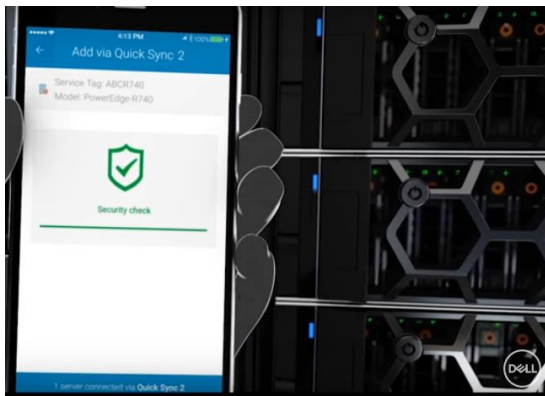# Understanding Quick Sync 2 for Dell EMC PowerEdge 14th Gen Servers and MX7000 Chassis

This technical white paper provides information about Enhanced Wireless Configuration, Monitoring, and Troubleshooting

Abstract

Dell EMC pioneered the "at-the-server" systems management in 2014 with the introduction of an NFC-based bezel that enabled communication between a mobile device and iDRAC. This "Quick Sync" bezel is supported on PowerEdge R730, R730xd, and R630 PowerEdge servers. The bezel lets customers perform bare-metal configuration by assigning an IP address and changing password of iDRAC. They can also view server details, hardware and software inventory, networking details, health status, and logs.

September 2018

Revisions

Date	Description
June 2017	Initial release
October 2017	Corrected list of authors
June 2018	Updated list of compatible servers
September 2018	Added support description for MX7000 Chassis

Acknowledgements

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Contents

Executive summary

Dell EMC pioneered the "at-the-server" systems management in 2014 with the introduction of an NFC-based bezel that enabled communication between a mobile device and iDRAC. This "Quick Sync" bezel is supported on PowerEdge R730, R730xd, and R630 PowerEdge servers. The bezel lets customers perform bare-metal configuration by assigning an IP address and changing password of iDRAC. They can also view server details, hardware and software inventory, networking details, health status, and logs.

 However, the Quick Sync bezel was supported only on Android mobile devices and had to be purchased at the point-of-sale. For 14th generation PowerEdge servers, Dell EMC went back to the drawing board and completely redesigned Quick Sync, which is now being launched as the Quick Sync 2 module. The Infographics highlights some of the key changes that are now being introduced in Quick Sync 2.

Quick Sync 2 is now also supported on MX7000 chassis and can configure, monitor, and remediate the chassis as well as associated slides.
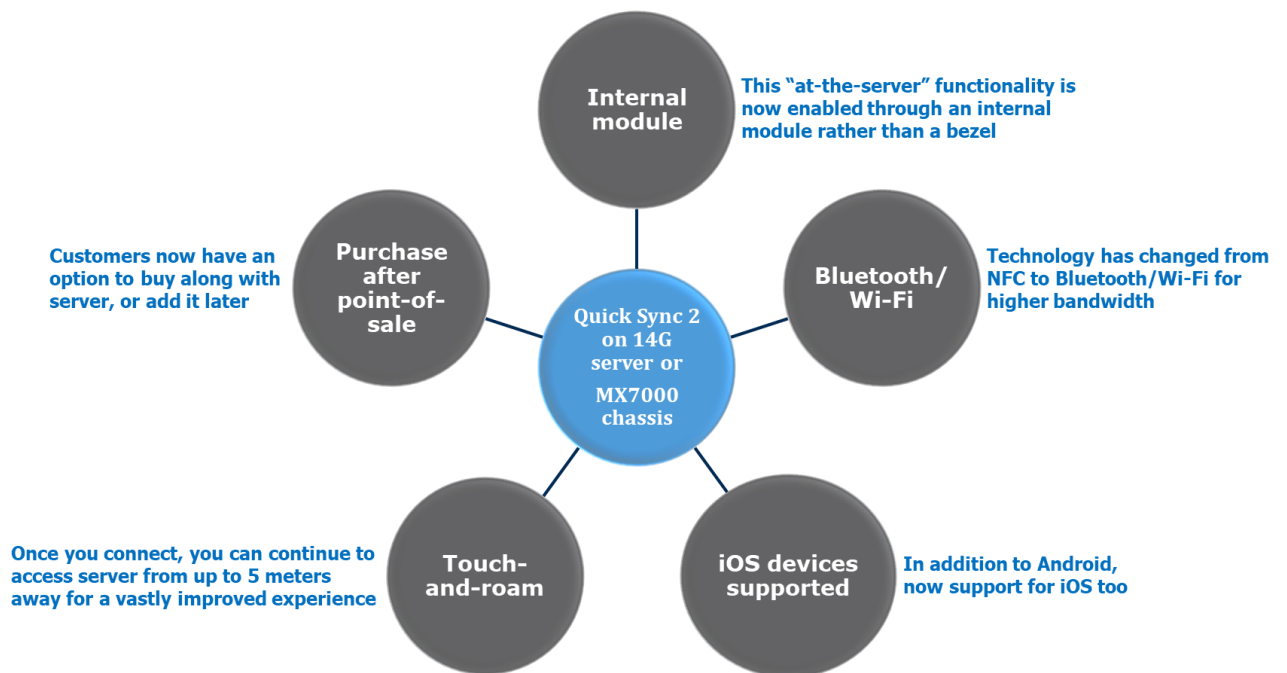

