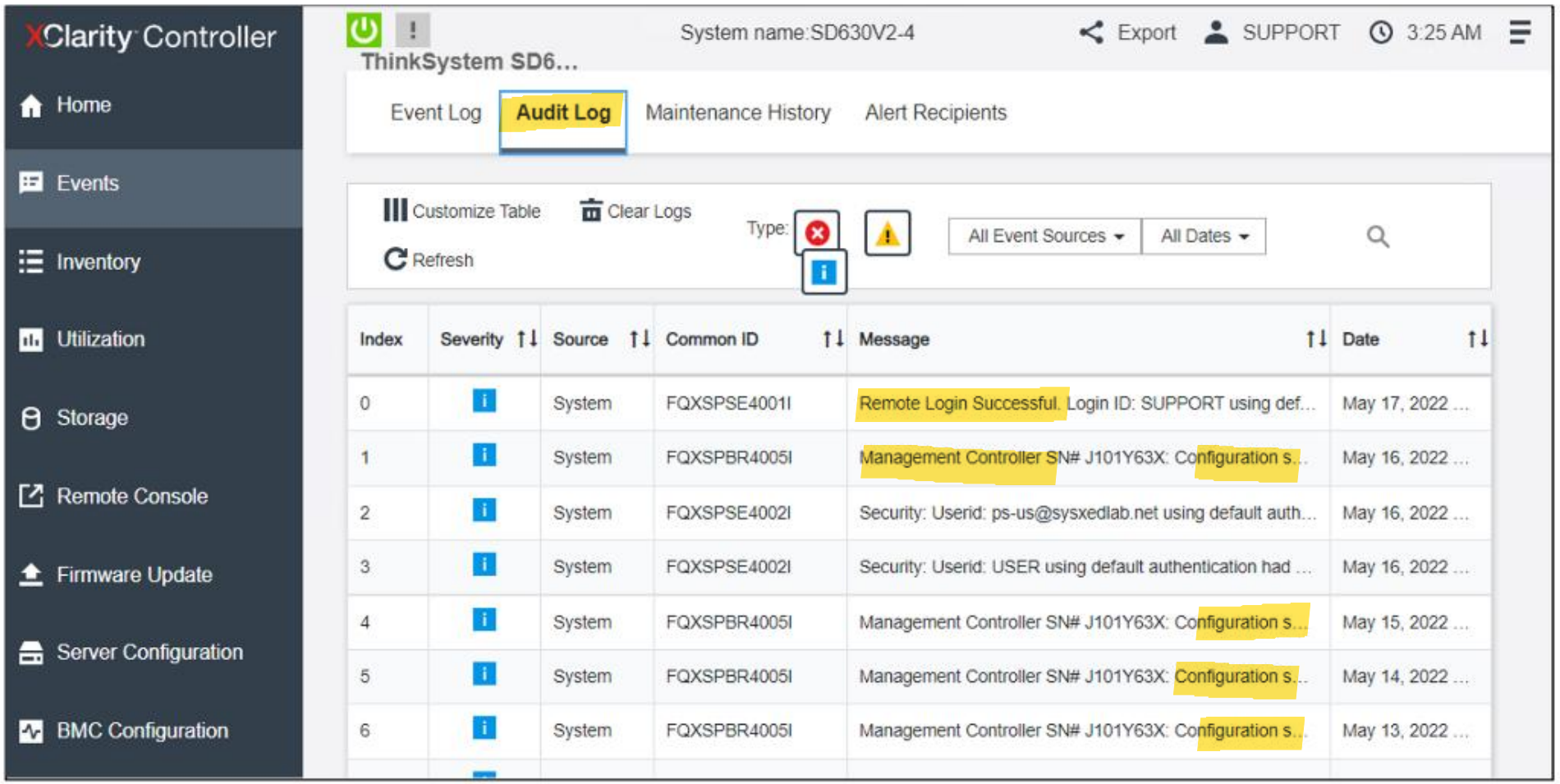
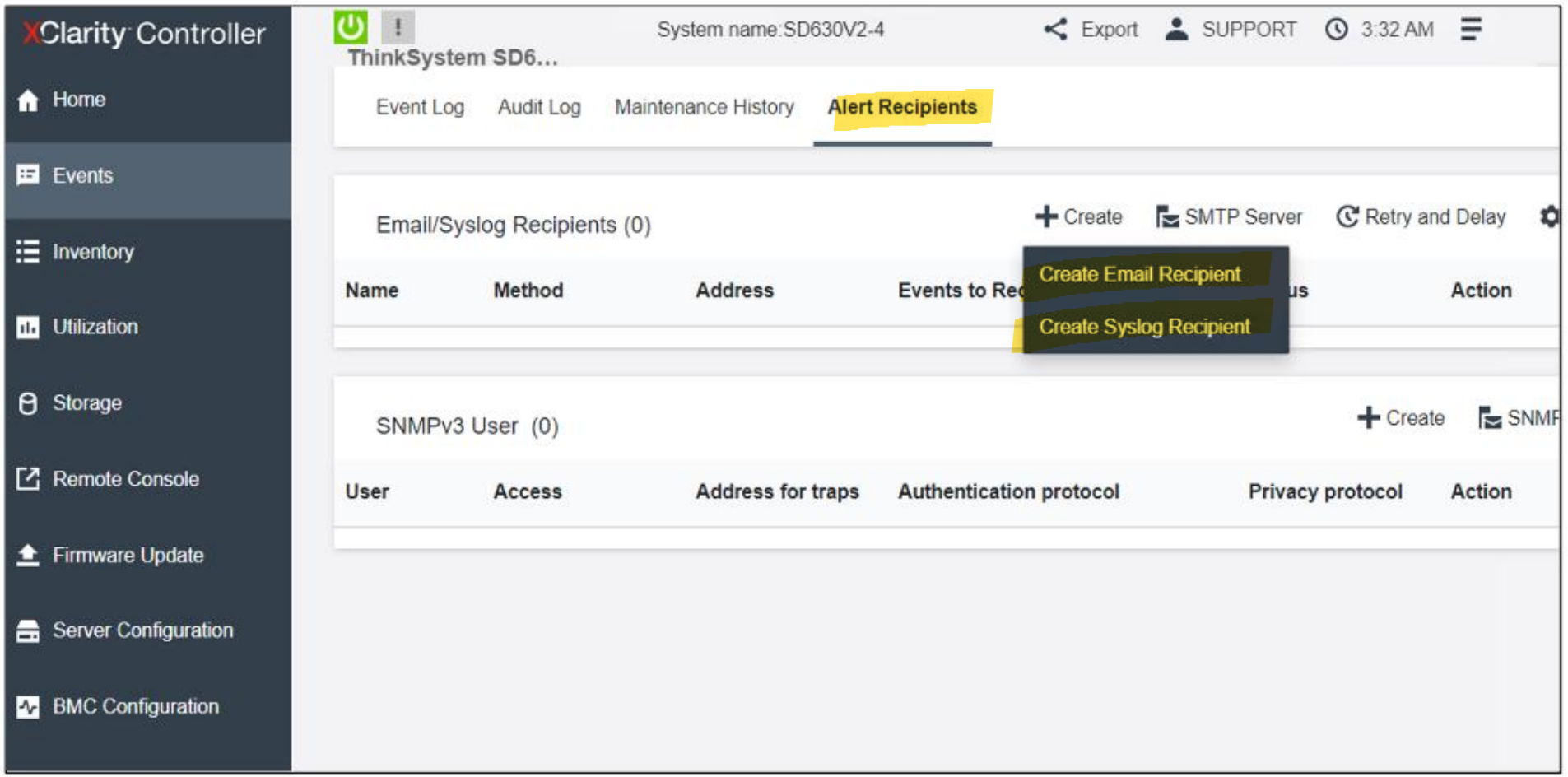


