Intel® Remote Management Module 3 User Guide

Revision 1.1

August, 2009

Revision History

Date	Revision Number	Modifications
Aug 2009	1.1	Updated document for feature updates (international keyboard support and soft keyboard) and review feedback.

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1. Introduction

The Intel® Server Board S5500WB is a dual socket server using the Intel® Xeon® Processor 5500 series processor, in combination with the IOH and ICH10R to provide a balanced feature set between technology leadership and cost.

The Intel® RMM3 works as an integrated solution on your server system. Based on an embedded operating system, the Intel® RMM3 add-on card provides both exceptional stability and permanent availability independent of the present state of the server's operating system. As a system administrator, you can use the Intel® RMM3 to gain location-independent remote access to respond to critical incidents and to undertake necessary maintenance.

Designed to work with the Baseboard Management Controller (BMC), this small form-factor mezzanine card enables server control via a built-in Web Console from anywhere, anytime.

This User Guide describes how to use the Intel® Remote Management Module 3 (hereinafter referred to as Intel® RMM3). It provides an overview of the features of the module and instructions on how to set up and operate the Intel® RMM3.

1.1 Target Audience

This Guide is intended for system technicians who are responsible for installing, troubleshooting, upgrading, and repairing the Intel® RMM3. As a system administrator, you can use it to work on the Intel® RMM3 to gain location-independent remote access to respond to critical incidents.

1.2 Terminology

The following table lists the terminology used in this document and the description:

Table 1: Terminology

Word / Acronym	Definition
ARP	Address Resolution Protocol
BMC	Baseboard Management Controller
CLI	Command Line Interface
DDC	Display Data Channel
DHCP	Dynamic Host Configuration Protocol
DVC	Dambrackas Video Compression
DVO	Dynamic Visual Output
EDID	Extended Display Identification Data
FML	Fast Management Link
FPGA	Field Programmable Gate Array
ICMP	Internet Control Message Protocol
Intel® ASMI	Intel® Advanced Server Management Interface
Intel® RMM3	Intel® Remote Management Module 3

Word / Acronym	Definition
IPMI	Intelligent Platform Management Interface
ITE	Information Technology Equipment
KVM	Keyboard, Video and Mouse
MAC	Media Access Controller
MII	Media Independent Interface
OOB	Out Of Band- No operating system interaction on Server
PBDE	Polybrominated Biphenyls Diphenyl Ethers
RMII	Reduced Media Independent Interface
RTC	Real-Time Clock
TCP/IP	Transmission Control Protocol / Internet Protocol
TPS	Technical Product Specification
UART	Universal Asynchronous Receiver Transmitter
UDP	User Datagram Protocol

1.3 Safety Information

⚠ **WARNING**

Before working with your Intel® RMM3 server product - whether you are using this guide or any other resource as a reference - pay close attention to the safety instructions. You must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product certifications and approvals. Use only the described regulated components specified in this guide. Use of other products / components will void the UL listing and other regulatory approvals of the product and will most likely result in noncompliance with product regulations in the region(s) in which the product is sold.

⚠ Warnings

⚠ **System power on/off**: The server power button DOES NOT turn off the system power or Intel® RMM3 power. To remove power from the Intel® RMM3 you must unplug the server AC power cord from the wall outlet. Make sure the AC power cord is unplugged before you open the chassis to add or remove the Intel® RMM3.

⚠ **Hazardous conditions, devices and cables:** Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it. Otherwise, personal injury or equipment damage can result.

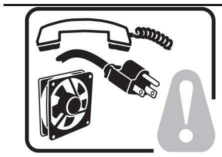
⚠ **Electrostatic discharge (ESD) and ESD protection:** ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground—any unpainted metal surface—on your server when handling parts.

⚠ **ESD and handling boards:** Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

⚠ **Installing or removing jumpers:** A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that you can grip with your fingertips or with a pair of fine needle nosed pliers. If your jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tools you use to remove a jumper, or you may bend or break the pins on the board.

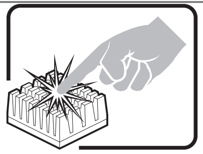
⚠ Safety Cautions

Read all caution and safety statements in this document before performing any of the instructions. See also *Intel® Server Boards and Server Chassis Safety Information* at http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.



SAFETY STEPS: Whenever you remove the chassis covers to access the inside of the system, follow these steps:

1. Turn off all peripheral devices connected to the system.
2. Turn off the system by pressing the power button.
3. Unplug all AC power cords from the system or from wall outlets.
4. Label and disconnect all cables connected to I/O connectors or ports on the back of the system.
5. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground of the system—any unpainted metal surface—when handling components.
6. Do not operate the system with the chassis covers removed.



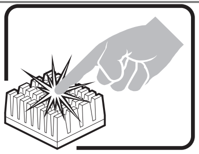
A microprocessor and heat sink may be hot if the system has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.

⚠ Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warn- und Sicherheitshinweise in diesem Dokument, bevor Sie eine der Anweisungen ausführen. Beachten Sie hierzu auch die Sicherheitshinweise zu Intel®-Serverplatinen und -Servergehäusen auf der Ressourcen-CD oder unter http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

SICHERHEISMASSNAHMEN: Immer wenn Sie die Gehäuseabdeckung abnehmen um an das Systeminnere zu gelangen, sollten Sie folgende Schritte beachten:

1. Schalten Sie alle an Ihr System angeschlossenen Peripheriegeräte aus.
2. Schalten Sie das System mit dem Hauptschalter aus.
3. Ziehen Sie den Stromanschlußstecker Ihres Systems aus der Steckdose.
4. Auf der Rückseite des Systems beschriften und ziehen Sie alle Anschlußkabel von den I/O Anschlüssen oder Ports ab.
5. Tragen Sie ein geerdetes Antistatik Gelenkband, um elektrostatische Ladungen (ESD) über blanke Metallstellen bei der Handhabung der Komponenten zu vermeiden.
6. Schalten Sie das System niemals ohne ordnungsgemäß montiertes Gehäuse ein.



Der Mikroprozessor und der Kühler sind möglicherweise erhitzt, wenn das System in Betrieb ist. Außerdem können einige Platinen und Gehäuseteile scharfe Spitzen und Kanten aufweisen. Arbeiten an Platinen und Gehäuse sollten vorsichtig ausgeführt werden. Sie sollten Schutzhandschuhe tragen.

⚠ 重要安全指导

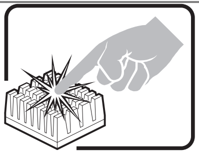
在执行任何指令之前，请阅读本文档中的所有注意事项及安全声明。参见 Resource CD（资源光盘） 和/或http://support.intel.com/support/motherboards/server/sb/cs-010770.htm 上的 *Intel® Server Boards and Server Chassis Safety Information*（《Intel® 服务器主板与服务器机箱安全信息》）。

⚠ Consignes de sécurité

Lisez attention toutes les consignes de sécurité et les mises en garde indiquées dans ce document avant de suivre toute instruction. Consultez *Intel® Server Boards and Server Chassis Safety Information* sur le CD Resource CD ou bien rendez-vous sur le site http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

CONSIGNES DE SÉCURITÉ -Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes:

1. Mettez hors tension tous les périphériques connectés au système.
2. Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir).
3. Débranchez tous les cordons d'alimentation c.a. du système et des prises murales.
4. Identifiez et débranchez tous les câbles reliés aux connecteurs d'E-S ou aux accès derrière le système.
5. Pour prévenir les décharges électrostatiques lorsque vous touchez aux composants, portez une bande antistatique pour poignet et reliez-la à la masse du système (toute surface métallique non peinte du boîtier).
6. Ne faites pas fonctionner le système tandis que le boîtier est ouvert.



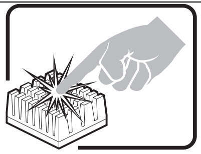
Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.

⚠ Instrucciones de seguridad importantes

Lea todas las declaraciones de seguridad y precaución de este documento antes de realizar cualquiera de las instrucciones. Vea *Intel® Server Boards and Server Chassis Safety Information* en el CD Resource y/o en http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

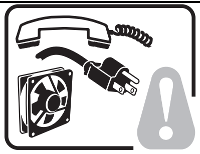
INSTRUCCIONES DE SEGURIDAD: Cuando extraiga la tapa del chasis para acceder al interior del sistema, siga las siguientes instrucciones:

1. Apague todos los dispositivos periféricos conectados al sistema.
2. Apague el sistema presionando el interruptor encendido/apagado.
3. Desconecte todos los cables de alimentación CA del sistema o de las tomas de corriente alterna.
4. Identifique y desconecte todos los cables enchufados a los conectores E/S o a los puertos situados en la parte posterior del sistema.
5. Cuando manipule los componentes, es importante protegerse contra la descarga electrostática (ESD). Puede hacerlo si utiliza una muñequera antiestática sujetada a la toma de tierra del chasis — o a cualquier tipo de superficie de metal sin pintar.
6. No ponga en marcha el sistema si se han extraído las tapas del chasis.



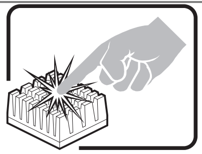
Si el sistema ha estado en funcionamiento, el microprocesador y el disipador de calor pueden estar aún calientes. También conviene tener en cuenta que en el chasis o en el tablero puede haber piezas cortantes o punzantes. Por ello, se recomienda precaución y el uso de guantes protectores.

⚠ AVVERTENZA: Italiano



PASSI DI SICUREZZA: Qualora si rimuovano le coperture del telaio per accedere all'interno del sistema, seguire i seguenti passi:

1. Spegnere tutti i dispositivi periferici collegati al sistema.
2. Spegnere il sistema, usando il pulsante spento/acceso dell'interruttore del sistema.
3. Togliere tutte le spine dei cavi del sistema dalle prese elettriche.
4. Identificare e sconnettere tutti i cavi attaccati ai collegamenti I/O od alle prese installate sul retro del sistema.
5. Qualora si tocchino i componenti, proteggersi dallo scarico elettrostatico (SES), portando un cinghia anti-statica da polso che è attaccata alla presa a terra del telaio del sistema – qualsiasi superficie non dipinta – .
6. Non far operare il sistema quando il telaio è senza le coperture.



Se il sistema è stato a lungo in funzione, il microprocessore e il dissipatore di calore potrebbero essere surriscaldati. Fare attenzione alla presenza di piedini appuntiti e parti taglienti sulle schede e sul telaio. È consigliabile l'uso di guanti di protezione.

1.4 Support Information

World Wide Web: http://support.intel.com/support/

1. For an updated support contact list, see *http://www.intel.com/support/9089.htm/*

Table 2: Support Information Contact Details

In U.S. and Canada		1-800-404-2284	
In Europe			
UK	0870 6072439	Finland	9 693 79297
France	01 41 918529	Denmark	38 487077
Germany	069 9509 6099	Norway	23 1620 50
Italy	02 696 33276	Sweden	08 445 1251
Spain	91 377 8166	Holland	020 487 4562
Belgium	02 714 3182		
In Asia-Pacific region			
Australia	1800 649931	Indonesia	803 65 7249
Hong Kong	852 2 844 4456	Malaysia	1 800 80 1390
Korea	822 767 2595	New Zealand	0800 444 365
China	800 820 1100 (toll-free)	Pakistan	632 63684 15 (IDD via Philippines)
	8 621 33104691 (not toll-free)	Philippines	1 800 1 651 0117
Singapore	65 6213-1311	Thailand	1 800 631 0003
India	0006517 2 68303634 (manual toll-free. From India, you need an IDD-equipped telephone)	Vietnam	632 6368416 (IDD via Philippines)
		Myanmar	63 2 636 9796 (via Philippines)
		Cambodia	63 2 636 9797 (via Philippines)
Taiwan	2 2545-1640		
In Japan			
0120 868686 (Domestic)		81 298 47 0800 (outside country)	
In Latin America			
Brazil	001-916 377 0180	Ecuador (Andimate)	Contact AT&T USA at 1 999 119. Once connected, dial 800 843 4481
Mexico	Contact AT&T USA at 001 800 462 628 4240. Once connected, dial 800 843 4481	Ecuador (Pacifictel)	Contact AT&T USA at 1 800 225 528. Once connected, dial 800 843 4481
Colombia	Contact AT&T USA at 01 800 911 0010. Once connected, dial 800 843 4481	Guatemala	Contact AT&T USA at 99 99 190. Once connected, dial 800 843 4481
Costa Rica	Contact AT&T USA at 0 800 0 114 114. Once connected, dial 800 843 4481	Venezuela	Contact AT&T USA at 0 800 2255 288. Once connected, dial 800 843 4481
Panama	Contact AT&T USA at 00 800 001 0109. Once connected, dial 800 843 4481	Argentina	Contact AT&T USA at 0-800 222 1288. Once connected, dial 800 843 4481
Chile (Easter Island)	Contact AT&T U SA at 800 800 311. Once connected, dial 800 843 4481	Paraguay	001 916 377 0114
Chile (Mainland and Juan)	Contact AT&T USA at 800 225 288. Once connected, dial 800 843 4481	Peru	001 916 377 0114
Miami	1 800 621 8423	Uruguay	001 916 377 0114

2. Intel® Remote Management Module 3 Overview

This section gives you an overview of the Intel® RMM3 and highlights significant benefits of its features.

The Intel RMM3 is a 1.23-inch x 2.30-inch printed circuit board. When installed onto the Intel® RMM3 connector on Intel® server boards, it provides an increased level of manageability over the basic server management available to the server board. It works as an integrated solution on your server system.

2.1 Intel® RMM3 Features

The Intel® RMM3 add-on card offers convenient, remote KVM access and control via LAN or Internet. It captures, digitizes, and compresses video and transmits it with keyboard and mouse signals to and from a remote computer. Remote access and control software runs in the integrated Baseboard Management Controller, utilizing expanded capabilities provided by the Intel® RMM3 hardware.

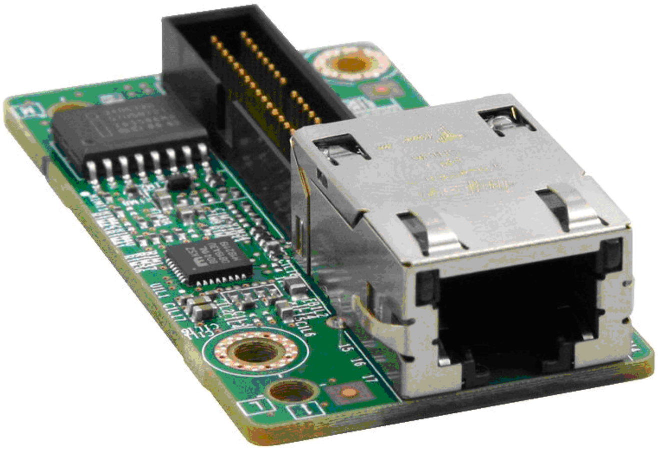


Figure 1: Intel® Remote Management Module 3

In addition, the Intel® RMM3 add-on card offers integrated remote power management using IPMI. Key features of the Intel® RMM3 add-on card are:

- Embedded Web Console UI supports Remote Power on\off, system health, system info, Event log.
- KVM redirection via either the RMM3 NIC or the baseboard NIC used for management traffic; high performance, up to two simultaneous KVM sessions.
- USB 2.0 media redirection - boot over remote media
- Security – open SSL, open LDAP
- OEM Customization of the Web Console.
- IPMI V2.0 Compliance
- KVM - Automatically senses video resolution for best possible screen capture, high-performance mouse tracking and synchronization. It allows remote viewing and

configuration in pre-boot POST and BIOS setup.

2.2 Supported Operating Systems

The Intel® RMM3 runs independent of the host operating system on the server where it is installed except during Remote Console (KVM) connections. During Remote Console connections the Keyboard, Mouse and Video of the console system operate just as if you were at the server where the Intel® RMM3 is connected. During Remote Console connections, the interaction with the host operating system limits the support to operating systems that have been validated. Those operating systems are listed in the following sub sections.

2.2.1 Server System

The following operating systems are supported on the managed server:

- Microsoft Windows* 2003 Server with SP1
- Microsoft Windows* 2003 Server 32-bit
- Microsoft Windows* 2003 Server with SP2
- Red Hat* Enterprise Linux* 5.2
- SuSe* 10 SP1
- Red Hat* Enterprise Linux* 5.2 U3
- Red Hat* Enterprise Linux* 5.2 U4
- Microsoft® Windows* XP with SP 2

2.2.2 Client System

The following client operating system and Internet browser combinations have been tested:

- SuSE* 10.2/Firefox* 3.0.1
- Red Hat* Enterprise Linux* 5.1/Firefox 3.01
- Microsoft® Windows* XP Pro with SP3/Firefox* 3.0.1
- Microsoft® Windows* XP Pro with SP3/ IE* 7.0
- Microsoft® Windows* XP Pro with SP3 64-bit/ IE* 7.0
- Microsoft® Windows Vista* 32-bit/ IE* 7.0
- Microsoft® Windows* XP Pro with SP2/ IE* 6.0
- Microsoft® Windows* XP Pro with SP2/ Firefox* 2.0.0.14

3. Hardware Installations and Initial Configuration

This section guides you on the hardware installations and initial configuration.

3.1 Before You Begin

Please read the Safety Information provided at the beginning of this manual before working with your server product.

3.2 Tools and Supplies Needed

Following are the tools and supplies needed:

- Phillips* (cross head) screwdriver (#1 bit and #2 bit)
- Needle nosed pliers
- Antistatic wrist strap and conductive foam pad (recommended)

3.3 Installation

The Intel® Remote Management Module is currently supported on the following Intel® server boards:

- All SKUs of Intel® Server Board S5500BC
- All SKUs of Intel® Server Board S5520HC & S5520SC
- All SKUs of Intel® Server Board SC5520UR

The Intel® RMM3 box contains the following components:

- Intel® Remote Management Module
- Network Interface Card (NIC) module
- Plastic bag containing screws, slot bracket, 3 plastic standoffs and cabling

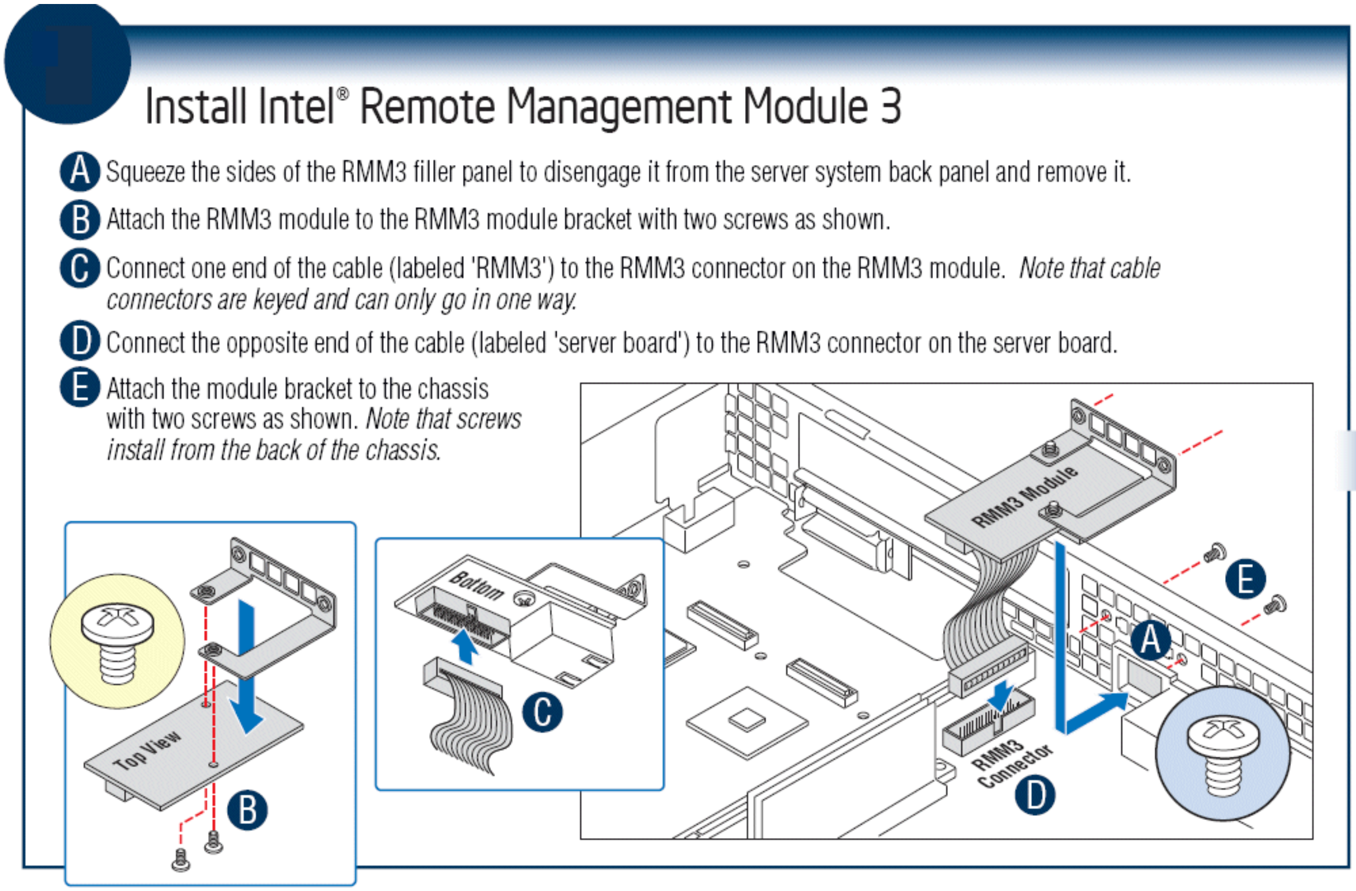
The installation will vary between these server boards and their chassis configurations. The following sections detail installation instructions.

⚠ **Caution:** Remove AC power from the server and wait for at least 10 seconds before installing the Intel® RMM3.

3.3.1 Installation on Intel® Server Boards S5500UR and S5500WB

The Intel® Server Board S5500UR and S5500WB install in rack mount 1U or 2U chassis. The same installation steps apply to both chassis types.

1. Attach the Intel® RMM3 to the metal fastening bracket
2. Attach the cable from the baseboard to the RMM3 module.
3. Push out and remove the metal cover on the chassis where the NIC RJ-45 receptacle will align.
4. Mount the RMM3 module to the header on the baseboard and secure the metal fastening bracket to the back of the chassis as shown in figure 2. This will align the RJ-45 with the opening in the chassis.
5. Make a note of the MAC address of the Intel® RMM3. It is written on a label attached to the module (not the NIC). Keeping a record now may eliminate the need to reopen the cover later.
6. Replace the chassis cover, attach AC power and connect a network cable to the Intel® RMM NIC.



Install Intel® Remote Management Module 3

A Squeeze the sides of the RMM3 filler panel to disengage it from the server system back panel and remove it.

B Attach the RMM3 module to the RMM3 module bracket with two screws as shown.

C Connect one end of the cable (labeled 'RMM3') to the RMM3 connector on the RMM3 module. *Note that cable connectors are keyed and can only go in one way.*

D Connect the opposite end of the cable (labeled 'server board') to the RMM3 connector on the server board.

E Attach the module bracket to the chassis with two screws as shown. *Note that screws install from the back of the chassis.*

Figure 2 – Installing Intel® RMM3 on Intel® Server Boards S5500UR and S5500WB

3.3.2 Installation on Intel® Server Boards S5520HC, S5520BC, and S5520SC

The Intel® Server Boards S5520HC, S5520BC, and S5520SC install in pedestal style chassis.

1. .Attach the Intel® RMM3 to the connector on the server baseboard labeled "RMM".
2. Mount the bracket with the RMM3 module in a chassis slot near the baseboard connector for the cable.
3. Attach the cable from the baseboard to the RMM3 module as shown.
4. Make a note of the MAC address of the Intel® RMM3. It is written on a label attached to the module (not the NIC). Keeping a record now may eliminate the need to reopen the cover later.
5. Replace the chassis cover, attach AC power and connect a network cable to the Intel® RMM NIC

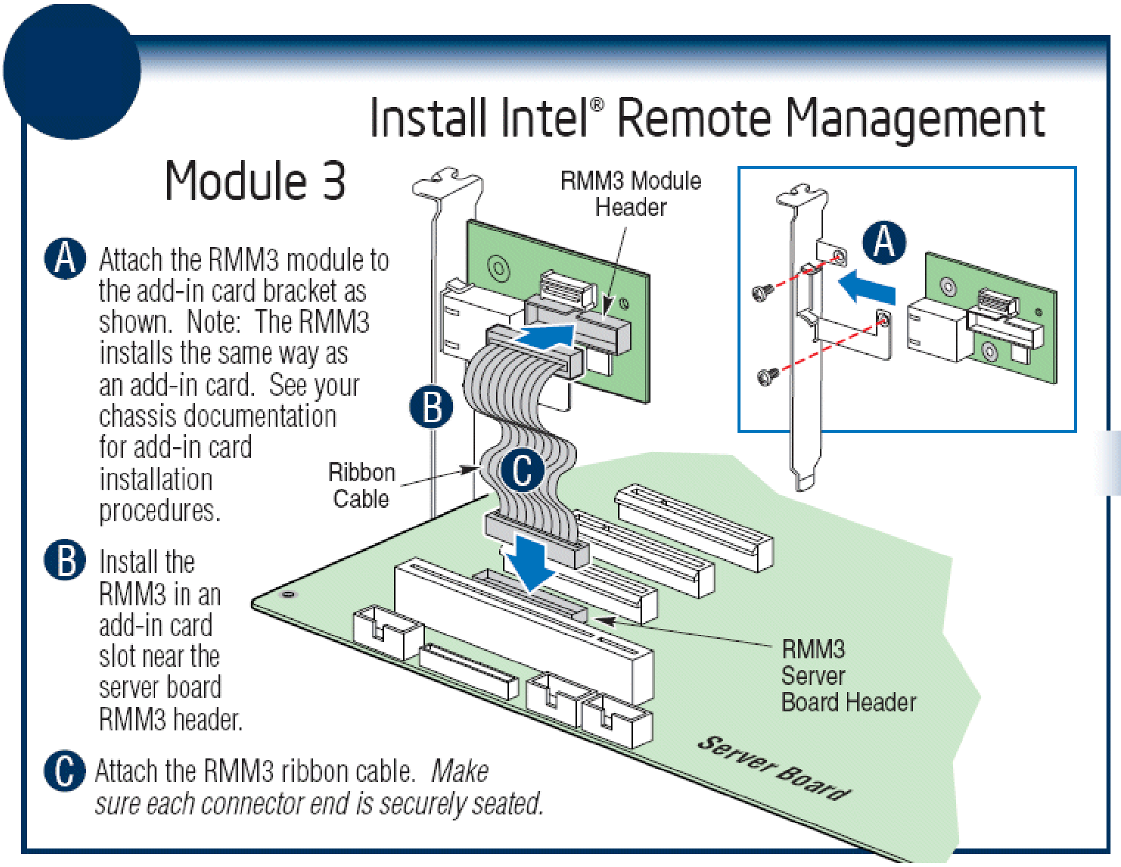

Install Intel® Remote Management
Module 3
A Attach the RMM3 module to the add-in card bracket as shown. Note: The RMM3 installs the same way as an add-in card. See your chassis documentation for add-in card installation procedures.
B Install the RMM3 in an add-in card slot near the server board RMM3 header.
C Attach the RMM3 ribbon cable. *Make sure each connector end is securely seated.*
RMM3 Module Header
A
B
C
Ribbon Cable
RMM3 Server Board Header
Server Board

Figure 3 – Installing Intel® RMM3 on Intel® Server Boards S5520HC, S5520BC, and S5520SC

4. Configuring Intel® RMM3

This section discusses using the Server Utilities to enable an Intel® RMM3 from a new unconfigured state to an operational one.