Figure 1   Quick Sync 2 for Dell EMC PowerEdge 14th Gen Servers and MX7000 Chassis

1   Quick Sync 2 capabilities

Using Quick Sync 2 with OpenManage Mobile (OMM), administrators can configure, monitor, and troubleshoot the 14G PowerEdge servers and MX7000 Chassis.

To monitor servers, Quick Sync 2 provides information such as:

- System inventory, including CPU and Memory details
- Health status
- iDRAC System Event and Lifecycle Controller logs
- Network settings
- Firmware details
- Diagnostics information including SupportAssist reports, console/last crash screens, and boot and crash videos

With Quick Sync 2, an administrator can configure:

- iDRAC IP/NIC network settings
- iDRAC root credentials
- The first boot device
- The system location (Datacenter, Room, Aisle, Rack, and Slot)
- The most common BIOS settings (System Profile, Virtualization, Logical Processor, Boot Mode, Secure Boot, Serial Comm, Serial Port, USB Ports, and Asset Tag)
- iDRAC Auto-Config

Also, OMM can assist in troubleshooting. Using Quick Sync 2 OMM can:

- Establish a VNC remote console session
- Run RACADM commands
- Power cycle a server

OMM can also monitor an MX7000 Chassis and its subcomponents. Quick Sync 2 provides:

- Chassis component overviews and rollup health
- Chassis and system fault logs
- Network settings
- Connected IO Module inventory
- Power supply capacity, input voltage, and redundancy
- Fan speed and thresholds

When connected to an MX7000 Chassis with Quick Sync 2, an administrator also has the same monitoring, configuration, and troubleshooting capabilities for each compute sled in the chassis.

Note—Some features in OpenManage Mobile are dependent on iDRAC licensing. For example, VNC requires an iDRAC Enterprise license.

2 Quick Sync 2 technology

The Quick Sync 2 module combines a Bluetooth Low Energy (BLE) and Wi-Fi module. The module is accessed by using an Android or iOS mobile device. The module may be activated and deactivated by using a button. The status of the module is shown by using an integrated LED.

2.1 Quick Sync 2 BLE

The Quick Sync 2 BLE capability is based on the Bluetooth 4.0 standard. BLE is battery-efficient and available to developers on major mobile platforms. Using BLE, mobile customers can view server health and inventory data, and also configure common iDRAC and BIOS settings.

When activated, the hardware will activate a beacon advertisement which can be detected by the OMM application. On demand, the app will initiate a session with the mobile app acting as the central controller, and the hardware acting as a peripheral.