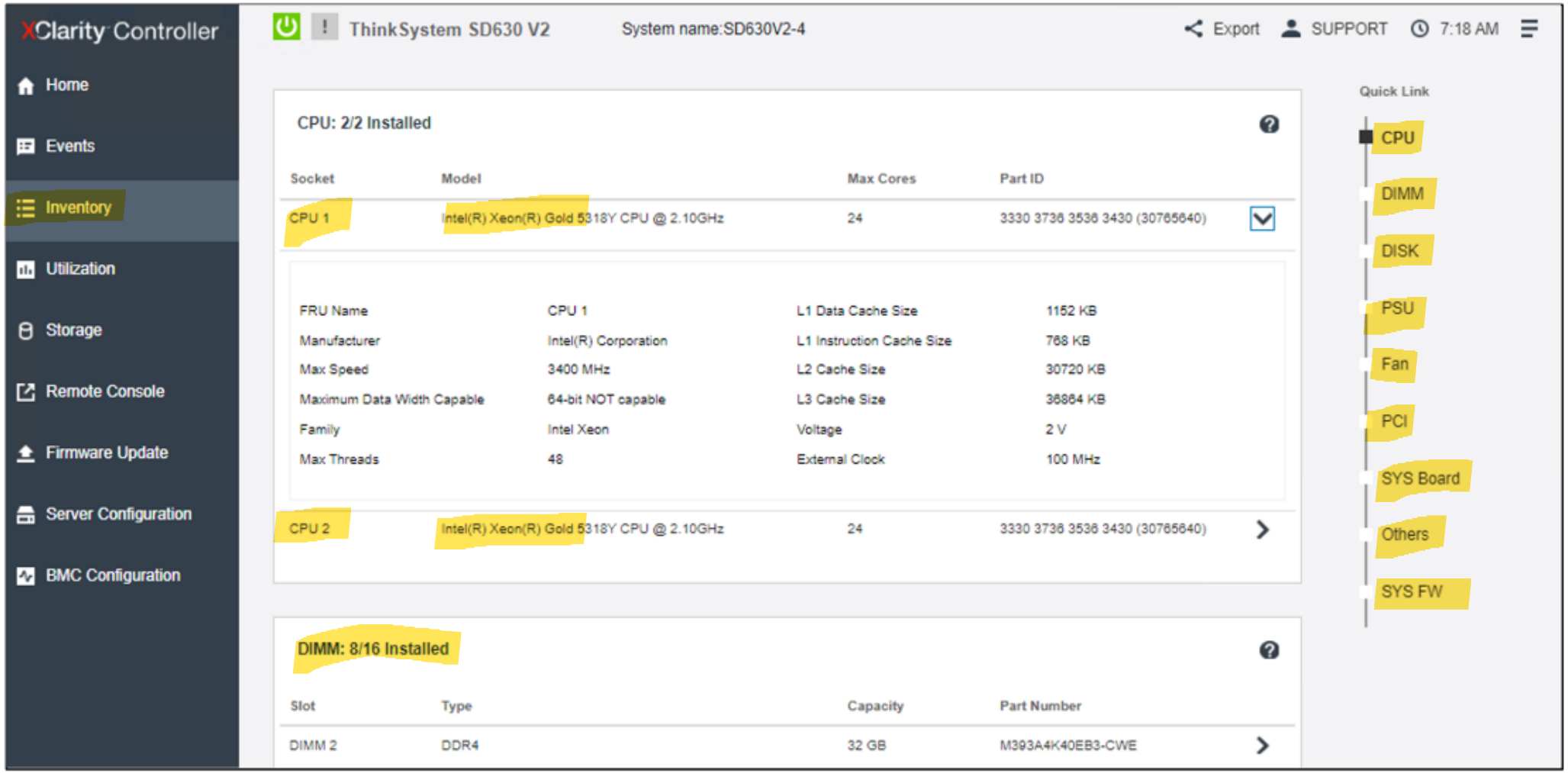
Events page

Use the **Alert Recipients** tab to add and modify email and syslog notifications or SNMP trap recipients.



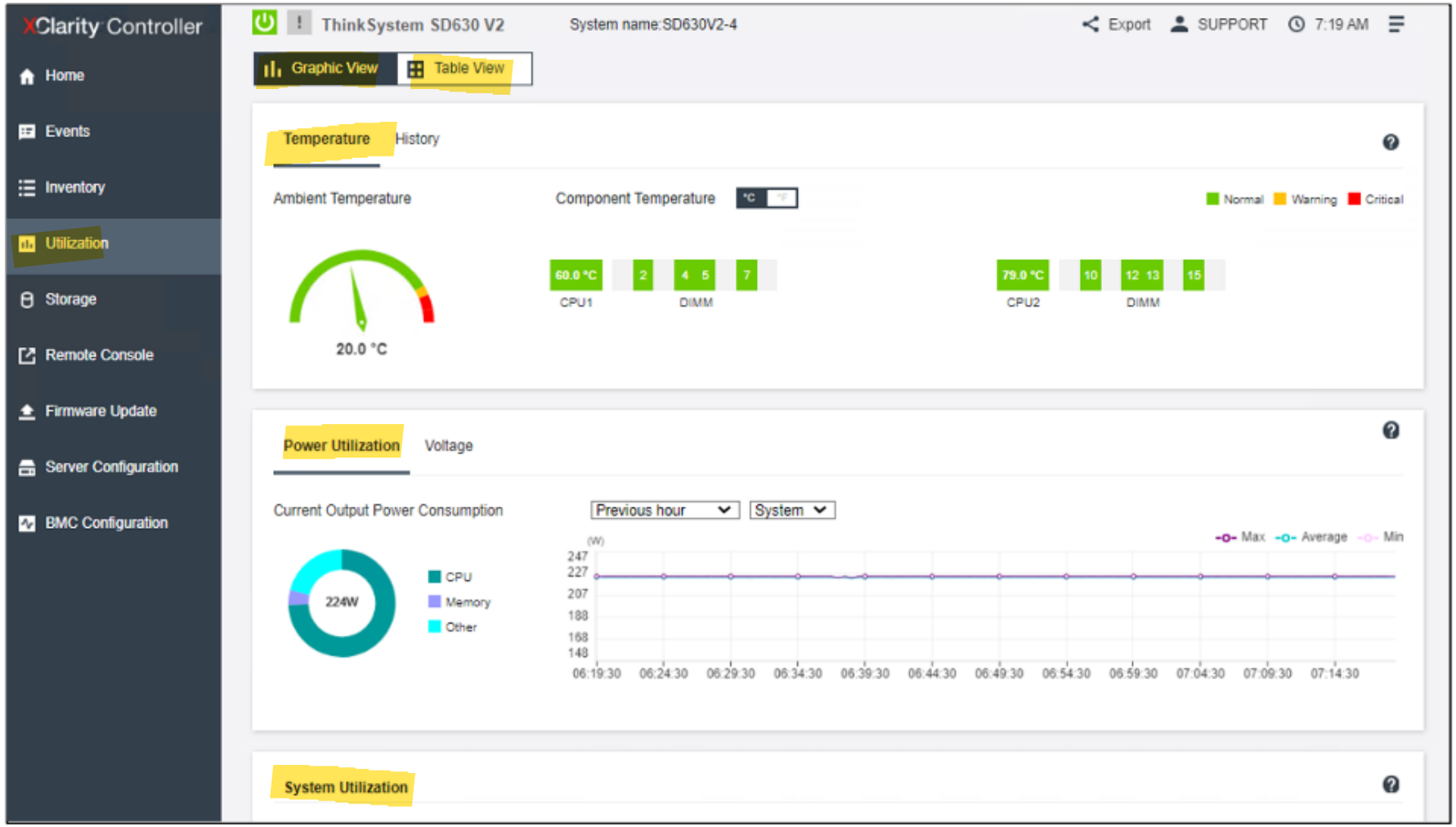
Inventory page

The **Inventory** page contains components information for the system.



Utilization page

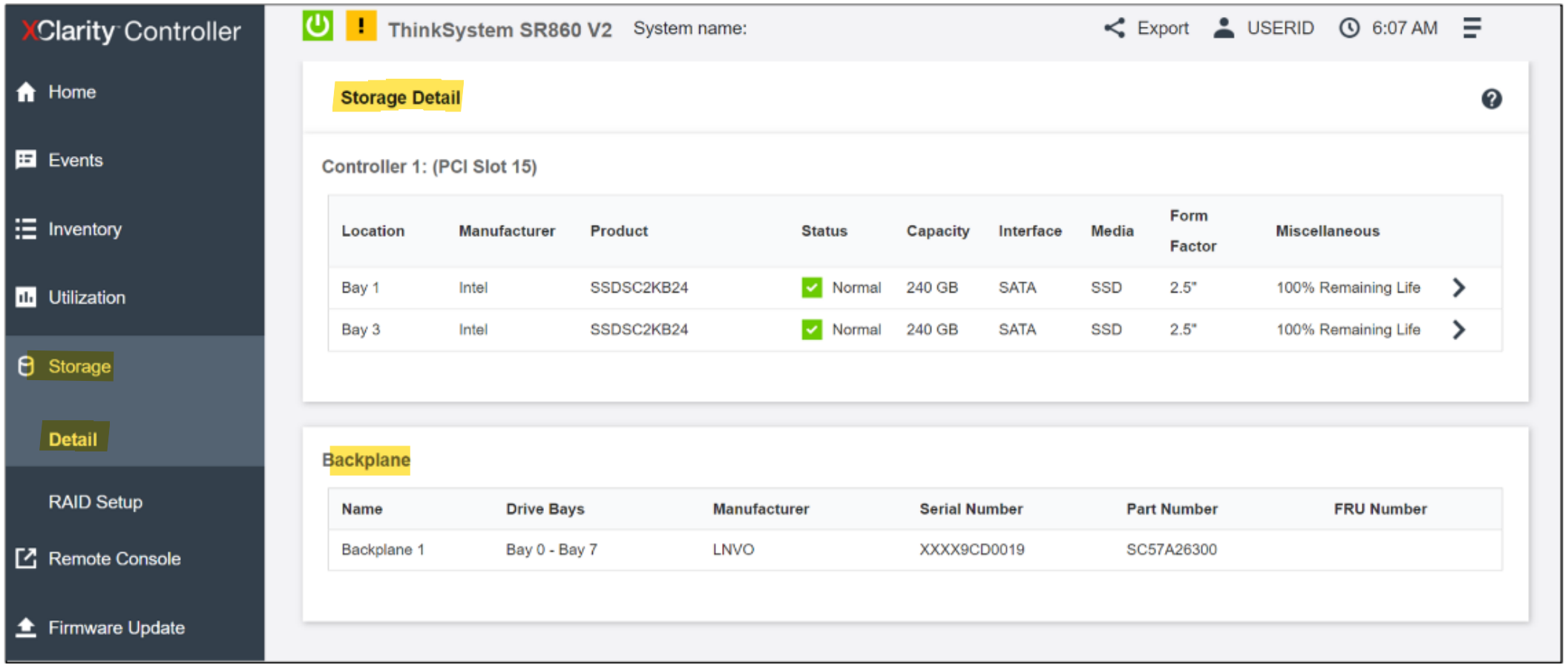
The **Utilization** page contains a summary of common server utilization information.