Note: You can download the IDA and SYSCFG software from the following links:

- IDA - http://support.intel.com/support/motherboards/server/ida/index.htm
- SYSCFG - http://support.intel.com > relevant server platforms page

When first powered on, by default, the Intel® RMM3 uses a static IP address of 0.0.0.0.

The Intel® RMM3 can be configured in many ways: using the Intel® Deployment Assistant (IDA), Sysconfig, and IPMI commands.

Two steps are necessary before RMM3 can be used.

1. One or both LAN channels must be configured as either DHCP or static addresses.
2. At least one user must be enabled to use the LAN channel(s).

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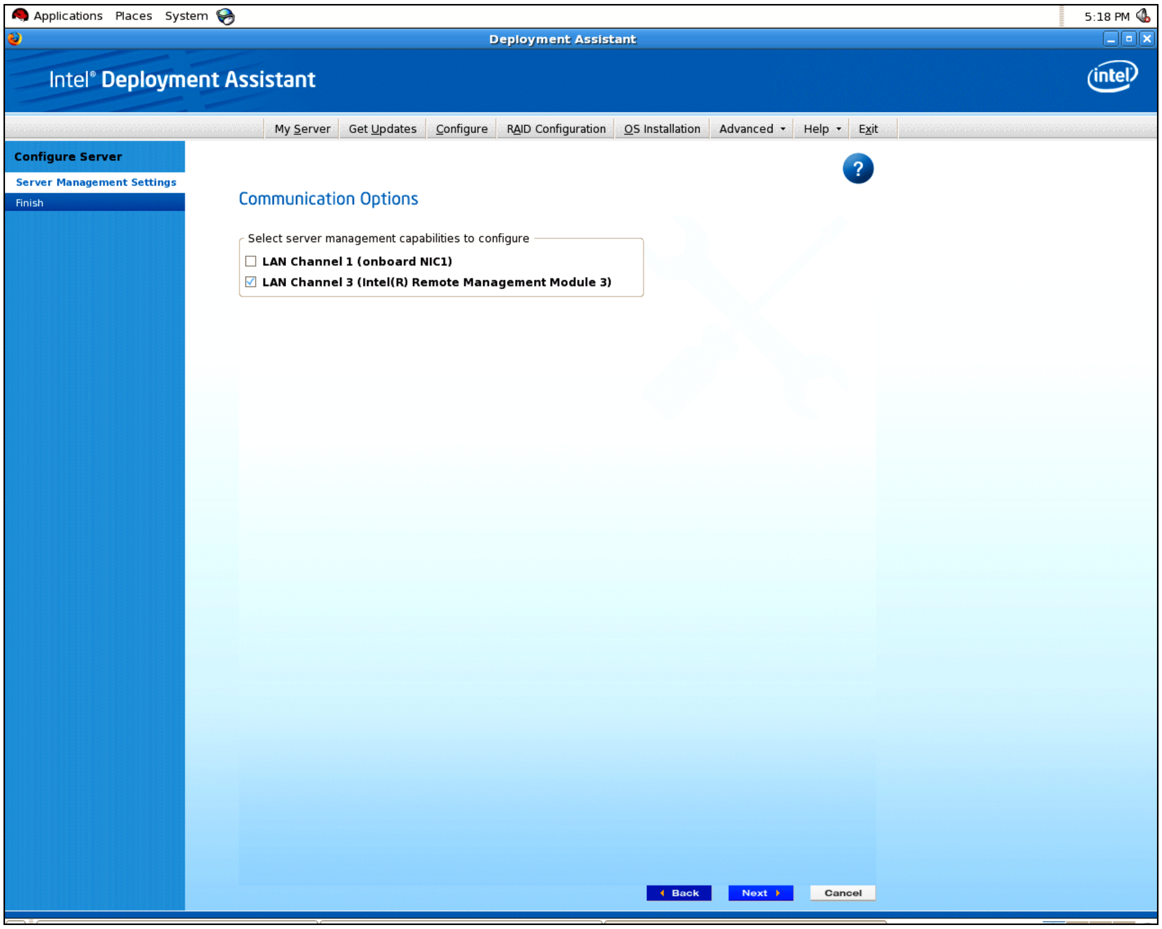
4.1 Configuring Your Server Using Intel® Deployment Assistant (IDA)

The following section explains the RMM3 configuration using sysconfig commands with IDA:

1.



Communication Options

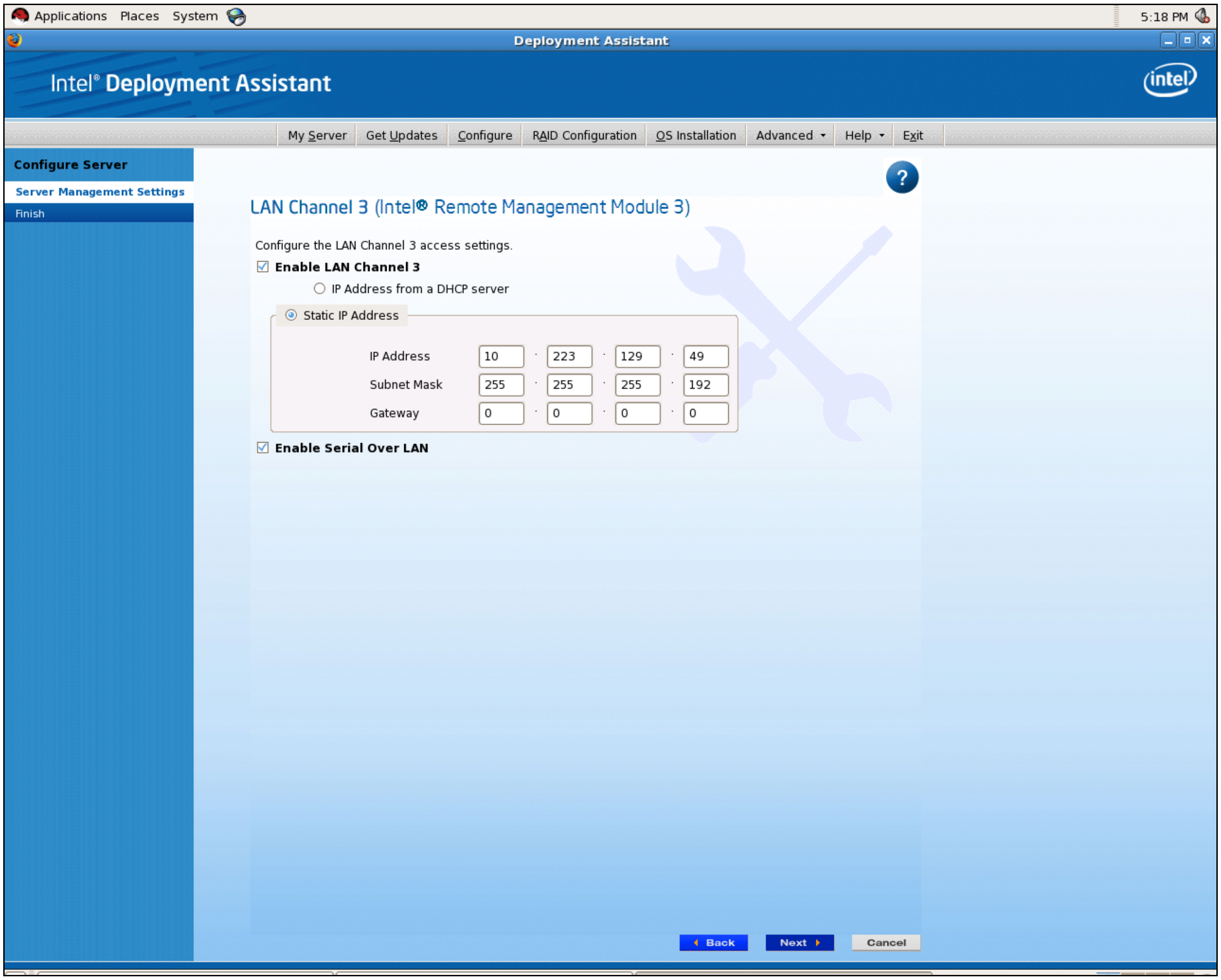
Select server management capabilities to configure

☐ LAN Channel 1 (onboard NIC1)

☑ LAN Channel 3 (Intel(R) Remote Management Module 3)

Figure 4 - IDA Configure Server: Communication Options Window

2.



LAN Channel 3 (Intel® Remote Management Module 3)

Configure the LAN Channel 3 access settings.

☑ **Enable LAN Channel 3**

○ IP Address from a DHCP server

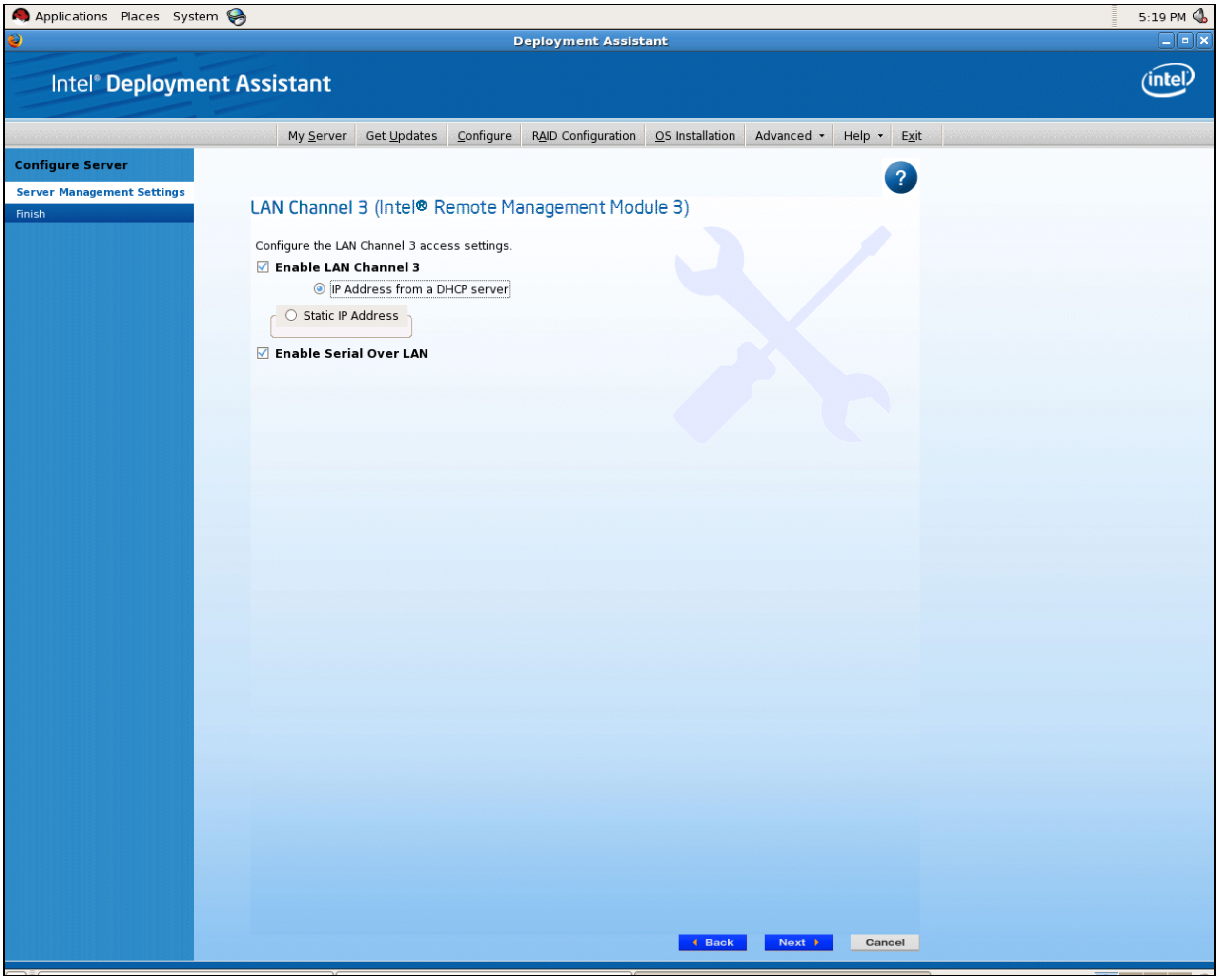
● Static IP Address

IP Address	10	223	129	49
Subnet Mask	255	255	255	192
Gateway	0	0	0	0

☑ **Enable Serial Over LAN**

Figure 5 - IDA Configure Server: Configure LAN Channel 3 (Intel® RMM3) settings window 1

3.



LAN Channel 3 (Intel® Remote Management Module 3)

Configure the LAN Channel 3 access settings.

☑ **Enable LAN Channel 3**

● IP Address from a DHCP server

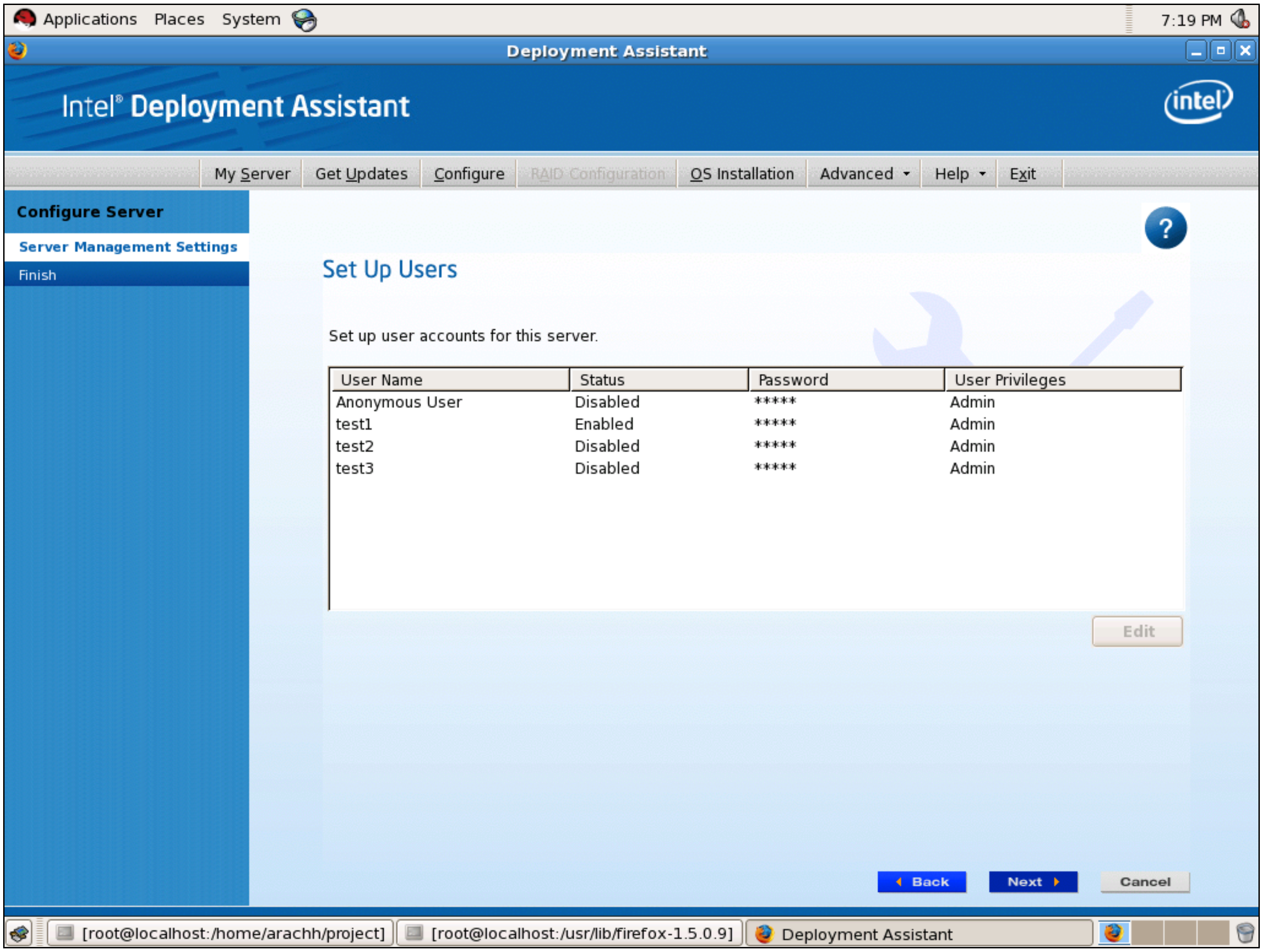
○ Static IP Address

☑ **Enable Serial Over LAN**

Figure 6 - IDA Configure Server: Configure LAN Channel 3 (Intel® RMM3) Static IP Address window

Warning: If you need to configure both channel 1 and RMM3, ensure that they are connected to different subnets.

4.



Applications Places System
7:19 PM
Deployment Assistant
Intel® Deployment Assistant
intel
My Server Get Updates Configure RAID Configuration OS Installation Advanced Help Exit
Configure Server
Server Management Settings
Finish
?

Set Up Users

Set up user accounts for this server.

User Name	Status	Password	User Privileges
Anonymous User	Disabled	*****	Admin
test1	Enabled	*****	Admin
test2	Disabled	*****	Admin
test3	Disabled	*****	Admin

Edit
Back
Next
Cancel
[root@localhost:/home/arachh/project]
[root@localhost:/usr/lib/firefox-1.5.0.9]
Deployment Assistant

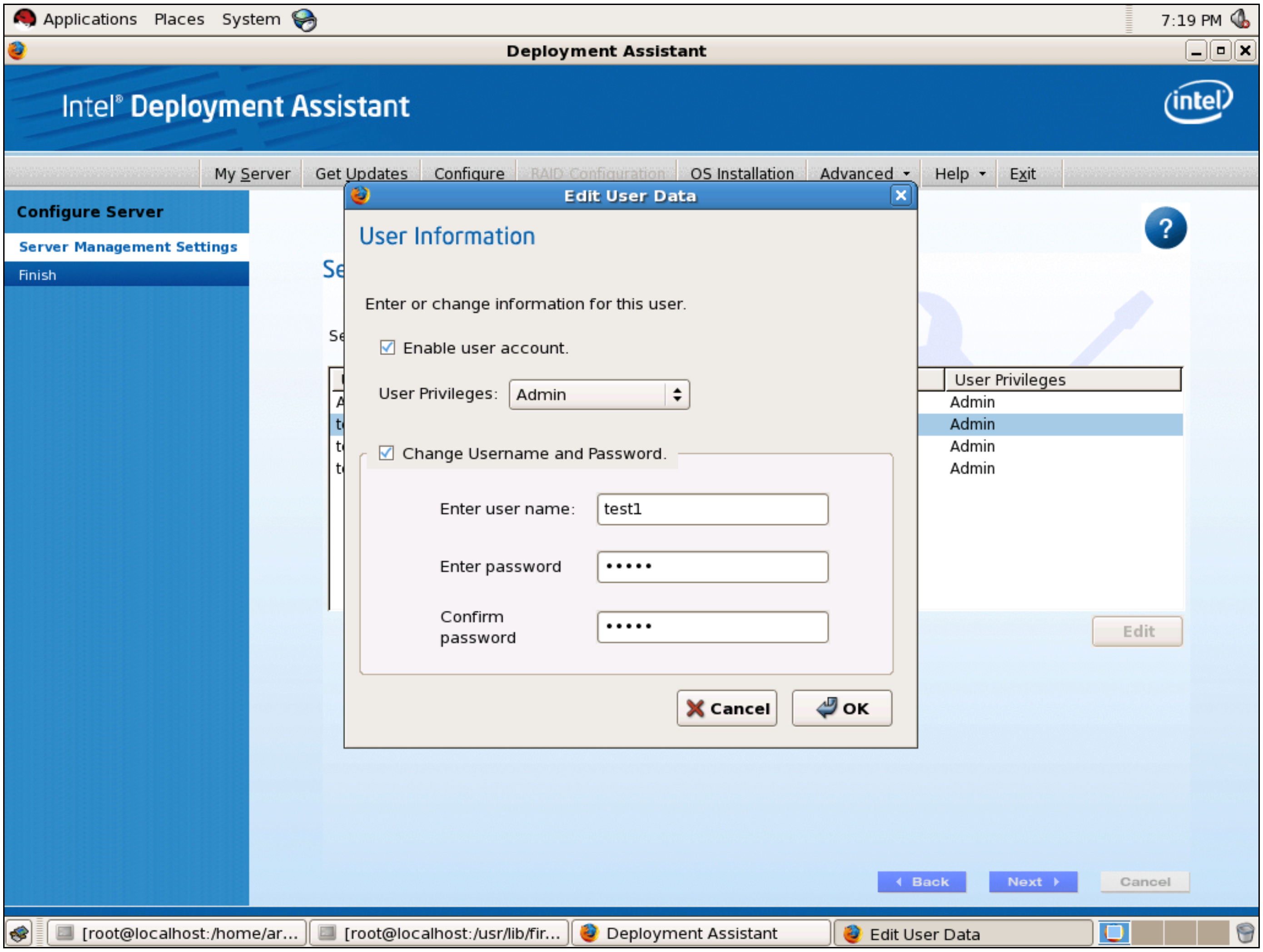
Figure 7. IDA Configure Server: Configure LAN Channel 2 (Intel® RMM3) Set Up Users window

You have the option to edit user information data. Click **Edit**.
The Edit User Data window opens.

Notes:

- You cannot login to the RMM3 as anonymous user. You must modify existing users. “root” user is the default
- To connect remotely to LAN Channel 3, you will need to configure users. Edit username/passwords, set privilege for the users as shown below.

5.



Edit User Data

User Information

Enter or change information for this user.

☑ Enable user account.

User Privileges: Admin

☑ Change Username and Password.

Enter user name: test1

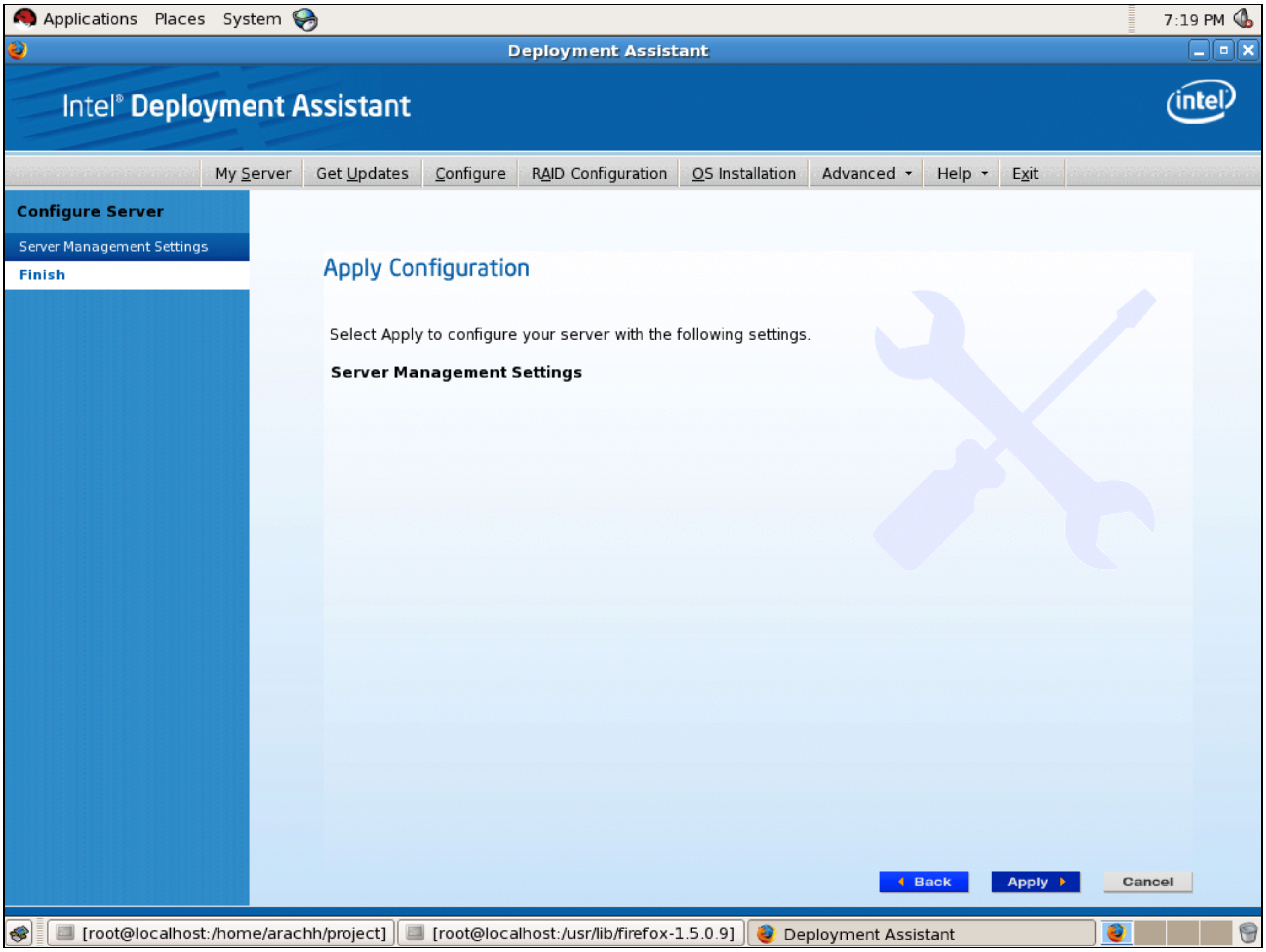
Enter password •••••

Confirm password •••••

Figure 8 - IDA Configure Server: Configure LAN Channel 2 (Intel® RMM3) Edit User Information window

6. Edit the User information and click **OK** to apply configuration.

7.



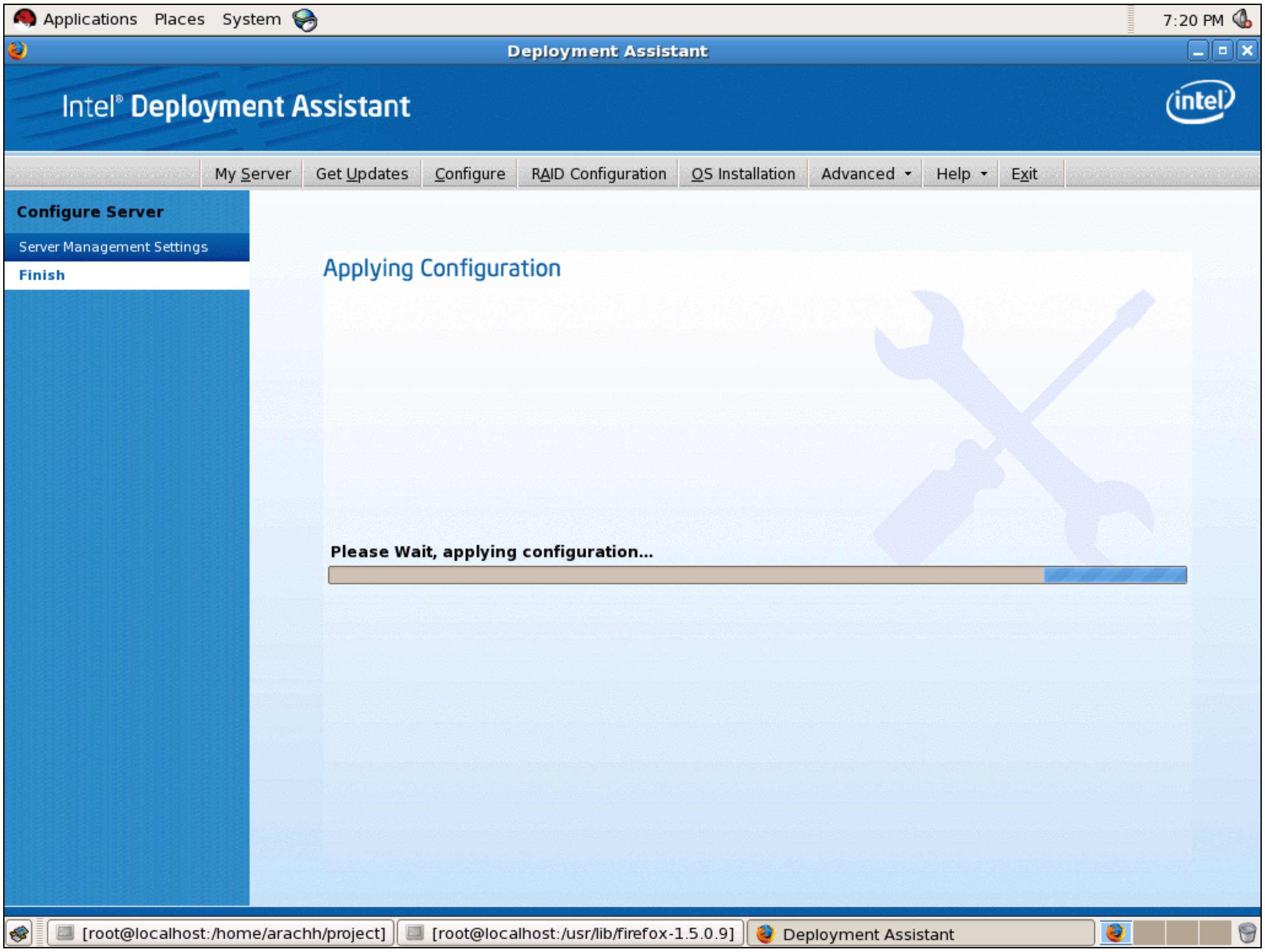
Apply Configuration

Select Apply to configure your server with the following settings.