For additional security, the BLE signal is attenuated to about 1m prior to authentication. After authentication, typical range is 10m, but will vary depending on the RF environment.

Dell EMC has built additional technology on top of BLE to transfer larger data elements and provides a version of the Transport Layer Security (TLS) used by web servers adopted for the block-based BLE protocol. Each server is validated by a certificate with a 2048-bit or larger public key. The Diffie-Hellman key exchange protocol is used to establish a 128-bit or larger AES-GCM session key.

2.2 Quick Sync 2 Wi-Fi

Quick Sync 2 Wi-Fi is activated on demand to support Wi-Fi–specific use cases requiring higher bandwidth, an IP-stack, or both. Specific use cases include:

- Downloading and sharing SupportAssist reports, which can be several MBs in size
- Viewing the last boot or last crash videos and images
- Running a remote console session
- Running RACADM commands
- Starting the iDRAC GUI

Quick Sync 2 Wi-Fi is based on 802.11b/g/n and uses the 2.4 GHz spectrum. Link-layer security is provided by using WPA2-PSK, with a random key generated each time Quick Sync 2 Wi-Fi is activated and exchanged over the BLE connection.

The link layer security is complemented by TLS or SSH transport layer security used by each feature. For example, remote RACADM commands are sent by using HTTPS via the iDRAC web server.

The compute sleds in an MX7000 Chassis system are authenticated by OAuth token, with the chassis facilitating the authentication of the iDRACs in each sled.

3 Deploying Quick Sync 2

3.1 Obtaining Quick Sync 2 module

Customers may purchase the Quick Sync module as a single hardware SKU. On rack servers, this is positioned on the left rack ear. It is recommended that customers purchase the module at the time of sale. The module will be available on many 14th Gen rack and tower systems such as:

- Rack servers—R940, R940xa, R840, R740, R740xd, R640, R540, R440, R7425, R7415, R6415
- Tower server—T640

Please contact Dell Sales for the latest list of Quick Sync 2 enabled servers. Customers wishing to purchase the module after the point-of-sale (APOS) may perform a field installation of the solution.

Note—The Quick Sync module is not hot-pluggable. The system must be shut down prior to installing or removing the module.

3.2 Downloading OpenManage Mobile (OMM)

OpenManage Mobile is available through the Google Play Store and Apple App store. Search for OpenManage Mobile or use these links:

- https://play.google.com/store/apps/details?id=com.dell.omm&hl=en (Android)
- https://itunes.apple.com/us/app/openmanage-mobile/id949941153 (iOS)

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3.3   Quick Sync 2 configuration settings

Quick Sync 2 supports a number of configuration settings to control access to the module. These settings may be configured by using the iDRAC GUI, RACADM, or other programmatic interfaces for servers and by using the OpenManage Enterprise Modular GUI or Redfish for MX7000 Chassis. The settings are as follows. Default attributes in **bold**.

Table 1   Quick Sync 2 configuration settings

Setting	Values	Description
Access	**Read-Write** Read-Only Disabled	In Read-Write mode, the full capabilities of the iDRAC are available to Quick Sync 2, including changing the system settings. In Read-Only mode, a user may view information such as health and inventory data, but configuration changes cannot be applied. When disabled, the Quick Sync 2 module will not activate.
Read Authentication	**Enabled** Disabled	With read authentication enabled, an administrator will need to authenticate with iDRAC credentials to use Quick Sync 2 functionality. With read authentication disabled, any user of a mobile device near the server will be able to read server health, inventory, and log data. This is equivalent to the level of unauthenticated access provided by the 13G NFC bezel or an LCD panel. Authentication will still be required to change the system configuration.
Wi-Fi	**Enabled** Disabled	With WiFi enabled, Quick Sync 2 WiFi may be activated as needed to support specific use cases. Note the mobile device will only activate WiFi to support specific features, and it will otherwise remain inactive even when a device is connected via Quick Sync 2 BLE. With WiFi disabled, Quick Sync 2 WiFi cannot be activated and functionality requiring Quick Sync 2 WiFi will not be available. Quick Sync 2 BLE may remain active.
Timeout	**Enabled** Disabled	With the timeout enabled, Quick Sync 2 will automatically be deactivated when the timeout limit has elapsed since the last activity detected by the system. If the timeout is disabled, Quick Sync 2 will remain on until it is manually deactivated using the mobile device or by pressing the activation button.
Timeout Limit	**2 min** to 60 min	The time period following the last activity for which the Quick Sync module will remain active.

