



Intel® Deployment Assistant v5.0

User Guide

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Contents

1	Introduction	1
1.1	Target Audience	1
1.2	Terminology	1
2	Getting Started	3
2.1	Product Overview	3
2.2	Supported Platforms	3
2.3	Hardware Requirements	3
3	Using Intel® Deployment Assistant (IDA)	5
3.1	My Server Page.....	5
3.1.1	Main Menu	6
3.1.2	My Server Information Box	7
3.1.3	Primary Function Buttons.....	8
3.2	Get System Update	9
3.2.1	Scenario 1: Updating Firmware When Server has Internet Connection	10
3.2.2	Scenario 2: Update Firmware from My Network	12
3.2.3	Scenario 3: Update Firmware from USB key	14
3.3	Configure a Server	16
3.3.1	System Information	16
3.3.2	BIOS Settings.....	17
3.3.3	Server Management Settings	20
3.4	RAID Configuration.....	25
3.4.1	Supported RAID Devices.....	25
3.4.2	IDA RAID Configurations.....	27
3.4.3	Advanced RAID Configuration.....	30
3.5	Unattended OS Installation.....	31
3.5.1	Overview	31
3.5.2	Supported OS.....	32
3.5.3	Installing OS Unattended	33
3.5.4	Package Third Party Driver.....	40
3.6	Multi-Server Cloning	45
3.6.1	Multi-Server Cloning Options.....	46
3.6.2	Creating IDA Multi-Server Clone Image	47

3.6.3	Config.ini	48
3.7	Online Patch Update	51
3.8	OS-HTML	51
4	Rebranding Intel® Deployment Assistant	53
4.1	Important Syntax Requirements	53
4.2	Common Screen Elements.....	53
4.3	The Title Bar.....	54
4.4	The Menu Bar	54
4.5	The Left Pane	54
4.6	The Presentation Pane	54
4.6.1	The Content Title	55
4.6.2	The Help and Navigation Buttons	55
4.7	Unique Screens.....	55
4.7.1	Initial Splash Screen	55
4.7.2	License Screen	56
4.7.3	Loading Screens	56
4.8	Rebranding the Common Elements	56
4.8.1	Display Screen	58
4.8.2	The Title Bar	58
4.8.3	Other Common Frame Graphics.....	59
4.9	The Menu Bar	59
4.10	The Left Pane	59
4.11	Content Titles	60
4.12	The Help and Navigation Buttons.....	60
4.13	Watermark Graphics.....	60
4.14	Product Name.....	61
4.15	Changing Font Styles and Sizes	61
4.16	Rebranding the Help files	61
4.17	Rebranding the Update Packages	61
4.17.1	The Update Package.....	61
4.17.1.1	Contents of the Update Package.....	62
4.17.1.2	Location of the Update Packages	62
4.17.2	The Update Packages Description File: jmaster.xml	62
4.17.3	Web location of the jmaster.xml file	62

4.17.4	File structure of the jmaster.xml content.....	63
4.18	Customizing Software Feature	64
4.18.1	Default customize.ini Contents.....	65
4.19	Customizable UI Screens.....	68
4.19.1	Example	68
4.20	Recreating the ISO Image	69
Appendix A: Summary of Rebrandable Elements		71
Appendix B: config.ini template		72
Appendix C: An example of cloning Linux* OS installation with multi-server cloning image on bootable USB key.....		75
Appendix D: Setting up a Linux* PXE server and integrating IDA multi-server cloning image HOWTO.....		77
	Overview.....	77
	Pxelinix Functionality	77
	Setting up the PXE server.....	77

List of Figures

Figure 1: IDA End User License Agreement.....	5
Figure 2: IDA My Server Page.....	6
Figure 3: IDA Main Menu	6
Figure 4: My Server information box.....	7
Figure 5: Update Firmware from http://www.intel.com/support	10
Figure 6: Network Setup for Download Firmware form Internet	11
Figure 7: Available Online SUP.....	11
Figure 8: Select Firmware Components	12
Figure 9: SUP Release Notes	12
Figure 10: Download SUP from my network.....	13
Figure 11: Network Setup for Download Firmware form LAN	13
Figure 12: Login Window to a File Server	14
Figure 13: Select a SUP File in File Server	14
Figure 14: Download Update Package from USB key	15
Figure 15: Select SUP File in USB Key Folder	15
Figure 16: Configure a Server Function Area.....	16
Figure 17: System Information	16
Figure 18: BIOS Setting – Set System Date and Time	17
Figure 19: BIOS setting – Factory Default Settings	18
Figure 20: BIOS setting – Change Password	18
Figure 21: Set Altitude in BIOS Setting	19
Figure 22: Set Boot Order in BIOS Setting.....	20
Figure 23: BMC Communication Option	21
Figure 24: Enable BMC LAN channel	22
Figure 25: BMC Alert	23
Figure 26: Alert Filter	24
Figure 27: Set Up BMC Account	25

Figure 28: Edit BMC User Information	25
Figure 29: Choose RAID Controllers.....	27
Figure 30: Automatic Setup RAID with Redundancy	27
Figure 31: Select Drivers for RAID Configuration	28
Figure 32: Define RAID Array Attributes	29
Figure 33: RAID Web Console 2	31
Figure 34: Choose OS.....	32
Figure 35: Set Partition for Windows* Installation.....	33
Figure 36: Network Setting For Windows* Installation.....	34
Figure 37: Get Updated Drivers	35
Figure 38: Choose Drivers for Windows* Installation.....	36
Figure 39: Screen Indication to Install Windows 2008 Server*.....	37
Figure 40: Set Partition for Linux* installation	38
Figure 41: Basic Configuration for Linux* Installation	38
Figure 42: Choose Drivers for Linux* Installation.....	40
Figure 43: Multi-Server Cloning Options	46
Figure 44: Make Bootable USB key	47
Figure 45: Save PXE Image	48
Figure 46: Option of repeat the cloning process.....	48
Figure 47: Common Screen Elements	54
Figure 48: Splash Screen	56
Figure 49: Customizable UI Screens	68
Figure 50: Associated Feature String with the GUI Buttons	68
Figure 51: UI Screen after Customization	69

List of Tables

Table 1: Terminology	1
Table 2: IDA Main Menu Tabs	6
Table 3: My Server Information box	7
Table 4: Disk Status Condition and Explanation	29
Table 5: RAID Array Attributes and Explanation	30
Table 6: Title Bar	58
Table 7: Color Bar Graphics	59
Table 8: Menu Bar	59
Table 9: Left Pane	60
Table 10: Font Settings	61

1 Introduction

This User Guide describes how to use the Intel® Deployment Assistant (IDA) v5.0 – an easy to use browser based graphical application – to reduce the time associated with setting up Intel® servers. It provides an overview of the features and instructions on how to set up and operate the IDA.

1.1 Target Audience

This guide is intended for system administrators who are responsible for upgrading, troubleshooting, and configuring the Intel® Deployment Assistant. As a system administrator, you can use it to update an Intel® server with the latest system software, configure the most common options of the BIOS and firmware, and configure a RAID volume on attached hard drives and install an operating system.

1.2 Terminology

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

Table 1: Terminology

Term	Description
IDA	Intel® Deployment Assistant
BMC	Baseboard Management Controller
BIOS	Basic input/output system
Firmware	Software embedded in flash memory that controls the BMC, HSC, and LCP
Flash	Non-volatile storage used to store server-resident firmware, including BIOS
FRU	Field Replaceable Unit
HSC	Hot Swap Controller (Hot Swap Backplane Controller)
RAID	Redundant Array of Independent
SUP	JunturaSystemUpdatePackage(BIOS,firmware,FRU/SDRs)
LCP	LED Local Control Panel
NIC	Network Interface Controller (RJ45 LAN connection)
OFU	One-Boot Flash Update
SDR	Sensor Data Record
SysConfig	System Configuration Utility. This includes BIOS and Firmware configuration

Intel® Deployment Assistant v5.0 User Guide

Term	Description
UI	User Interface
XML	Extensible Markup Language
XUL	XML User Interface
CLTT	Closed-loop Thermal Throttling

2 Getting Started

2.1 Product Overview

Intel® Deployment Assistant reduces the complexity and time associated with setting up Intel® servers. Server deployment time is often cut by an hour or more per system, and even more time can be saved when using the cloning feature to deploy identical servers. The wizard automatically locates and retrieves the latest drivers, BIOS, and firmware updates. It guides you through questions to help quickly configure the server via automatic recognition of server hardware, with minimal reboots and an automated unattended OS installation.