Server Management Settings

Figure 9 - IDA Configure Server: Configure LAN Channel 2 (Intel® RMM3) Apply Configuration window

8.


Applications Places System
7:20 PM
Deployment Assistant
Intel® Deployment Assistant
intel
My Server
Get Updates
Configure
RAID Configuration
OS Installation
Advanced
Help
Exit
Configure Server
Server Management Settings
Finish
[root@localhost:/home/arachh/project]
[root@localhost:/usr/lib/firefox-1.5.0.9]
Deployment Assistant

Applying Configuration

Please Wait, applying configuration...

Figure 10 - IDA Configure Server: Configure LAN Channel 2 (Intel® RMM3) Applying Configuration progress window

4.2 Configuring Your Server Using Intel System Configuration Utility (SysConfig)

This section explains how to configure using Sysconfig commands.

4.2.1 Running the Sysconfig

To run Sysconfig enter the Sysconfig directory using this command:

```
cd /usr/local/syscfg
```

4.2.2 Configuring IP address

- To set static IP address:
  ```
  syscfg  -le 3 static <STATIC_IP> <SUBNET_MASK> -lc 3 12
  <DEFAULT_GATEWAY_IP>
  ```
- To set dhcp IP address:
  ```
  syscfg -le 1 dhcp
  ```
- Additionally, to enable SOL (can be used for either static or DHCP)
  To enable Serial Over Lan (SOL)
  ```
  syscfg -sole 3 Enable Admin BAUD_RATE RETRY_COUNT
  RETRY_INTERVAL_IN_MILLISECONDS
  ```

4.2.3 Configuring Users

- To enable a user for RMM3 channel
  ```
  syscfg -up 3 3 Admin sol -ue 3 Enable 3
  ```

5. Getting Started with Intel® RMM3 Operation

The Intel® RMM3 module features an embedded web server and applications offering a variety of standardized interfaces. This section describes both the interfaces and how to use them. The interfaces are accessed using TCP/IP protocol.

5.1 Before You Begin

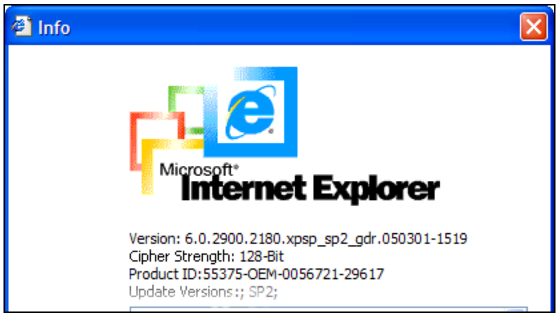
For initial setup information, refer Chapter 4. Before you log in, you must enable the intended user. The examples in this chapter will use user “root’, but other usernames and passwords could be used.

The Intel® RMM3 add-on card may be accessed using a standard Java enabled web browser. You may use the HTTP protocol or a secure encrypted connection via HTTPS.

5.1.1 Client Browsers

In order to access the web console using a securely encrypted connection, you will need a browser that supports the HTTPS protocol. Strong security is only assured by using a Cipher Strength (encryption) of 128 - Bit. Some older browsers may not have a strong 128 Bit encryption algorithm.

If you are using Windows* Internet Explorer 6.0 or higher, you can verify strong encryption by opening the “Help / About” menu to read about the key length that is currently activated. Figure 11 shows the dialog box presented by the Internet Explorer 6.0.



Version: 6.0.2900.2180.xpsp_sp2_gdr.050301-1519
Cipher Strength: 128-Bit
Product ID:55375-OEM-0056721-29617
Update Versions:; SP2;

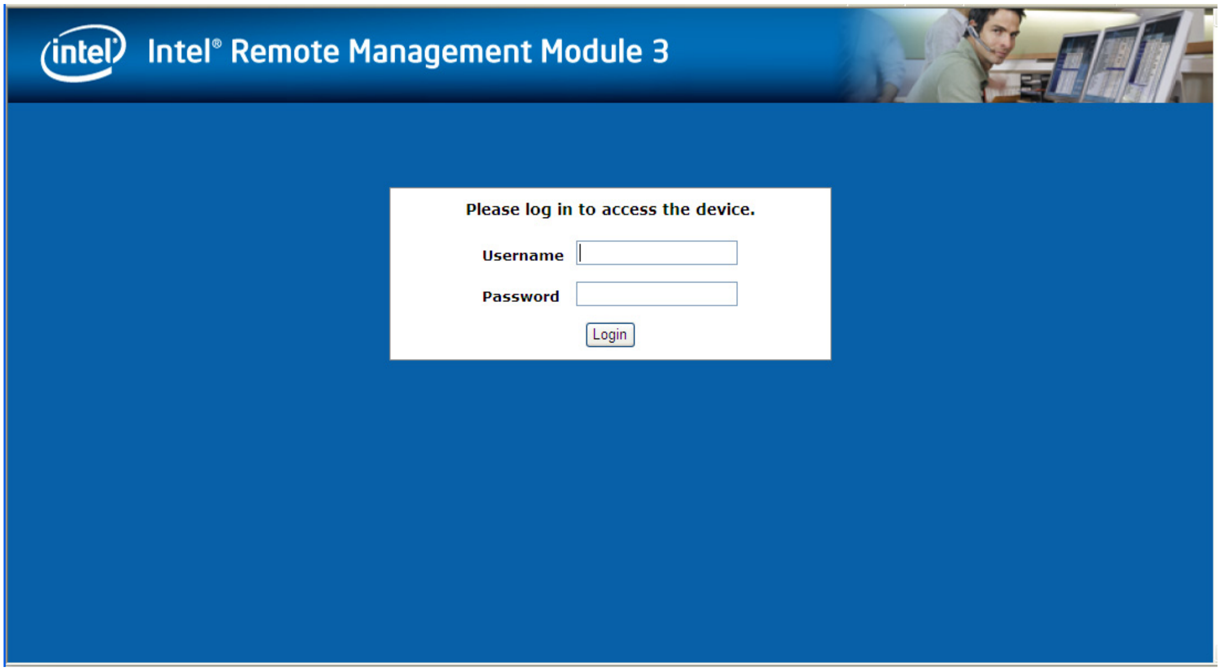
Figure 11. Internet Explorer displaying encryption key length

In order to use the Remote Console (KVM) window of your managed server, Java Runtime Environment* (JRE*) version 1.6 or higher must be installed.

Note: The Web Console is designed for a screen size of 1280 pixels by 1024 pixels or larger. In smaller screens, the browser will display slider controls to enable the user to see the full content of each web page.

5.2 Logging In

Enter the configured IP address of the Intel® RMM3 add-on card into your web browser. In order to use a secure connection, type https://10.223.131.36/. This will take you to the Intel® RMM3 module login page as shown in Figure 12.



Please log in to access the device.

Figure 12 – Intel® RMM3 Login Page

Log in by entering the username and password.

For example:

- Username = root
- Password = superuser

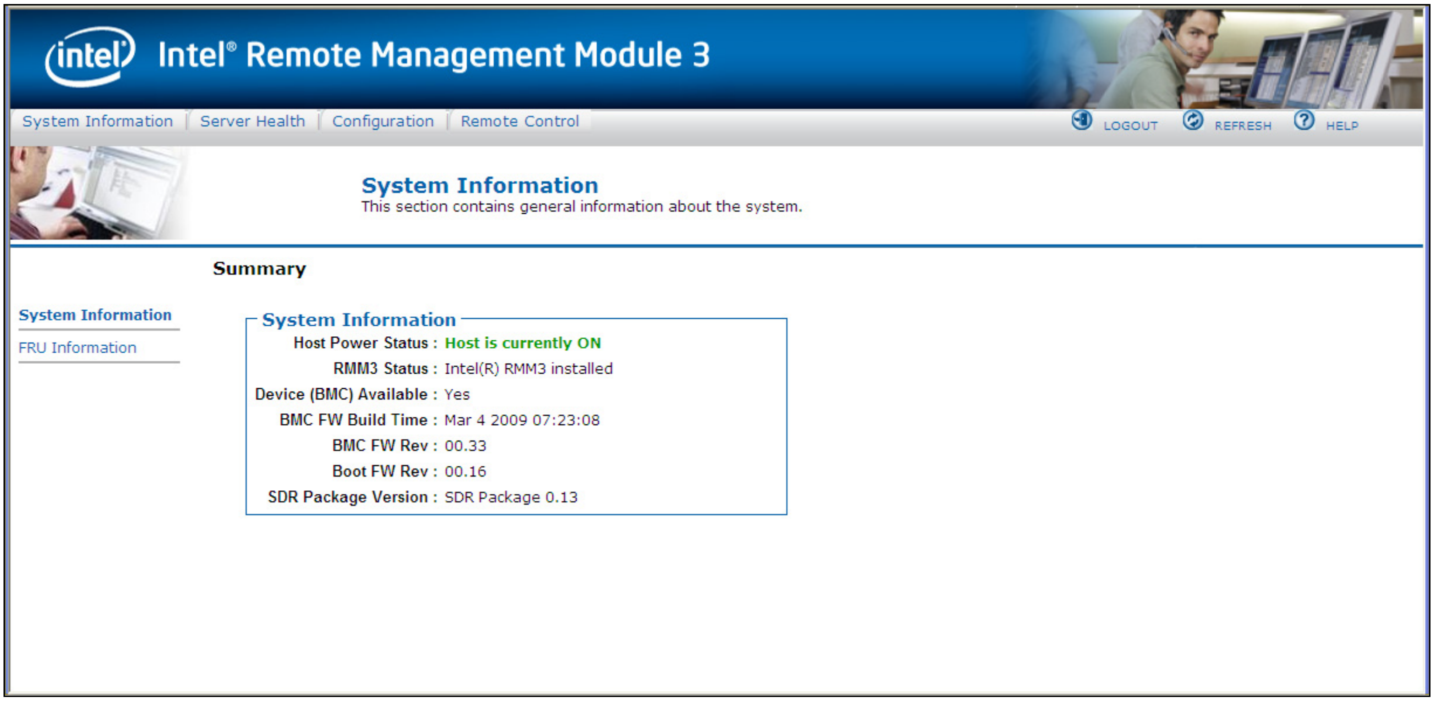
Click the **Login** button to view the RMM3 home page as shown in Figure 13.

After the initial log in, System Administrators may change passwords, create new users, and have full control over access to the Intel® RMM3.

Note: The Username and Password are case sensitive. Any username and password could be used (except anonymous).

5.3 Navigation

After successful login to the Intel® RMM3 module, the Intel® RMM3 home page appears as shown in Figure 13:



System Information

This section contains general information about the system.

Summary

System Information

Host Power Status : Host is currently ON

RMM3 Status : Intel(R) RMM3 installed

Device (BMC) Available : Yes

BMC FW Build Time : Mar 4 2009 07:23:08

BMC FW Rev : 00.33

Boot FW Rev : 00.16

SDR Package Version : SDR Package 0.13

Figure 13: Intel® RMM3 Home Page

The top horizontal toolbar within the Intel® RMM3 home page has four tabs. Click these tabs to get specific system information and perform tasks as shown in the following table:

Table 3: Intel® RMM3 home page tabs

Tab	Function
System Information	Click this tab to access general information about the server. The tab automatically opens the 'System Information' page: • System information • FRU information
Server Health	Click this tab for access to the sensors and event log. The tab automatically opens the 'Sensor Readings' page. • Sensor readings. • Event log
Configuration	Click this tab to configure various settings for the server. The tab automatically opens the 'Network' configuration page. • Network • Users • LDAP • SSL • Remote Session • Mouse Mode

Tab	Function
Remote Control	Click this tab for access to the remote console and to control the power state of the server. • Console Redirection. • Server Power Control

The four tabs on the horizontal menu allow you to navigate within the RMM3 Web Console. Each of these tabs contains a secondary menu on the left edge of the browser window. For detailed information on the specific functions of secondary menu item see Chapter 7, Intel® RMM3 Web Console Options.

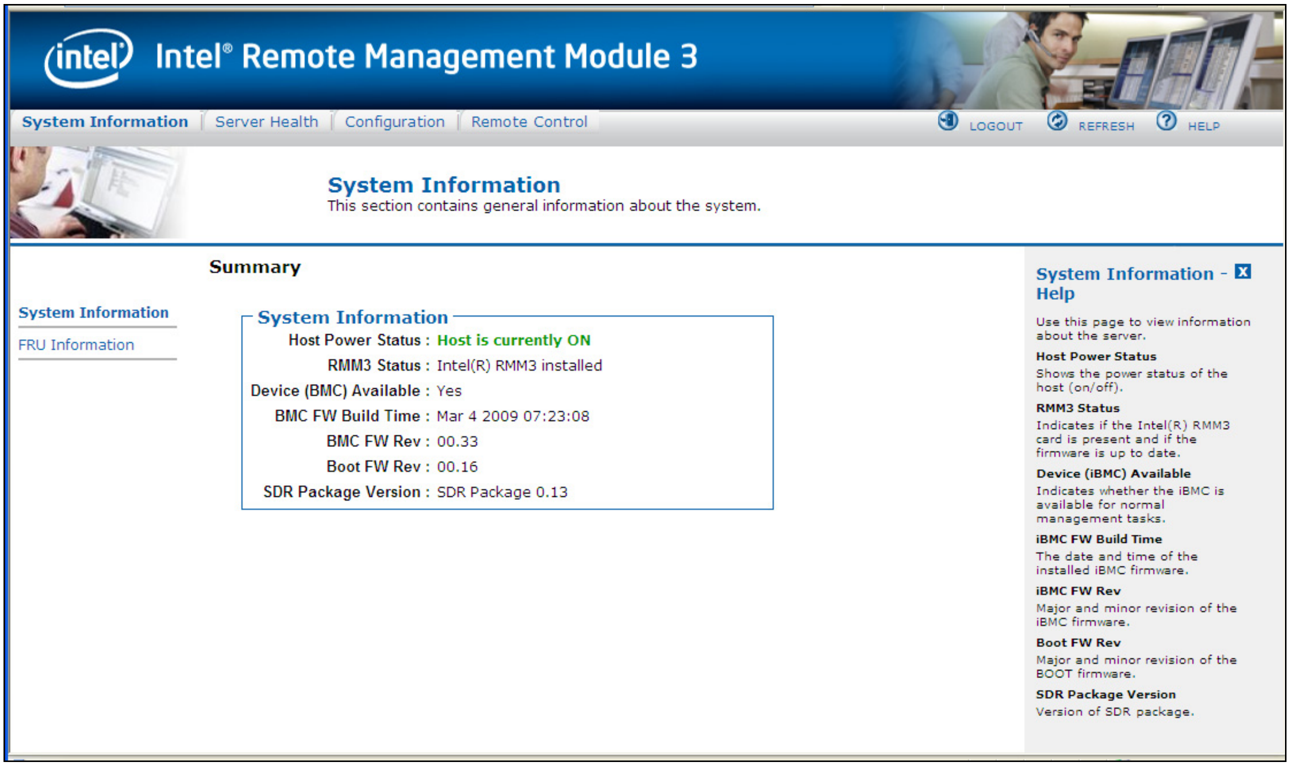
The top horizontal toolbar also has the Logout, Refresh, and Help buttons. Click these buttons to perform tasks as shown in the following table:

Table 4: Horizontal Toolbar Buttons

Button	Function
LOGOUT	Click this button to end the current Web Console session. Note that a remote console (KVM) window, if active, will be closed when you log out. After logging out, the Web Console will return to the Login screen.
REFRESH	Click this button to refresh the current web page, including any data shown on the page.
HELP	Click this button to view a brief description of the current page in a frame at the right-hand side of the browser window. Close the Help frame by clicking the 'X' in the upper right corner of the frame or by clicking the HELP button again.

5.4 Online Help

The Web Console user interface gives specific online help for each page. For additional information on a certain topic or group of options, click the HELP button on the top horizontal toolbar to view the online help as shown in Figure 14. The right Help frame is visible only when the online Help is being accessed.



System Information
This section contains general information about the system.

Summary

System Information

Host Power Status : Host is currently ON
RMM3 Status : Intel(R) RMM3 installed
Device (BMC) Available : Yes
BMC FW Build Time : Mar 4 2009 07:23:08
BMC FW Rev : 00.33
Boot FW Rev : 00.16
SDR Package Version : SDR Package 0.13

System Information - Help

Use this page to view information about the server.

Host Power Status
Shows the power status of the host (on/off).

RMM3 Status
Indicates if the Intel(R) RMM3 card is present and if the firmware is up to date.

Device (iBMC) Available
Indicates whether the iBMC is available for normal management tasks.

iBMC FW Build Time
The date and time of the installed iBMC firmware.

iBMC FW Rev
Major and minor revision of the iBMC firmware.

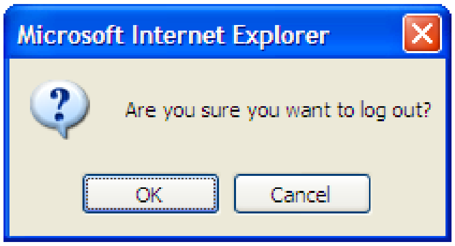
Boot FW Rev
Major and minor revision of the BOOT firmware.

SDR Package Version
Version of SDR package.

Figure 14. Launching the Online Help

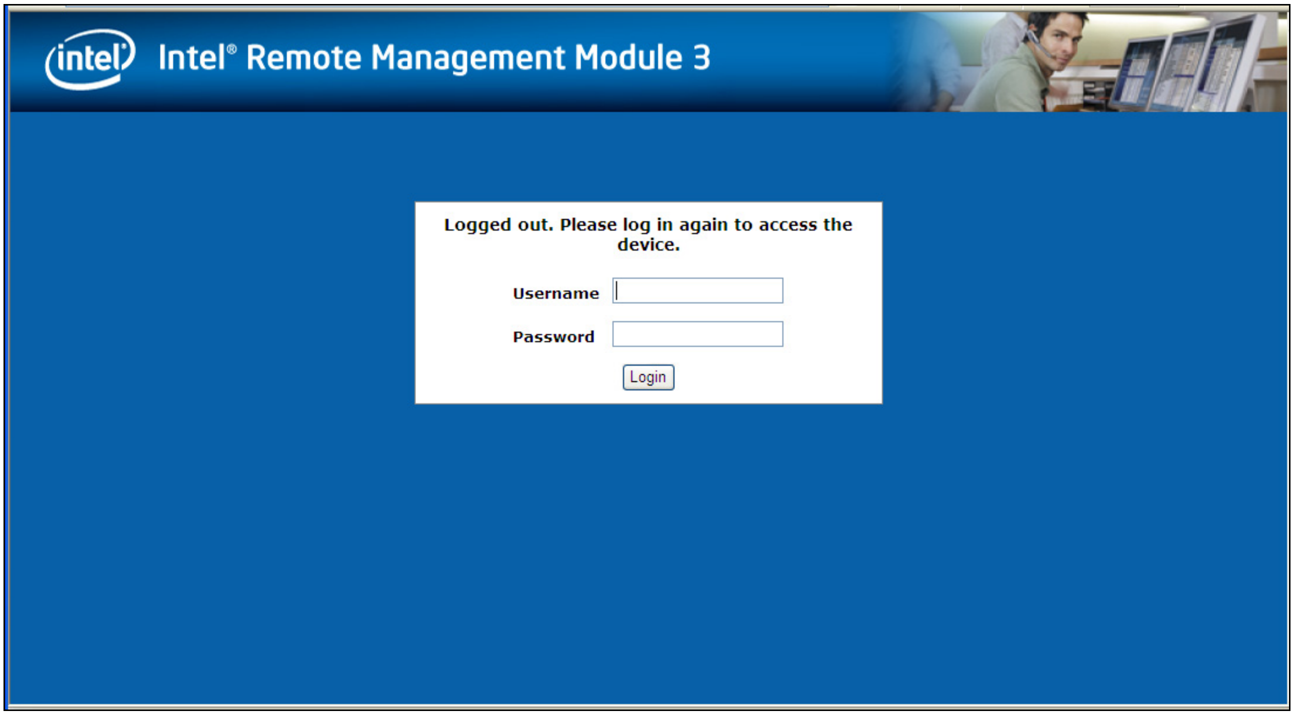
5.5 Logging Out

Click the LOGOUT button to log out the current user and revert to a new login screen as shown in Figure 15 and Figure 16.



Are you sure you want to log out?

Figure 15. Logging Out of Intel® RMM3 – Step 1



Logged out. Please log in again to access the device.

Figure 16. Logging Out of Intel® RMM3 – Step 2

Note: Automatic Timeout - If there is no user activity detected by the Web Console for 30 minutes, the current session will be automatically terminated. If the user has an open KVM remote console window, the web session will not automatically timeout. The next action attempted by the user after the automatic timeout will inform the user of the need to login again for continued access to the Web Console.

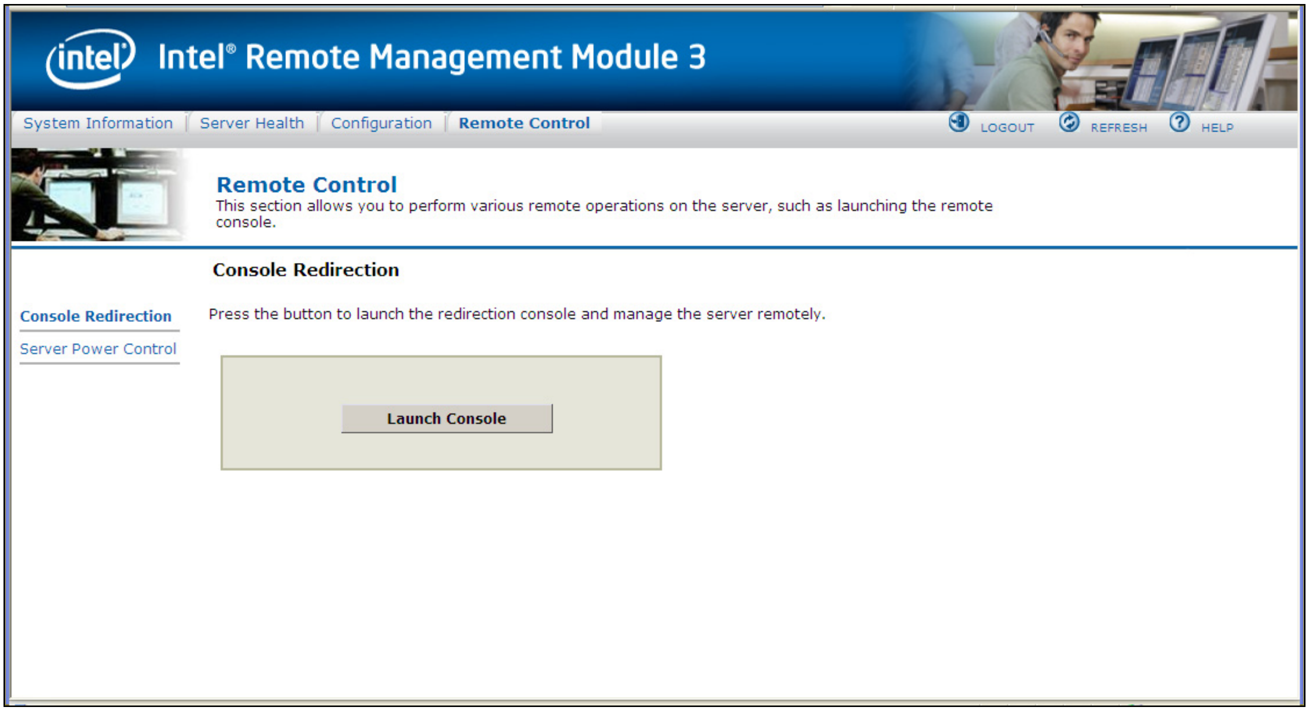
6. Remote Console (KVM) Operation

The Remote Console is the redirected screen, keyboard and mouse of the remote host system where the Intel® RMM3 module is installed. To use the Remote Console window of your managed host system, the browser must include a Java* Runtime Environment plug-in. If the browser has no Java support, such as with a small handheld device, the user can maintain the remote host system using the administration forms displayed by the browser.

Starting the Remote Console opens a new window to display the screen content of the host system. The Remote Console acts as if the administrator were sitting directly in front of the screen of his/her remote system. This means the keyboard and mouse can be used in the usual way.

6.1 Launching the Redirection Console

The Remote Console is the redirected keyboard, video and mouse of the remote host system where the Intel® RMM3 module is installed. Launch the remote console KVM redirection window from this page.



Remote Control

This section allows you to perform various remote operations on the server, such as launching the remote console.

Console Redirection

Press the button to launch the redirection console and manage the server remotely.