Note—Quick Sync 2 Wi-Fi can be enabled only when Quick Sync is in Read-Write mode, because the Wi-Fi accessible interfaces (such as the iDRAC GUI) allow the system settings to be changed. Quick Sync 2 interface restrictions are in addition to iDRAC privilege limitations. A read-only iDRAC user will not be able to apply configuration changes, even if Quick Sync 2 module is in read-write mode.

3.3.1 Changing settings using iDRAC GUI

To change the Quick Sync configuration settings on GUI, log in to the GUI, and then click **Configuration** → **System Settings** → **Hardware Settings** → **iDRAC Quick Sync**.
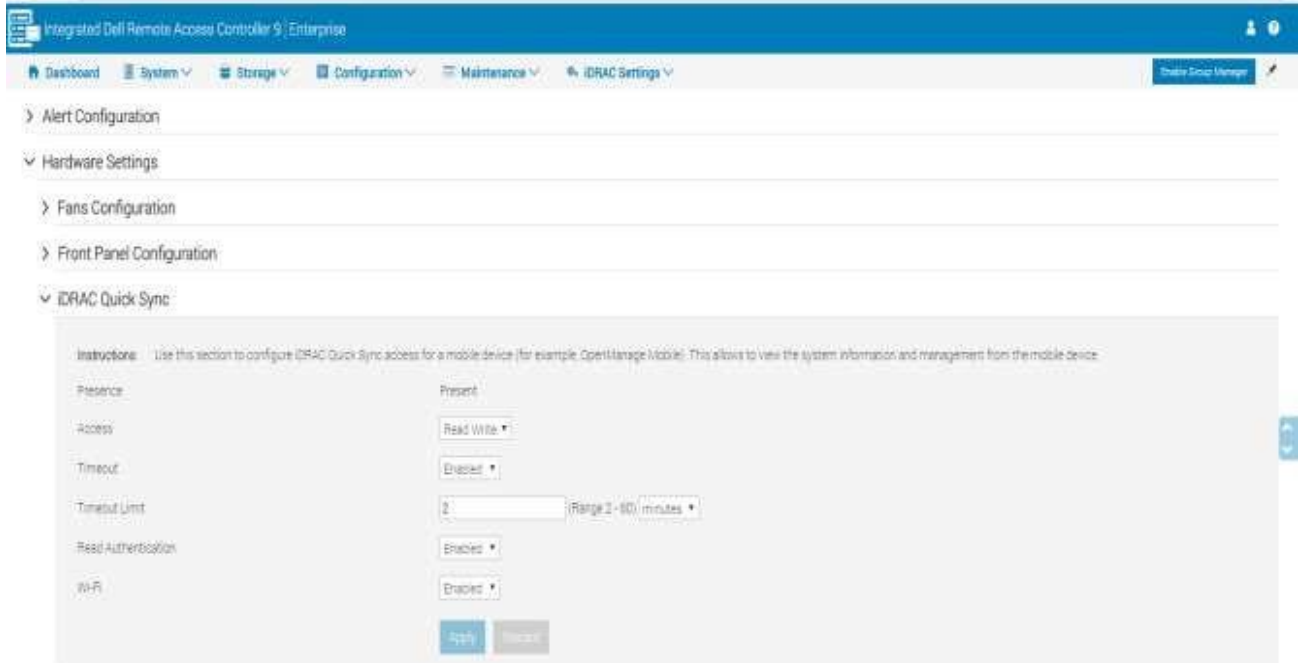