Intel® Deployment Assistant helps a system administrator do the following:

Update an Intel® server with the latest system software. Updates can be got from a set URL (<http://www.intel.com/support> which can be customized by OEM), a network drive, or removable media. The firmware components that can be updated using Intel® Deployment Assistant are: BIOS, Integrated BMC, ME, and FRUSDRs.

- Configure the most common options of the BIOS and firmware.
- Configure a RAID volume on attached hard drives.
- Install Microsoft Windows* and Linux* operating systems.
- Clone all deployment work from one server to multi server.

Note: The installation is fully unattended except for a license screen agreement that you can agree to and any changing of CDs.

The latest drivers for all the on-board components are added from IDA CD or from other supported locations during the OS installation

Intel® Deployment Assistant is a browser based graphical application that provides an easy to use, wizard style interface to the system administrator for performing all the above tasks. It is packaged onto a single CD which contains its own operating system (Linux*), a GUI, Intel® Deployment Assistant core, and supporting files for setup and deployment. Intel® Deployment Assistant boots automatically from a CD-ROM/USB drive and runs completely in a RAMDISK.

2.2 Supported Platforms

- Intel® Server Boards based on Intel® Xeon® Processor E5 family
- Intel® Server Boards based on Intel® Xeon® Processor E3 family

2.3 Hardware Requirements

- CD-ROM Drive

A USB, IDE, or SATA CD/DVD-ROM drive is required to be able to boot and run Intel® Deployment Assistant. The CD/DVD-ROM drive is mandatory for OS installation.

- Mouse

Some functions of the IDA require a standard mouse for navigation.

- USB Disk on Key device

Some functions of the IDA require a USB disk on key. Example: Update system firmware from USB key; Save PXE image to USB key.

- RAM

IDA requires a minimum of 1GB RAM. If available RAM is less than the minimum recommended value, IDA cannot function properly. To use thermal throttling feature for close loop, CLTT enable DIMMS are required.

- Network Adapter

Some optional functions of the IDA require network access. Any single on-board Intel® NIC adapter connection is supported. Example: downloading latest system update packages and OS drivers from <http://www.intel.com/support>.

- RAID Cards

RAID Configuration and OS installation are supported on the selected controllers.

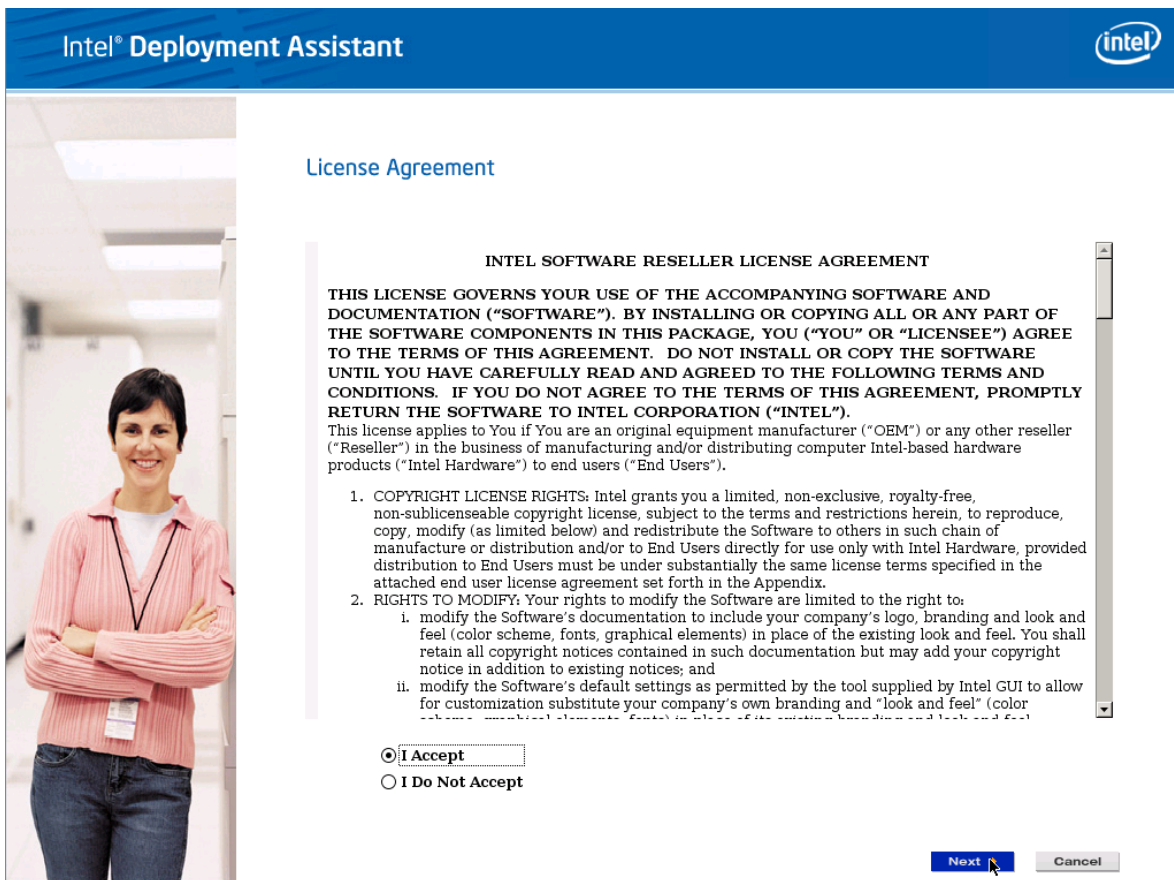
3 Using Intel® Deployment Assistant (IDA)

This section details how to operate the Intel® Deployment Assistant.

IDA is a bootable application that uses an IDA CD to boot Intel® Server System to operate functions such as update server system firmware, setup BIOS, setup BMC and configure RAID logical volume and so on. IDA is designed for one or a series of Intel® Server Systems. (If you use an IDA CD to boot from an unsupported server, IDA will generate an error message).

After IDA booting up, the first interface is the End User License Agreement. You can select I Accept and click Next button to agree this license, or click Cancel button to disagree this license and exit IDA application.

Figure 1: IDA End User License Agreement



3.1 My Server Page

IDA My Server page is the application homepage that contains main menu and buttons to help you navigate IDA functions.

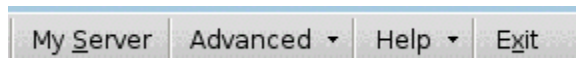
Figure 2: IDA My Server Page



3.1.1 Main Menu

This section details the main menu tasks available as shown in Figure 3.

Figure 3: IDA Main Menu



The following table lists the main menu tabs and the corresponding tasks:

Table 2: IDA Main Menu Tabs

Menu Tab	Tasks
My Server (Shortcut: ALT+s)	Enters IDA My Server page

Menu Tab	Tasks
Advanced	Menu Advanced contains following submenus: RAID Web Console 2 – is used to invoke integrated Linux* version RAID Web Console 2(RWC 2). RWC 2 is professional utility to configure Intel® RAID controller. You can refer the RWC 2 online user guide for its details. If the server system doesn't have supported RAID controller, this submenu is disabled.
Help	Menu Help contains following submeanus Help – shows a general IDA introduction About – shows version and copy right information Upgrade to New Version – This submenu is the portal of upgrading IDA to new version with patch file
Exit (Shortcut: ALT+X)	Exits IDA application.

3.1.2 My Server Information Box

The IDA Homepage **My Server** information box detects and displays the server system configuration information as displayed in Figure 4.

Figure 4: My Server information box

Name	Information
PLATFORM TYPE	S2600CP
BIOS	SE5C600.86B.99.99.x037
BMC	00.25
SDR	0.24
ME	02.01.05.012
PROCESSOR MODEL	Intel(R) Xeon(R) CPU E5-2650 0 @ 2.00GHz
TOTAL RAM	4096 MB
Intel Remote Management Module Lite	Present
PHYSICAL PROCESSORS	1

The information displayed as listed in following table depends on your server system hardware configuration. For example, some of the information listed in Table 3 may not be shown if the server does not have the related devices.

You have the option to click  button to extend this box and click  to hide it.