Figure 17: Remote Control Console Redirection window

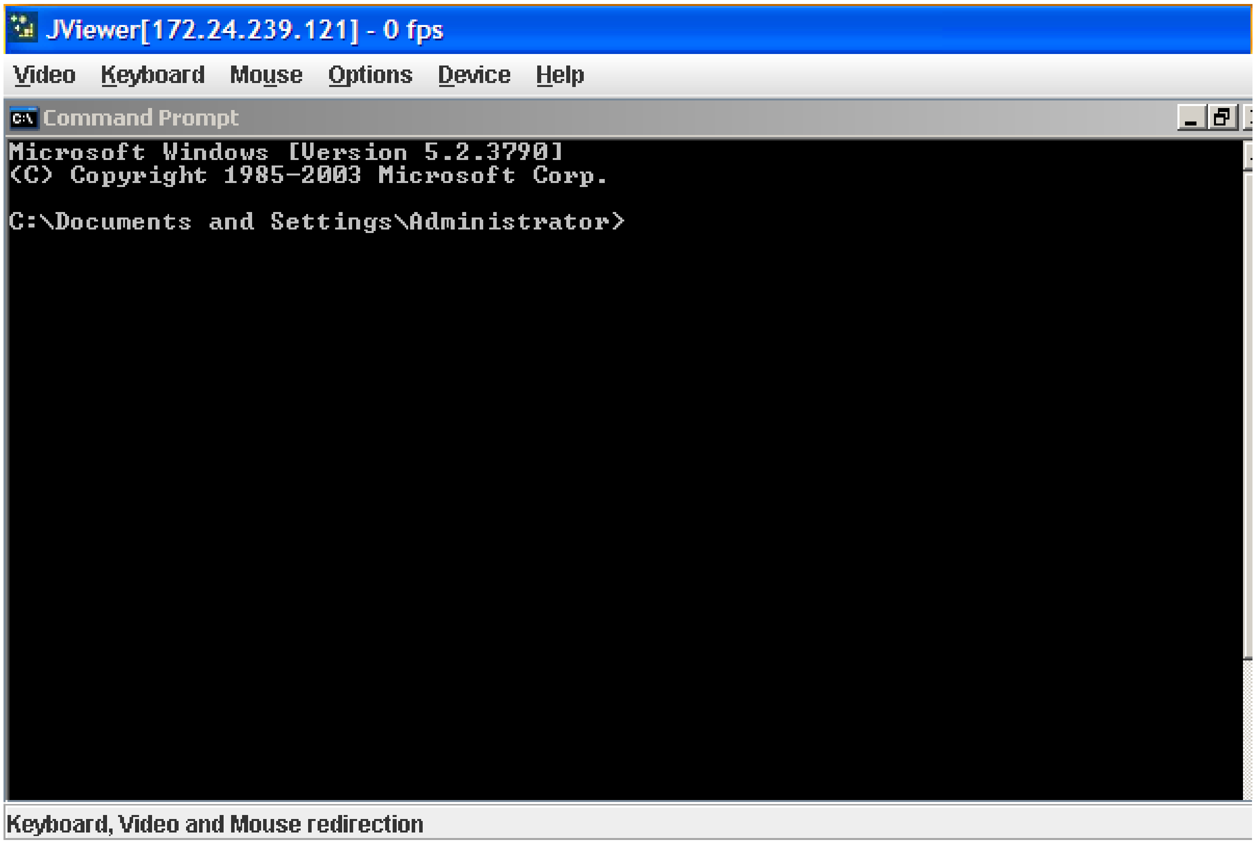
Click the **Launch Console** button to launch the redirection console and manage the server remotely.

When the Launch Console button is clicked, a pop-up window is opened to download the Java Network Launch Protocol jviewer.jnlp file. That in turn downloads the standalone Java application implementing the Remote Console.

Both Microsoft® Internet Explorer and Mozilla® Firefox browsers are supported.

Notes:

- Java Run-Time Environment (JRE, version 6 update 10 or later) must be installed on the client prior to the launch of a JNLP file.
- The client browser must allow pop-up windows from the Intel® RMM3 IP address.


JViewer[172.24.239.121] - 0 fps
Video
Keyboard
Mouse
Options
Device
Help
Command Prompt
Keyboard, Video and Mouse redirection

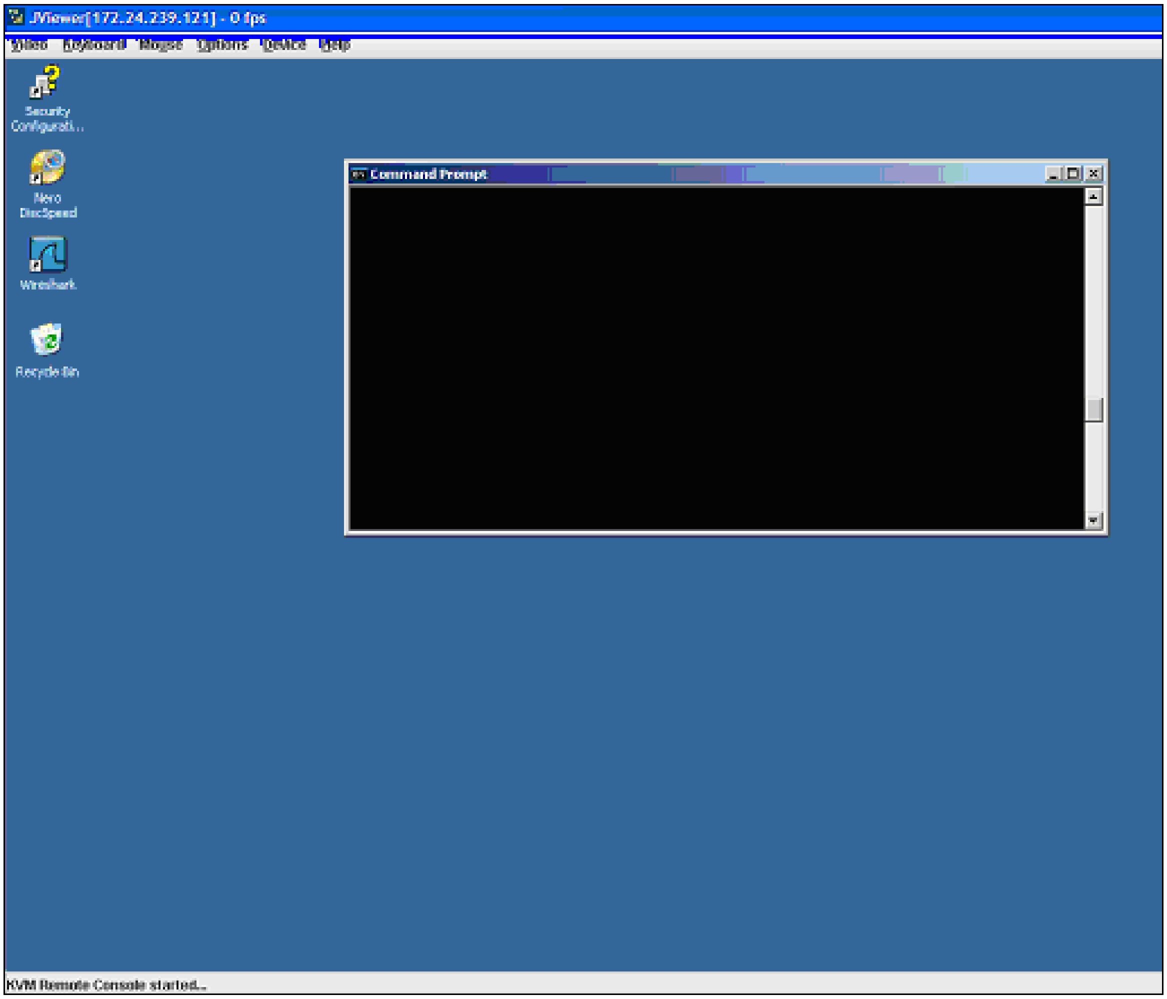
```
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\Documents and Settings\Administrator>
```

Figure 18. Remote Console

The Remote Console window is a Java Applet that establishes TCP connections to the Intel® RMM3 module. The protocol that is used to run these connections is a unique KVM protocol and not HTTP or HTTPS. This protocol uses ports #7578 for KVM, #5120 for CDROM media redirection, and #5123 for Floppy/USB media redirection. Your local network environment must permit these connections to be made, that is, your firewall and, in case you have a private internal network, your NAT (Network Address Translation) settings have to be configured accordingly.

6.2 Main Window

Starting the Remote Console opens an additional window as shown in Figure 19.



KVM Remote Console started...

Figure 19. Remote Console Main Window

It displays the screen content of your remote server. The Remote Console will behave as if you were located at the remote server. The responsiveness may be slightly delayed depending on the bandwidth and latency of the network between the Intel® RMM3 module and Remote Console. Enabling KVM and/or media encryption on the Configuration > Remote Session web page will degrade performance as well.

The Remote Console window always shows the remote screen in its *optimal size*. This means it will adapt its size to the size of the remote screen initially and after the screen resolution of the remote screen has been changed. However, you can always resize the Remote Console window in your local window as usual.

6.3 Remote Console Control Bar

The upper part of the Remote Console window contains a control bar. Using its elements you can see the status of the Remote Console and influence the local Remote Console settings.

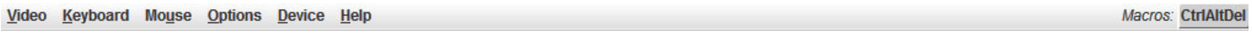


Figure 20. Remote Console Control Bar

The following sub sections describe the tasks you can perform within each control.

6.3.1 Remote Console Video Menu

Click **Video** button in the Remote Console control bar to open the Remote console Video menu as shown in Figure 21:

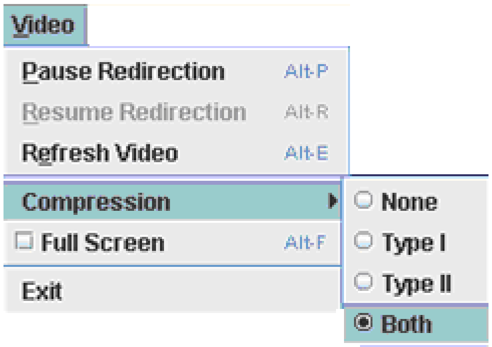


Figure 21. Remote Console Video Menu

Using this menu, you can do the following:

- **Pause Redirection.** Temporarily pauses redirection of keyboard, video, and mouse. The Remote Console window stops being updated. Keyboard shortcut is ALT+P.
- **Resume Redirection.** Resume redirection after a pause. Shortcut is ALT+R.
- **Refresh Video.** Refreshes the Remote Console window. Shortcut is ALT+E.
- **Compression.** Enabling compression improves the responsiveness of the Remote Console. Disabling compression maximizes the quality of the redirected video.
- **Full Screen.** Toggles windowed/full screen mode of the Remote Console. Shortcut is ALT+F.
- **Exit.** Closes Remote Console.

6.3.2 Remote Console Keyboard Menu

Click **Keyboard** to open the Keyboard menu with options to perform tasks as shown in Figure 22:

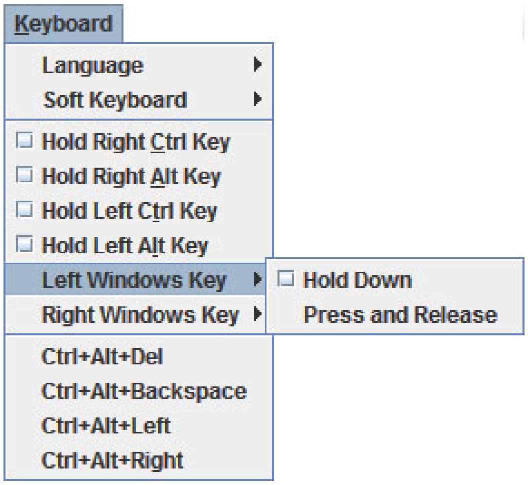


Figure 22. Remote Console Keyboard Menu

Using this menu, you can do the following:

- **Language.** Controls the keyboard language layout.
- **Soft Keyboard.** Displays and controls the Soft Keyboard window.
- **Hold Ctrl/Alt/Windows keys.** Allows simulating holding down these special keys on the remote keyboard. On the local keyboard these special keys are processed by the local OS and not passed on to the remote OS.
- **Ctrl-Alt-Del, Ctrl+Alt+Backspace, Ctrl+Alt+Left, Ctrl+Alt+Right.** Issue a fixed special key combination to the remote OS.

6.3.2.1 Keyboard Language Layout

The Remote Console supports the following keyboard language layouts: English, Dutch, French, German, Italian, Russian, and Spanish.

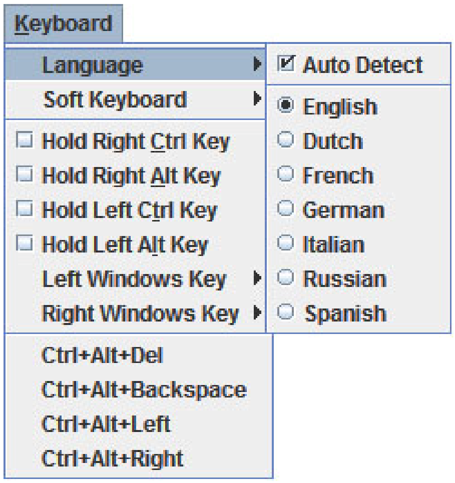


Figure 23: Remote Console Keyboard Language Sub Menu

In order for local key strokes to be interpreted correctly at the remote end, the client OS, the target OS, and the Remote Console should all be configured for the same language layout.

The Remote Console java application reverse translates local key strokes based on the selected language layout. If there is a mismatch sometimes, it works fine anyway, otherwise it mostly works except for a few mistranslated or unresponsive keys and in some mismatched configurations, most of the keys are mishandled.

6.3.2.1.1 Windows Language Layouts

The Remote Console supports the Windows default keyboard variants for the supported languages.

Under Windows, the language is the current Language Bar setting (initially configured in **Control Panel** > **Regional and Language Options** > **Languages** > **Text Services and Input Languages**). If you are using one of the supported language keyboards, you don't have to manually select the language in the Remote Console as the auto detect automatically and immediately follows any Language Bar changes. Manually setting the language would typically be useful if you are using a keyboard close but not identical to one of the supported ones.

6.3.2.1.2 Linux Language Layouts

The Remote Console supports the Linux default keyboard variants for supported languages, except Russian, where it is the "Russian Winkeys" variant. The Dutch layout is "Belgium" in Linux.

Under Linux you typically select the language at the login screen; it can also be changed with the "locale" command but not while an application, such as the Remote Console, is running. There is also an OS keyboard layout that can be changed independently of the language. If the OS keyboard layout does not match the OS language setting, you may need to manually select the Remote Console layout.

On the other hand, with Linux Java, there is less reverse translation required by the application than under Windows and is more likely that a mismatched configuration will work anyway.

6.3.2.2 Soft Keyboard

Click **Keyboard** to open the Keyboard menu with options to perform tasks as shown in Figure 24.

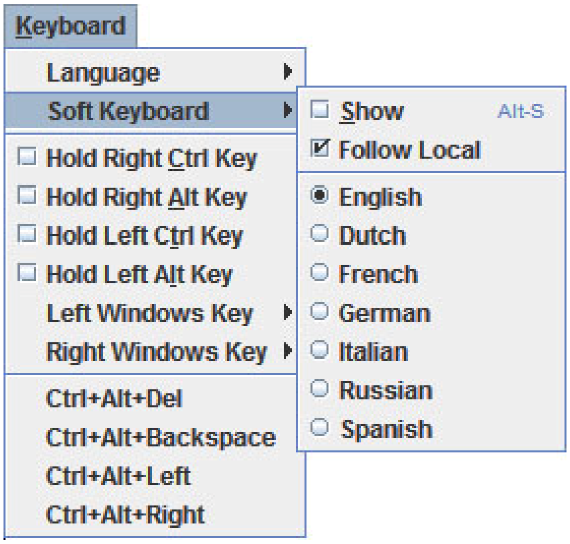


Figure 24: Remote Console Keyboard Soft Keyboard Sub Menu

The Soft Keyboard window is displayed and closed either by selecting the **Keyboard** > **Soft Keyboard** > **Show** checkbox or the ALT+S shortcut.

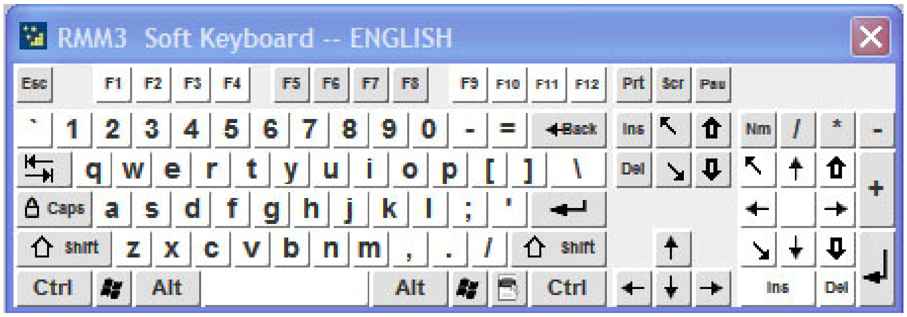

RMM3 Soft Keyboard -- ENGLISH
Esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 Prt Scr Pau
` 1 2 3 4 5 6 7 8 9 0 - = Back Ins Nm / * -
q w e r t y u i o p [ ] \ Del +
Caps a s d f g h j k l ; '
Shift z x c v b n m , . / Shift
Ctrl Alt Alt Ctrl Ins Del

Figure 25: RMM3 Soft Keyboard

Buttons clicked on the Soft Keyboard window get sent as key strokes to the remote target. The Soft Keyboard is also a convenient way to see the exact layouts supported for the local keyboards since they are the same.
The Soft Keyboard language layout follows the local keyboard language setting when the default **Keyboard** > **Soft Keyboard** > **Follow Local** option is selected. This can be manually overridden by selecting a language.

Note: The Soft Keyboard keystrokes get retranslated by the remote target OS just like the local physical keystrokes and are subject to the same mismatched configuration issues.

6.3.3 Remote Console Mouse Menu

Click **Mouse** to open the Mouse menu with options to perform tasks as shown in Figure 26

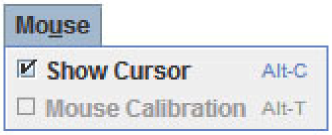


Figure 26. Remote Console Mouse Menu

The Mouse submenu offers two options:

- **Show Cursor**. This option toggles the cursor display in the Remote Console window. It does not affect the remote system cursor. Shortcut is ALT+C.
- **Mouse Calibration**. This option is used to detect the threshold and acceleration settings on the remote system and set the local client's mouse settings accordingly. It only applies when in Relative Mouse Mode, selected on the web page **Configuration** > **Mouse Mode**. Absolute Mouse Mode does not require calibration. Shortcut is ALT+T.

Relative Mode Mouse Calibration Procedure

1. If the remote mouse and local mouse cursor are not in synch, start mouse calibration by selection the **Mouse Calibration** menu item or pressing ALT+T.
2. In this step, the mouse threshold settings on the remote server will be discovered. The local mouse cursor is displayed in RED color and the remote cursor is part of the remote video screen. Both the cursors will be IN SYNCH in the beginning.
3. Please use number pad '+' or '-' keys to change the threshold settings until both the cursors go out of synch.
4. Please detect the first reading on which cursors go out of synch.
5. Once detected, use 'ALT-T' to save the threshold value.
6. In this step, the mouse acceleration settings on the remote server will be discovered. The local mouse cursor is displayed in RED color and the remote cursor is part of the remote video screen. Both the cursors will be OUT OF SYNCH in the beginning.
7. Please use number pad '+' or '-' keys to change the acceleration settings in steps of 1, or use 'Alt - +' or 'Alt - -' keys to change the acceleration settings in steps of 0.1 until both the cursors are in synch.
8. Please detect the first reading on which cursors are in synch.
9. Once detected, use 'ALT-T' to save the acceleration value.

6.3.4 Remote Console Options Menu

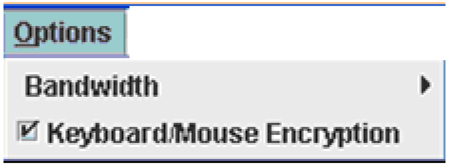


Figure 27. Remote Console Options Menu

Using this menu, you can do the following:

- **Bandwidth.** Changing the bandwidth setting affects low-level connection protocol parameters like fragment size and timeouts. If you experience performance problems when operating over a slow connection such as a modem, the Bandwidth setting may need to be adjusted. Use the Auto Detect option to find the correct setting for your connection.
- **Keyboard/Mouse Encryption.** Keyboard and Mouse data are normally encrypted before being sent over the connection, but this can be disabled for a small performance increase.

6.3.5 Remote Console Device Menu

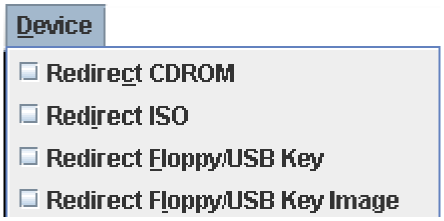


Figure 28. Remote Console Device Menu

This menu option allows starting/stopping remote media redirection. The first two options allow you to redirect either a local CDROM/DVD drive or else an ISO image on your local client file system as a virtual CDROM device on the remote system. The last two options allow you to redirect either a local floppy drive, a local USB key drive, or a floppy .img file as a virtual floppy device on the remote system.

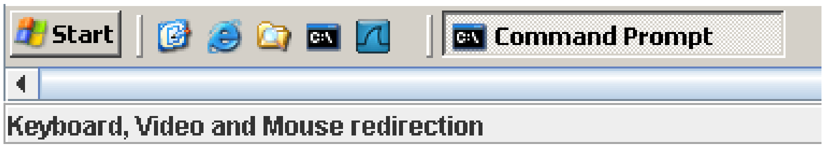
The virtual devices act just like any other CDROM or floppy on the remote system. They can be read, written (assuming they are not read-only), and booted. The pair of virtual devices only appear on the remote OS or BIOS setup menus when some media redirection is active. The virtual devices persist across remote system resets and power up/downs. They do not disappear from the remote system until the checkboxes are unchecked in the Remote Console window.

Note: The virtual devices are not limited to normal floppy/CDROM sizes and will be as large as the device or file being redirected. A USB Key drive is redirected as a virtual floppy device rather than a USB device to allow the loading of custom device drivers during remote OS installation which may require a floppy drive.

There is only one virtual CDROM and one virtual floppy device on the remote system allowed so only one local item of each type can be redirected at a time. Only one Remote Console window can be doing media redirection at any given time.

6.4 Remote Console Status Line

The status line at the bottom of the Remote Console screen shows the console state as shown in Figure 29. As you navigate the menu options, the status line gives a more detailed definition of each option.



Keyboard, Video and Mouse redirection

Figure 29. Status Line

7. Intel® RMM3 Web Console Options

This chapter gives you a detailed description of each Web Console page. It is organized in sections corresponding to the four tabs in the horizontal menu. Within each section, each menu on the left-hand side is illustrated and described in detail.

Notes:

- The first menu item for each tab is the default page which appears when the tab is selected.
- Similar information about each page is available in the Web Console by clicking the HELP button at the right side of the horizontal menu.
- When the Web Console is working on current user request, a busy indicator bar appears as shown in Figure 30.

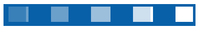


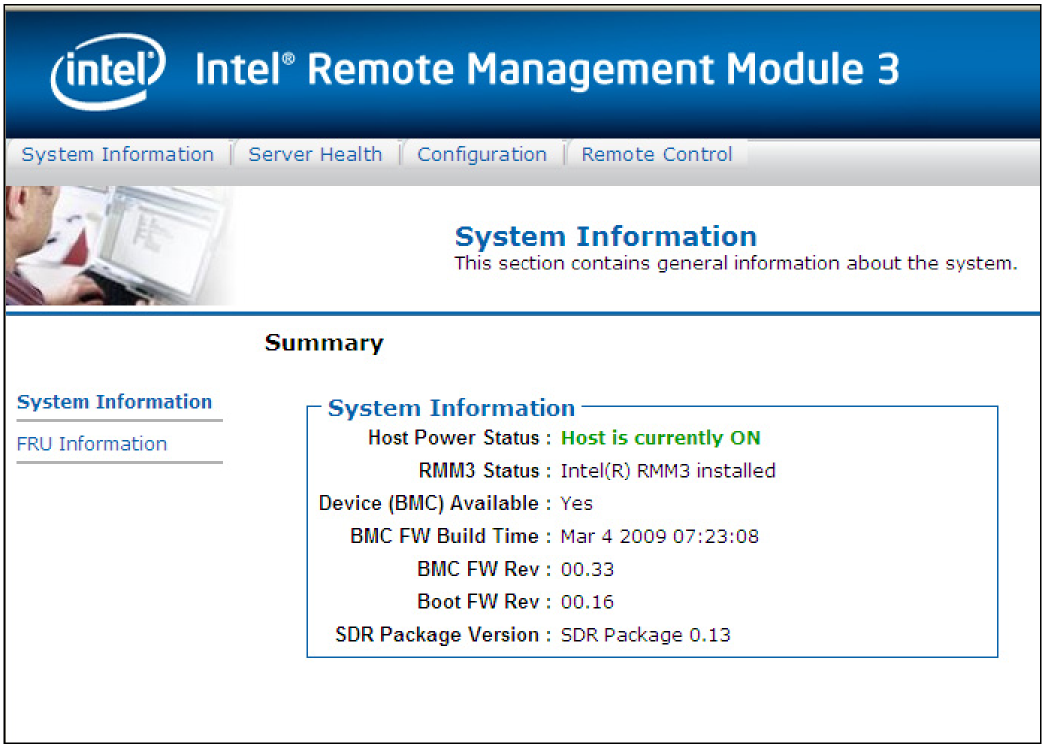
Figure 30. Busy Indicator Bar

7.1 System Information

By default, the RMM3 home page opens in the System Information page. It contains general information about the system as explained in the following sub sections.

7.1.1 Viewing System Information

The System information page displays a summary of the general system information as shown in Figure 31:



Host Power Status : Host is currently ON
RMM3 Status : Intel(R) RMM3 installed
Device (BMC) Available : Yes
BMC FW Build Time : Mar 4 2009 07:23:08
BMC FW Rev : 00.33
Boot FW Rev : 00.16
SDR Package Version : SDR Package 0.13

Figure 31. System Information page

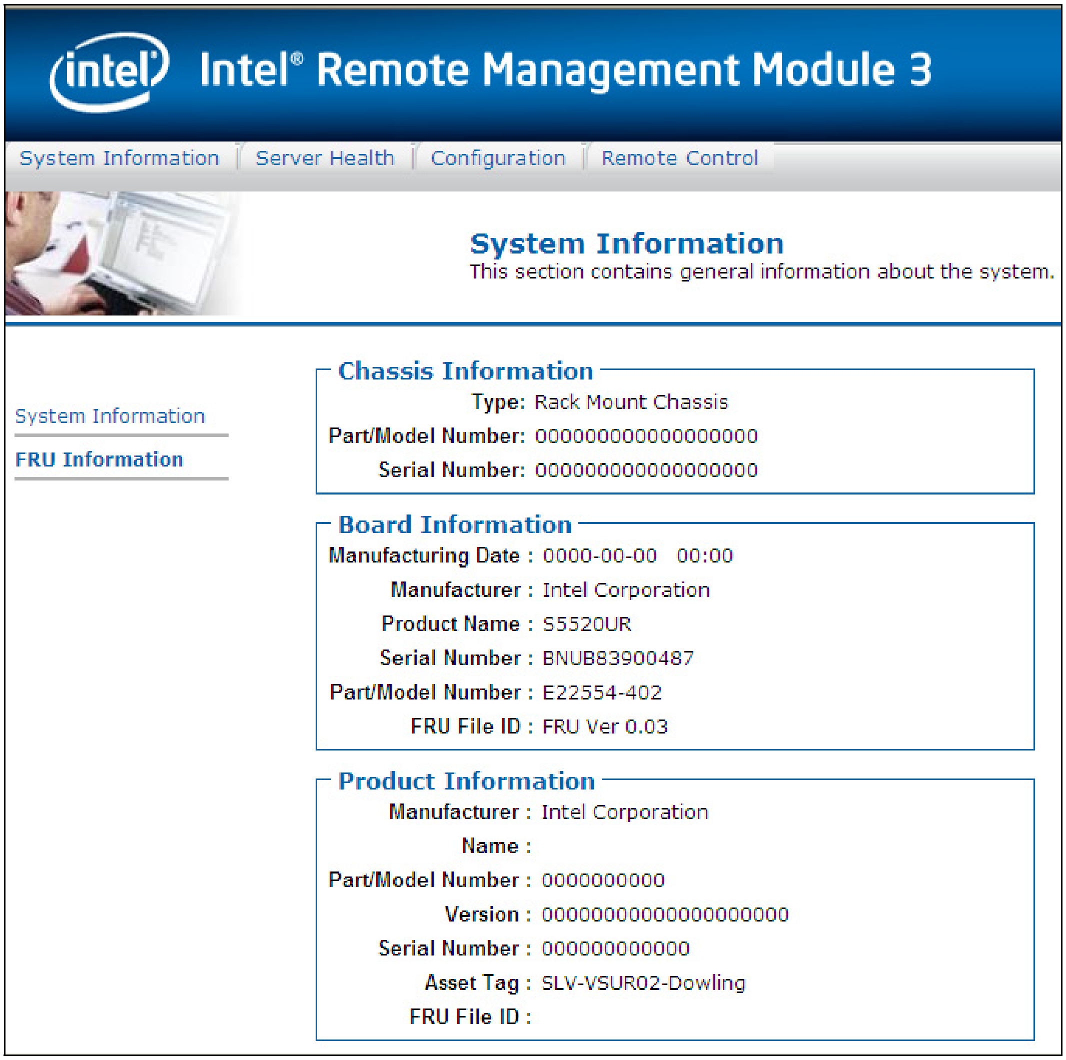
The System Information page has the following information about the server:

Table 5: System Information Details

Information	Details
Host Power Status	Shows the power status of the host (on/off).
RMM3 Status	Indicates if the Intel® RMM3 card is present and if the firmware is up to date.
Device (BMC) Available	Indicates whether the BMC is available for normal management tasks.
BMC FW Build Time	The date and time of the installed BMC firmware.
BMC FW Rev	Major and minor revision of the BMC firmware.
Boot FW Rev	Major and minor revision of the BOOT firmware.