Click the image to switch to a table view.

Storage page

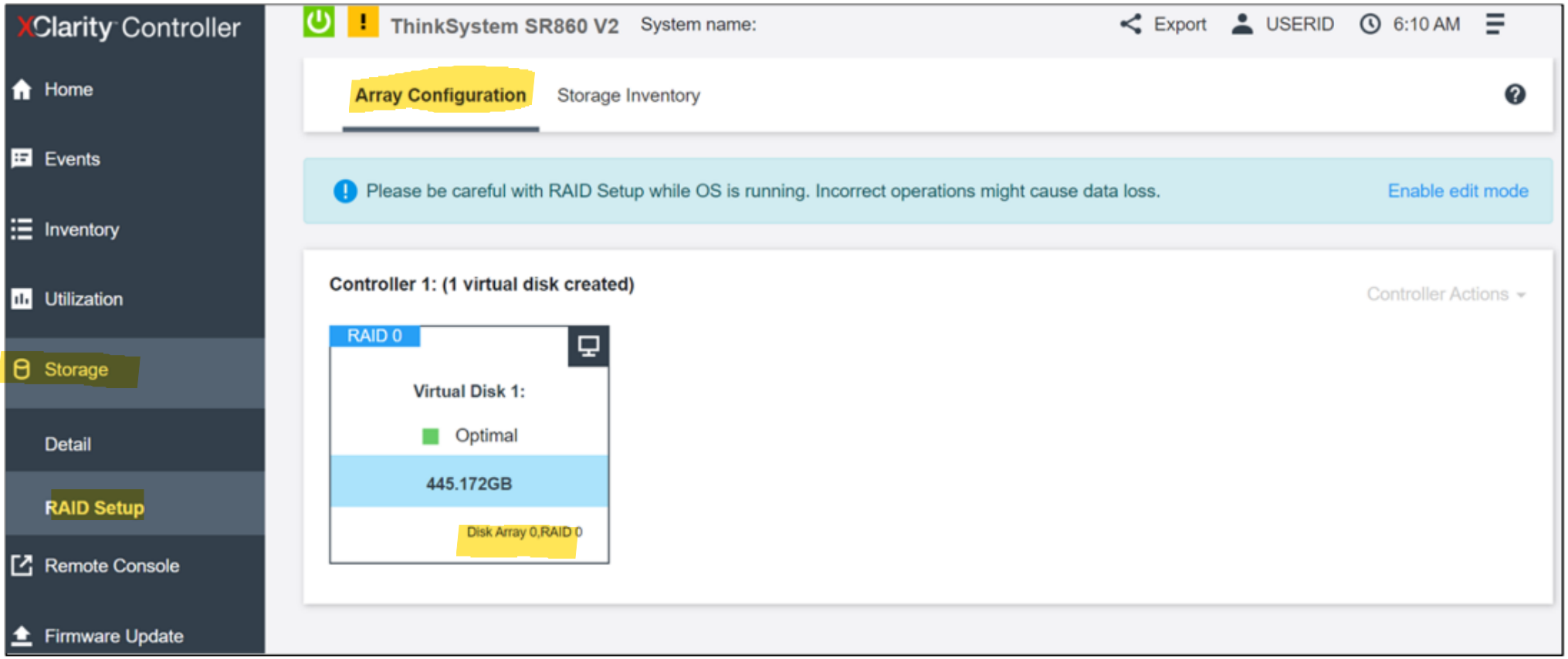
The **Storage** → **Detail** page contains detailed drive information.



Click here to see more information.

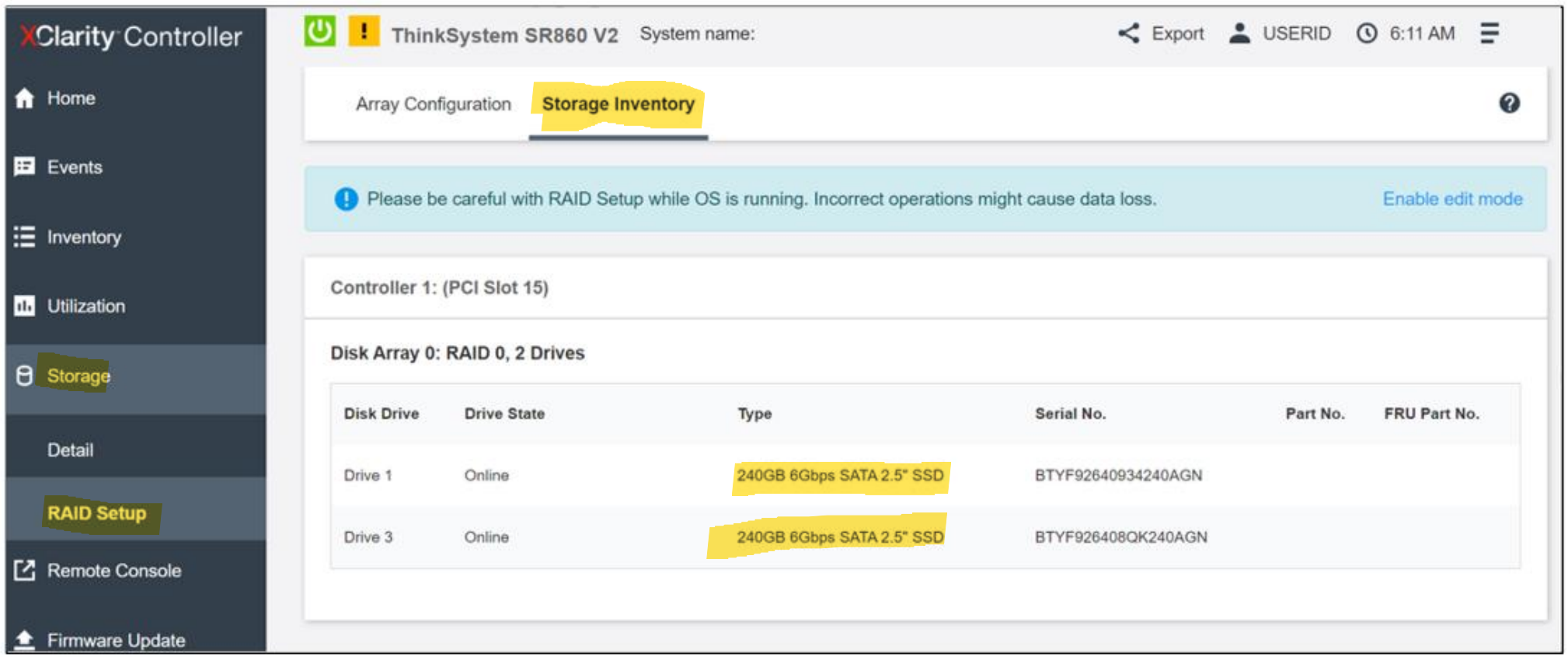
Storage page

The **Storage** → **RAID Setup** page can be used to configure RAID settings. At present, the RAID Setup page cannot be used to set up the RAID configuration for NVMe drives.



Storage page

The **Storage** → **RAID Setup** → **Storage Inventory** tab contains disk array and drive information for the system.