Table 3: My Server Information box






Name	Information
Platfrom_Type	Intel® Server System ID name
BIOS	BIOS version
BMC	BMC firmware version

Name	Information
SDR	SDR version
ME	Management Engin version
Intel® RAID Controller XXXXX	Show Intel® RAID controller firmware, here XXXX is RAID card name in system
Intel® Embedded Server RAID Technology II	Intel® onboard embedded RAID type, Show as SATA or SAS
Process Model	Server CPU product name and frequency
Physical Processors	The number of physical CPU on server
Logical Processors	The number of logical CPU on server
Total RAM	Server memory capacity
Intel® Remote Management Module (Dedicate NIC)	Present/Not Present
Intel® Remote Management Module Lite	Present/Not Present
Physical Processors	Number of physical processors
Logical Processors	Number of logical processors
Hyper-Threading	Enable/Disable
Processor Type	Show the core number of the processor
Asset Tag	Show system asset name if it is set
System Manufacturer Name	Default value is Intel Corporation
System Product Name	Show as Intel® Server Board name
Chassis Manufacturer Name	Default value is Intel Corporation
Chassis Product Name	Default value is Main Server Chassis
Network Adapters	Show the number of onboard network cards

3.1.3 Primary Function Buttons

There are five primary function buttons in IDA my server page as listed in the following table. They are portals to IDA primary functional areas.

Table 4: Primary Function Buttons

Button	Task
 Get System Updates	Enters IDA Server System Firmware Update interface.
 Configure a Server	Enters the interface to setup the server system information, BIOS, and server management (BMC parameters).
 RAID Configuration	This button is used to setup RAID logical volume. If the server system doesn't have RAID card, it is disabled.
 OS Installation	Click it to enter the OS Unattended Installation interface.
 Multi-Server Cloning	Enters IDA Mutli-Server cloning interface.

3.2 Get System Update

If your server has internet connection, IDA can automatically locate and download the latest Intel® Server System update packages to upgrade server BIOS, BMC FW, SDR and HSC firmware. To do this, IDA uses the system update package that has been specifically developed for each platform.

You can either click the menu **Get Updates** or click the button **Get System Updates** to enter IDA Server Firmware Update interface. You can manually download this package from Intel® Server System page at <http://www.intel.com/support/>.

The update package has a .ZIP file extension, and may contain the following components:

- System BIOS
- BMC (Integrated Baseboard Management) Firmware
- Sensor Data Records (SDRs)
- ME

IDA can get system firmware update package from three resources:

- <http://www.intel.com/support> - the Intel® support website - to get the latest update package.

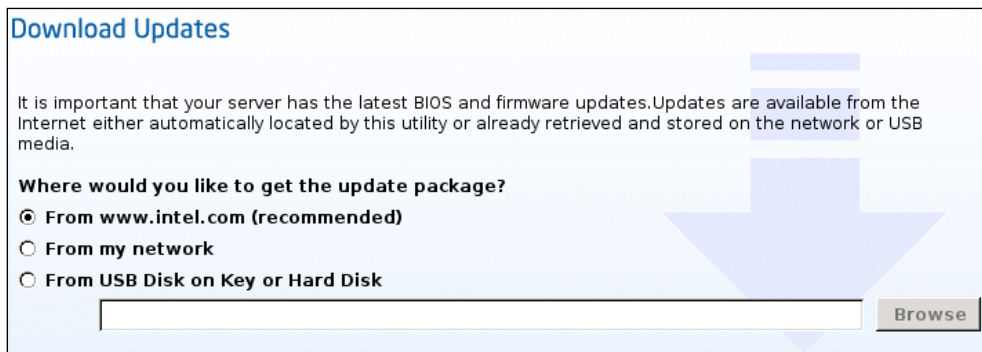
- **My Network** to browse to a network share containing the update package.
- **USB media** to browse a USB key for the update package.

3.2.1 Scenario 1: Updating Firmware When Server has Internet Connection

If your server has internet connection IDA helps you automatically locate and download the current Intel® Server System firmware package from Intel® support web site. Following are the steps to operate this function on IDA.

1. Make sure your server system is connected to the network internet connection.
2. Boot server with IDA, and accept IDA end user license.
3. Click IDA menu **Get Update** or button **Get System Updates** at My Server page.
4. Select "**From www.intel.com (recommended)**" at Download Updates page, and click **Next** button.

Figure 5: Update Firmware from <http://www.intel.com/support>



5. Setup your server network parameters to include IP address, subnet Mask, Gateway, DNS and proxy configuration at Network Connection page, and click **Next** button.

Note: If you are not familiar with your network settings, please check with your IT administrator.

Figure 6: Network Setup for Download Firmware form Internet

NOTE: IDA can automatically detect all available system firmware update packages. The latest version is recommended.

6. Click **View Contents** button to check the firmware update package version details. Select your update package and click **Download** button.

Figure 7: Available Online SUP

7. After downloading system update package, IDA requests you to select the components in firmware package. Click **Release Notes** button to view system update package release notes that contains server firmware version details, known firmware issues and new features, and click **Apply** button to start selected firmware update.

Figure 8: Select Firmware Components

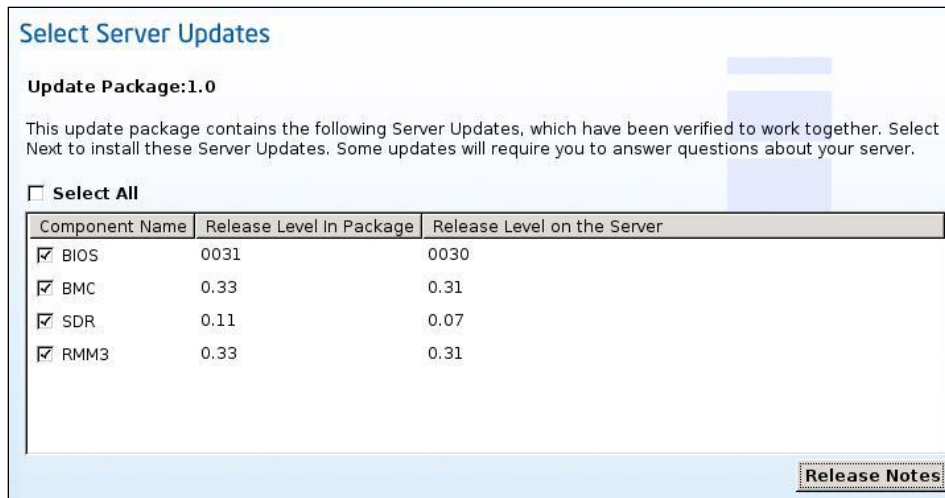
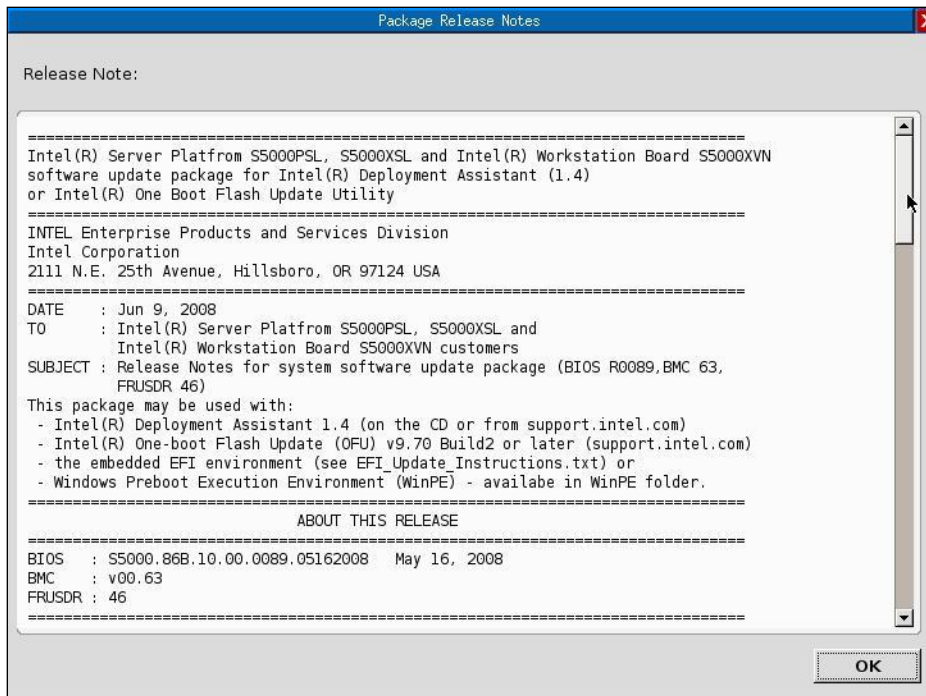


Figure 9: SUP Release Notes



8. During firmware upgrade, you cannot power off or reboot server.
After firmware upgrade process is complete, click **Reboot** button to reboot server.

