Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.
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About this guide

This guide provides information for using the Dell EMC baseboard management controller (BMC).

⚠️ **CAUTION:** To avoid electrostatic discharge (ESD) damage, wear grounding wrist straps when handling this equipment.

⚠️ **WARNING:** Only trained and qualified personnel can install this equipment. Read this guide before you install and power up this equipment. This equipment contains two power cords. Disconnect both power cords before servicing.

⚠️ **WARNING:** This equipment contains optical transceivers, which comply with the limits of Class 1 laser radiation.

![Class 1 laser product tag](image)

⚠️ **WARNING:** When no cable is connected, visible and invisible laser radiation may be emitted from the aperture of the optical transceiver ports. Avoid exposure to laser radiation. Do not stare into open apertures.

Topics:

- Information symbols
- Document revision history

### Information symbols

This book uses the following information symbols:

⚠️ **NOTE:** The Note icon signals important operational information.

⚠️ **CAUTION:** The Caution icon signals information about situations that could result in equipment damage or loss of data.

⚠️ **WARNING:** The Warning icon signals information about hardware handling that could result in injury.

⚠️ **WARNING:** The ESD Warning icon requires that you take electrostatic precautions when handling the device.

### Document revision history

<table>
<thead>
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<th>Table 1. Revision history</th>
<th>Description</th>
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<tbody>
<tr>
<td>A00 2018-05</td>
<td>Initial release</td>
</tr>
<tr>
<td>A01 2018-08</td>
<td>Hardware flow control addition</td>
</tr>
<tr>
<td>A02 2019-02</td>
<td>WIFI/LTE expansion cards, BIOS 3.41.0.9-13, DIAG OS 3.41.3.81-4</td>
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New in this release

**DIAG OS**

Version VEP4600_DIAG_OS_3.41.3.81-4

New Features:

1. Support for Wifi/LTE/BT diagnostics.
2. Support for `eepromtool` for nNDC Carrier Card and WIFI/LTE card FRU (Field-replaceable unit).
4. Support for LED of WiFi. Can turn off/on using `iwconfig wlan0 txpower off/on`.

**DIAG Tools**

Version VEP4600_DIAG_OS_3.41.3.81-15

**CPLD**

Please see Current Released Versions in the Important Information section in Drivers and Download on https://www.dell.com/support.
WARNING: Changing the BIOS may be detrimental to platform operations if the changes are not fully understood. Before you change the BIOS, if you have questions, contact your Dell EMC technical representative.

For the most current BIOS update information, see the VEP4600 Release Notes.

Topics:
- BIOS setup
- Console redirection
- Hardware flow control
- Super IO configuration
- Boot order
- Server management
- Option ROM dispatch policy
- SR-IOV support
- USB 3.0
- PXE and HTTP boot support
- Network interface configuration
- Advanced power management
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**BIOS setup**

To enter the BIOS setup, press the **delete** key during the BIOS boot up.

By default, to enter the BIOS setup, you have three seconds to press the **delete** key during the BIOS boot up. To increase the time allowed, from the **BIOS setup** screen, select the **Boot** tab, then change the **Setup Prompt Timeout** number. The maximum prompt timeout is 10 seconds.

**Figure 2. Setup prompt timeout**

The **Main** screen displays the BIOS and platform details such as the processor model, amount of memory, and so forth. Use the **Main** tab to set the date and time, which is saved to the real time clock (RTC).
Figure 3. BIOS setup

Console redirection

On the VEP4600, all output is through COM0, which is the console redirection default setting. The BIOS provides options to override the COM0 port default settings, including speed, parity setting, and so forth.

Access the COM0 settings from the BIOS setup screen, select the Advanced tab, then select Serial Port Console Redirection.
Hardware flow control

Hardware flow control is not enabled on the console port by default.

Follow the steps below in BIOS settings to enable the hardware flow control for the console port.

1. Select the **Boot** menu tab. Boot into the BIOS settings using the up and down arrow keys.
2. Select **Advanced** then **COM0 (Console Redirection Settings)** and **Hardware RTS/CTS** in the **Flow Control** popup menu.
Figure 6. Advanced tab
**Figure 7. COM0 (Console Redirection Settings)**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Terminal Type</td>
<td>VT100+</td>
<td>Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the flow is stopped, the terminal type can be changed.</td>
</tr>
<tr>
<td>Bits per second</td>
<td>115200</td>
<td></td>
</tr>
<tr>
<td>Data Bits</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Flow Control</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>VT-UTF8 Combo Key</td>
<td>Enabled</td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recorder Mode</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Resolution 100x31</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Putty KeyPad</td>
<td>VT100</td>
<td></td>
</tr>
</tbody>
</table>

**Key Shortcuts:**
- `<`: Select Screen
- `^v`: Select Item
- Enter: Select
- `+/-`: Change Opt.
- F1: General Help
- F2: Previous Values
- F3: Optimized Defaults
- F4: Save & Exit
- ESC: Exit
Press F4 to save and exit BIOS.

Super IO configuration

The VEP4600 only has the serial port on the Super I/O (SIO) chip. The chip settings are preconfigured and normally do not need changing. However, you can use the BIOS to change the Super I/O chip settings, such as the I/O Base, interrupt request line (IRQ), and direct memory access (DMA) channel. To access these settings, from the BIOS setup screen, select the Advanced tab, then select SIO Configuration.
Figure 9. Super I/O configuration

Figure 10. Super IO configuration
Boot order

The BIOS looks for a bootable image in the Boot order setting order list. The BIOS then loads and boots the image. To access the boot order setting, from the BIOS setup screen, select the Boot tab, then select Boot Option Priorities.