Figure 2   Changing Quick Sync settings on iDRAC 9 GUI

3.3.2 Changing settings using RACADM

To obtain Quick Sync settings, run the RACADM command:

```
racadm>>get system.quicksync
[Key=system.Embedded.1#QuickSync.1]
Access=Read-Write
InactivityTimeout=120
InactivityTimerEnable=Enabled
#Presence=Present
ReadAuthentication=Enabled
WiFi=Enabled
```

Properties can be set by using the sample commands here:

```
racadm>>set system.quicksync.access Read-only
[Key=system.Embedded.1#QuickSync.1]
Object value modified successfully
```

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3.3.3 Changing settings using OpenManage Enterprise Modular GUI

To change the Quick Sync configuration settings on GUI, log in to the GUI, and then click **Devices →**
Chassis, choose the chassis to configure, then click **Settings → Local Access Configuration**.
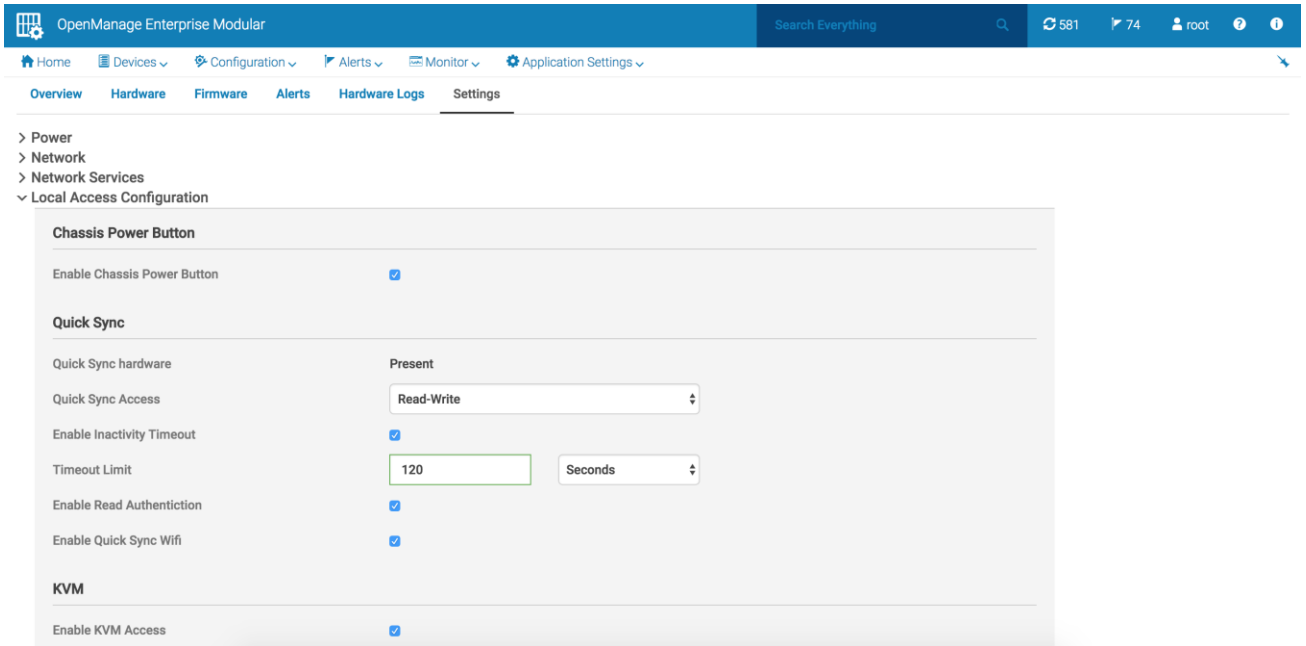

Figure 3   Changing Quick Sync setting on the OpenManage Enterprise GUI

3.3.4 Changing settings using Redfish

This section provides some sample Redfish commands implemented in curl, ran in a bash shell environment.
For security, Dell recommends to manually verify the destination of every curl command before running it.
These Redfish commands may also be executed in a python or php environment, or using any REST client
such as POSTMAN.