3.2.2 Scenario 2: Update Firmware from My Network

If your server system cannot access internet, IDA can also download server system firmware update package from a Windows* file server. Following are the steps to update server firmware from local network:

1. Download Intel® Server System update package from

<http://www.intel.com/support/>.

2. Intel® Server System update package for IDA is a *.zip file, don't unzip it, copy it to a Windows* file server share folder.
3. Boot server with IDA, and accept IDA end user license
4. Click IDA menu **Get Update** or button **Get System Updates** at My Server page.
5. Select **From my network** at IDA to download Updates page, and click **Next** button.

Figure 10: Download SUP from my network

Download Updates

It is important that your server has the latest BIOS and firmware updates. Updates are available from the Internet either automatically located by this utility or already retrieved and stored on the network or USB media.

Where would you like to get the update package?

From support.intel.com (recommended)

From my network

From USB Disk on Key or Hard Disk

6. Configure network parameters at IDA Network Connection page. Make sure your server is connected with local network. Else, IDA will generate an error message. Click **Next** button to continue.

Figure 11: Network Setup for Download Firmware form LAN

Network Connection

Setup a network connection for this server to get system updates from the Internet or from a location on your network. Please ensure that the server is only connected to a single network during download.

IP Address From a DHCP server

Static IP address

IP Address . . .

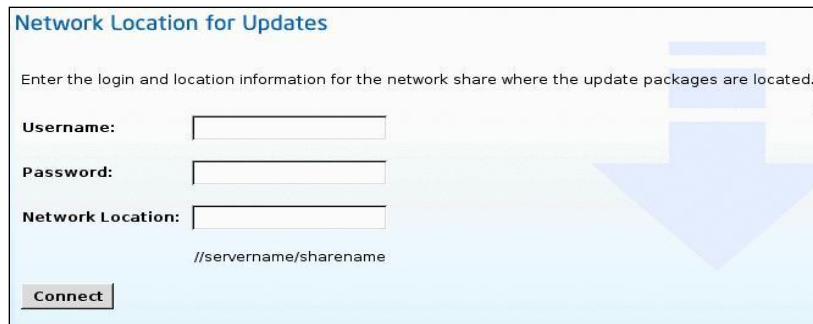
Subnet Mask . . .

Gateway . . .

DNS . . .

7. Enter the network user name and password that you use to login the network file server. The network location is the file server name and share folder where the update package is stored. Click **Connect** button and choose the SUP file in a popup window.

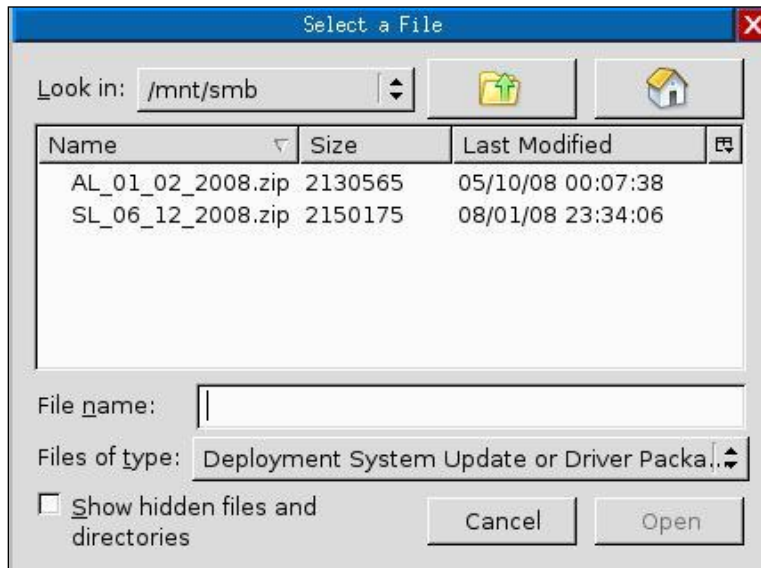
Figure 12: Login Window to a File Server



Note: For security reason, the file server administrator cannot be used. Use a normal account as login user.

8. IDA can display the share folder on file server on a popup window for you to select the update package.

Figure 13: Select a SUP File in File Server



9. IDA shows up the firmware components in package file, for you to select. Click **Release Notes** button to view system update package release notes that contains server firmware version details, known issues, and new features. Click **Apply** button to start selected firmware update
10. During firmware upgrade you cannot power off or reboot server. After firmware upgrade process is complete, click **Reboot** button to reboot server.

3.2.3 Scenario 3: Update Firmware from USB key

USB key is other kind of media that can store Intel® Server System firmware update package and recognized by IDA. Scenario 3 introduces how to update server firmware from a hot-plug USB key.

1. You need to download Intel® Server System update package from <http://www.intel.com/support/>.
2. Intel® Server System update package for IDA is a *.zip file, don't unzip it, copy it to USB key.
3. Boot server with IDA, and accept IDA end user license
4. Click IDA menu Get Update or button Get System Updates at My Server page.
5. Insert USB key to server USB port.
6. In the Download Updates page, select **From USB Disk on Key or Hard Disk** and click **Browse** button.

Note: Only those USB key with FAT partition can be supported by IDA

Figure 14: Download Update Package from USB key

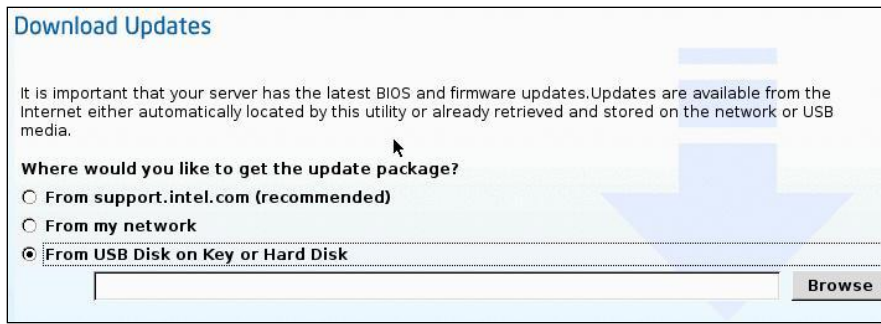
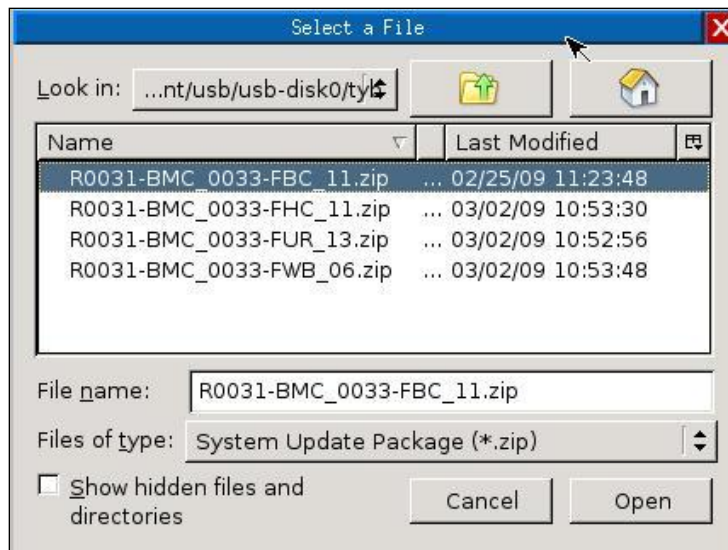


Figure 15: Select SUP File in USB Key Folder



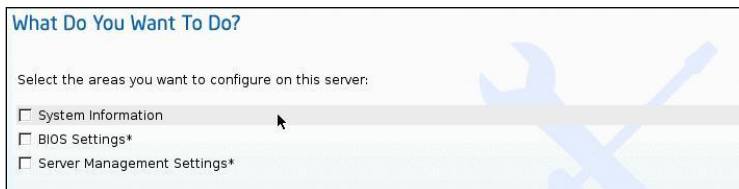
7. Select package file in the popup windows and click **Open** button
8. IDA shows up the firmware components in package file, and asks you to select. Click **Release Notes** button to view system update package release notes that contains server firmware version details, known issues and new features. Click **Apply** button to start selected firmware update

9. During firmware upgrade, you cannot power off or reboot server. After firmware upgrade process is complete, click **reboot** button to reboot server.