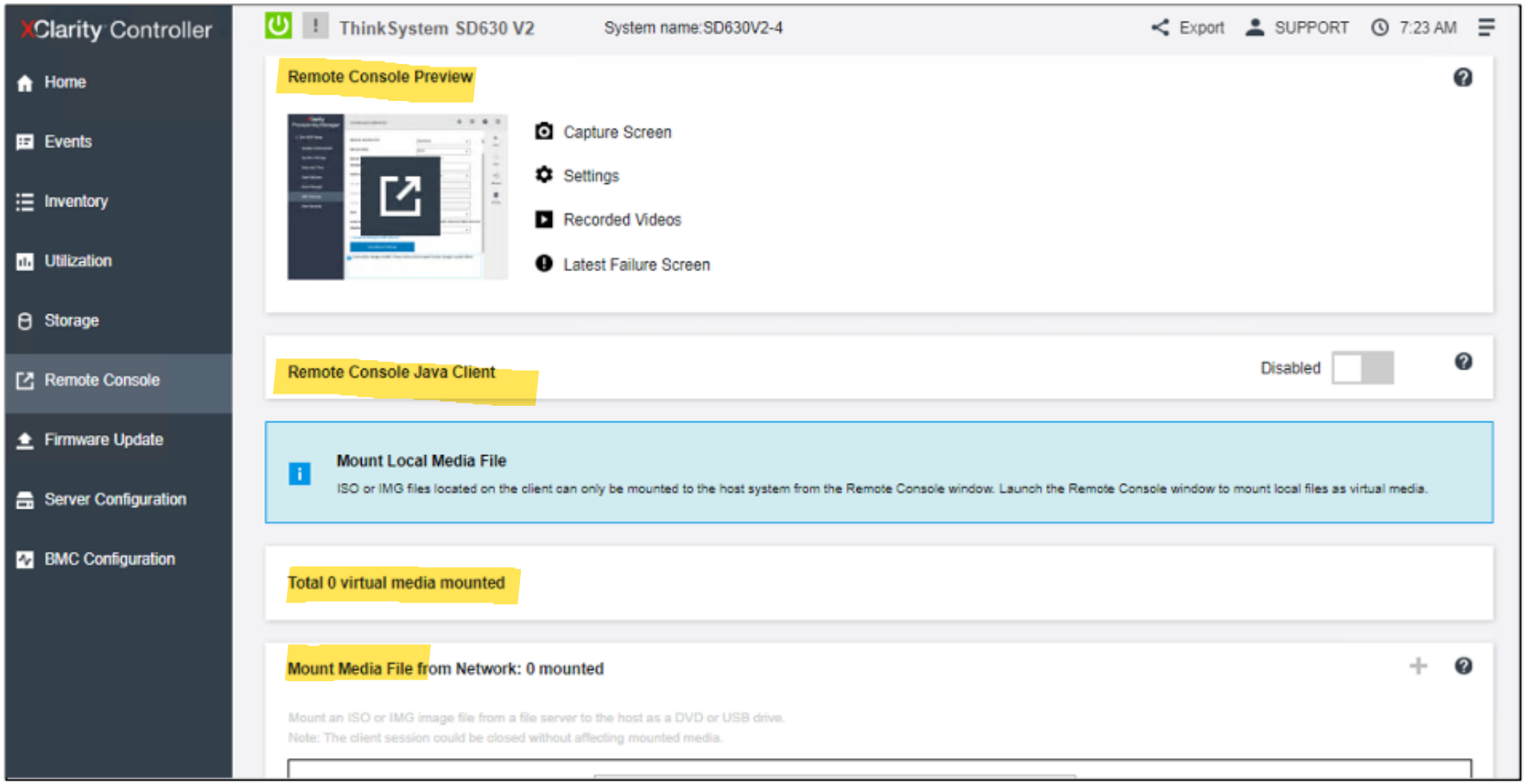


Remote Console page

Use the **Remote Console** page to remotely control the system or mount local media files to the remote system.

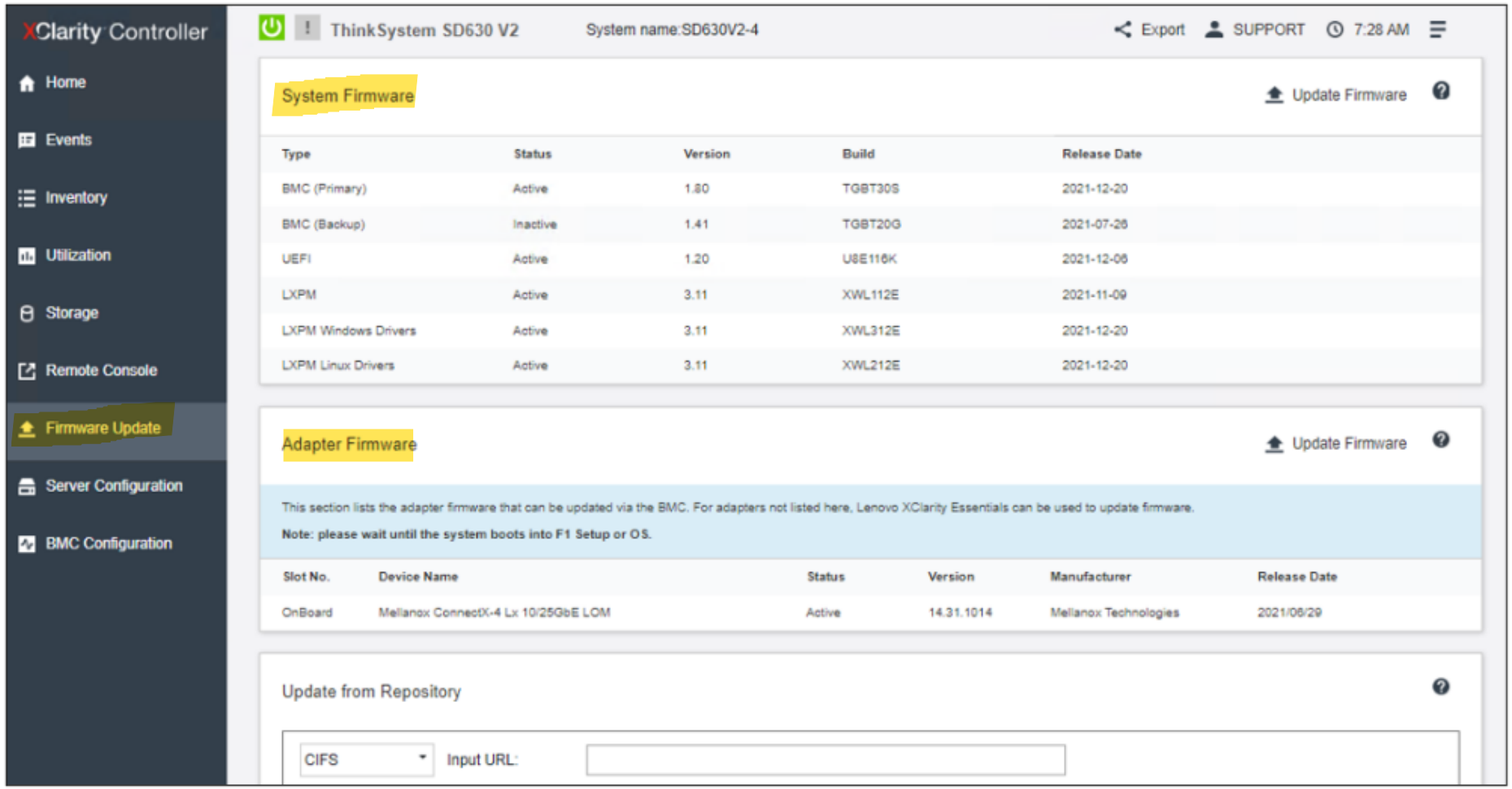
The **Remote Console Preview** feature requires an XCC Advanced edition license.

The **Mount Local Media File** feature requires an XCC Enterprise edition license.



Firmware Update page

Use the **Firmware Update** page to update system firmware. Some component firmware updates might require XClarity Essentials tools (Update Xpress or OneCLI).