To identify the chassis to configure, run the Redfish command:

```
curl –k –u root 'https://198.51.100.60/api/DeviceService/Devices' && echo ""
```

The chassis can be identified by its service tag in the "DeviceServiceTag" field. Find the value in the "Id"
field. To obtain Quick Sync settings, run the Redfish command using the identifier:

```
curl –k –u root
'https://198.51.100.60/api/DeviceServices/Devices(25032)/Settings(%27LocalAccess
Configuration%27)' && echo ""
```

Properties can be set by following these steps:

1. Copy the following attribute payload to a configuration file.
    ```
    echo
    '{"SettingType":"LocalAccessConfiguration","EnableChassisPowerButton":true
    ,"EnableKvmAccess":true,"LcdAccess":"VIEW_AND_MODIFY","QuickSync":{"QuickS
    yncHardware":"Present","QuickSyncAccess":"READ_WRITE","EnableInactivityTim
    eout":true,"TimeoutLimit":120,"TimeoutLimitUnit":"SECONDS","EnableReadAuth
    entication":true,"EnableQuickSyncWifi":true}}' >> attributes.json
    ```

2. Modify the Quick Sync 2 attributes in the file.
3. Run the Redfish command to write the file back to the chassis.

```
curl –k –u root --request PUT –H 'Content-Type: application/json'
'https://198.51.100.60/api/DeviceServices/Devices(25032)/Settings(%27Local
AccessConfiguration%27)' –d "$(cat attributes.json)" && echo ""
```

Note—In case Quick Sync module is not present on MX7000 Chassis the write command will fail. This can be seen from the output of the above call.

```
"QuickSync": {
    "QuickSyncHardware": "Present",
    "QuickSyncAccess": "READ_WRITE",
    "EnableInactivityTimeout": true,
    "TimeoutLimit": 120,
    "TimeoutLimitUnit": "SECONDS",
    "EnableReadAuthentication": true,

    "EnableQuickSyncWifi": true
```

3.4 Getting started with Quick Sync 2 for iDRAC

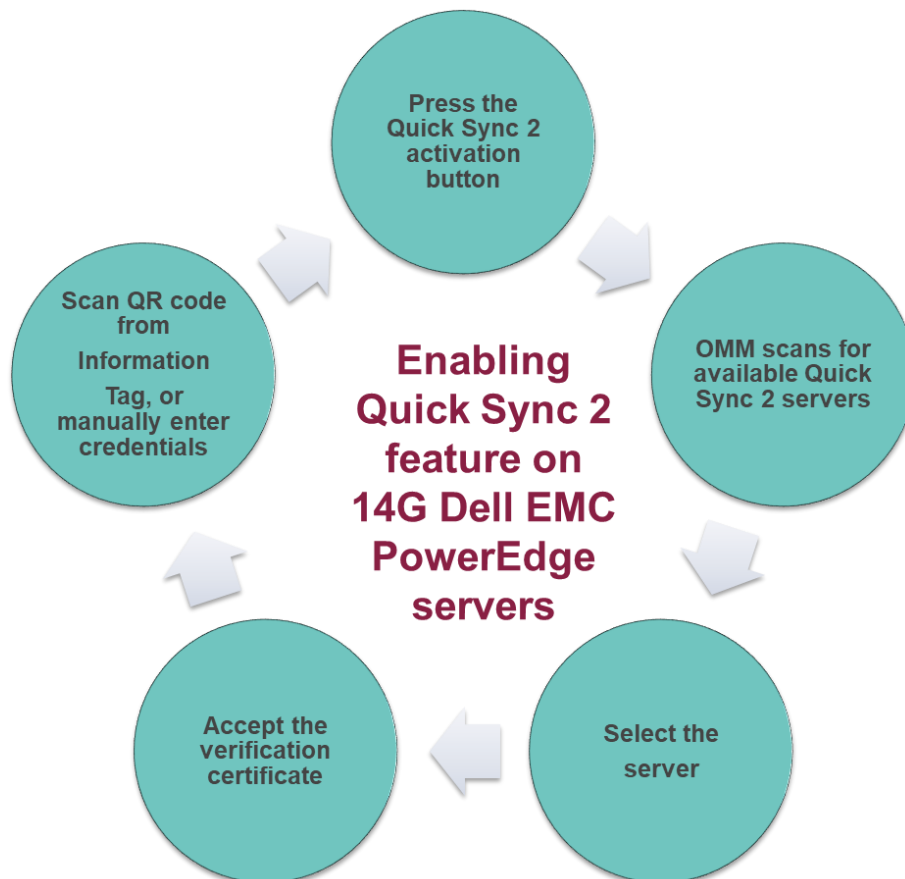This procedure is applicable only when you are adding the server for the first time.