3.3 Configure a Server

The IDA **Configuration a Server** function area provides three options – System Information, BIOS Settings, and Server Management Settings. These options allow you to set system asset tag, configure key BIOS settings and configure server management parameters. To enter this function area from the IDA My Server>IDA main menu, click **Configure** tab or click the button **Configure a server**.

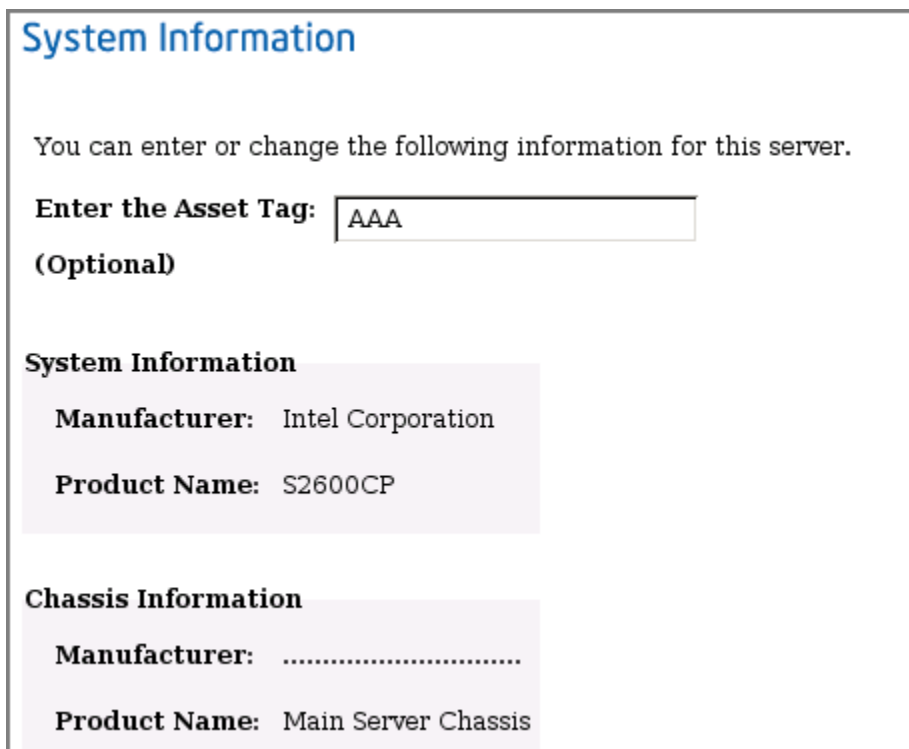
Figure 16: Configure a Server Function Area



3.3.1 System Information

This function area lets you set an asset tag for server system, and also check server system information and chassis information. After setting asset tag and applying, IDA will require a reboot.

Figure 17: System Information



3.3.2 BIOS Settings

This function area lets you configure server system BIOS settings, including:

- BIOS Time and Date (This change will take effect later when you choose Apply.)
- Load Factory Default Settings for the BIOS
- Hyper Threading Technology
- Fan Mode and Altitude (These settings are not available on all platforms or configurations. They may not be displayed depending on your hardware, Thermal Throttling mode BIOS setting, and the type of memory installed in your system)
- Quiet Boot
- BIOS Administrator and User passwords
- Boot order

Note: Although IDA BIOS settings function provide an alternative to Intel® Server System BIOS configuration, some special BIOS settings still needs to be changed via standard BIOS setup interface (to enter it by pressing F2 during server POST)

Set System Date and Time


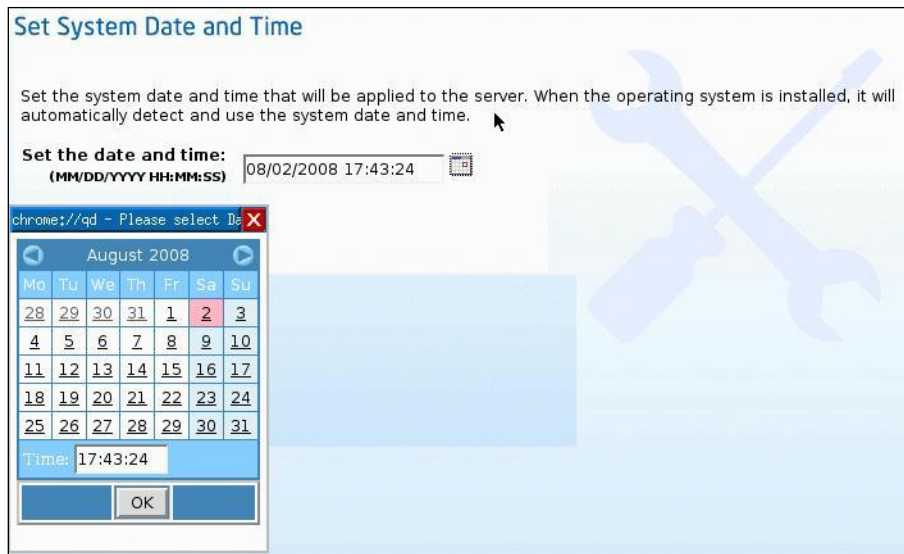
This option lets you update server system BIOS date and time. You can either enter system date or time in the MM/DD/YYYY HH:MM:SS with format, or click icon  to select date and time at the popup window.

Figure 18: BIOS Setting – Set System Date and Time

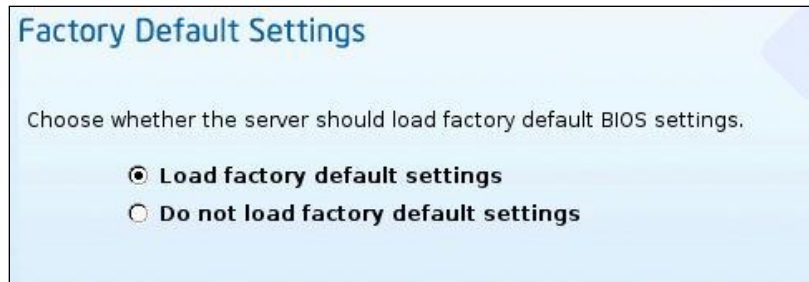


Factory Default Settings

Loading factory default settings returns BIOS to its original configuration. This option lets you load factory default BIOS settings. If you select **Load factory default settings** and **Apply**.

To bypass this section, select Do not load factory default settings.

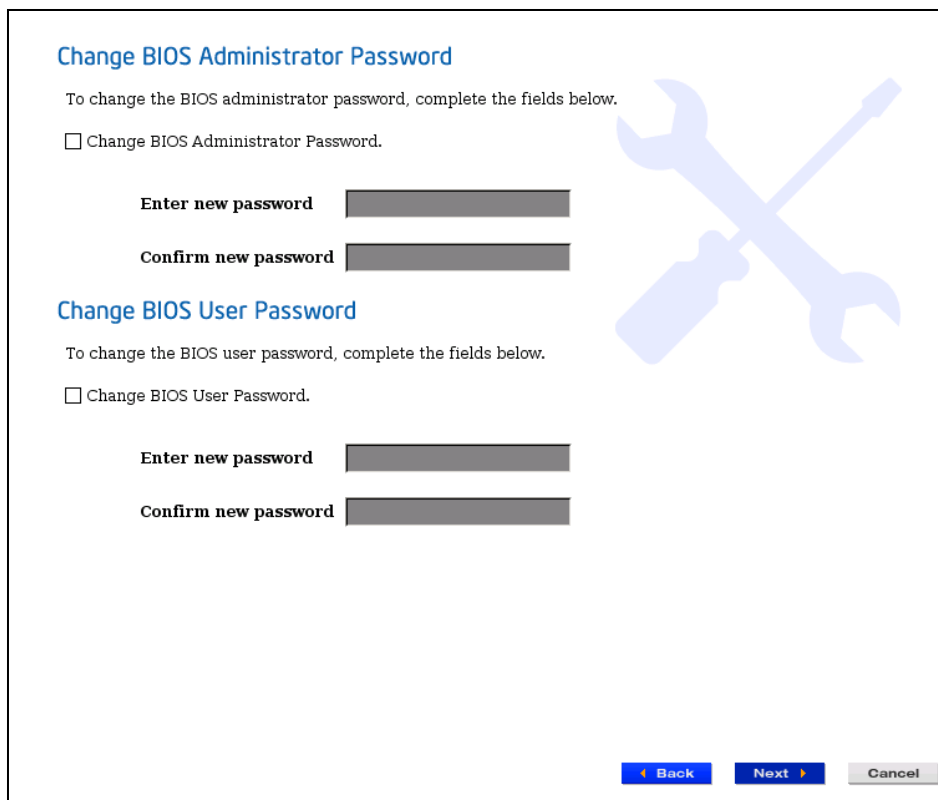
Figure 19: BIOS setting – Factory Default Settings



