MANAGING DELL POWEREDGE M1000e BLADE SERVERS WITH THE AVOCENT iKVM SWITCH

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The Avocent® iKVM (integrated keyboard, video, mouse) switch, an analog KVM switch integrated into the Dell™ PowerEdge™ M1000e modular blade enclosure, is designed to simplify administrative tasks by letting IT staff easily view, monitor, and manage server blades and by providing access to the remote management and power control functions of the PowerEdge M1000e Chassis Management Controller.

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In data center environments, simple, flexible server monitoring and management tools can be critical to maintaining efficient operations. The Avocent iKVM (integrated keyboard, video, mouse) switch, an analog KVM switch integrated into the Dell PowerEdge M1000e modular blade enclosure,[1] is designed to let administrators easily view, monitor, and manage each of the 16 server blades in the PowerEdge M1000e and provide access to the Dell Chassis Management Controller (CMC) for management and power control. Key features of the Avocent iKVM switch include local access to each server blade, one-to-one administration for up to 16 administrators accessing each of the 16 blades, integration with the Avocent On-Screen Configuration and Reporting (OSCAR®) graphical user interface for configuration and to work with existing Avocent KVM infrastructures, integration with the Microsoft® Active Directory® directory service, and access to the integrated Dell Remote Access Controller (iDRAC) on each blade.

The Avocent iKVM switch is compatible with standard USB keyboards and pointing devices as well as with VGA monitors that support Display Data Channel (DDC). Its video connections support display resolution ranges from 640 × 480 at 60 Hz up to 1,600 × 1,200 at 75 Hz. When necessary, administrators can update the Avocent iKVM switch firmware through the CMC firmware update utility.

USING THE AVOCENT iKVM SWITCH

The Avocent iKVM switch provides traditional KVM switching between server blades in the Dell PowerEdge M1000e enclosure as well as a scanning feature, which allows administrators to scan through preselected blades while pausing for a specific time at each blade. They can also select a specific blade through the OSCAR main dialog box, as shown in Figure 1. In addition to the blade names (which administrators can set themselves or pull from the CMC automatically during setup) and chassis slot numbers, the OSCAR interface provides status information for each blade: a green circle, for example, indicates that the blade is online and functioning properly, while a red *X* means the blade is offline or not functioning properly. A yellow circle indicates that a blade is online but unavailable—for example, because another user is controlling it remotely. The letters in the right column provide additional information, such as whether a blade is being accessed by a user panel (a green letter) or blocked by a specific user channel (a black letter), and whether the blade is being accessed through the rear panel (the letter *A*) or the front panel (the letter *B*). When administrators
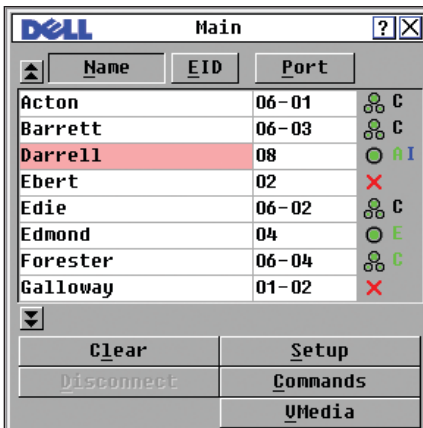
[1] For more information on the PowerEdge M1000e, see "The Next-Generation Dell PowerEdge M1000e Modular Blade Enclosure," by Chad Fenner, in *Dell Power Solutions*, February 2008, DELL.COM/Downloads/Global/Power/ps1q08-20080206-Fenner.pdf.

Figure 1. *Avocent OSCAR main dialog box for the Dell PowerEdge M1000e blade server*

select a blade to view and control, the Avocent iKVM switch can automatically reconfigure the keyboard and mouse to the proper settings for that blade.

Administrators also have the option of using hotkey sequences to access server blades without using the OSCAR main dialog box. For example, they can configure the switch so that rather than pressing the Print Screen button twice to bring up the main dialog box and then selecting a blade, they can press the Print Screen button and then the first few characters of a blade name or slot number to display that blade immediately.

The Avocent iKVM switch also enables administrators to send keyboard and mouse actions to multiple server blades simultaneously, helping simplify the process of managing multiple blades at once. They can configure the switch to broadcast keystrokes and mouse movements independently as well, providing additional management flexibility.

The switch provides basic security capabilities to help prevent unauthorized users from controlling the server blades. For example, the OSCAR interface allows administrators to protect the system with a screen saver password: after a defined time period, the screen saver engages and access is prohibited until the password is entered. Administrators can also protect the OSCAR configuration itself with a password. If they ever lose or forget this password, they can clear it through the PowerEdge M1000e CMC.

ACCESSING THE CHASSIS MANAGEMENT CONTROLLER

The CMC is a hot-pluggable systems management hardware and software controller designed to provide remote management and power control for the Dell PowerEdge M1000e blade server. It includes its own processor and memory, and draws power from the modular blade enclosure. Its key features include the following:

- **Support for Microsoft Active Directory authentication:** Directory services such as Microsoft Active Directory maintain a common database of information needed to control network users and assets; organizations using Active Directory can use it to provide access to CMCs. Administrators can centralize CMC user IDs and passwords in Active Directory using the standard schema or an extended schema.
- **Comprehensive monitoring:** CMCs provide access to system information and the status of components such as server blades, power supplies, fans, and temperature sensors.
- **Access to system event logs:** CMCs generate a hardware log of events that occur on the chassis, which includes the severity, time, and a description of the event. Administrators can view, save a text file version of, and clear the hardware log from the CMC interface.
- **Automated alerts:** Administrators can configure CMCs to send e-mail messages or Simple Network Management Protocol (SNMP) traps to alert them of warnings or errors related to temperatures, hardware mis-configurations, power outages, fan speeds, and so on.

In addition to other ways of accessing CMCs, administrators can use the Avocent iKVM switch to establish racadm console connections. They can then use racadm commands to configure CMC properties and perform remote management tasks through a command-line interface. Administrators can display a list of available racadm commands, syntax information, and other instructions by using the command `racadm help`. They can list syntax and options for specific racadm commands by using the command `racadm help command`. The Dell CMC user guide also provides a list of available racadm commands.

PROVIDING SIMPLE, FLEXIBLE BLADE SERVER MANAGEMENT

The Avocent iKVM switch is designed to provide easy access to each of the 16 server blades and the CMC in Dell PowerEdge M1000e modular blade enclosures. Using the switch with the Avocent OSCAR interface and taking advantage of the racadm console connections can give administrators comprehensive access to and control over the Dell PowerEdge M1000e blade server, helping provide simple, flexible monitoring and management capabilities. ⏻

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