![Boot Configuration Screen](image)

**Figure 11. Boot order**

Server management

VEP4600 has an on-board baseboard management controller (BMC) to monitor system health. During Boot up, the BIOS communicates with the BMC and exchanges messages with the BMC to log events, get BMC self-test results, and configure BMC network parameters. To configure BMC to use Static IP or dynamic host configuration protocol (DHCP), use the BIOS. To access BMC settings, from the BIOS setup screen, select the Server Mgmt tab, then BMC Network Configuration.
After an event, the BIOS logs a message to the BMC. The BMC stores these messages in nonvolatile storage. Apart from the BIOS, health monitoring software and system software also logs messages to the BMC system event log (SEL). View these messages from the BIOS setup screen, select the Server Mgmt tab, then select View System Event Log.

![Figure 12. Server management](image)

![Figure 13. View system event logs](image)
You can add, delete, access, or modify user rights. Manage the BMC user account from the BIOS setup screen, select the Server Mgmt tab, then select BMC User Settings.

![BMC User Settings](image)

**Figure 14. BMC user settings**

### Option ROM dispatch policy

Option read-only memory (ROMs) contain firmware that the BIOS executes. The values listed on this screen and in the Compatibility Support Module screen use default values when the Restore if Failure setting is true and the BIOS fails to boot up.

**NOTE:** Changing the option ROM settings may effect the BIOS boot up. Dell EMC recommends keeping the default value of Restore if Failure equals true.

Access the option ROM dispatch policy screen from the BIOS setup screen, select the Advanced tab, then select Option ROM Dispatch Policy.

![Option ROM Dispatch Policy](image)

**Figure 15. Option ROM dispatch policy**

### SR-IOV support

If VEP4600 uses Virtualization Technologies, you must enable the single root input/output virtualization (SR-IOV) SR-IOV support option. This option is disabled by default.
Access this option from the BIOS setup screen, select the Advanced tab, then select PCI Subsystem Settings. If a device supports virtual functions, you must enable SR-IOV support in the BIOS.

![Image of BIOS setup screen showing SR-IOV support settings]

**Figure 16. SR-IOV support**

## USB 3.0

To support universal serial bus (USB) 3.0 in operating systems, set the extensible host controller interface (xHCI) XHCI Hand-off option to enabled. Access this setting from the BIOS setup screen, select the Advanced tab, then select USB Configuration.

If the BIOS must support USB 2.0 devices—legacy USB devices—leave Legacy USB Support set to enabled, shown below.

Because the box is connected using the universal asynchronous receiver-transmitter (UART) console, traditional keyboard or mouse are not connected to the USB ports.

![Image of BIOS setup screen showing USB 3.0 options]

**Figure 17. USB 3.0 option**

## PXE and HTTP boot support

VEP4600 allows the platform to boot an operating system using pseudoxanthoma elasticum (PXE) boot. To enable PXE boot, set the Network Stack option to enabled. Access this setting from the BIOS setup screen, select the Advanced tab, then select Network Stack.
The BIOS also supports hypertext transfer protocol (HTTP) boot. Use both HTTP and PXE boot over IPv4 or IPv6.

### Network interface configuration

VEP4600 has two 10GbE small form-factor pluggable plus (SPF+) ports, four Gigabit ports, and one Gigabit management port.

The BIOS uses these ports for PXE boot. You can configure the **wake on LAN** setting. You can also configure the one Gigabit port to auto configure or set to a specific speed. Access these settings from the **BIOS setup** screen, select the **Advanced** tab, then select the **Intel(R) I350 Gigabit Network Connection**, **Intel(R) I210 Gigabit Network Connection**, or **Intel(R) Ethernet Connection X722 for 10GbE SFP+** settings.
Advanced power management

Access the settings for power management from the BIOS setup screen, then select the **Socket Configuration** tab. On the **Advanced Power Management Configuration** screen, select **Memory Power & Thermal Configuration**.

By default, **SpeedStep (P states)** and **Autonomous Core C-State** are disabled.

The **Software controlled T-States** option is also disabled by default.
Figure 20. Advanced power management options

**Trusted computing**

The BIOS provides options to enable or disable trusted platform module (TPM) security. BIOS has two provision coverage ratio (PCR) banks and provides options to select SHA-1 or SHA256 for these banks. Access the TPM settings from the BIOS setup screen, then select the Advanced tab, then select Trusted Computing BIOS settings.
Embedded DIAGS

Embedded DIAGS are available in BIOS 3.41.0.9-13, DIAG_OS_3.41.3.81-4 release.

Embedded DIAGS in the BIOS validates and verifies all the system's components are operating nominally.

System diagnostics include:

1. PSU
2. Fan
3. I2C
4. RTC/CMOS
5. PCI
6. DIMM
7. IPMI
8. Storage
9. Critical Device
10. Temperature

**NOTE:**
Dell EMC support

The Dell EMC support site provides documents and tools to help you effectively use Dell EMC equipment and mitigate network outages. Through the support site you can obtain technical information, access software upgrades and patches, download available management software, and manage your open cases. The Dell EMC support site provides integrated, secure access to these services.

To access the Dell EMC support site, go to www.dell.com/support/. To display information in your language, scroll down to the bottom of the web page and select your country from the drop-down menu.

- To obtain product-specific information, enter the 7-character service tag, known as a luggage tag, or 11-digit express service code of your switch and click Submit.
- To view the platform service tag or express service code, pull out the luggage tag on the upper-right side of the platform or retrieve it remotely using the ipmitool -H <bmc ip address> -I lanplus -U <user name> -P <password> fru command.
- To receive more technical support, click Contact Us. On the Contact Information web page, click Technical Support.

To access switch documentation, go to www.dell.com/manuals/.

To search for drivers and downloads, go to www.dell.com/drivers/.

To participate in Dell EMC community blogs and forums, go to www.dell.com/community.