

IPMI Configuration

on Ninth-Generation Dell PowerEdge Servers

Administrators can choose from a number of software options when configuring Intelligent Platform Management Interface settings on ninth-generation Dell™ PowerEdge™ servers. This article discusses these programs as well as the environments and locations in which they can be used.

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The Intelligent Platform Management Interface (IPMI) is an industry standard that defines interfaces to the platform management subsystem. All ninth-generation Dell PowerEdge servers incorporate, in their base configuration, support for systems management capabilities defined by IPMI 2.0. Such functionalities include remotely accessing the platform through standard messaging channels such as IPMI Over Serial, LAN, or Serial Over LAN (SOL) connections, as well as generating and sending a Platform Event Trap (PET) when a monitored event condition occurs.

IPMI configuration on ninth-generation PowerEdge servers can be carried out by different software programs and utilities within the Dell OpenManage™ systems management software suite, with both graphical user interface (GUI) and command-line interface (CLI) options available. Configuration can be divided into the following categories:

- Configuration of a LAN connection for IPMI messaging and alerting:** Includes enabling IPMI communication over a LAN connection, selecting the source for the remote-access IP address (statically assigned or obtained using the Dynamic Host Configuration Protocol), assigning a static IP address, choosing the highest privilege level allowed on the connection, and configuring virtual LAN (VLAN) settings and the baseboard management controller encryption key
- Configuration of a serial connection for IPMI messaging and alerting:** Includes setting the connection mode, baud rate, flow control, terminal mode, and highest privilege level allowed on the connection
- Configuration of a SOL connection:** Includes enabling SOL and configuring the baud rate and settings for how characters should be accumulated and sent
- Configuration of IPMI remote-access users:** Includes enabling users; assigning usernames, passwords, and privileges on each connection channel (LAN and serial); and enabling SOL payloads on the LAN connection
- Configuration of Platform Event Filters (PEFs):** Includes enabling PEF alerting on the LAN connection, selecting actions to take, and configuring alert destinations
- Restoration of IPMI configuration parameters:** Returns these parameters to the preconfigured default values

The configuration programs run within either pre-OS or OS-present environments and on either the managed platform or a remote management console. Figure 1 lists these programs and shows the different locations and environments in which they can be used.

IPMI configuration in a pre-OS environment

Administrators can use the Dell Remote Access Configuration Utility or Dell OpenManage Deployment Toolkit to configure IPMI settings in a pre-OS environment on ninth-generation PowerEdge servers. The Dell Remote Access Controller (DRAC) GUI and CLI can also be used in both pre-OS and OS-present environments; these interfaces are discussed in the “IPMI configuration with the Dell Remote Access Controller 5” section in this article.

Dell Remote Access Configuration Utility

The Dell Remote Access Configuration Utility (see Figure 2) is a BIOS setup tool that can be accessed by pressing Ctrl + E when prompted during the system power-on self-test (POST). This utility enables administrators to manage a subset of the IPMI configuration—such as basic IPMI Over LAN parameters, administrator user settings, and the first destination of PETs—assisting administrators in quickly configuring the most commonly used IPMI settings during system startup in a pre-OS environment.

Dell OpenManage Deployment Toolkit

The Dell OpenManage Deployment Toolkit provides a CLI for configuring IPMI settings in a pre-OS environment during system deployment. Administrators can use this CLI to configure nearly all IPMI remote-access parameters supported on ninth-generation PowerEdge

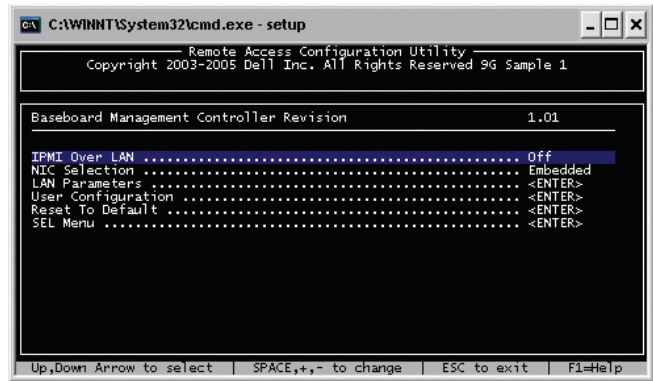


Figure 2. Dell Remote Access Configuration Utility

servers. For example, to assign a static IP address to the IPMI Over LAN connection, administrators can issue the command `bmccfg lancfgparameters -ipaddrsrc=ipaddress`.

IPMI configuration in an OS-present environment

Once the system boots to an OS environment, administrators can use either the CLI or the Web-based GUI offered by Dell OpenManage Server Administrator (OMSA) to configure IPMI settings on the system. The GUI and CLI support nearly the same set of operations, including configuration of all IPMI remote-access parameters supported on ninth-generation PowerEdge servers. Although the OMSA CLI program must run locally on the managed server, the OMSA GUI program can run on either the managed server or a remote management console—on the latter, the GUI accesses the managed server through Ethernet if the managed server is booted to an OS environment.

Dell OpenManage Server Administrator GUI

In the OMSA GUI, most IPMI remote-access configuration settings for the managed server can be accessed by selecting System > Main System Chassis > Remote Access on the left control panel, as shown in Figure 3. The Configuration tab displays information and configuration settings for the IPMI Over LAN, IPMI Over Serial, and SOL connections for IPMI communication; the Users tab displays information and configuration settings for IPMI remote-access users.