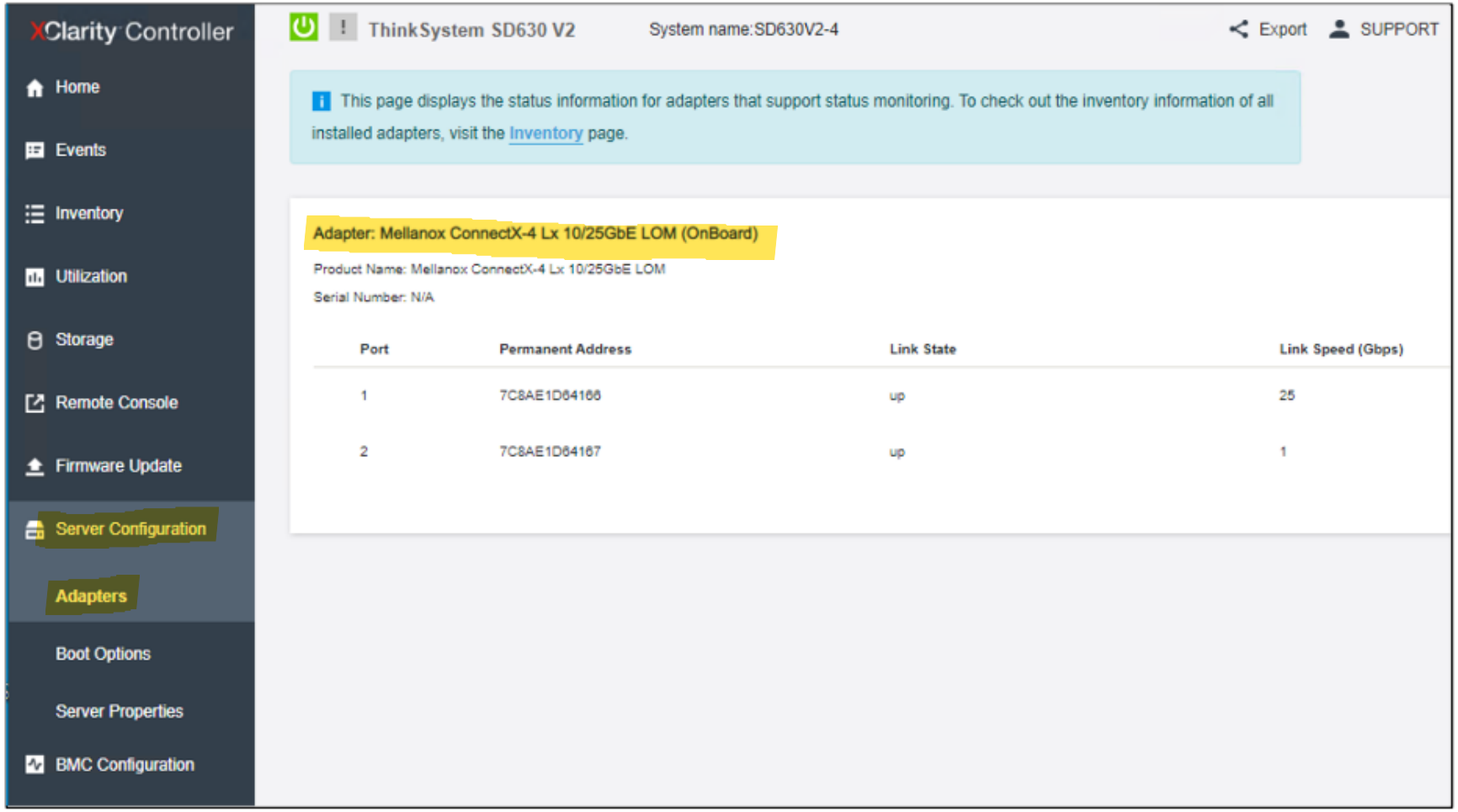
Firmware Update: Update from Repository

The **Firmware Update** page has an **Update from Repository** section. Users can create a repository, upload firmware files to the repository, and then use the XCC Firmware Update page to update the system firmware from the repository.

The repository can be a common Internet file system (CIFS – previously known as SMB) mount or a network file system (NFS) mount.

Server Configuration page

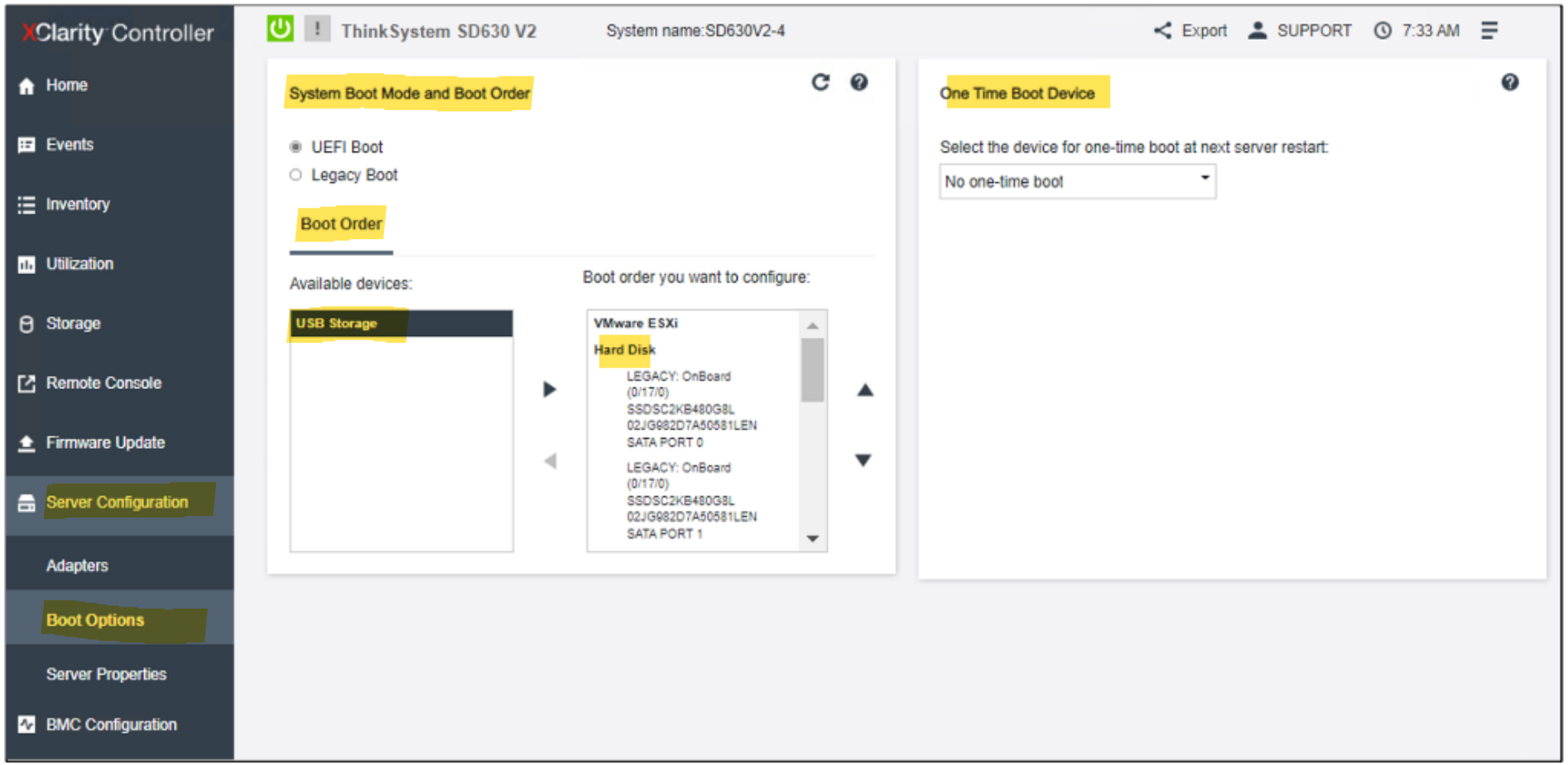
The **Server Configuration** → **Adapters** page contains information about the adapters installed in the server.



Click here to see more information.

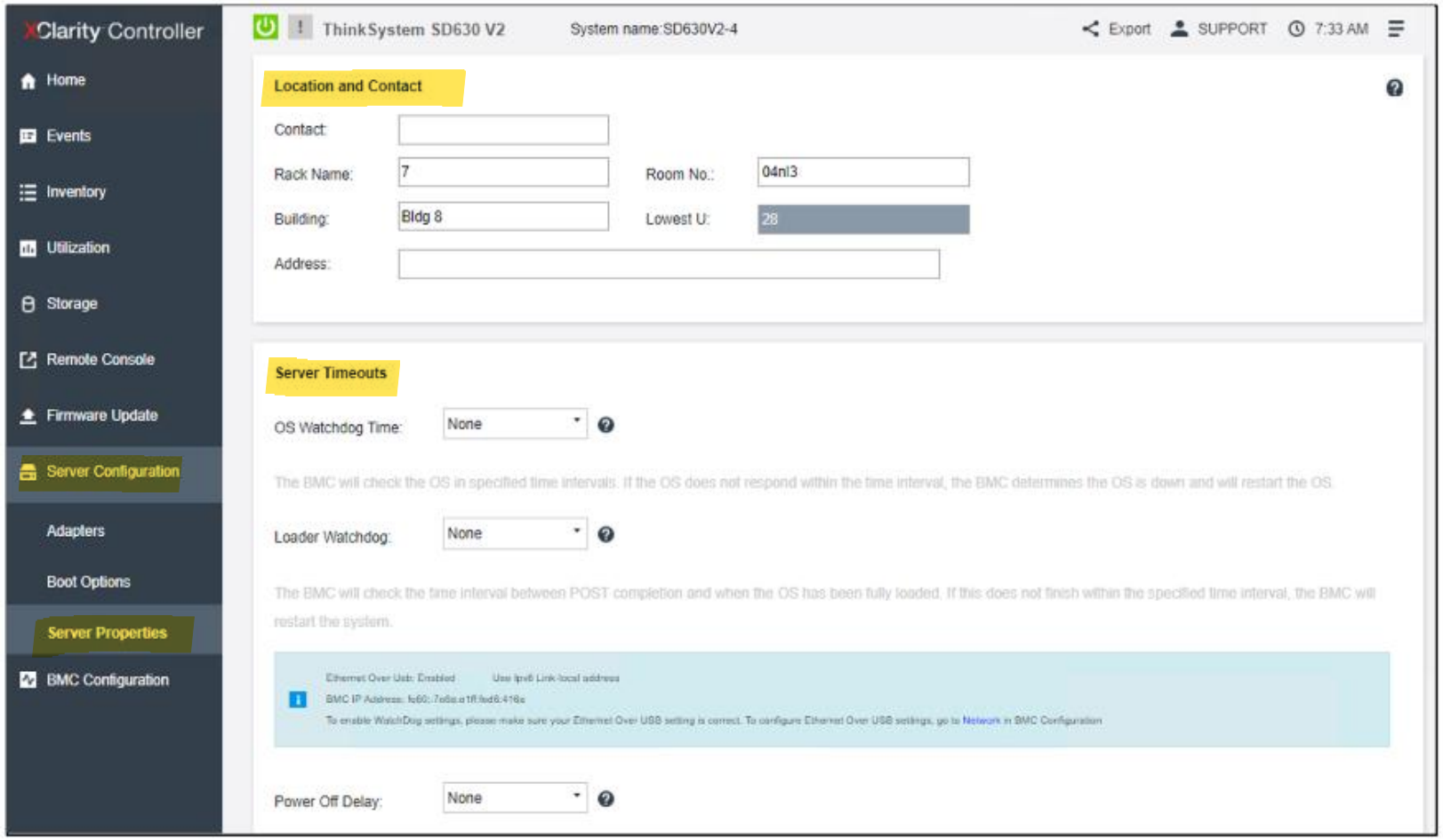
Server Configuration page

Use the **Server Configuration** → **Boot Options** page to configure the system boot mode and boot order.