7.1.2 Viewing Field Replaceable Unit (FRU) Information

The FRU Information page displays information from the FRU (Field Replaceable Unit) repository of the host system. See Figure 32 for details:



System Information

This section contains general information about the system.

Chassis Information

Type: Rack Mount Chassis
Part/Model Number: 000000000000000000
Serial Number: 000000000000000000

Board Information

Manufacturing Date : 0000-00-00 00:00
Manufacturer : Intel Corporation
Product Name : S5520UR
Serial Number : BNUB83900487
Part/Model Number : E22554-402
FRU File ID : FRU Ver 0.03

Product Information

Manufacturer : Intel Corporation
Name :
Part/Model Number : 0000000000
Version : 00000000000000000000
Serial Number : 000000000000
Asset Tag : SLV-VSUR02-Dowling
FRU File ID :

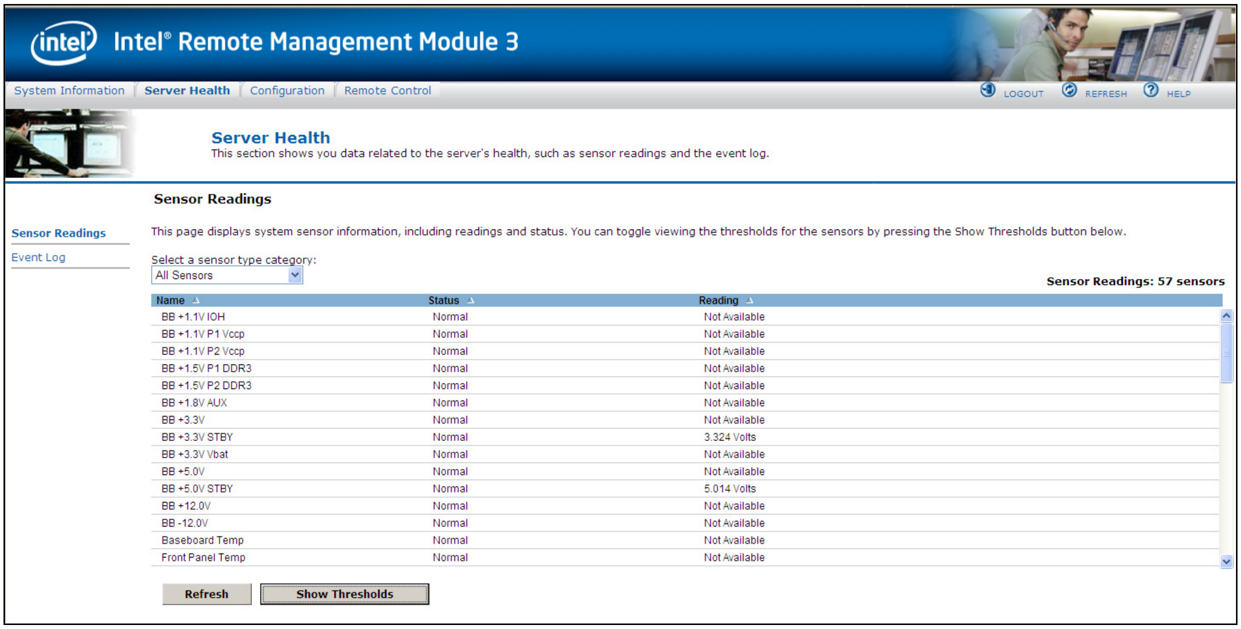
Figure 32. System Information FRU Information page

7.2 Server Health

The Server Health page shows you data related to the server's health, such as sensor readings and the event log. Click on the Server Health Tab to display the page. By default, this tab opens the sensor Readings page as shown in Figure 34.

7.2.1 Viewing Sensor Readings

The Sensor Readings page displays system sensor information including readings and status.



Server Health

This section shows you data related to the server's health, such as sensor readings and the event log.

Sensor Readings

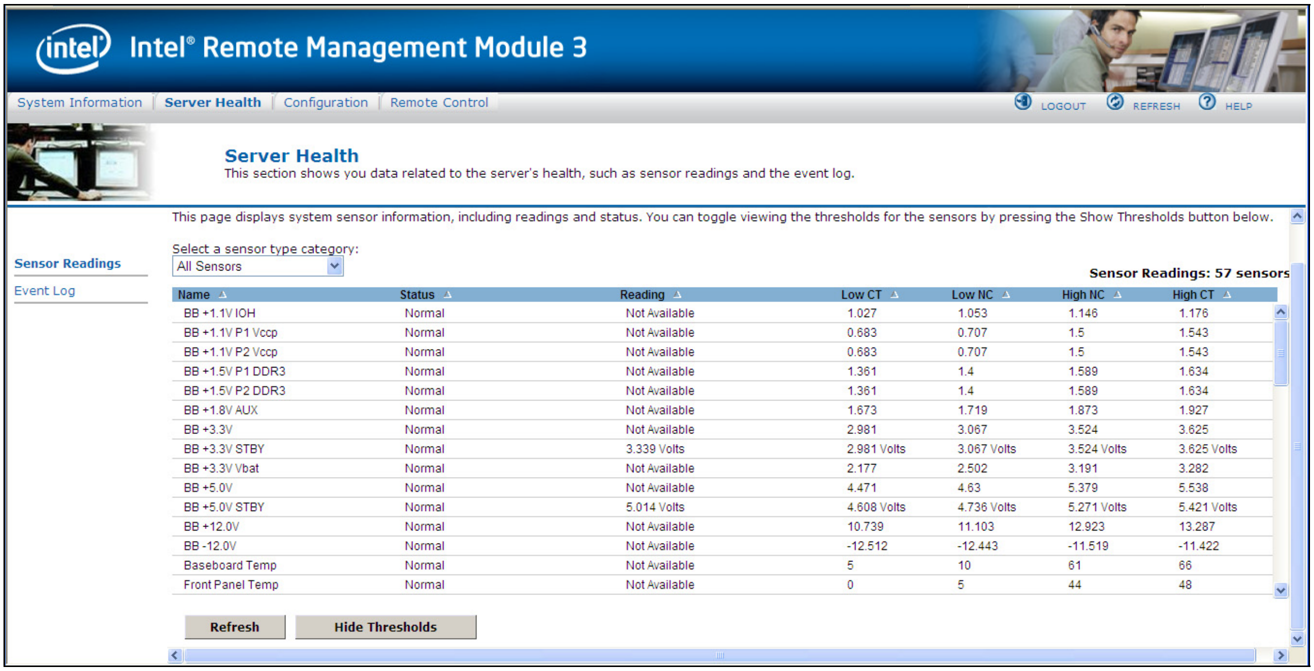
This page displays system sensor information, including readings and status. You can toggle viewing the thresholds for the sensors by pressing the Show Thresholds button below.

Select a sensor type category: All Sensors

Sensor Readings: 57 sensors

Name	Status	Reading
BB +1.1V IOH	Normal	Not Available
BB +1.1V P1 Vccp	Normal	Not Available
BB +1.1V P2 Vccp	Normal	Not Available
BB +1.5V P1 DDR3	Normal	Not Available
BB +1.5V P2 DDR3	Normal	Not Available
BB +1.8V AUX	Normal	Not Available
BB +3.3V	Normal	Not Available
BB +3.3V STBY	Normal	3.324 Volts
BB +3.3V Vbat	Normal	Not Available
BB +5.0V	Normal	Not Available
BB +5.0V STBY	Normal	5.014 Volts
BB +12.0V	Normal	Not Available
BB -12.0V	Normal	Not Available
Baseboard Temp	Normal	Not Available
Front Panel Temp	Normal	Not Available

Figure 33. Server Health Sensor Readings window (Thresholds not displayed)



Server Health

This section shows you data related to the server's health, such as sensor readings and the event log.

This page displays system sensor information, including readings and status. You can toggle viewing the thresholds for the sensors by pressing the Show Thresholds button below.

Select a sensor type category: All Sensors

Sensor Readings: 57 sensors

Name	Status	Reading	Low CT	Low NC	High NC	High CT
BB +1.1V IOH	Normal	Not Available	1.027	1.053	1.146	1.176
BB +1.1V P1 Vccp	Normal	Not Available	0.683	0.707	1.5	1.543
BB +1.1V P2 Vccp	Normal	Not Available	0.683	0.707	1.5	1.543
BB +1.5V P1 DDR3	Normal	Not Available	1.361	1.4	1.589	1.634
BB +1.5V P2 DDR3	Normal	Not Available	1.361	1.4	1.589	1.634
BB +1.8V AUX	Normal	Not Available	1.673	1.719	1.873	1.927
BB +3.3V	Normal	Not Available	2.981	3.067	3.524	3.625
BB +3.3V STBY	Normal	3.339 Volts	2.981 Volts	3.067 Volts	3.524 Volts	3.625 Volts
BB +3.3V Vbat	Normal	Not Available	2.177	2.502	3.191	3.282
BB +5.0V	Normal	Not Available	4.471	4.63	5.379	5.538
BB +5.0V STBY	Normal	5.014 Volts	4.608 Volts	4.736 Volts	5.271 Volts	5.421 Volts
BB +12.0V	Normal	Not Available	10.739	11.103	12.923	13.287
BB -12.0V	Normal	Not Available	-12.512	-12.443	-11.519	-11.422
Baseboard Temp	Normal	Not Available	5	10	61	66
Front Panel Temp	Normal	Not Available	0	5	44	48

Figure 34. Server Health Sensor Readings window (Thresholds displayed)

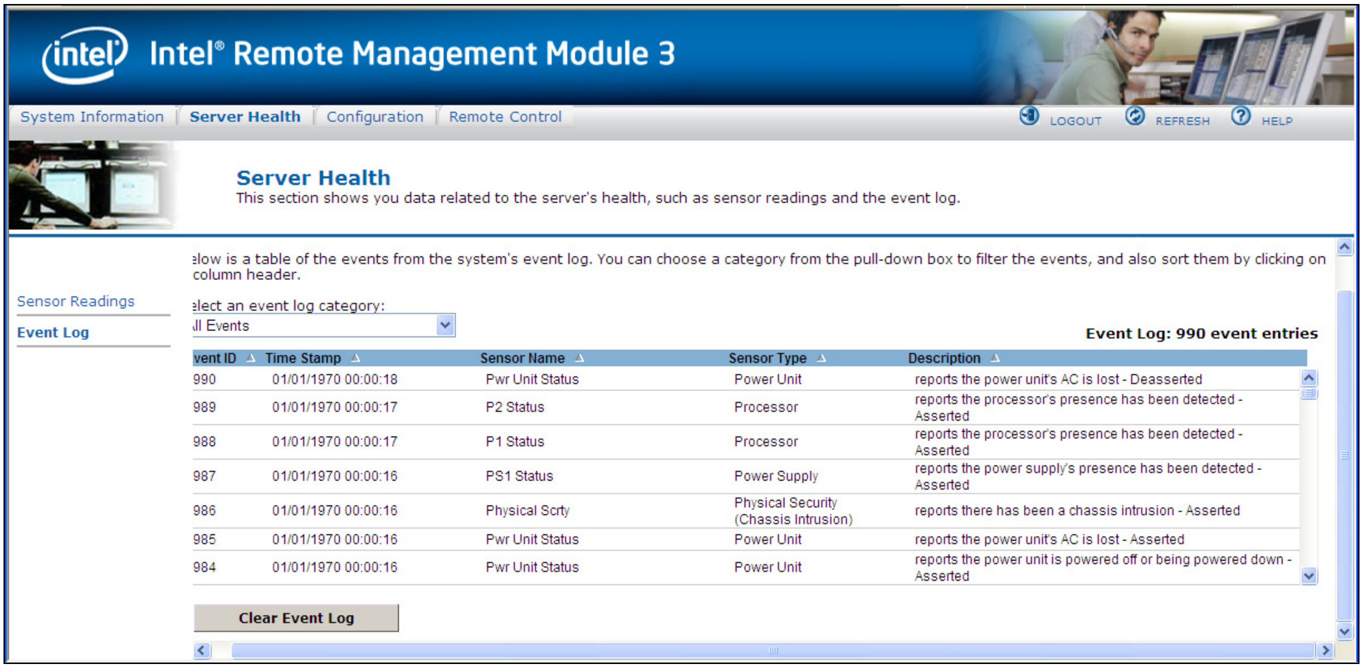
The following table lists the options available in this page:

Table 6: Server Health (Sensor Readings) Options

Option	Task
Sensor Selection pull-down box	Select the type of sensor readings to display in the list. The default is to see all sensors.
Sensor Readings list	Selected sensors shown with their name, status, and readings.
Show Thresholds button	Click to expand the list, showing low and high threshold assignments. See the critical (CT) and non-critical (NC) thresholds for the selected sensors Use scroll bar at the bottom to move display left and right.
Hide Thresholds button	Click to return to original display, hiding the threshold values
Refresh	Click to refresh the selected sensor readings

7.2.2 Viewing Event Log

The Event Log page displays the Event Log as shown in Figure 35.



Server Health

This section shows you data related to the server's health, such as sensor readings and the event log.

ɜlow is a table of the events from the system's event log. You can choose a category from the pull-down box to filter the events, and also sort them by clicking on column header.

ɜlect an event log category: ıll Events

Event Log: 990 event entries

vent ID	Time Stamp	Sensor Name	Sensor Type	Description
990	01/01/1970 00:00:18	Pwr Unit Status	Power Unit	reports the power unit's AC is lost - Deasserted
989	01/01/1970 00:00:17	P2 Status	Processor	reports the processor's presence has been detected - Asserted
988	01/01/1970 00:00:17	P1 Status	Processor	reports the processor's presence has been detected - Asserted
987	01/01/1970 00:00:16	PS1 Status	Power Supply	reports the power supply's presence has been detected - Asserted
986	01/01/1970 00:00:16	Physical Scrty	Physical Security (Chassis Intrusion)	reports there has been a chassis intrusion - Asserted
985	01/01/1970 00:00:16	Pwr Unit Status	Power Unit	reports the power unit's AC is lost - Asserted
984	01/01/1970 00:00:16	Pwr Unit Status	Power Unit	reports the power unit is powered off or being powered down - Asserted

Figure 35. Server Health Event Log

The following table lists the options available in this page:

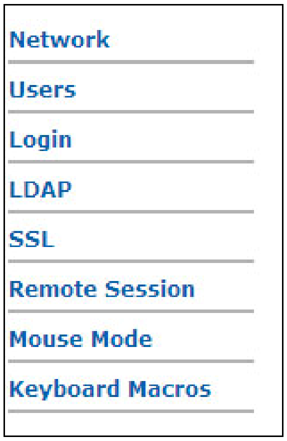
Table 7: Server Health (Event Log) Options

Option	Task
Event Log Category pull-down box	Select the type of events to display in the list
Event Log List	Selected sensors are shown with their name, status, and readings. This includes a list of the events with their ID, time stamp, sensor name, sensor type, and description.
Clear Event Log button	Click to clear the event logs.

7.3 Configuring Settings

The Configure settings page is used to configure the settings shown in Figure 36. By default, it opens in the Network Settings window as shown in Figure 38.

Warning: The RMM3 IP address must be on a different subnet than the baseboard IP address used for management traffic.



- Network
- Users
- Login
- LDAP
- SSL
- Remote Session
- Mouse Mode
- Keyboard Macros

Figure 36. Configuration

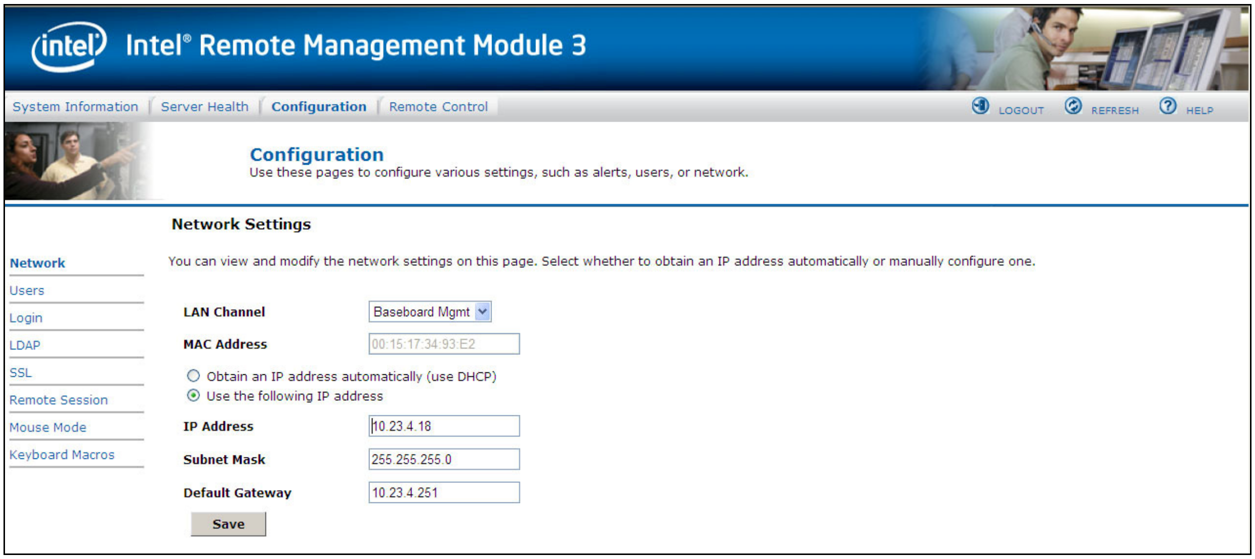
7.3.1 Configuring Network Settings

The Network settings page is used to configure the network settings.
It provides options to do either of the following:

- **Automatic**: Obtain an IP address automatically (using DHCP)

  OR

- **Manual:** Manually configure one.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

Network Settings

You can view and modify the network settings on this page. Select whether to obtain an IP address automatically or manually configure one.

LAN Channel	Baseboard Mgmt
MAC Address	00:15:17:34:93:E2

○ Obtain an IP address automatically (use DHCP)
● Use the following IP address

IP Address	10.23.4.18
Subnet Mask	255.255.255.0
Default Gateway	10.23.4.251

Figure 37. Configuration Network Settings window

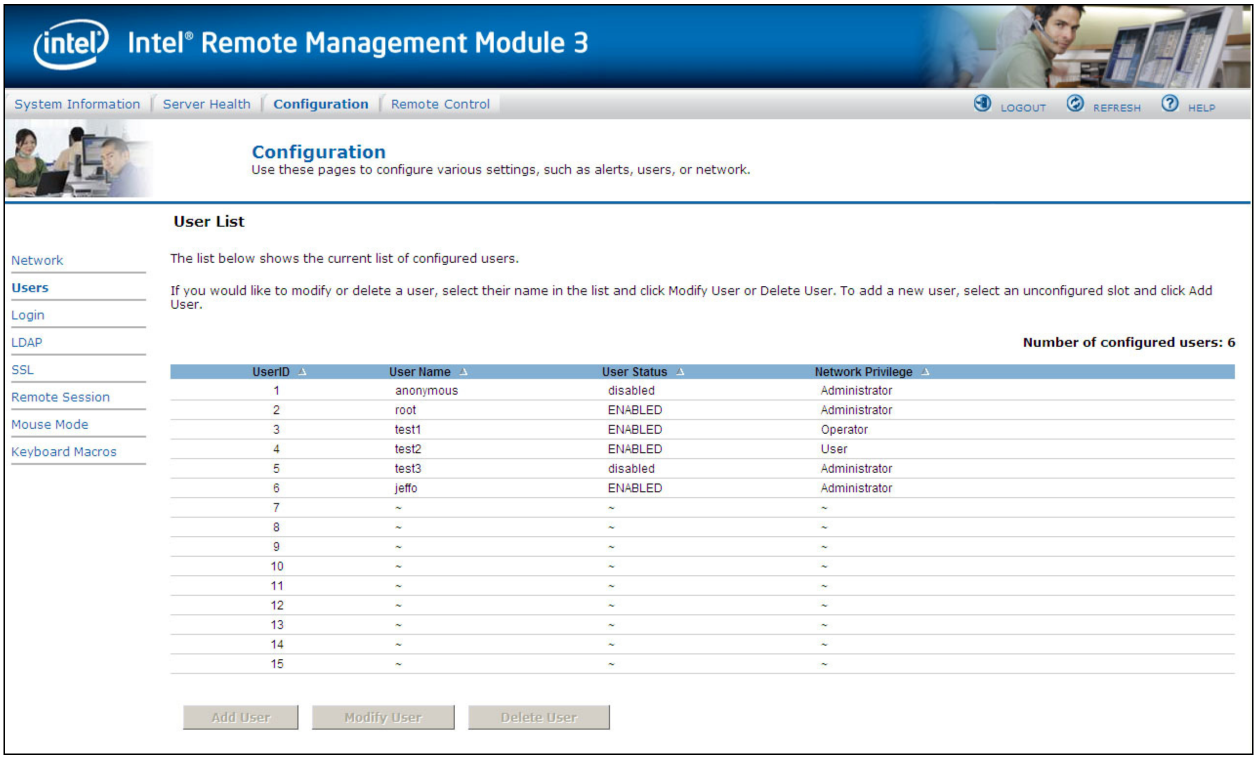
The following table lists the options available in this page:

Table 8: Configuration (Network Settings) Options

Option	Task
LAN Channel Number drop-down box	It lists the LAN Channel(s) available for server management. The LAN channels describe the physical NIC connection on the server. Intel® RMM3 channel is the add-in RMM3 NIC. The Baseboard Mgmt channel (BMC LAN Channel 1) is the onboard, shared NIC configured for management and shared with the operating system.
MAC Address	The MAC address of the device (read only)
IP Address	Select the type of IP assignment with the radio buttons. If configuring a static IP, enter the requested address, subnet mask, and gateway in the given fields. • IP Address made of 4 numbers separated by dots as in "xxx.xxx.xxx.xxx". — 'xxx' ranges from 0 to 255 — First 'xxx' must not be 0
Save button	Click to save any changes made

7.3.2 Managing Users

The User List page lists the configured users, along with their status and network privilege.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

User List

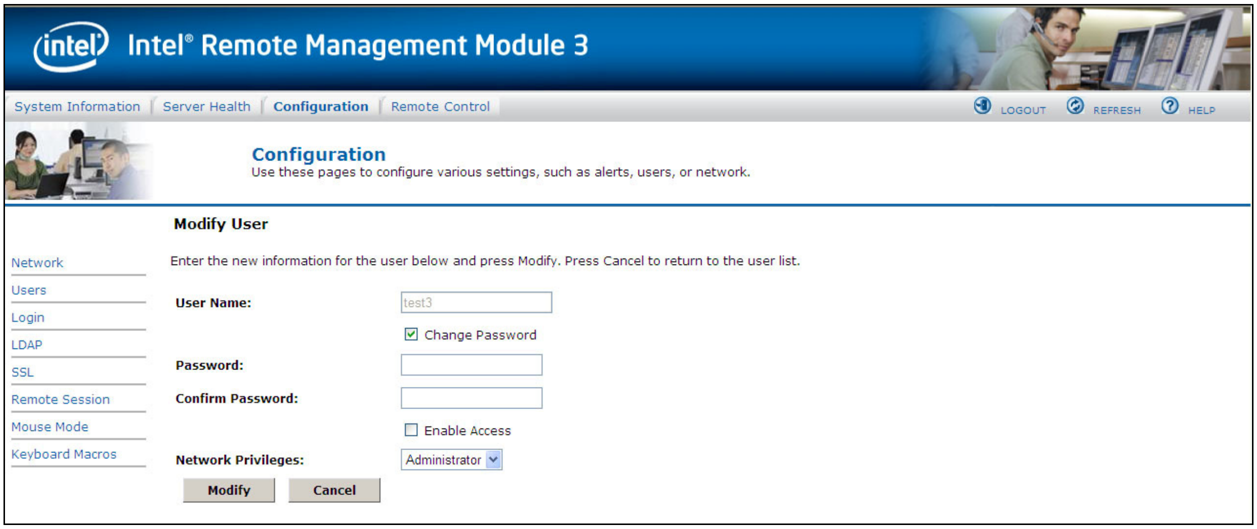
The list below shows the current list of configured users.

If you would like to modify or delete a user, select their name in the list and click Modify User or Delete User. To add a new user, select an unconfigured slot and click Add User.

Number of configured users: 6

UserID	User Name	User Status	Network Privilege
1	anonymous	disabled	Administrator
2	root	ENABLED	Administrator
3	test1	ENABLED	Operator
4	test2	ENABLED	User
5	test3	disabled	Administrator
6	jeffo	ENABLED	Administrator
7	~	~	~
8	~	~	~
9	~	~	~
10	~	~	~
11	~	~	~
12	~	~	~
13	~	~	~
14	~	~	~
15	~	~	~

Figure 38. Configuring User List window



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

Modify User

Enter the new information for the user below and press Modify. Press Cancel to return to the user list.

User Name:	test3
	☑ Change Password
Password:	
Confirm Password:	
	☐ Enable Access
Network Privileges:	Administrator

This page has options to configure the IPMI users and privileges for this server. To modify or delete a user, select user name in the list and click Modify User or Delete User.

Notes:

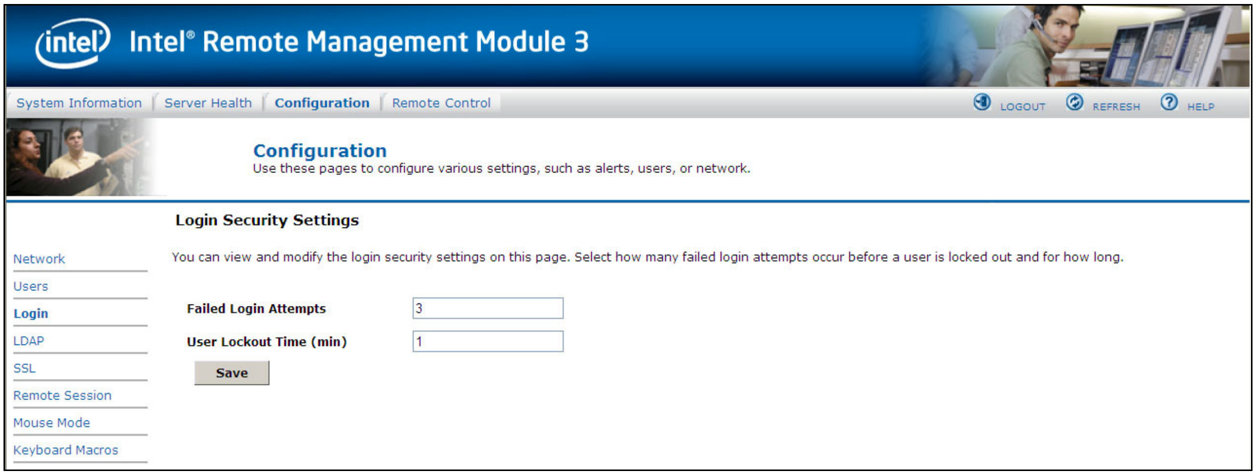
- UserID 1 (anonymous) may not be renamed or deleted.
- UserID 2 (root) may not be renamed or deleted; nor can the network privileges of UserID 2 be changed.
- User Names cannot be changed. To rename a User you must first delete the existing User, and then add the User with the new name.