Change BIOS Administrator Password and User Password

You can set BIOS administrator and user password at this section. You need to select option **Change BIOS Administrator Password** and **Change BIOS User Password** to enable corresponding **Enter new password** and **Confirm new password** boxes.

Figure 20: BIOS setting – Change Password



Note:

- A User password can only be set, if the admin password has been set.
- If an admin password is set, it **MUST** be entered to set any other BIOS settings.

- A BIOS Admin/User password must satisfy the following conditions. Allowed characters include lower case letters (a, b, c, and so on), upper case letters (A, B, C, and so on), digits (0 to 9), and special characters (!, @, #, \$, %, ^, *, (,), -, _, +, =, ?, '). In addition, a password shall be 8 characters long at least, and it shall contain at least one digit and one special character.

Set Fan Mode

Note: This option is only visible if server BIOS **Closed Loop** setting is disabled, or is not supported. **Closed Loop** setting only can be changed via standard BIOS setup interface (to enter it by pressing F2 during server POST)

The **Fan Mode** allows you to select which SDR Fan T-control profile will be active. In the Fan Mode settings, choose the **Acoustic** mode to reduce the fan noise by throttling memory. Choose the **Performance** mode to allow high speed fan operation. It may be noisier, but this configuration results in better processor performance.

If the **Closed Loop** option is set, and server system has the correct type of memory to support this mode, then Acoustic mode is the default option.

Refer to relevant *Intel® Server System User Guide* for more information on BIOS options and supported memory.

Set Altitude

You can select an altitude scope according to the position where the server will be resided. This setting will impact server fan speed.

Figure 21: Set Altitude in BIOS Setting



Set Boot Order

IDA can show a list of all bootable devices on the server system. You can highlight a device and click button **Move Up** or **Move Down** to arrange the server boot order.

The Boot Order will be saved on this server. The boot device names are determined by your System BIOS. For example, Network boot devices might be listed as "IBA GE Slot..." for the NIC PXE boot capability. Most Intel® server boards will also have the list "EFI Shell" for the Extensible Firmware Interface shell that is included in the firmware.

Figure 22: Set Boot Order in BIOS Setting



After you set all available BIOS settings, IDA will ask you to apply it and reboot server.

3.3.3 Server Management Settings

This section allows you to configure BMC parameters that include:

- BMC LAN Channel
 - Enable LAN Failover
 - Enable / Disable LAN.
 - Set IP source as static or DHCP configuration)
 - Enable / Disable Serial over LAN.
 - Enable / Disable LAN Alerting
 - LAN alert destination IP addresses.
 - Platform event filter configuration.
 - Enable/disable ARP for LAN channel.
- Set privilege access.
 - Enable / Disable a user.
 - Add or Edit the user name (except anonymous and other non changeable users)
 - Add or Edit the user password.

Note: Server Management Settings is not available if the server system has no BMC.

BMC Communication Options

LAN Failover

The BMC FW provides a LAN failover capability such that the failure of the system HW associated with one LAN link will result in traffic being rerouted to an alternate link.

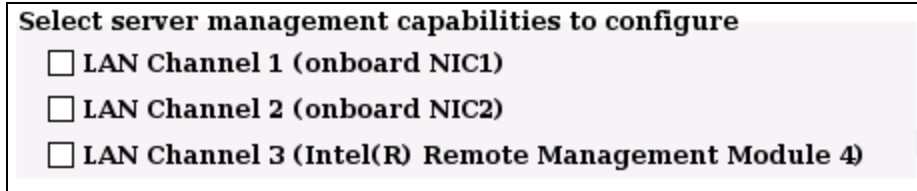
IDA provide option of Enable LAN Failover to setup this feature, after enable this option only LAN Channel 1 will be allowed to configure, other active LAN channel

share the same configuration when the network connection of LAN channel 1 is broken.

BMC LAN Channel

You can select which channel device needs to be configured at Communication Options page. Select the channel that you want to configure and click the Next button to enter the following screens:

Figure 23: BMC Communication Option



Select server management capabilities to configure

- LAN Channel 1 (onboard NIC1)
- LAN Channel 2 (onboard NIC2)
- LAN Channel 3 (Intel(R) Remote Management Module 4)

IDA show options include:

- LAN Channel1 (On board NIC1)
- LAN Channel1 (On board NIC1)
- LAN Channel3 (Intel® Remote Management Module 4 Dedicate NIC)

Note: Intel® Remote Management Module 4(RMM4) includes two daughter cards on server board, RMM4 Lite and RMM4 dedicate NIC. RMM4 Lite can provide KVM over IP and media redirection functions and RMM4 dedicate NIC can additional network path to BMC (LAN channel 3).

LAN Channel 1, 2, 3

- Enable LAN Channel

Select this option to enable BMC network communication via server onboard NIC IP source can be set to from a DHCP server or static IP address. If you select BMC IP source is from DHCP server, IDA allow user enter hostname for BMC. So user can always find BMC with its hostname and domain name even IP address has been changed. If you select Static IP Address, IDA requests you to enter IP address, subnet mask and gateway.

Figure 24: Enable BMC LAN channel

LAN Channel 1

Configure the LAN Channel 1 access settings.

Enable LAN Channel 1

IP Address from a DHCP server

Static IP Address

IP Address	192	·	168	·	1	·	100
Subnet Mask	255	·	255	·	255	·	0
Gateway	0	·	0	·	0	·	0

Enable Serial Over LAN

Configure Alert

Destination1 for the System Alerts

Destination2 for the System Alerts

- Enable Serial Over LAN

This option allows you enable BMC serial over LAN (SOL). Serial Over LAN provides a mechanism that enables the serial controller of a managed system to be redirected over an IPMI session over IP. This enables remote console applications to provide access to text-based interfaces for BIOS, utilities, operating systems, and applications while simultaneously providing access to IPMI platform management functions. You also need to enable Console Redirection in Intel® server BIOS configuration.

- Enable LAN alerting
 - When the server system has hardware issues, BMC can generate an alert to the administrator. The type of BMC alert includes SNMP alert message and BMC alert email. After you select this option, IDA will display an extended section as shown in Figure 24.

Figure 25: BMC Alert

Configure Alert

Destination1 for the System Alerts

Alert Type : SNMP Email

Send SNMP Alerts to IP: · · ·

Destination2 for the System Alerts

Alert Type : SNMP Email

Send SNMP Alerts to IP: · · ·

Configure Alert

Destination1 for the System Alerts

Alert Type : SNMP Email

Send Email to:

Destination2 for the System Alerts

E-Mail Configuration Settings.

This Machine Name:

Mail Server IP: · · ·

Email From Address:

BMC supports two Alert Destinations. Select Alert Destination console 1 and enter the SNMP alert receiver IP address in IP Address box. Select Alert Destination console 2 and enter other SNMP alert receiver IP address. IDA set SNMP trap community name as “public” by default. User also can select Email option to send alert by email server. The email configuration options include:

Send Email to:

Enter email address with to receive BMC alert email.

Note: This email address should be a real address in email system, or you will not receive email from BMC.

This Machine Name:

Define a name for current server.

Mail Server IP:

Enter SMTP email server IP address

Email From Address

Enter email address for the sender

Click **Next** button to setup channel 2 and 3 with the same network parameters as channel 1

- Alert filter

At the section **Select the events that will trigger alerts**, select events that you want BMC to generate alerts for.