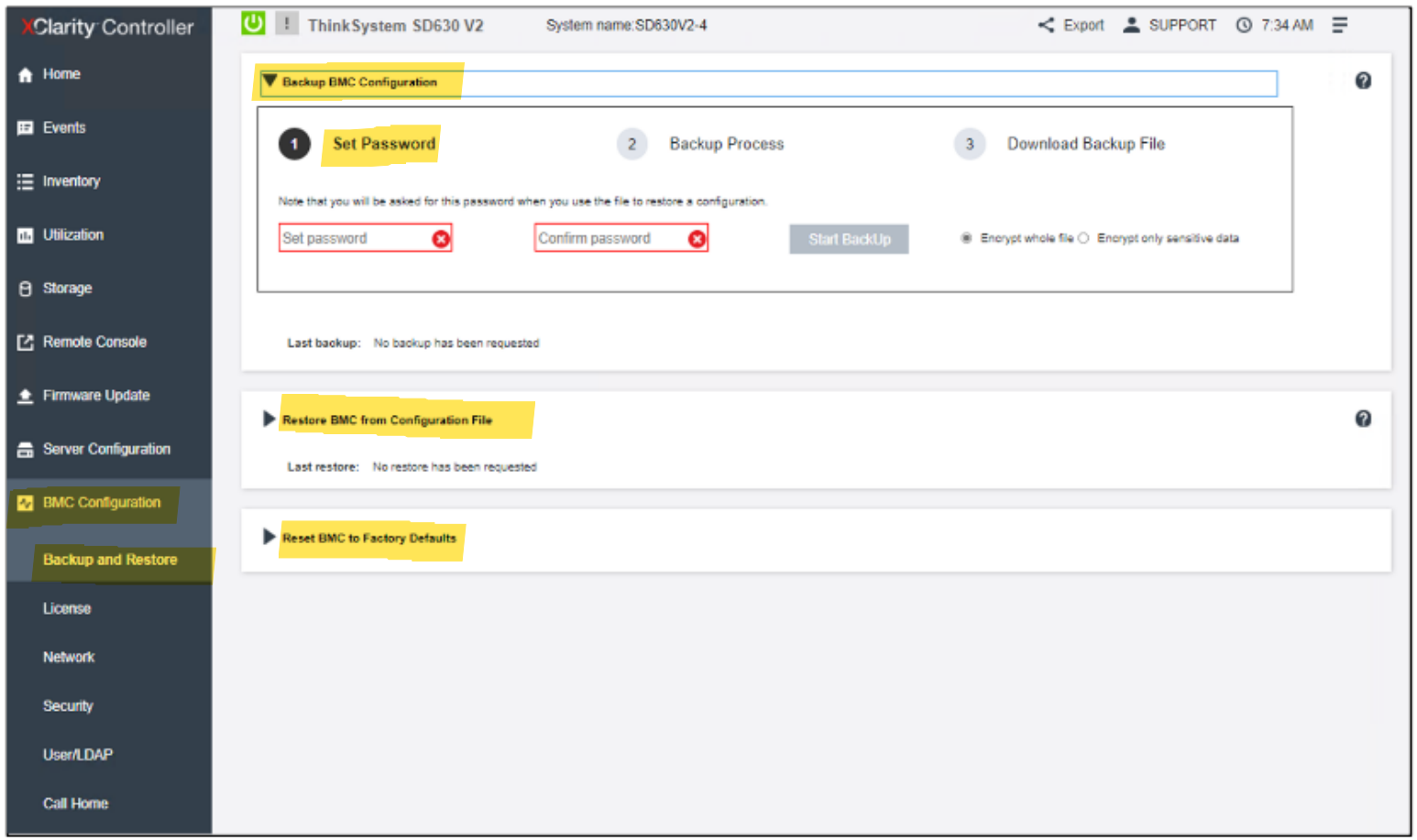
Server Configuration page

The **Server Properties** page enables users to configure server location and contact information, select server timeout settings, and create a trespass message that will be displayed when a user logs in to XCC.



BMC Configuration page

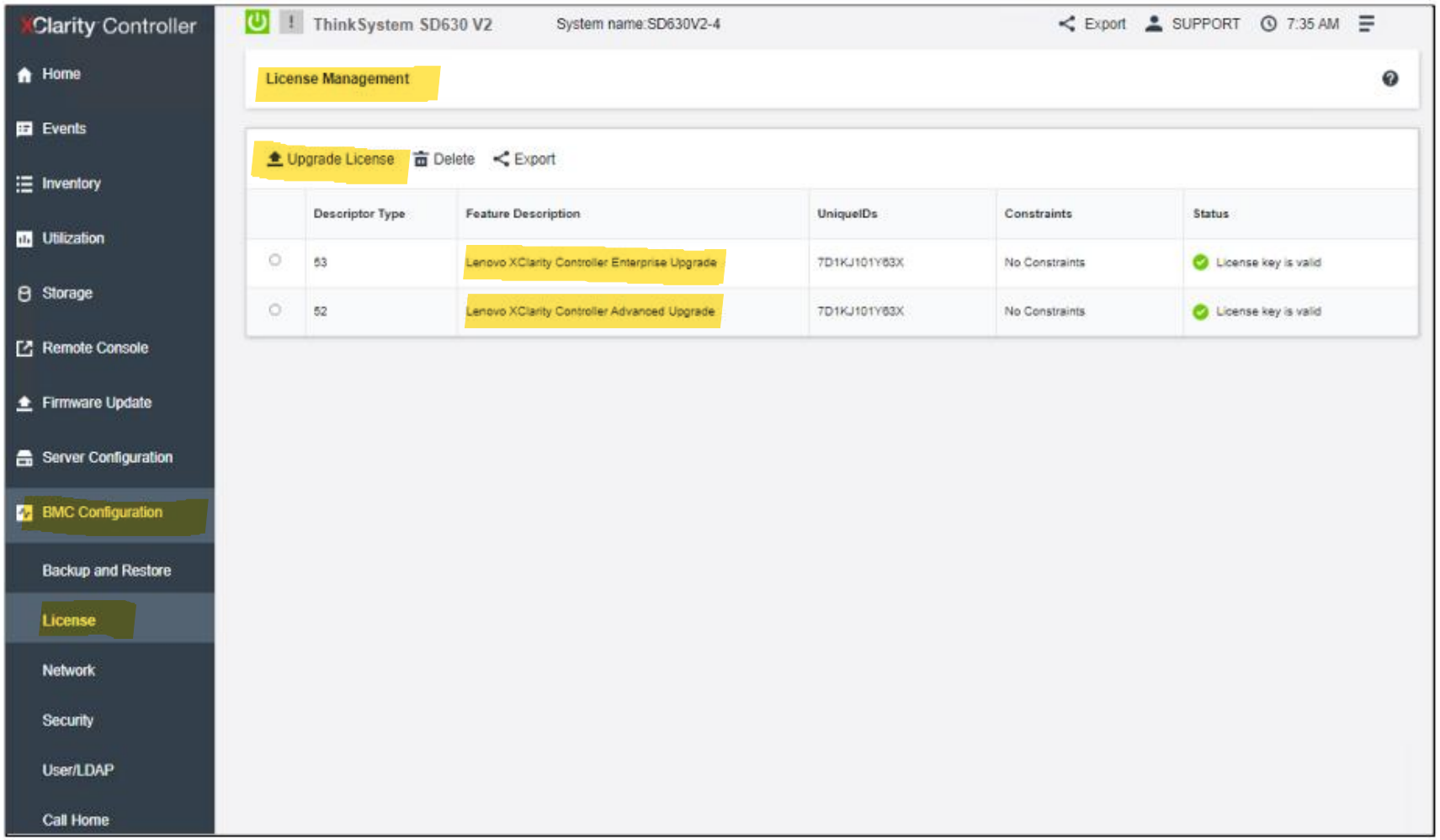
Use the **BMC Configuration** section to configure BMC settings. The **Backup and Restore** page allows users to reset the XCC configuration to factory defaults, and also to back up or restore configurations.



Click here to see more information.