- To Add user, select an empty slot in the list and click to add a new user.
- To modify user, select a user in the list and click to modify their settings.
- To delete user, select a user in the list and click to delete.

7.3.3 Login Security Settings

Users can be locked out if they supply incorrect passwords too many times in a row. This is a security feature to prevent brute force hacking attacks. Only that user is locked out – other users can still login.

The number of failed attempts before being locked out is configurable, as is the length of time the lockout lasts.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

Login Security Settings

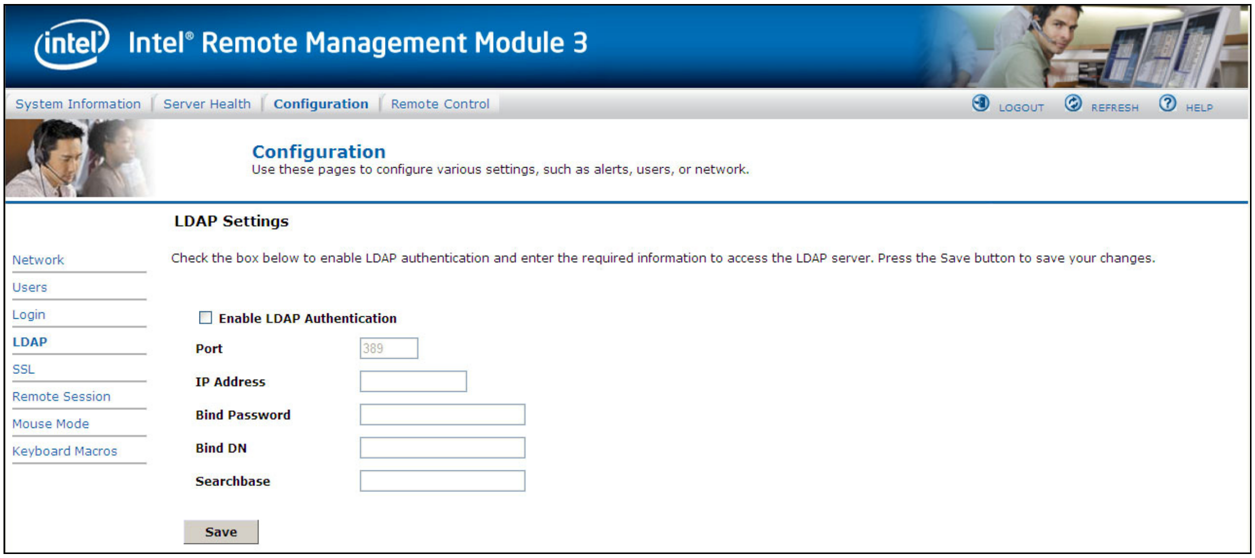
You can view and modify the login security settings on this page. Select how many failed login attempts occur before a user is locked out and for how long.

Failed Login Attempts 3

User Lockout Time (min) 1

7.3.4 To turn the feature off, set the lockout time to zero. Default is 3 failures will lockout a user for 1 minute.Configuring LDAP Settings

To enable/disable LDAP, check or uncheck the "Enable LDAP Authentication" checkbox respectively.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

LDAP Settings

Check the box below to enable LDAP authentication and enter the required information to access the LDAP server. Press the Save button to save your changes.

☐ Enable LDAP Authentication

Port 389

IP Address

Bind Password

Bind DN

Searchbase

The following table lists the options available in this page:

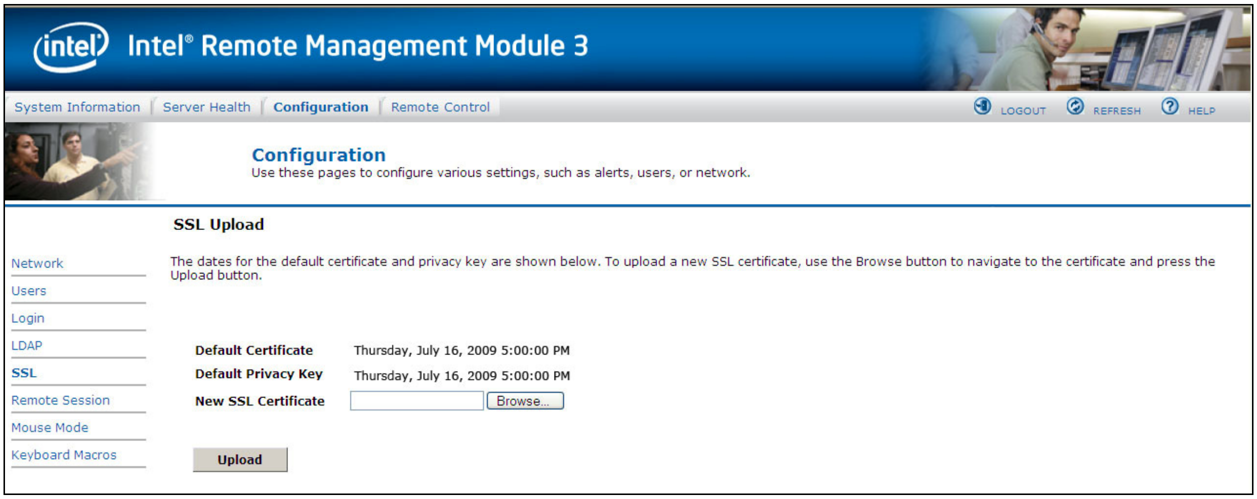
Table 9: Configuration (LDAP Settings) Options

Option	Task
LDAP Authentication	Check this box to enable LDAP authentication, then enter the required information to access the LDAP server.

Option	Task
Port	Specify the LDAP Port
IP Address	The IP address of LDAP server • IP Address made of 4 numbers separated by dots as in "xxx.xxx.xxx.xxx" • 'xxx' ranges from 0 to 255 • First 'xxx' must not be 0
Bind Password	Authentication password for LDAP server; the password must be at least 4 characters long
Bind DN	The Distinguished Name of the LDAP server, e.g. "cn=Manager, dc=my-domain, dc=com"
Searchbase	The searchbase of the LDAP server, for example, "dc=my-domain, dc=com"
Save button	Click to save the current settings

7.3.5 Configuring SSL Upload

Use this page to upload an SSL certificate and privacy key, which allows the device to be accessed in secured mode.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

SSL Upload

The dates for the default certificate and privacy key are shown below. To upload a new SSL certificate, use the Browse button to navigate to the certificate and press the Upload button.

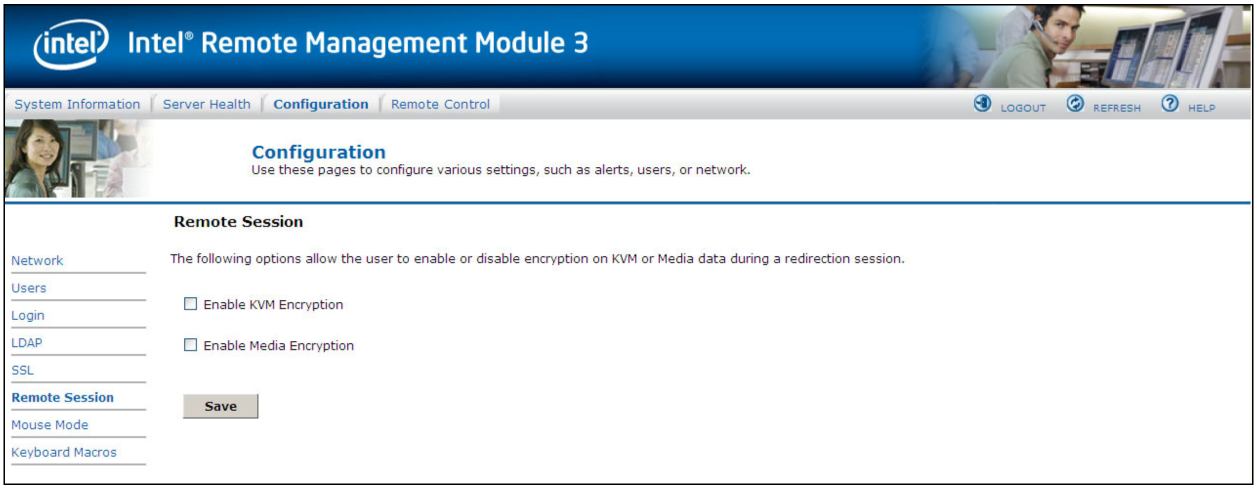
Default Certificate	Thursday, July 16, 2009 5:00:00 PM
Default Privacy Key	Thursday, July 16, 2009 5:00:00 PM
New SSL Certificate	

First upload the SSL certificate and then the device will prompt to upload privacy key. If either of the files is invalid the device will notify. The device will give notification on Successful upload. On successful upload, device will prompt to reboot the device. If you want to reboot click 'Ok' or click 'Cancel' to cancel the reboot operation.

First upload the SSL certificate and then the device will prompt to upload the privacy key. Click the **Upload** button. On successful upload, a notification appears.

7.4 Configuring Remote Session

Use this page to enable/disable encryption on KVM or Media during a redirection session.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

Remote Session

The following options allow the user to enable or disable encryption on KVM or Media data during a redirection session.

☐ Enable KVM Encryption

☐ Enable Media Encryption

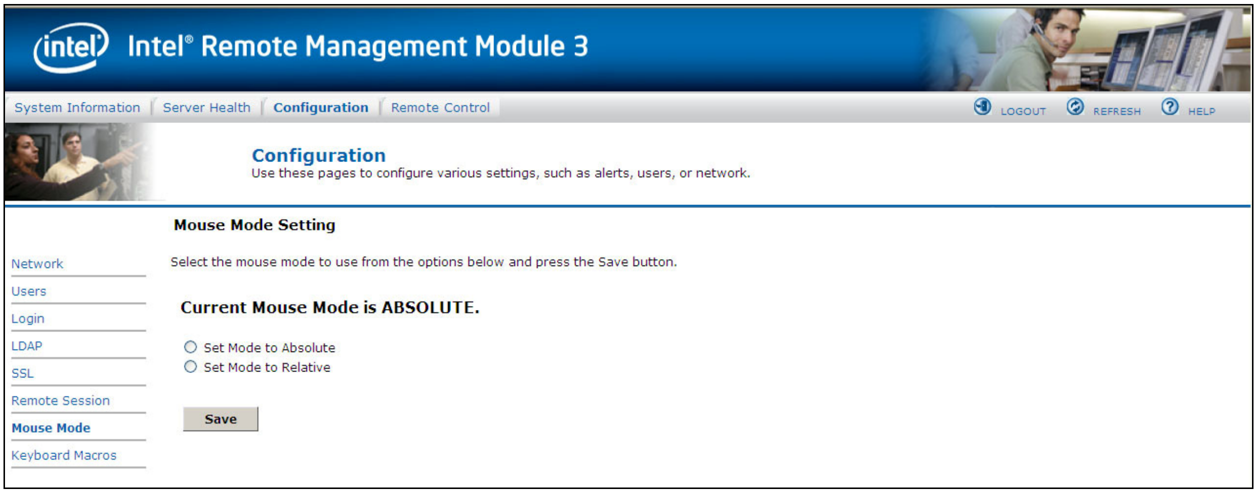
The following table lists the options allowing you to enable or disable encryption on KVM or media data during a redirection session:

Table 10: Configuration (Remote Session) Options

Option	Task
Enable/Disable Encryption mode	Enable/Disable encryption on KVM or Media data during a redirection session. Note: KVM and Media encryption are enabled by default. Note: Disabling encryption can improve performance of KVM or Media redirection.
Save button	Click to use selected modes.

7.4.1 Configuring Mouse Mode Setting

Click the **Mouse Mode** tab to view the Mouse Mode Setting window as shown in Figure 44.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

Mouse Mode Setting

Select the mouse mode to use from the options below and press the Save button.

Current Mouse Mode is ABSOLUTE.

○ Set Mode to Absolute
○ Set Mode to Relative

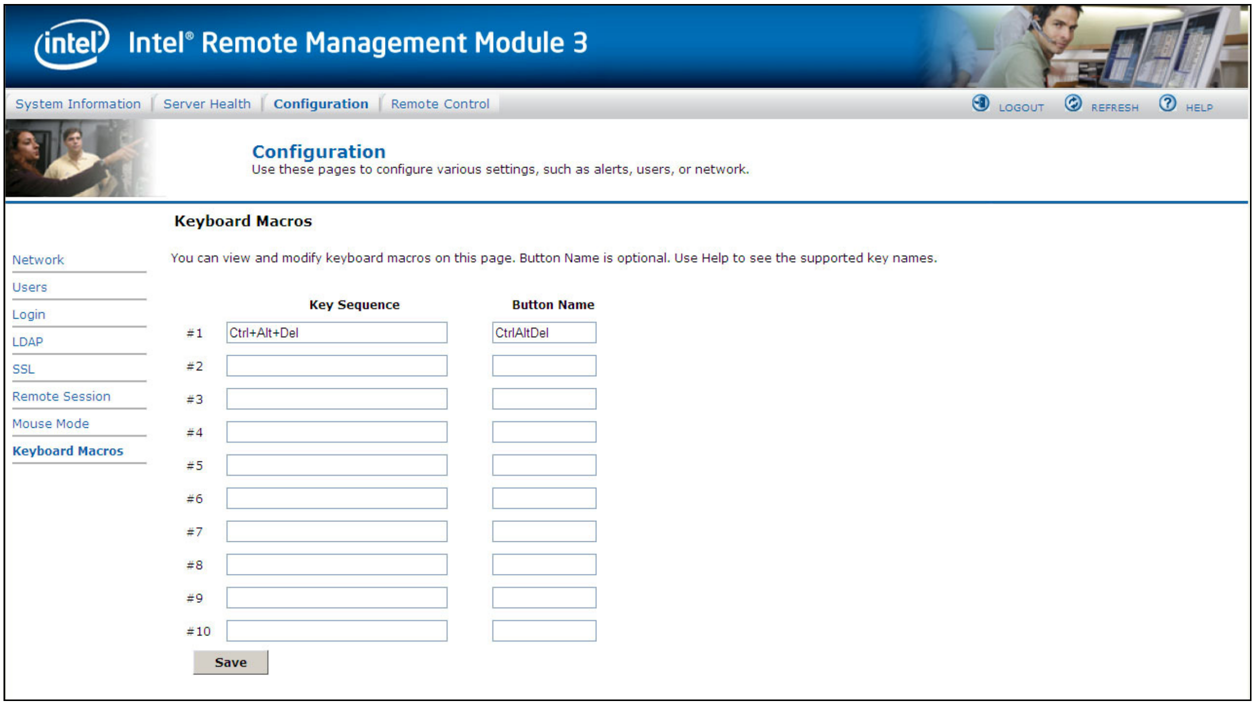
The Redirection Console handles mouse emulation from local window to remote screen in either of two methods:

- **Absolute Mode**. Select to have the absolute position of the local mouse sent to the server. Use this mode for Windows OS.
- **Relative Mode**. Select Relative Mode to have the calculated relative mouse position displacement sent to the server. Use this mode for Linux OS.

Click **Save** to use selected mode.

7.4.2 Configuring Keyboard Macros

Macro buttons can be defined on this page that will appear in the upper right corner of the KVM Remote Console application window. Each button is assigned a sequence of keys to execute when the button is clicked.



Configuration

Use these pages to configure various settings, such as alerts, users, or network.

Keyboard Macros

You can view and modify keyboard macros on this page. Button Name is optional. Use Help to see the supported key names.

	Key Sequence	Button Name
#1	Ctrl+Alt+Del	CtrlAltDel
#2		
#3		
#4		
#5		
#6		
#7		
#8		
#9		
#10		

This makes it convenient to quickly do oft repeated typing as well as execute key combos that aren’t possible directly from the local client keyboard. Alt and Win key combos such as Ctrl+Alt+Del get interpreted by the local client OS and aren’t passed through to the remote target OS. However, a macro can be set up to take care of this.

Each button can optionally be given a short mnemonic name. If this field is blank, the key sequence itself will also be used as the button label.

You must save changes before they take affect, and then only the next time the Remote Console is launched – changes will not affect a Remote Console already running.

7.4.2.1 Key Sequences

A key sequence is a set of one or more key names separated by a ‘+’ or ‘-‘.

A ‘+’ indicates keep the previous keys pressed while holding down the next key, whereas a ‘-‘ indicates release all previous keys first before pressing the next key. A ‘*’ inserts a one second pause in the key sequence.

Key names are either a printable character such as "a", "5", "@", etc. or else one of the non-printable keys in the table below. Names in parentheses are aliases for the same key. Numeric keypad keys are prefixed with "NP_".

A plain '*' indicates a pause. Use '*' for the actual '*' key. The '\' key must also be escaped as '\\'.

Note: The key sequences are sent to the target as scancodes that get interpreted by the target OS, so they will be affected by modifiers such as Numlock as well as the target OS keyboard language setting.

Table 11: Macro Non-printable Key Names

Shift (LShift)	RShift	Ctrl (LCtrl)	RCtrl
Alt (LAlt)	RAlt (AltGr)	Win (LWin)	RWin
Enter	Esc	F1 - F12	
Bksp	Tab	CapsLk	Space
Ins	Del	Home	End
PgUp	PgDn	Context (Menu)	
Up	Left	Down	Right
NumLk	NP_Div	NP_Mult	NP_Minus
NP_Plus	NP_0 - NP_9	NP_Dec	NP_Enter
PrtSc (SysRq)	ScrLk	Pause (Break)	

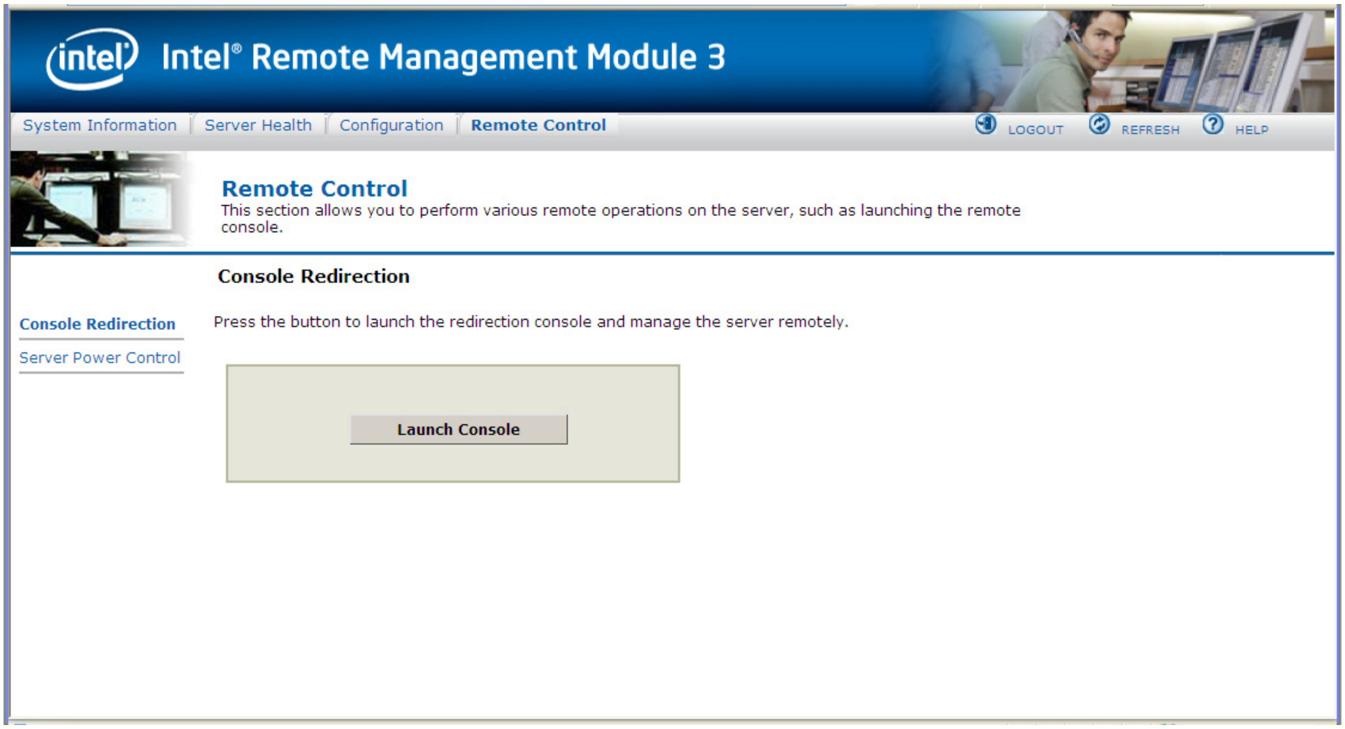
7.5 Remote Control

The Remote Control page helps you perform the following remote operations on the server:

- Console redirection
- Server power control

7.5.1 Console Redirection

By default, the Remote control tab opens in the Console Redirection page. Launch the remote console KVM redirection window from this page.



Remote Control

This section allows you to perform various remote operations on the server, such as launching the remote console.

Console Redirection

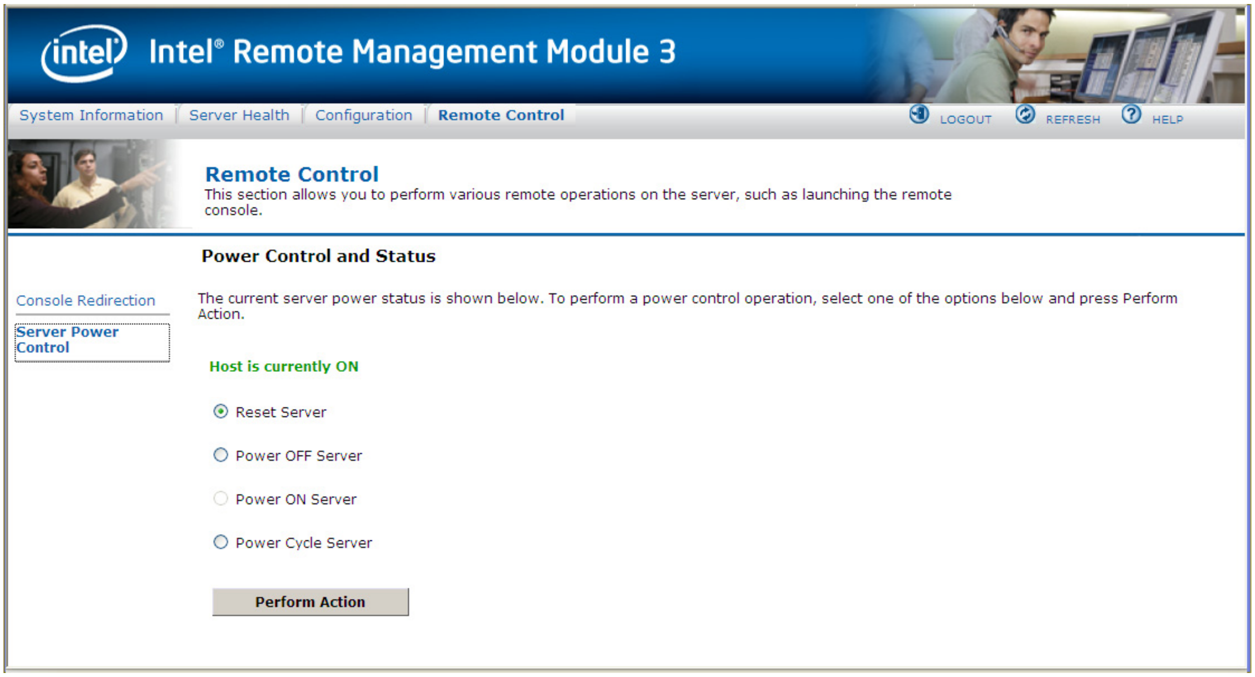
Press the button to launch the redirection console and manage the server remotely.

Click the **Launch Console** button to launch the redirection console and manage the server remotely.

Note: Java Run-Time Environment (JRE, version 6 update 10 or later) must be installed on the client prior to launch of JNLP file.

7.5.2 Server Power Control

The Server Power Control page shows the power status of the server.



Remote Control

This section allows you to perform various remote operations on the server, such as launching the remote console.

Power Control and Status

The current server power status is shown below. To perform a power control operation, select one of the options below and press Perform Action.

Host is currently ON

● Reset Server

○ Power OFF Server

○ Power ON Server

○ Power Cycle Server

The following power control operations can be performed:

Table 12: Remote Control (Power Control) Options

Option	Task
Reset Server	Select option to hard reset the host without powering off.
Power OFF Server	Select option to. immediately power off the host
Power ON Server	Select option to power on the host
Power Cycle Server	Select option to immediately power off the host, then power it back on after one second
Perform Action button	Click to execute the selected remote power command
Note: All power control actions are done through the BMC and are immediate actions. It is suggested to gracefully shut down the operating system via the KVM interface or other interface before initiating power actions.	

8. SMASH – Lite* Interface (System Management Architecture for Server Hardware* by AMI*)

The Intel® RMM3 supports an interface to System Management Architecture for Server Hardware* (SMASH –Lite*).

The SMASH* v1.0 suite of specifications was released by the Distributed Management Task Force, Inc in December, 2006. The information that follows is reproduced with permission from the *SMASH-Lite User Guide** developed by AMI*.

The SMASH-Lite* interface is a direct, command line interface to the RMM3.

8.1 Logging into the SMASH* Session

1. `ssh` to BMC from the client machine.

2. SMASH console screen ('□') should appear. If not, execute `/usr/local/bin/smash` from the # prompt.

3. This executable will initialize all the required variables, discover the targets and displays the SMASH console screen.

8.2 SMASH* Targets

SMASH* targets are the first layer of SMASH that contain two targets - settings1 and system1. Settings1 contains all the current session supported values and system1 is the server/blade.

8.2.1 Supported Properties

The supported property of the SMASH* target is identity.