Figure 26: Alert Filter

What Do You Want To Do?

Select events that will trigger alerts

<input type="checkbox"/> Temperature Sensor Out of Range	<input type="checkbox"/> Watchdog Timer
<input type="checkbox"/> System Restart	<input type="checkbox"/> Hard Drive Failure
<input type="checkbox"/> Voltage Sensor Out of Range	<input type="checkbox"/> Fan Failure
<input type="checkbox"/> Chassis Intrusion	<input type="checkbox"/> Power Supply Failure
<input type="checkbox"/> Memory Error	<input type="checkbox"/> BIOS: Post Error Code
<input type="checkbox"/> FRB Failure	<input type="checkbox"/> Node Manager Exception

Setup Users

The BMC user accounts settings include BMC user name, password and its access privilege. Each account has a single privilege level (User or Admin) across all communication channels and BMC features. Accounts with the User privilege level can only read BMC settings. User Accounts with Administrator privilege level have full control of the BMC. IDA can set up 4 accounts for BMC, and default BMC account is Anonymous that user name is anonymous and cannot be changed. You can update Anonymous account password and privilege.

Note: When management software access BMC with anonymous account, user name should be blank, not "anonymous".

Note: User name "root" is reserved by BMC, so you cannot assign "root" as BMC user account name.

You can update the BMC account user name, password and privilege.

Select one of BMC account in IDA **Set Up Users** page and click the **Edit** button to enable or disable accounts, set the passwords, and set the user privilege level in popup window.

Figure 27: Set Up BMC Account

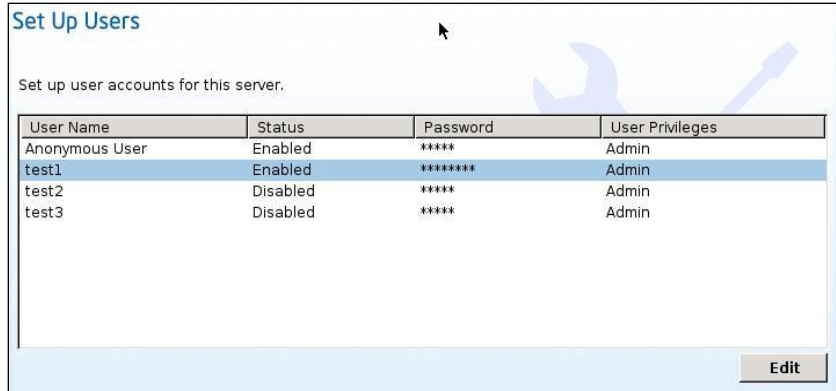
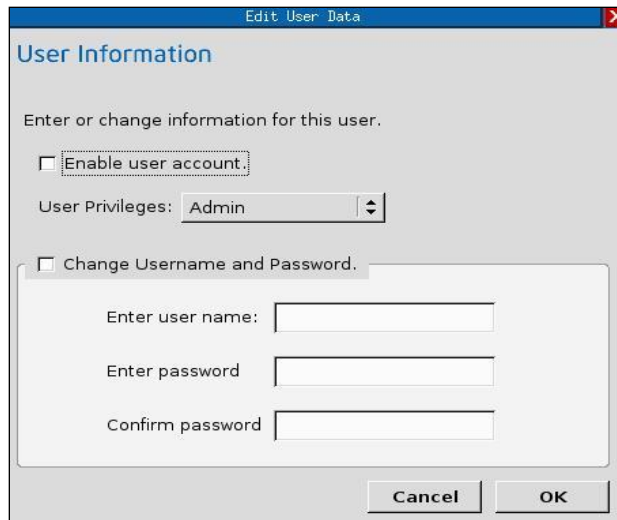


Figure 28: Edit BMC User Information



After completing all selected BMC settings, IDA will request you to apply it and reboot server system.

3.4 RAID Configuration

3.4.1 Supported RAID Devices

IDA provides simplified, common interface and easy to understand user interface for RAID configuration, IDA can support most RAID device on Intel® server boards and systems that include:

- RS25DB080
- RT3WB080

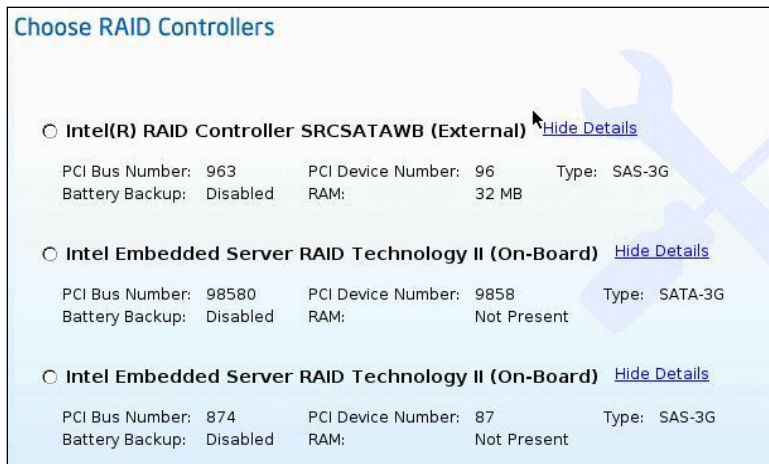
- RS2SG244
- RS2WG160
- RS2BL080
- RS2BL040
- RS2MB044
- RS2WC080
- RS2WC040
- SRCSASJV
- SRCSASBB8I
- SRCSASLS4I
- SRCSASRB
- SASUC8I
- SASWT4I
- RMS25KB040
- RMT3PB080
- RMS25PB080
- RMS25PB040
- Intel® Embedded Server RAID Technology 2 (ESRT2) FOR SCU
- Intel® Embedded Server RAID Technology 2 (ESRT2) FOR AHCI

For details on Intel® RAID cards, please refer Intel® Web site
<http://www.intel.com/products/server/raid/>.

Note: Intel® RST or RSTe RAID is not supported by IDA.

In the My Server page you can enter IDA RAID configuration function area by clicking the main menu **RAID Configuration** or **RAID Configuration** button. If multiple RAID controllers are available in the server system, IDA will show a list of all available RAID card at Choose RAID Controllers page.

Figure 29: Choose RAID Controllers



Choose the RAID controller that you want to set up for new RAID array.

Note: The IDA RAID configuration utility detects the physical drivers only once when you enter this function area.

Do not remove or add hard disk drivers while navigating within this function area.

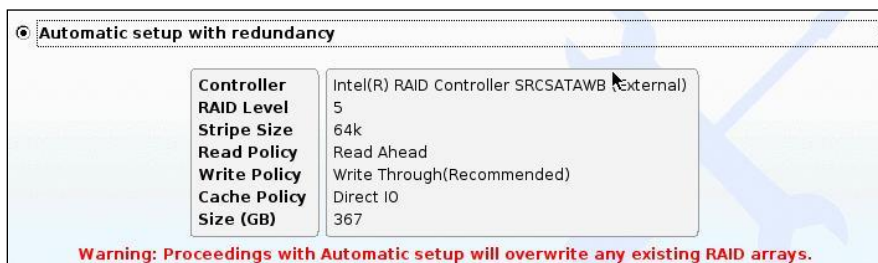
3.4.2 IDA RAID Configurations

IDA RAID configuration contains three configurations:

Automatic Setup with redundancy

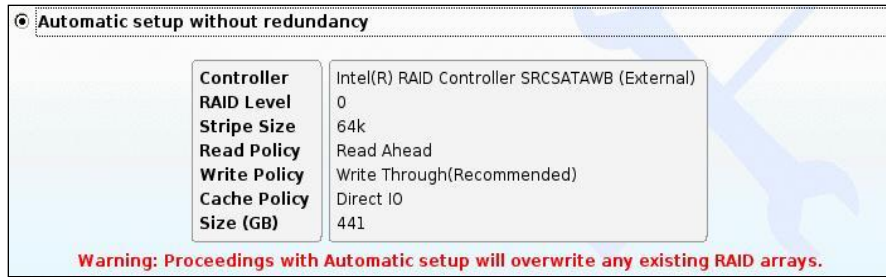
Requires at least 2 hardware drives. If your server system has 2 drives, IDA create RAID 1 for you. If more than 2, IDA will recommend to create RAID 5 (if controller doesn't support RAID 5, IDA will Create RAID1).