To access information and configuration settings for PEFs, administrators can click “System” in the left control panel of the OMSA GUI, and then select the Alert Management tab followed by the Platform Events tab.

Dell OpenManage Server Administrator CLI

The OMSA CLI provides various IPMI configuration commands. For example, to assign a static IP address

Software	Program location		Environment on managed server	
	Managed server	Remote management console	Pre-OS	OS present
Dell Remote Access Configuration Utility	✓		✓	
Dell OpenManage Deployment Toolkit	✓		✓	
Dell OpenManage Server Administrator CLI	✓			✓
Dell OpenManage Server Administrator GUI	✓	✓		✓
DRAC GUI	✓	✓	✓	✓
DRAC CLI	✓	✓	✓	✓

Figure 1. Comparison of Dell software that can be used for IPMI configuration

to the IPMI Over LAN connection, administrators can issue the command `omconfig chassis remoteaccess config=nic ipaddress=ipaddress`.

IPMI configuration with the Dell Remote Access Controller 5

The DRAC 5 is the fifth generation of Dell Remote Access Controllers and can be installed on ninth-generation Dell PowerEdge servers. It offers enhanced performance and advanced remote-management capabilities, including full IPMI 2.0 remote-access functionality such as IPMI Over LAN, IPMI Over Serial, SOL, and PEFs and PETs.

If a DRAC 5 is installed, administrators can configure the IPMI settings using the Web-based GUI, Telnet or Secure Shell console, or CLI. Both the DRAC GUI and CLI can run on the managed server within an OS; they can also run from a remote management console by accessing the managed server through Ethernet, even when the managed server is not running an OS.

DRAC GUI


In the DRAC GUI, most IPMI remote-access settings for the managed server can be found by selecting System > Remote Access on the left control panel, as shown in Figure 4. The Configuration tab displays information and configuration settings for the IPMI Over LAN, IPMI Over Serial, and SOL connections for IPMI communication, as well as information and configuration settings for IPMI remote-access administrators.

To access information and configuration settings for PEFs, administrators can click “System” in the left control panel and then select the Alert Management tab.

DRAC CLI

The DRAC CLI `racadm` utility can run locally on the DRAC 5 or remotely from a management console. The `racadm` command syntax to configure the IPMI settings on the system is `racadm config -g group -o object`. For example, to enable an IPMI Over LAN connection, administrators should enter `racadm config -g cfgIpmiLan -o cfgIpmiLanEnable 1`. They can type `racadm help` or `racadm help subcommand` to obtain a list of available subcommands or detailed information about a specific subcommand, respectively.

Flexible options for IPMI configuration

Several server management software options are available for IPMI configuration of Dell PowerEdge servers in both pre-OS and OS-present environments, including GUIs and CLIs that run on either the managed server or a remote management console. Using these interfaces can help provide administrators with flexibility and efficiency in managing ninth-generation Dell PowerEdge servers. 

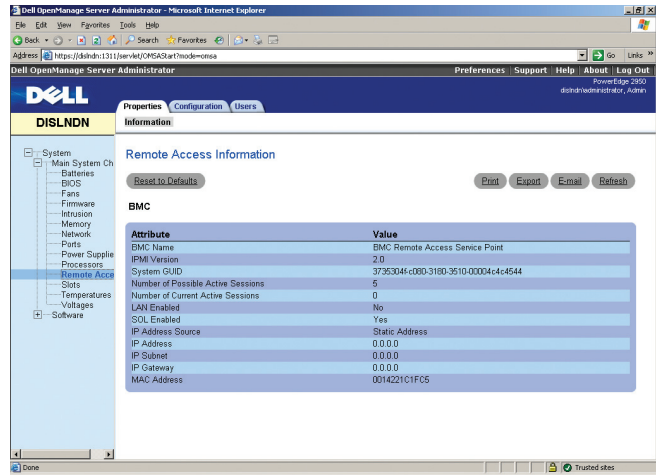


Figure 3. Remote Access Information screen in the Dell OpenManage Server Administrator GUI

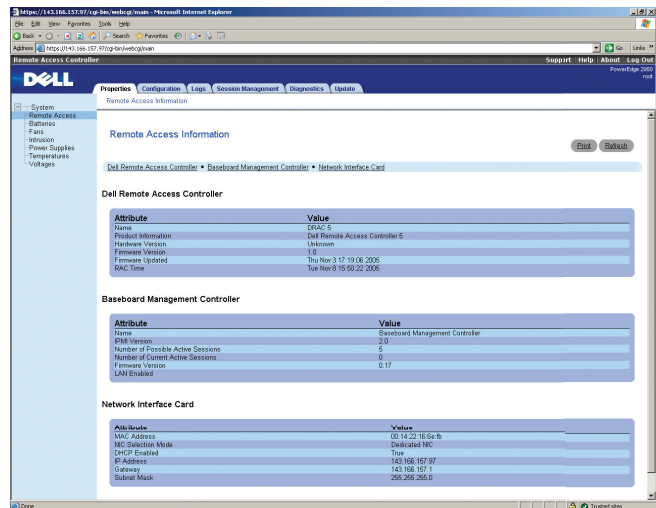


Figure 4. Remote Access Information screen in the DRAC GUI

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