Table 13: SMASH* Targets - Supported Properties

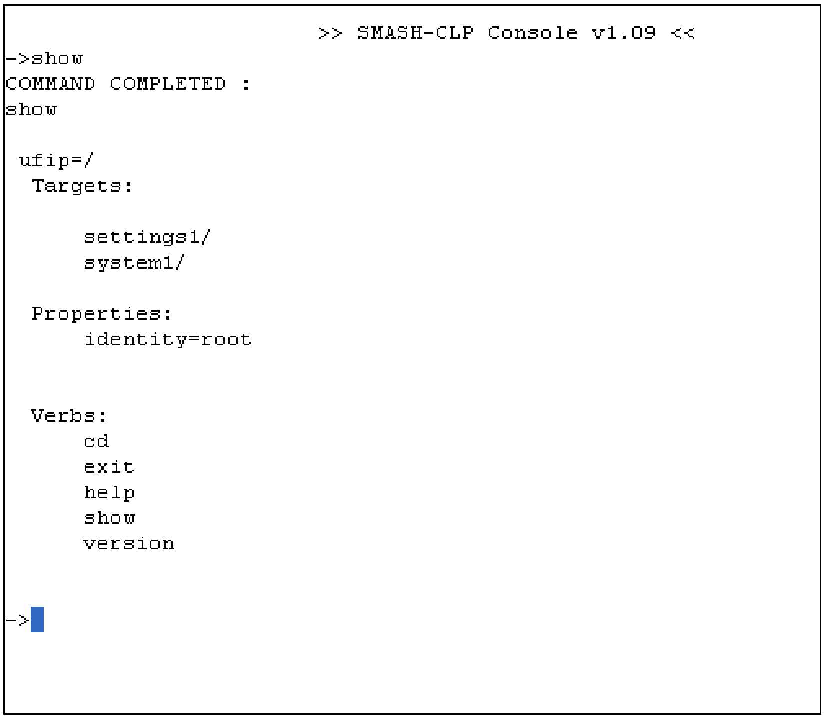
Property	Task
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.2.2 Supported Verbs

Following are the supported verbs of the SMASH* targets:

Table 14: SMASH*Targets - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
                            >> SMASH-CLP Console v1.09 <<
->show
COMMAND COMPLETED :
show

 ufip=/
  Targets:

      settings1/
      system1/

  Properties:
      identity=root


  Verbs:
      cd
      exit
      help
      show
      version


->
```

: SMASH* Target

8.3 System1

The system target represents the server/blade. Power control is available on the target `system1`. It contains sol1, sp1, and other sensor monitoring targets. Here sp1 stands for Service Process Configuration.

8.3.1 Supported Properties

The supported properties of the target `system1` are as follows:

Table 15: System1 - Supported Properties

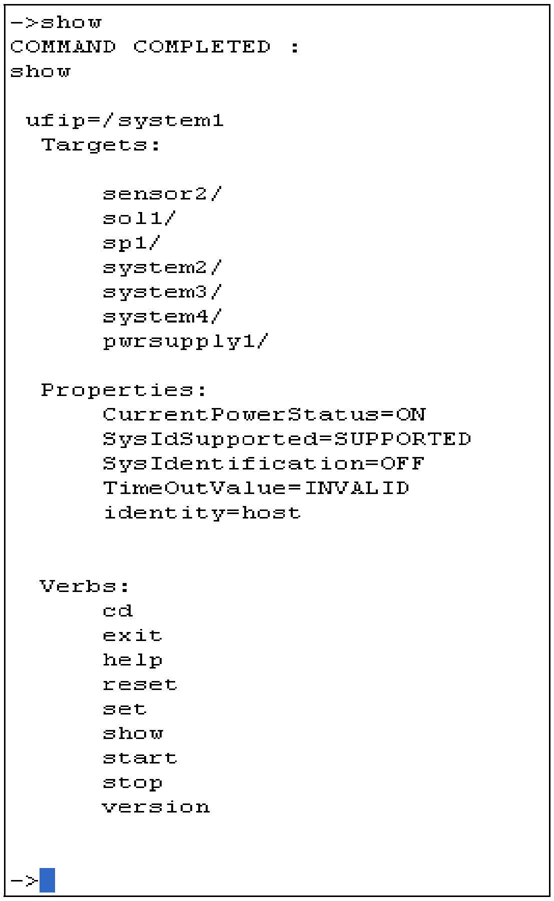
Property	Task
CurrentPowerStatus	This Read-Only property shows the power status of the system as ON or OFF. The value of the property is assigned to any of the following values: • ON - If the power status of the system is on, then the value of this property is ON. • OFF - If the power status of the system is off, then the value of this property is OFF.
SysIdSupported	This read only property indicates if System Identification is • SUPPORTED or • NOT SUPPORTED
SysIdentification	This R/W property reflects the current state of system identification. 1. It can set to any of the following values: System identification can be turned off as follows: > Set SysIdentification=OFF System identification can be timed ON as follows: > Set SysIdentification=TIMED 2. Set the timeout value. The TimeOutValue property is set to TIMED and SysIdentification property value is set to ON. **Note:** If set SysIdentification=INDEFINITE, then TimeOutValue property is set to INDEFENITE and SysIdentification property value is set to ON.
TimeOutValue	This value is R/W, which is associated with TIMED (ON) gives input in seconds as follows: • INDEFINITE - System identification is ON for an indefinite period of time. • TIMED –System identification is ON for only a known period of time. • OFF- System identification is currently OFF. • If TimeOutValue is TIMED then set the TimeOutValue to > Set TimeOutValue=3 (only numeric, non zero values accepted).
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.3.2 Supported Verbs

The supported verbs of the `system1` targets are as follows:

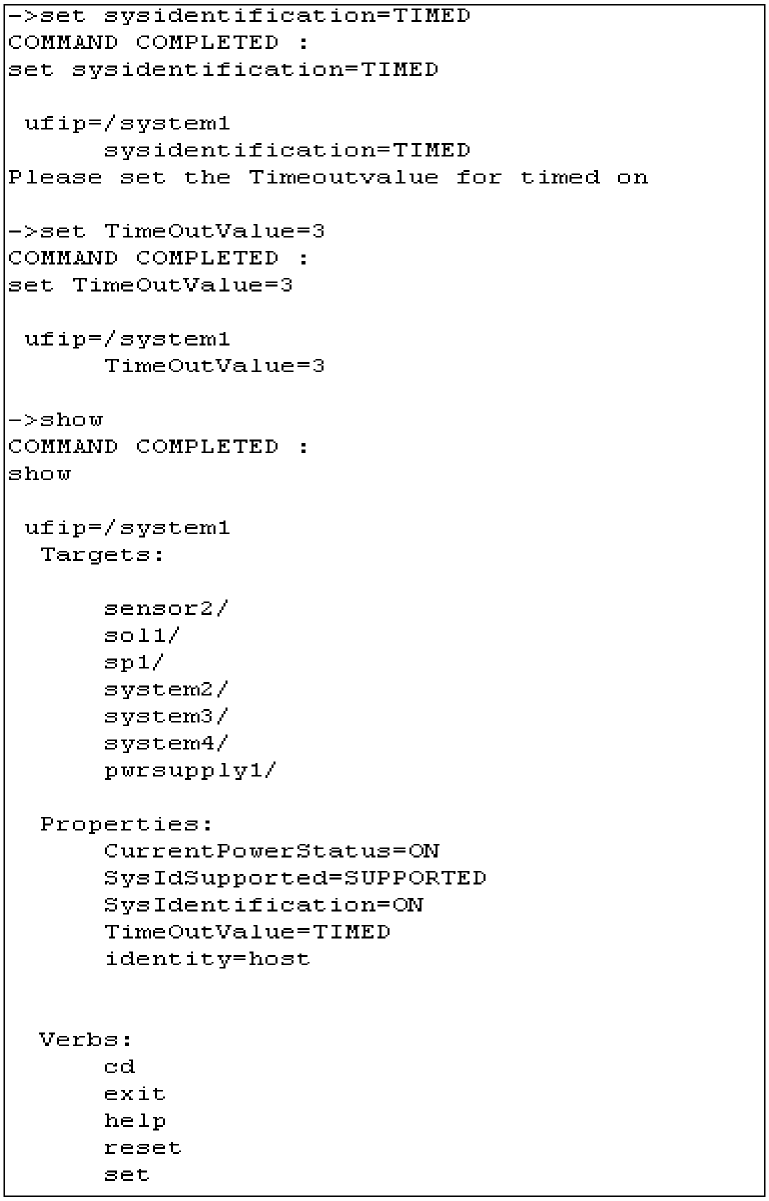
Table 16: System1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
set	set the R/W supported properties.
reset	reset the R/W supported properties
show	show all the targets, properties, and verbs supported by this target.
start	start the device.
stop	stop the device.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1
  Targets:

      sensor2/
      sol1/
      sp1/
      system2/
      system3/
      system4/
      pwrsupply1/

  Properties:
      CurrentPowerStatus=ON
      SysIdSupported=SUPPORTED
      SysIdentification=OFF
      TimeOutValue=INVALID
      identity=host


  Verbs:
      cd
      exit
      help
      reset
      set
      show
      start
      stop
      version


->
```

Figure 49: System Target



```
->set sysidentification=TIMED
COMMAND COMPLETED :
set sysidentification=TIMED

 ufip=/system1
      sysidentification=TIMED
Please set the Timeoutvalue for timed on

->set TimeOutValue=3
COMMAND COMPLETED :
set TimeOutValue=3

 ufip=/system1
      TimeOutValue=3

->show
COMMAND COMPLETED :
show

 ufip=/system1
  Targets:

      sensor2/
      sol1/
      sp1/
      system2/
      system3/
      system4/
      pwrsupply1/

  Properties:
      CurrentPowerStatus=ON
      SysIdSupported=SUPPORTED
      SysIdentification=ON
      TimeOutValue=TIMED
      identity=host


  Verbs:
      cd
      exit
      help
      reset
      set
```

Figure 50: Example of System Target

8.4 Settings1

Settings1 target represents the settings of the current session of SMASH* and does not have any targets. This target affects the current session:

8.4.1 Supported Properties

The supported properties of the target `settings1` as follows:

Table 17: Settings1 - Supported Properties

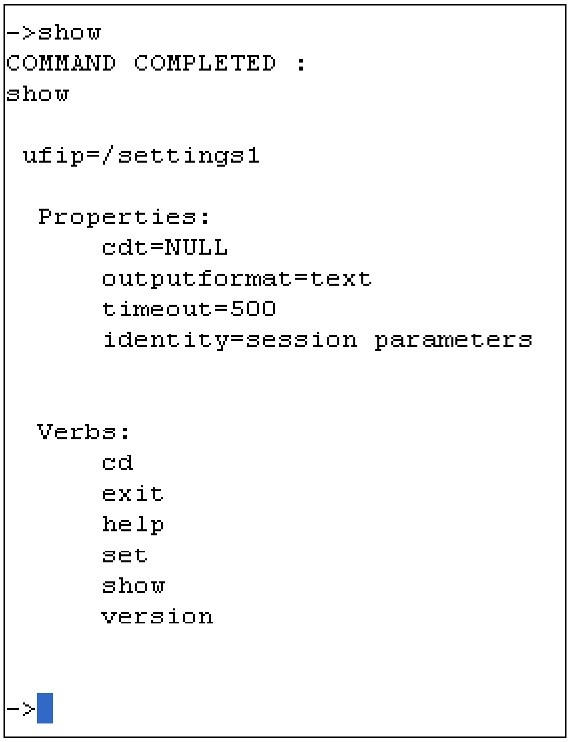
Property	Task
cdt	Represents the current default directory. This is the path from where the session starts.
outputformat	This R/W property gives the output format: clpxml, text, clpcsv. Keyword of the current running SMASH* session. The values supported by this property are explained as follows: • **Clpxml** - The output format of the current running SMASH* session is in the .xml format > set outputformat=clpxml • **Keyword**- The output format of the current running SMASH8 session is in the keyword format > set outputformat=keyword. • **Text**- The output format of the currently running SMASH session is in the text format- >set outputformat=text. By default, this property value is assigned to text. • **Clpcsv** – This output format of the currently running SMASH* session has a "clpcsv" table to represent the Command Status. Each line of the "clpcsv" output data has its first item either as the "header" or as the "group" keyword. Rows beginning with the "header" keyword specify the start of a new table and the items in the comma-separated list of keywords identify the output data elements that appear in each row of the table. Rows beginning with the "group" keyword specify a row of table values for the preceding header.
SysIdentification	This R/W property reflects the current state of system identification. 1. It can set to any of the following values: System identification can be turned off as follows: > Set SysIdentification=OFF System identification can be timed ON as follows: > Set SysIdentification=TIMED 2. Set the timeout value. The TimeOutValue property is set to TIMED and SysIdentification property value is set to ON. **Note:** If set SysIdentification=INDEFINITE, then TimeOutValue property is set to INDEFENITE and SysIdentification property value is set to ON.
timeout	• The R/W property timeout represents the inactivity timeout value in seconds of the currently running SMASH* session. If the SMASH* session is inactive for the timeout value seconds mentioned, then after reaching the timeout value this session will exit automatically. The value of this property can be set to a preferred inactivity time. > set timeout=300. By default it is assigned to 500.
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.4.2 Supported Verbs

The supported verbs of the `settings1` target are as follows:

Table 18: Settings1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
set	set the R/W supported properties.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/settings1

  Properties:
      cdt=NULL
      outputformat=text
      timeout=500
      identity=session parameters


  Verbs:
      cd
      exit
      help
      set
      show
      version


->
```

Figure 51: Setting1 Target

8.5 SP1

The SP1 target (service processor) provides information of the user accounts Ethernet port and logs. It contains three targets - `enetport1` (Ethernet port target), accounts, and logs.

8.5.1 Supported Properties

The supported property of the SMASH* target is identity.

Table 19: SP1 - Supported Properties

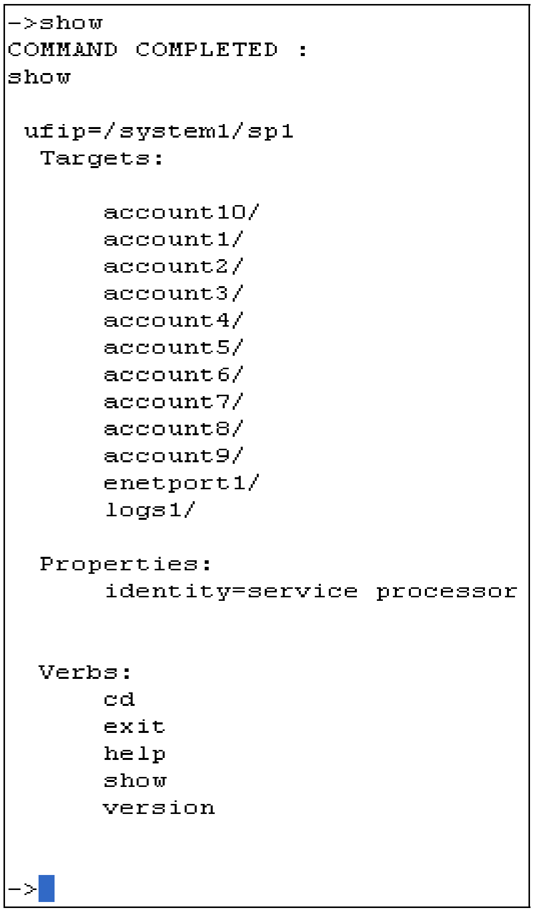
Property	Task
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.5.2 Supported Verbs

The supported verbs of the `sp1` target are as follows:

Table 20: SP1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1
  Targets:

      account10/
      account1/
      account2/
      account3/
      account4/
      account5/
      account6/
      account7/
      account8/
      account9/
      enetport1/
      logs1/

  Properties:
      identity=service processor


  Verbs:
      cd
      exit
      help
      show
      version


->
```

Figure 52: SP1 Target

8.6 SOL1

Serial Over LAN (SOL) is the name for the redirection of baseboard serial controller traffic over an IPMI session. It does not have any targets.

8.6.1 Supported Properties

The supported property of the target `sol1` is as follows:

Table 21: SOL1 - Supported Properties

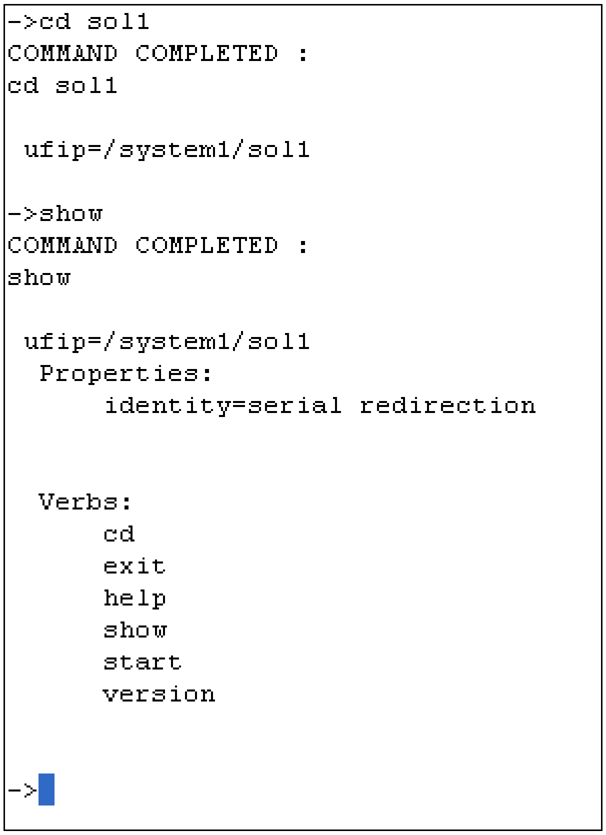
Property	Task
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.6.2 Supported Verbs

The supported verbs of the `sol1` target are as follows:

Table 22: SOL1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
start	start the device
version	show the current version of SMASH*.



```
->cd sol1
COMMAND COMPLETED :
cd sol1

 ufip=/system1/sol1

->show
COMMAND COMPLETED :
show

 ufip=/system1/sol1
  Properties:
      identity=serial redirection


  Verbs:
      cd
      exit
      help
      show
      start
      version


->
```

Figure 53: SOL1 Target

8.6.3 Terminating an SOL Session

SOL session can be terminated using the following control key sequence:

- CR, ESC, T or t
- CARRIAGE RETURN/ENTER key, followed by ESCAPE key, followed by T or t
- Control key sequence ‘Ctrl + [can be used in place of ESCAPE key].

Once terminated, the control returns to SMASH-Lite* session.

8.7 Enetport1

The BMC in the managed system needs the system’s IP Address and MAC Address in order to be able to respond to UDP/IP packets or generate LAN alerts. `Enetport1` (Ethernet port target) gives the port address information. Enetport1 contains only one target named `lanendpt1`.

8.7.1 Supported Properties

The supported properties of the target `enetport1` are as follows:

Table 23: Enetport1 - Supported Properties

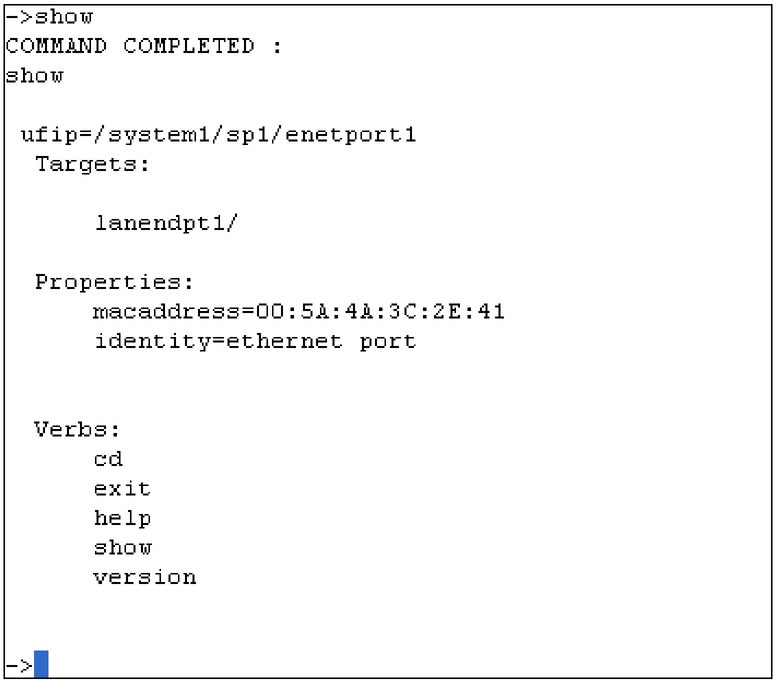
Property	Task
macaddress	Address that was received by the activated session. This read only property gives the value of the MAC address. Mac address is a unique identifier attached to most network adaptors (NICs).
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.7.2 Supported Verbs

The supported verbs of the `enetport1` target are as follows:

Table 24: Enetport1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1
  Targets:

      lanendpt1/

  Properties:
      macaddress=00:5A:4A:3C:2E:41
      identity=ethernet port


  Verbs:
      cd
      exit
      help
      show
      version


->
```

Figure 54: Enetport1 Target

8.8 Lanendpt1

The target `lanendpt1` gives information about LAN configuration. It contains the target: `Ipendpt1 – IP configuration`.

8.8.1 Supported Properties

Following is the supported property of target `lanendpt1`:

Table 25: Lanendpt1 - Supported Properties

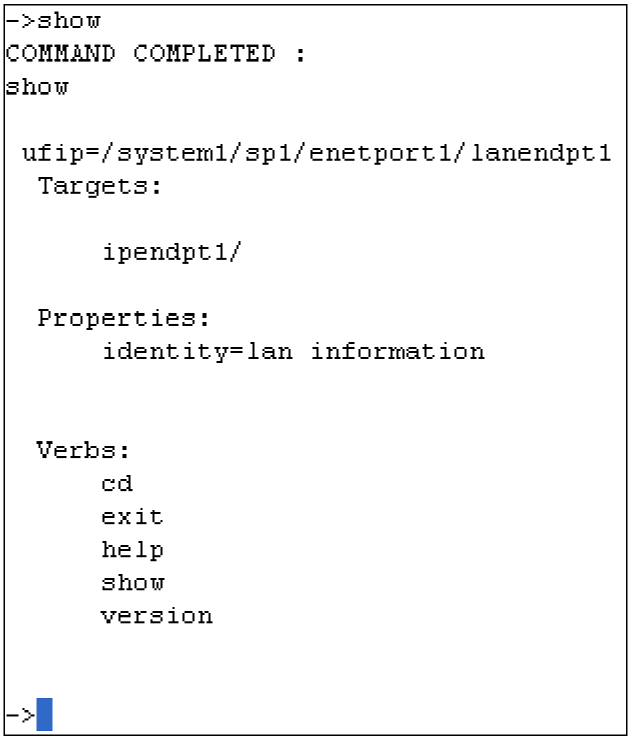
Property	Task
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.8.2 Supported Verbs

The supported verbs of the `lanendpt1` target are as follows:

Table 26: Lanendpt1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
start	start the device
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1/lanendpt1
  Targets:

      ipendpt1/

  Properties:
      identity=lan information


  Verbs:
      cd
      exit
      help
      show
      version


->
```

Figure 55: LANENDPT1 Target

8.9 Ipendpt1

The target `ipendpt1` provides information about `ipaddress` and other information related to the SP. It contains two targets - `dnsendpt1` and `remotesap1`. The supported properties and supported verbs of the `ipendpt1` are as follows.

8.9.1 Supported Properties

The supported properties of the target `ipendpt1` are as follows:

Table 27: Ipendpt1 - Supported Properties

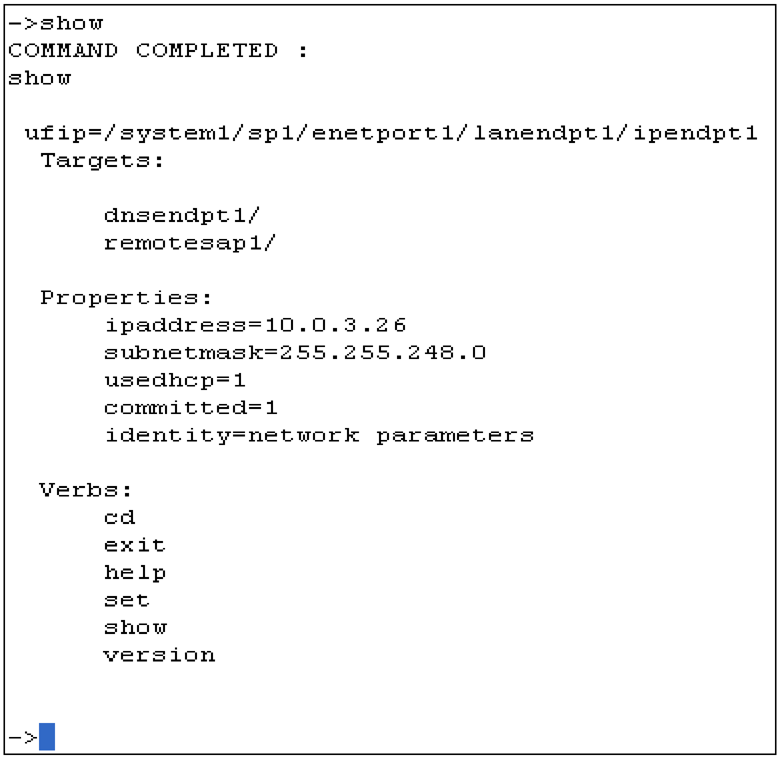
Property	Task
ipaddress	The value of ipaddress is the IP address of the SP. An IP address (Internet Protocol address) is a unique address that is used to identify and communicate with each other on a computer network utilizing the Internet Protocol standard (IP). This is an R/W property. The value setting to the ipaddress affects the IP of the SP. > set ipaddress=10.0.4.79 This will change the ipaddress of the sp. After changing, use committed property to save.
subnetmask	This is the value of the subnetmask of the SP. A subnetmask is a range of logical addresses within the address space that is assigned to an organization. This is an R/W property. The value setting to the ipaddress affects the IP of the SP. > set subnetmask=255.255.248.0 This will change the subnetmask of the sp. After changing, use committed property to save.
usedhcp	Dynamic Host Configuration Protocol (DHCP) is a protocol used by networked devices to obtain various parameters necessary for the networked devices to operate in an Internet Protocol(IP) network. This property has two values(1 for DHCP and 0 for Static). This is a R/W property. > set usedhcp=1
committed	Once the ipadress or subnetmask is set to 1, the property saves all the changes made. In addition, the network settings also change and network connection is lost. > Set commited=1
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.9.2 Supported Verbs

The supported verbs of the `ipendpt1` target are as follows:

Table 28: Lanendpt1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
set	set the r/w supported properties
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1/lanendpt1/ipendpt1
  Targets:

      dnsendpt1/
      remotesap1/

  Properties:
      ipaddress=10.0.3.26
      subnetmask=255.255.248.0
      usedhcp=1
      committed=1
      identity=network parameters

  Verbs:
      cd
      exit
      help
      set
      show
      version


->
```

Figure 56: IPENDPT1 Target

8.10 Remotesap1

The `remotesap1` target will enumerate all the configurable IPs under the containing target. A remote access server enables users who are not on a local network to access. This does not contains any targets.

8.10.1 Supported Properties

The supported properties of the target `remotesap1` are as follows:

Table 29: Remotesap1 - Supported Properties

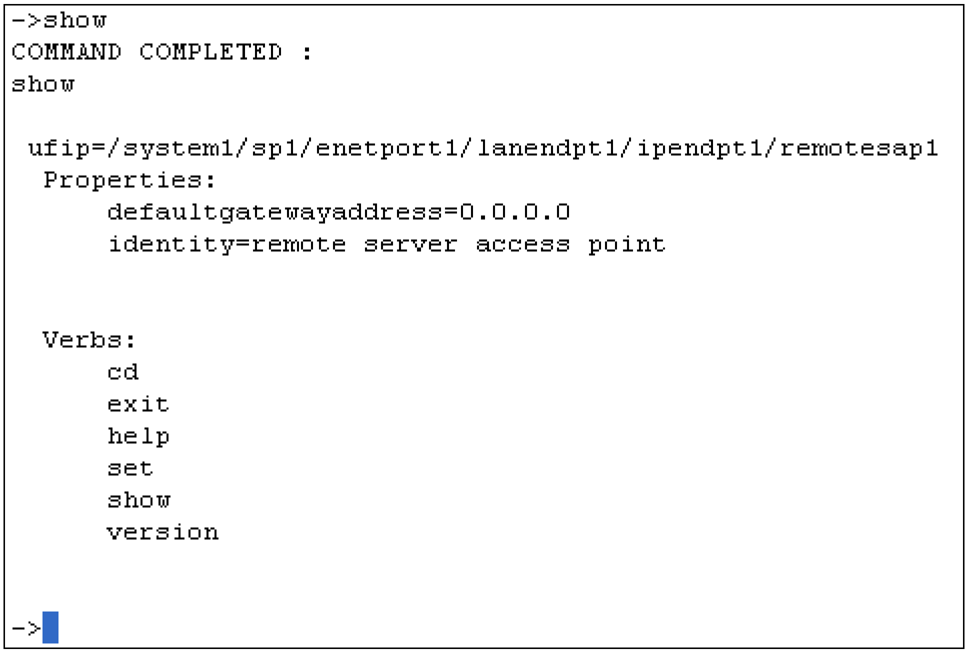
Property	Task
defaultgatewayaddress	• IP address of the gateway. A gateway address is a private address and is the address to which traffic is sent from the LAN .This is an R/W property. The value of the gateway can be set as follows: > Set defaultgatewayip=0.0.0.0
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.10.2 Supported Verbs

The supported verbs of the `remotesap1` target are as follows.

Table 30: Remotesap1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
set	set the r/w supported properties
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1/lanendpt1/ipendpt1/remotesap1
  Properties:
      defaultgatewayaddress=0.0.0.0
      identity=remote server access point


  Verbs:
      cd
      exit
      help
      set
      show
      version


->
```