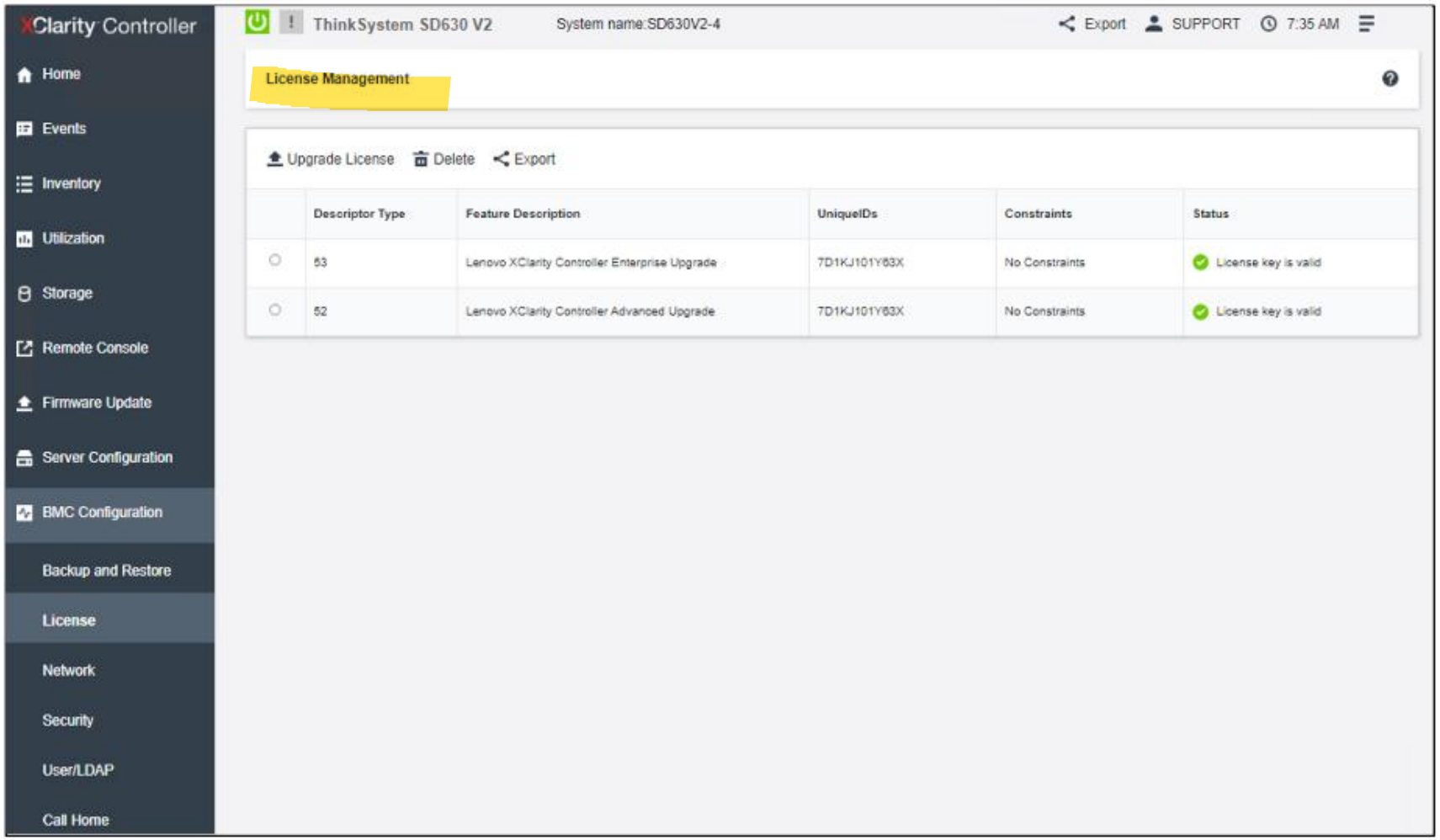
BMC Configuration page

The **License** page allows users to manage XCC license activation keys.



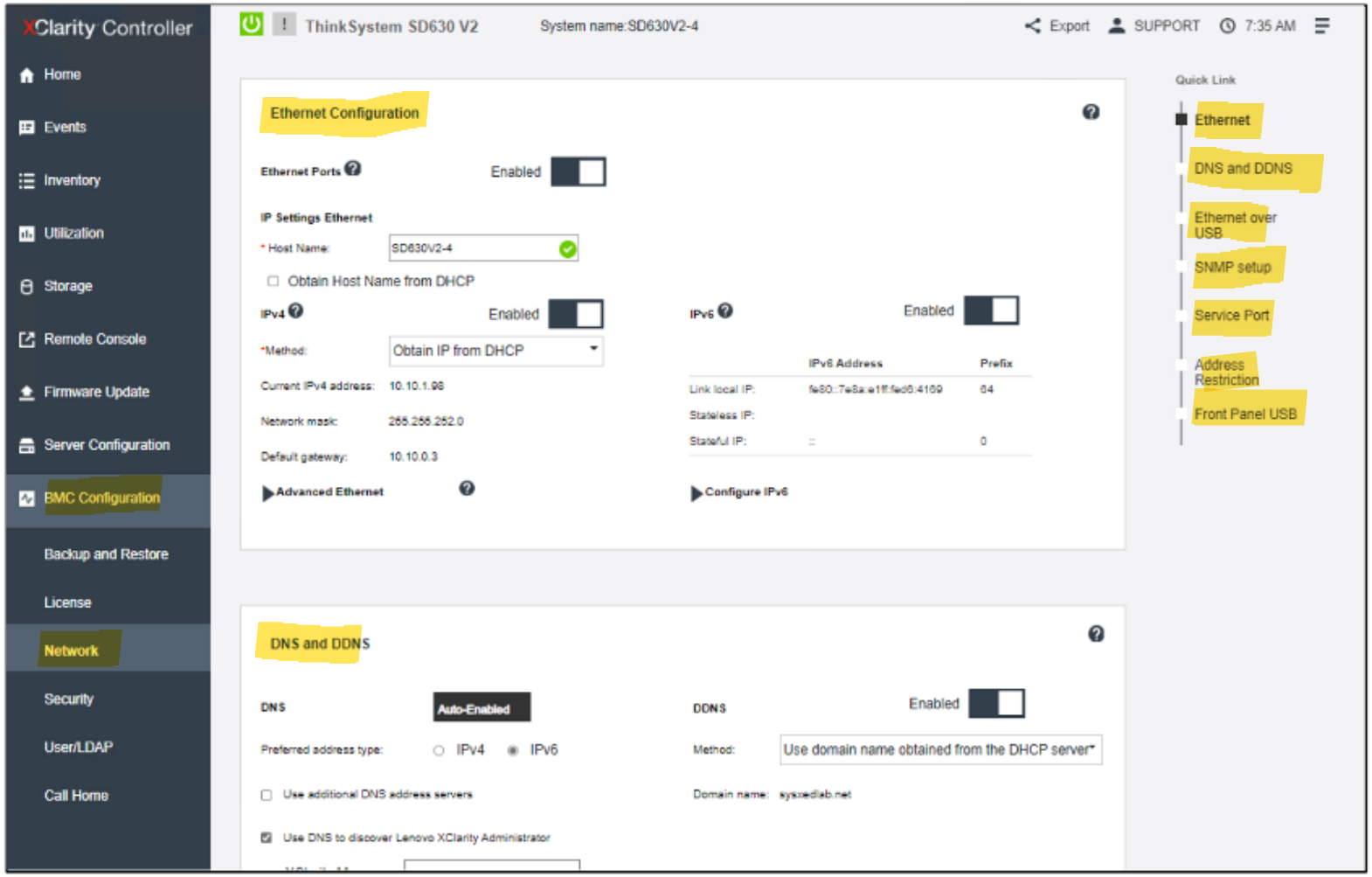
BMC Configuration page

The **License** page allows users to manage XCC license activation keys.