Figure 4   Enabling Quick Sync 2 on 14th generation Dell EMC PowerEdge servers

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1. Press the Quick Sync 2 activation button on the front of the server. If Quick Sync 2 access is enabled, the **Activation Button** LED will turn on and display a solid color.
2. Scan for Quick Sync 2 systems within OMM:
   a. On the Mobile device (Android or IOS) start the OpenManage Mobile App.
   b. Press the **Add System** button.
   c. Select **Quick Sync 2** from the **Connection Method** screen and begin scanning the servers.

Note—Make sure that Bluetooth is enabled on the mobile device. If not then OMM prompts you to enable Bluetooth.

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3. The list of nearby active Quick Sync 2 servers is displayed. Select the server from the list.
   A security check will occur.

4. On the **Verify Certificate** screen, accept the certificate.
   If Quick Sync 2 Read Authentication is enabled, the authentication check will occur.

5. Either scan the QR code from the server information tag, or enter credentials manually.
   After the credentials are accepted, the iDRAC home page is shown. OMM can be used to interact with the iDRAC.

3.5 Getting started with Quick Sync 2 for MX7000 Chassis

This procedure is applicable only when you are adding the chassis for the first time.

1. Press the Quick Sync 2 activation button on the LCD of the chassis. The LCD will display the Quick Sync 2 screen, indicating that the chassis is broadcasting.
2. Scan for Quick Sync 2 systems within OMM:
   a. On the Mobile device (Android or IOS) start the OpenManage Mobile App.
   b. Press the **Add Chassis** button.

Note—Make sure that Bluetooth is enabled on the mobile device. If not then OMM prompts you to enable Bluetooth.

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3. The list of nearby active Quick Sync 2 chassis is displayed. Select the chassis from the list.
   A security check will occur.

4. On the **Verify Certificate** screen, accept the certificate.
   If Quick Sync 2 Read Authentication is enabled, the authentication check will occur.

5. Either scan the QR code on the LCD of the chassis, or enter credentials manually.
   After the credentials are accepted, the MX7000 Chassis home page is shown. OMM can be used to interact with the chassis and its subcomponents.

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Conclusion

Dell EMC provides its customers with products that simplify and streamline their IT processes, freeing administrator's time to focus on activities that help grow the business. This technical white paper provides information on the functionality that is now enabled with Quick Sync 2 on MX7000 Modular Infrastructure. For more information about different Dell EMC PowerEdge servers, see the Dell PowerEdge Servers Portfolio Guide.

You can also view the following videos to get more information about using the Quick Sync 2 feature on the PowerEdge servers:

- iDRAC with Quick Sync (01:35 m)
- Dell EMC OpenManage Mobile 2.0 with iDRAC Quick Sync 2 (01: 35 m)
- To watch quick and short videos about handling the PowerEdge server components, visit the QRL video website.

A   Technical support and resources

- Dell.com/support is focused on meeting customer needs with proven services and support.
- To watch quick and short videos about handling the PowerEdge server components, visit the QRL video website.

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