Figure 57 – REMOTESAP1 Target

8.11 Dnsendpt1

The dnsendpt target has the configurable parameters for Domain Name System (DNS). The DNS associates various sorts of information with so-called domain names; most importantly, it serves the Internet by translating human-readable computer hostnames into the IP address, information that the networking equipment needs to deliver.Dnsendpt1 contains two targets - remotesap1 and remotesap2. The supported properties of dnsendpt1 are as follows:

8.11.1 Supported Properties

The supported properties of the target dnsendpt1 are as follows:

Table 31: Dnsendpt1 - Supported Properties

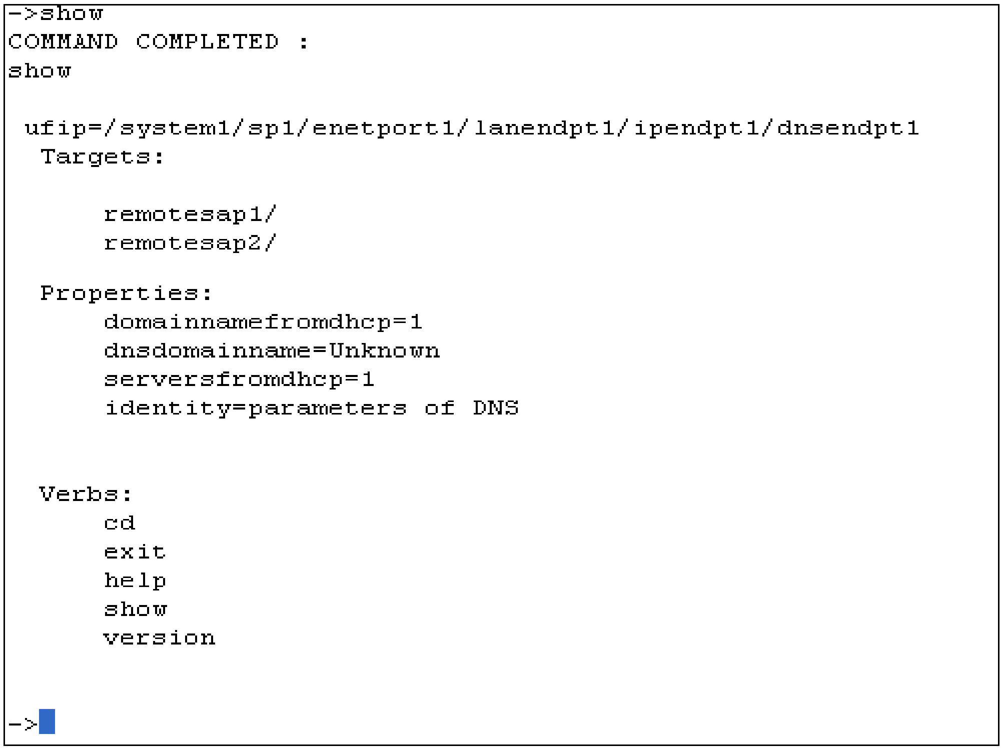
Property	Task
domainnamefromdhcp	Dhcp based DNS configuration. This property is a read only property.
dnsdomainname	This property gives the DNS Domain. This property is a read only property.
serversfromdhcp	This property shows the servers dhcp. This is a read only property.
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.11.2 Supported Verbs

The supported verbs of the dnsendpt1 target are as follows:

Table 32: Dnsendpt1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1/lanendpt1/ipendpt1/dnsendpt1
  Targets:

      remotesap1/
      remotesap2/

  Properties:
      domainnamefromdhcp=1
      dnsdomainname=Unknown
      serversfromdhcp=1
      identity=parameters of DNS


  Verbs:
      cd
      exit
      help
      show
      version


->
```

Figure 58 – DNSENDPT1 Target

8.12 Remotesap1

The `remotesap1` target enumerates all the configurable IPs under the containing target. A remote access server enables user access to those users who are not on a local network. This does not contain any targets.

8.12.1 Supported Properties

The supported properties of the target `remotesap1` are `dnsserveraddress` and `identity`.

Table 33: Remotesap1 - Supported Properties

Property	Task
dnsserveraddress	This property gives the dns server address. This is a R/W property. The value of this property can be set as follows: > set dnsserveraddress=0.0.0.0
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

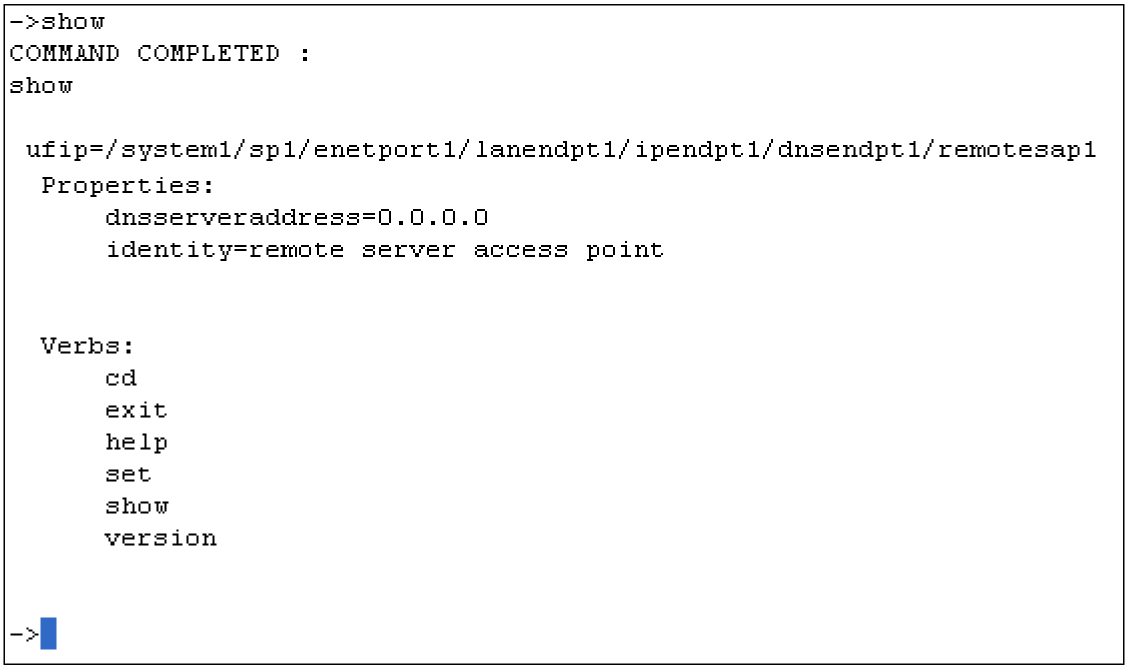
8.12.2 Supported Verbs

The supported verbs of the `remotesap1` target as follows:

Table 34: Remotesap1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
set	set the r/w supported properties
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.

The remotesap1 target enumerates all the configurable IPs under the containing target. A remote access server enables users who are not on a local network to access. This does not contain any targets.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1/lanendpt1/ipendpt1/dnsendpt1/remotesap1
  Properties:
      dnsserveraddress=0.0.0.0
      identity=remote server access point


  Verbs:
      cd
      exit
      help
      set
      show
      version


->
```

Figure 59 – REMOTESAP1 Target

8.13 Remotesap2

8.13.1 Supported Properties

The supported properties of the target remotesap2 are as follows:

Table 35: Remotesap2 - Supported Properties

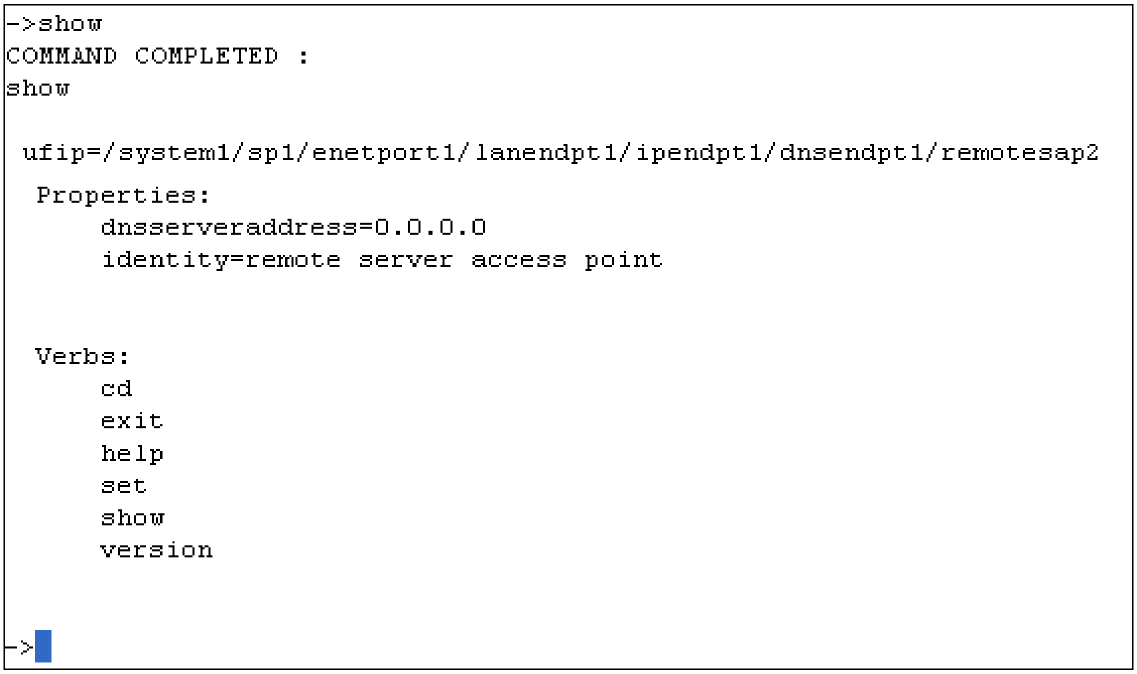
Property	Task
dnsserveraddress	Gives the dns server address. This is a R/W property. The value of this property can be set as follows: > set dnsserveraddress=0.0.0.0
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.13.2 Supported Verbs

The supported verbs of the `remotesap2` target are as follows.

Table 36: Remotesap2 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
set	set the r/w supported properties
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/enetport1/lanendpt1/ipendpt1/dnsendpt1/remotesap2

  Properties:
      dnsserveraddress=0.0.0.0
      identity=remote server access point


  Verbs:
      cd
      exit
      help
      set
      show
      version


->
```

Figure 60 – REMOTESAP2 Target

8.14 Account

The account target represents user accounts. It does not contain any targets.

8.14.1 Supported Properties

The supported properties of the target account are as follows:

Table 37: Account - Supported Properties

Property	Task
userid	This read only property defines the unique id for each user.
username	This property gives the usermname of a particular account. This is settable except for userid=1. Username Length must be more than 1 character and less than 16 characters. > set username=sdf
pmilanprivileges	This property gives the ipmi lan privileges. It can be set except for userid=1. Only numbers are allowed. > set ipmilanprivileges=4
password	This property gives the password of a particular user. It can be set xcept for userid=1; password length should be less than 16 characters. > set password=ssd
enabledstate	This property shows the state of the user. This property is settable except for userid=1. Use 0 for disable and 1 for enable. For example to enable the user set the value of this property to 1 > set userid=1 For example to enable the user set the value of this property to 1 > set userid=1
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

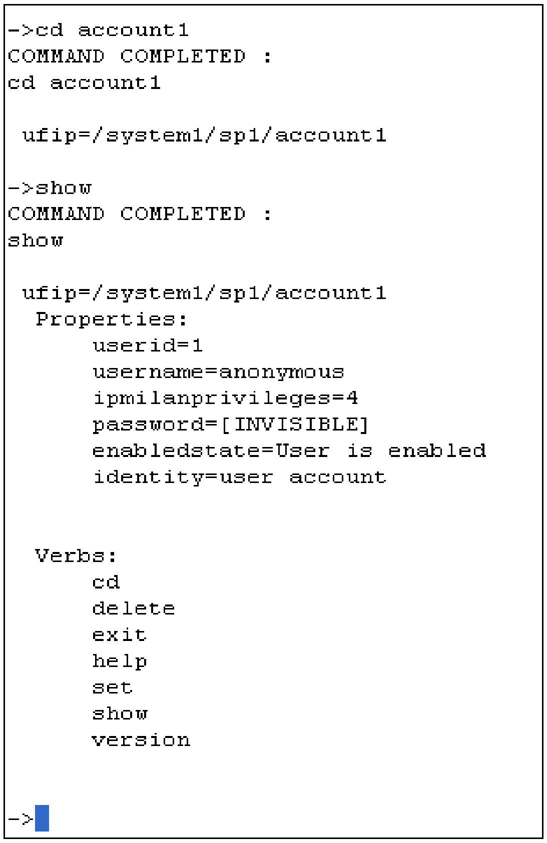
8.14.2 Supported Verbs

The supported verbs of the account target are as follows:

Table 38: Account - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
delete	delete. To delete, go to sp1 target and delete account(n) where n>2.

Verb	Is used to
set	set the r/w supported properties
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->cd account1
COMMAND COMPLETED :
cd account1

 ufip=/system1/sp1/account1

->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/account1
  Properties:
      userid=1
      username=anonymous
      ipmilanprivileges=4
      password=[INVISIBLE]
      enabledstate=User is enabled
      identity=user account


  Verbs:
      cd
      delete
      exit
      help
      set
      show
      version


->
```

Figure 61 – ACCOUNT1 Target

8.15 Logs1

The logs target is the containing target for log records of the `ipmi sel`. The System Event Log is a non-volatile repository for system events and certain system configuration information. This target contains all the read only properties. It contains log records as the targets.

8.15.1 Supported Properties

The supported properties of the target `Logs1` are as follows:

Table 39: Logs1 - Supported Properties

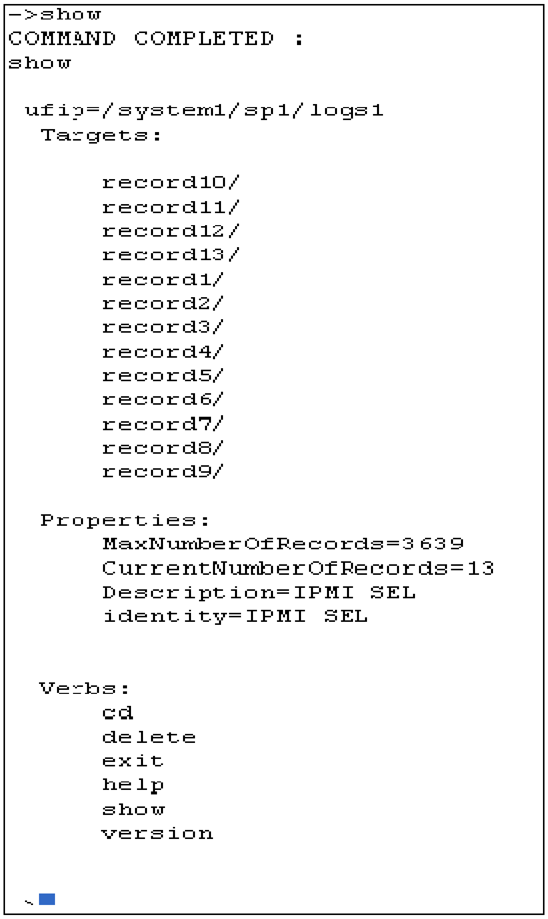
Property	Task
MaxNumberOfRecords	This read only property gives information about maximum number of log records.
Description	A read only description about the target.
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.15.2 Supported Verbs

The supported verbs of the `Logs1` target are as follows:

Table 40: Logs1 - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
delete	delete. To delete, go to sp1 target and delete account(n) where n>2.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sp1/logs1
  Targets:

      record10/
      record11/
      record12/
      record13/
      record1/
      record2/
      record3/
      record4/
      record5/
      record6/
      record7/
      record8/
      record9/

  Properties:
      MaxNumberOfRecords=3639
      CurrentNumberOfRecords=13
      Description=IPMI SEL
      identity=IPMI SEL


  Verbs:
      cd
      delete
      exit
      help
      show
      version
```

Figure 62 – LOGS1 Target

8.16 Record

The record target represents the individual SEL entries. SEL records are in a list. Each SEL entity is a record. This does not have any targets.

8.16.1 Supported Properties

The supported properties of the target `Record1` are as follows:

Table 41: Record - Supported Properties

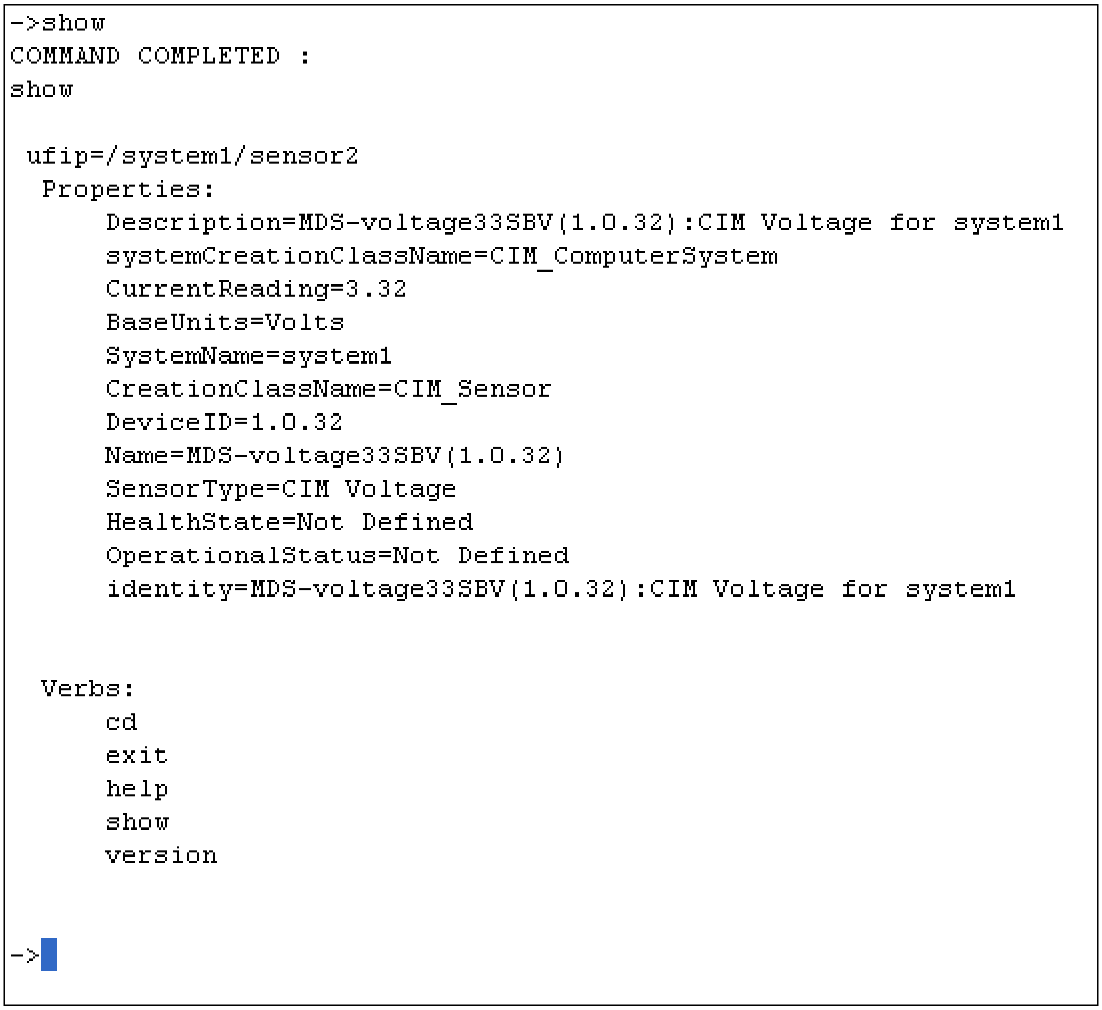
Property	Task
LogCreationClassName	This read only property gives information about the log creation class name.
logname	This read only property gives the name of the log record
CreationClassName	This read only property gives the creation class name of the record
RecordID	SEL Entries have a unique 'Record ID' field. This is the unique ID for the particular record. This is a read only property.
MessageTimeStamp	This read only property gives the time stamp of the record creation
RecordData	The record data field that is passed in the request consists of all bytes of the SEL event record. This property gives information of the record and is read only.
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.16.2 Supported Verbs

The supported verbs of the record target are as follows:

Table 42: Record - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sensor2
  Properties:
      Description=MDS-voltage33SBV(1.0.32):CIM Voltage for system1
      systemCreationClassName=CIM_ComputerSystem
      CurrentReading=3.32
      BaseUnits=Volts
      SystemName=system1
      CreationClassName=CIM_Sensor
      DeviceID=1.0.32
      Name=MDS-voltage33SBV(1.0.32)
      SensorType=CIM Voltage
      HealthState=Not Defined
      OperationalStatus=Not Defined
      identity=MDS-voltage33SBV(1.0.32):CIM Voltage for system1


  Verbs:
      cd
      exit
      help
      show
      version


->
```

Figure 63 – RECORD1 Target

8.17 Sensor

A typical server BMC would provide sensors for baseboard temperature, voltage, and chassis intrusion monitoring. A sensor uses one type of energy, a signal of some sort, and converts it into a reading for the purpose of information transfer. The sensor doesn’t have any targets. All properties of this target are read only properties.

8.17.1 Supported Properties

Table 43: Sensor - Supported Properties

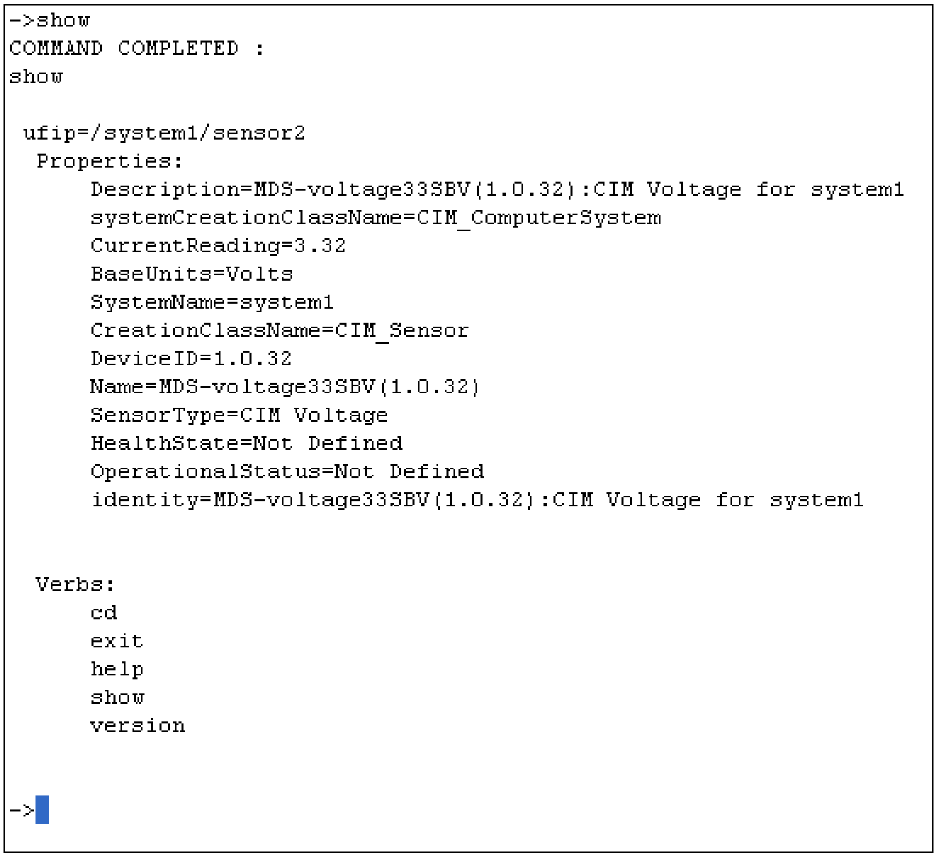
Property	Task
Description	This read only property describes the sensor and the target under which it is present.
SystemCreationClassName	This read only property gives the system creation class name and is a read only property.
CurrentReading	This read only property gives the current reading shown by the sensor
BaseUnits	This read only property gives the units for the value given by current reading property.
SystemName	This read only property gives the target name under which this sensor exists
CreationClassName	This read only property gives the creation class name of the sensor.
DeviceID	This read only property gives the device ID.
Name	This read only property gives the name of the current sensor.
SensorType	This read only property gives the type of sensor.
HealthState	This read only property gives the health status of the sensor.
OperationalStatus	This read only property defines the operational status of the sensor.
Identity	This read only property gives a brief explanation of the present target and cannot be changed.

8.17.2 Supported Verbs

The supported verbs of the sensor target are as follows:

Table 44: Sensor - Supported Verbs

Verb	Is used to
cd	change from one valid target path to any other valid target path.
exit	exit from the current SMASH* session.
help	provide information on using SMASH*.
show	show all the targets, properties, and verbs supported by this target.
version	show the current version of SMASH*.



```
->show
COMMAND COMPLETED :
show

 ufip=/system1/sensor2
  Properties:
      Description=MDS-voltage33SBV(1.0.32):CIM Voltage for system1
      systemCreationClassName=CIM_ComputerSystem
      CurrentReading=3.32
      BaseUnits=Volts
      SystemName=system1
      CreationClassName=CIM_Sensor
      DeviceID=1.0.32
      Name=MDS-voltage33SBV(1.0.32)
      SensorType=CIM Voltage
      HealthState=Not Defined
      OperationalStatus=Not Defined
      identity=MDS-voltage33SBV(1.0.32):CIM Voltage for system1


  Verbs:
      cd
      exit
      help
      show
      version


->
```

Figure 64 – SENSOR2 Target

8.18 CreatingTargets

Dynamic targets in SMASH*(without CIM) are the sensors and their associated entities. You need to go through the sdr and search for Full & Compact record types. Name the Full type as *numsensor<index>* (indicates the analog sensors) and the Compact type as the *sensor<index>* (indicates the discrete sensors). While a sensor instance is discovered, the **EntityID** & the **EntityInstance** of the record are also seen. **EntityID** denotes the entity the sensor is monitoring. If the **EntityID** is of type cpu and **Entityinstance** is 1, then the parent of *sensor1* will be *cpu1*. Other sensor related entity instances are created in a similar manner.