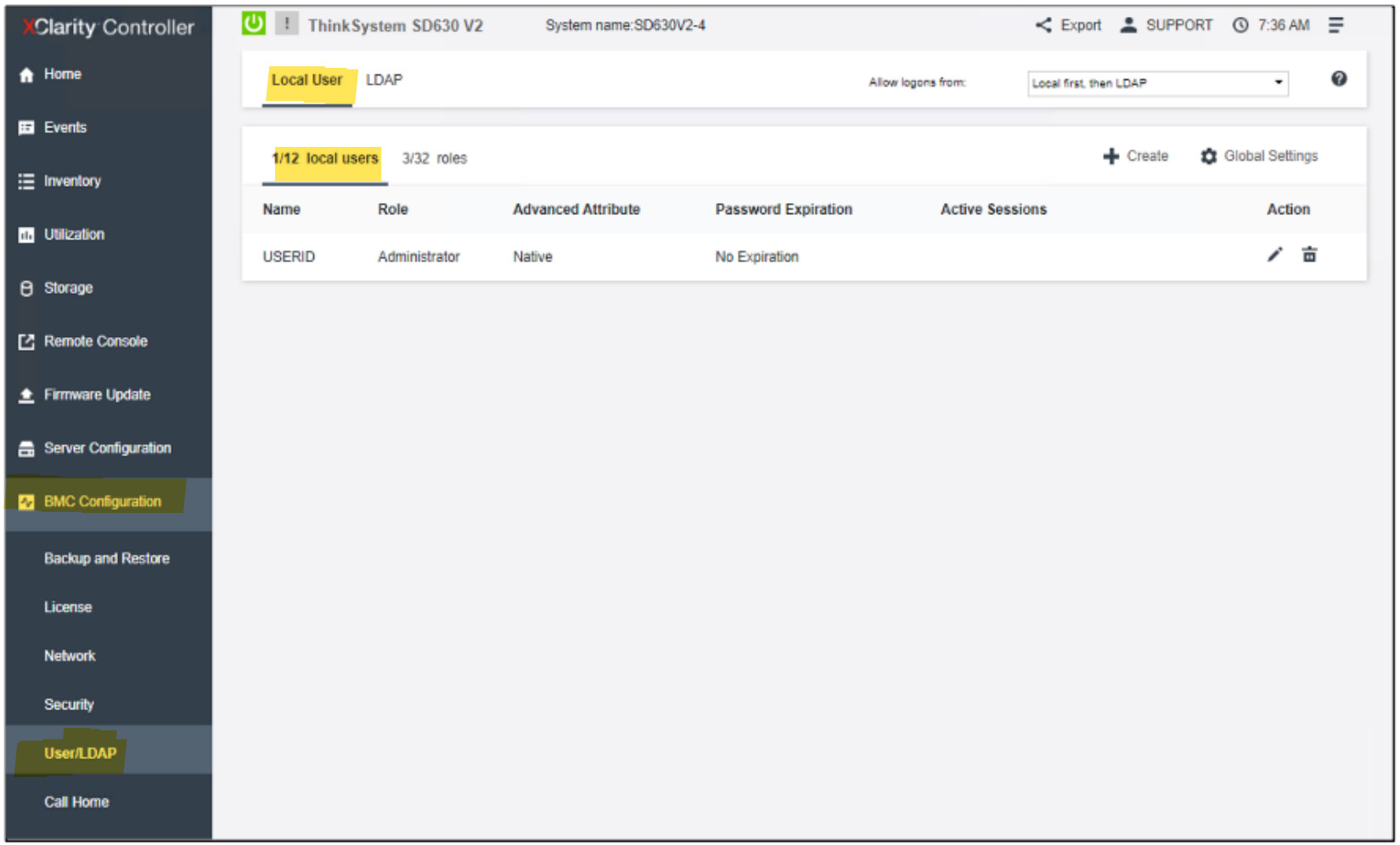
BMC Configuration page

The **Network** page contains XCC networking property, status, and setting information.



BMC Configuration page

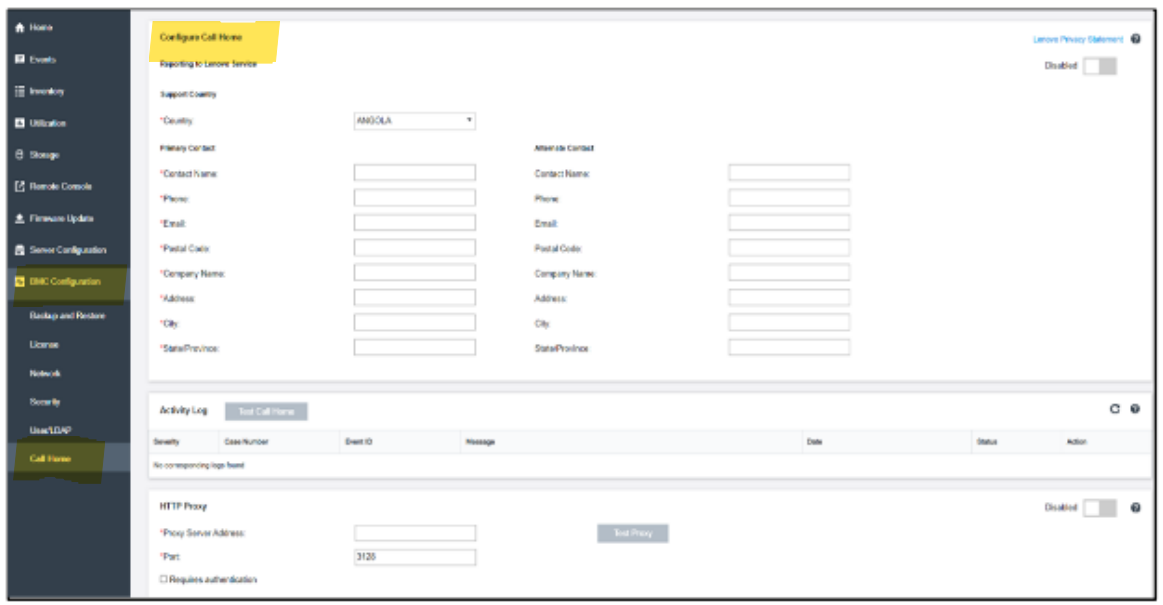
The **User/LDAP** page provides access to XCC local user profiles and global login settings. It also enables users to configure LDAP security and certificate management for XCC.



BMC Configuration page

XCC supports the Call Home function on ThinkSystem V2 and later systems. Call Home allows users to create a service forwarder that will automatically send service data for any managed device to Lenovo Support when hardware error events are received from specific managed devices. This allows issues to be addressed more quickly.

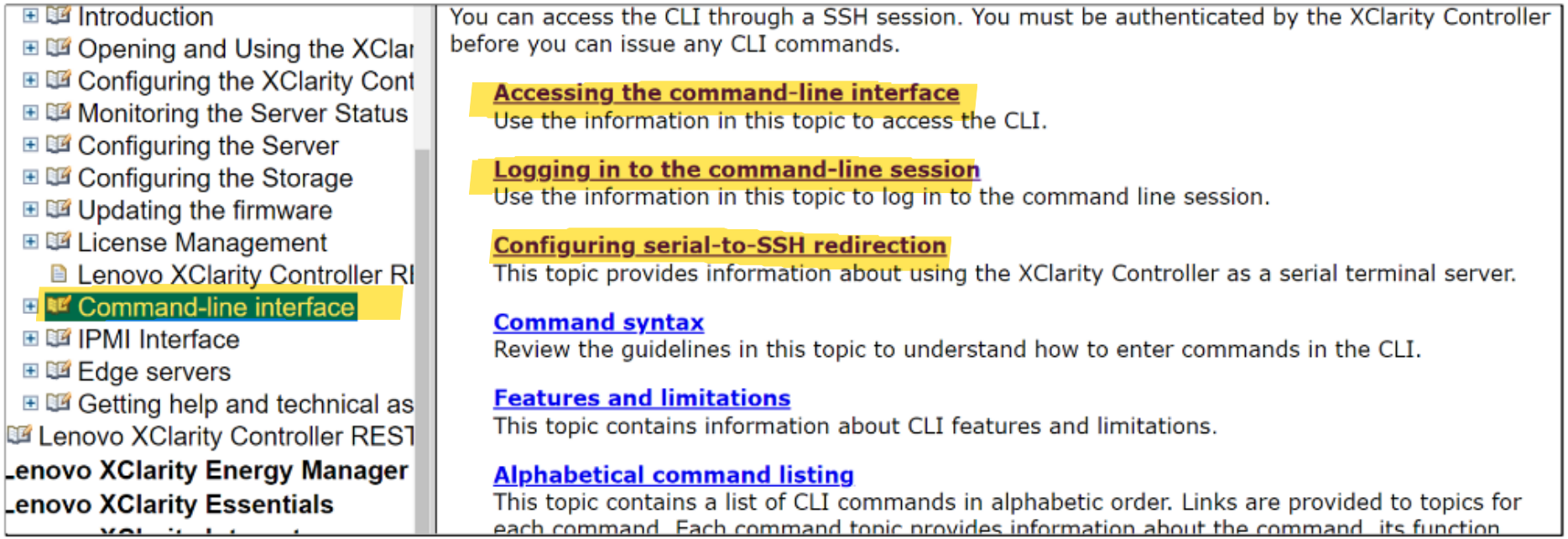
Call Home is disabled by default. To enable Call Home, open XCC and select **BMC Configuration** → **Call Home**. Users then need to read and accept the terms and conditions description in XCC. Click HERE to see a screenshot.



XCC CLI

XCC supports the command-line interface (CLI). To access the XCC CLI, open an SSH session and enter the XCC IP address. Then, use the XCC username and password to log in to XCC.

For XCC CLI command syntax information and all available commands, refer to the following XCC CLI documentation site:
https://sysmgt.lenovofiles.com/help/index.jsp?topic=%2Fcom.lenovo.systems.management.xcc.amd.doc%2Fdw1lm_c_ch7_commandlineinterface.html&cp=3_1_10



XCC helpful links

- XCC reference information on Lenovo Press: https://lenovopress.lenovo.com/lp0880-xcc-support-on-thinksystem-servers
- XClarity Controller documentation: https://sysmgt.lenovofiles.com/help/index.jsp?topic=%2Flxcc_frontend%2Flxcc_overview.html&cp=3
- Customer self support on GLOSSE – this page contains many links for ThinkSystem management tool articles and demo videos: https://glosse4lenovo.lenovo.com/wiki/glosse4lenovo/view/Customer%20Self%20Support/#Lenovo%20XClarity%20Controller%20(LXCC)