Figure 30: Automatic Setup RAID with Redundancy



Automatic Setup without redundancy.

IDA will only use all drives to create a RAID 0 array.

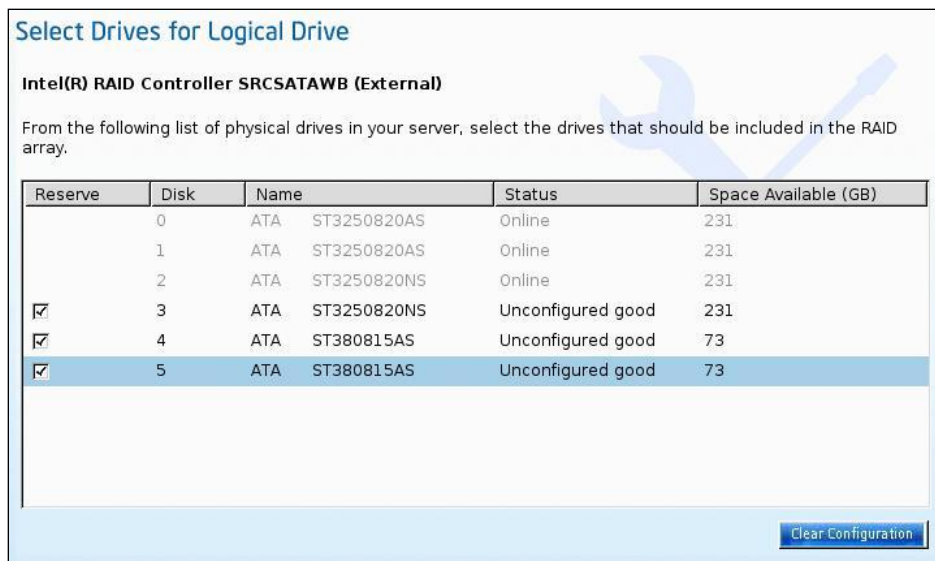


Note: The common parameters except for total size will be the default values for the controller.

Custom configuration.

When you select option **Create customer or multiple RAID arrays**, IDA shows a window for you to select physical hard disks

Figure 31: Select Drivers for RAID Configuration



Clear the configuration to make all the disks status is **Unconfigured Good**.

Note: Only the disk which status is **Unconfigured Good** can be used for RAID configuration

To select drives for a new Logical array, do the following:

1. Select the Unconfigured Good physical drives that you want to include in the RAID array.
2. Check the Status column to verify that the drive is Unconfigured Good
3. Choose Create Array.

The following table lists the status conditions and their explanation:

Table 4: Disk Status Condition and Explanation

Status Condition	Explanation
Online	The drive is already used in another array
Hotspare	the drive will be used to repair any array in the system that had a drive failure if the failed drive is equal to, or smaller than, the hot spare drive
Unconfigured Good	Drive is unused/available
Ready	Drive is online and operating correctly
Offline	Drive is offline or absent. No actions can be performed on the drive until it is back online
Unconfigured Bad	Drive is not operational and need to be replaced. Note: Disks with a status of "Unconfigured bad" cannot be used for RAID configurations
Foreign	Drive is part of an array created on a different controller or created within one enclosure and moved to another on the same controller. It can be used to create a new array after clearing configuration. You can choose RAID level, LD size, Stripe Size, Read Policy, Write Policy and IO Policy settings, and can allow optional single GLOBAL Hot Spare in page shown in Figure 32: Define RAID Array Attributes

Figure 32: Define RAID Array Attributes

Define Array Attributes

Intel(R) RAID Controller SRC SATAWB (External)

RAID level: 6

Stripe size: 64k

Read policy: Read Ahead

Write policy: Write Through(Recommended)

Cache policy: Direct IO

Size(GB): 73 Minimum Size(GB): 1 Maximum Size(GB): 73

The following table lists the options available and their explanation:

Table 5: RAID Array Attributes and Explanation

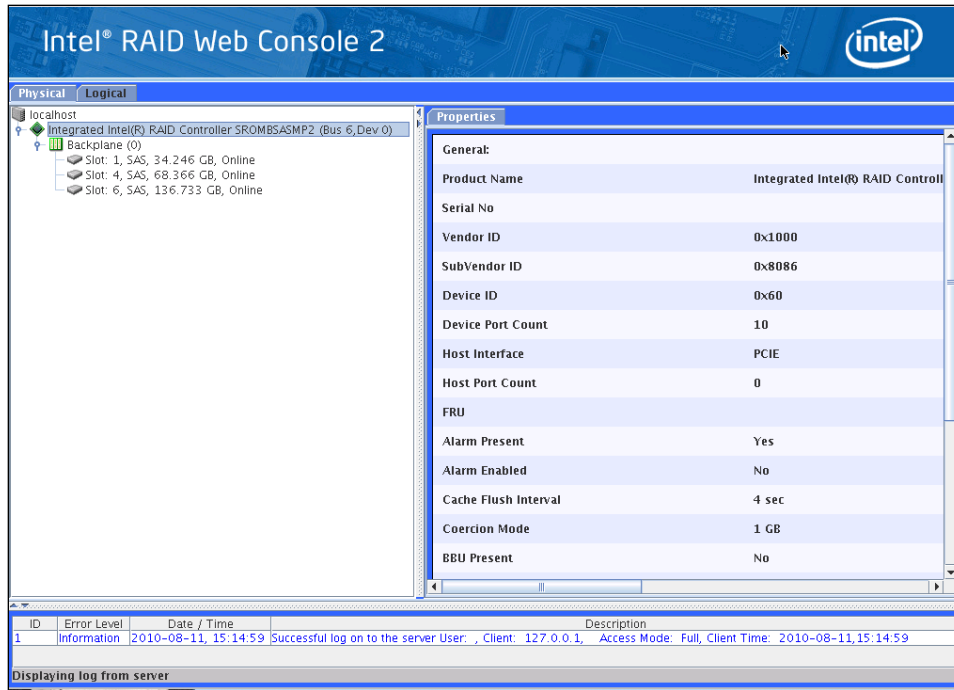
Options	Explanation
RAID level	RAID 0 (Data Striping), 1 (Disk Mirroring), 5 (Data Striping with Striped Parity), 6 (Distributed Parity and Disk Striping), 1E (a hybrid of RAID 10 that is available on some platforms)
Stripe size	Size of the data stripe across all disks. Each physical disk has a smaller strip of data. The sum of all the strips equals the stripe size
Read policy	No Read Ahead, Read Ahead, Adaptive. Read Ahead will read additional consecutive stripes. Adaptive will turn on Read Ahead for sequential reads and turn it off for random reads.
Write policy	Write Through or Write Back. With Write Through, I/O completion for write operations is signaled when the data is written to the disk. With Write Back, I/O completion is signaled when the data is transferred to cache.
Cache policy	Direct I/O or Cached I/O. Choose Direct I/O for uncached read and write operations. Choose Cached I/O to cache all write operations and check the cache first for read operations
Size	Logical drive size. The maximum value depends on the RAID level selected.

3.4.3 Advanced RAID Configuration

IDA still integrates Intel® RAID Web Console 2 (RWC2), the Java* based graphical application that provides full functions for the Intel® RAID configuration. Those functions contain RAID configuration, monitoring and maintenance. For details please refer the *Intel RAID Software User's Guide*.

You can enter RWC 2 interface by clicking main menu **Advanced | RAID Web Console 2**.

Figure 33: RAID Web Console 2



3.5 Unattended OS Installation

3.5.1 Overview

IDA unattended OS installation function provides you additional convenience to install Microsoft Windows*, SuSE* Linux, RedHat* Linux and VMware* OS families. IDA has integrated Intel® server device drivers including most of Intel® RAID drivers. IDA can seamlessly install OS on supported RAID logical arrays without additional load driver steps or devices such as USB floppy. The current IDA version 5.0 supports Windows Server* 2008 R2 SP1, Windows Server* 2008, Windows Server* 2003, Windows* 7 SP1, Red Hat* Enterprise Linux* 6.1, Red Hat* Enterprise Linux* 5.7, SUSE* Linux* Enterprise Server 10 SP4 and SUSE* Linux* Enterprise Server 11 SP1.

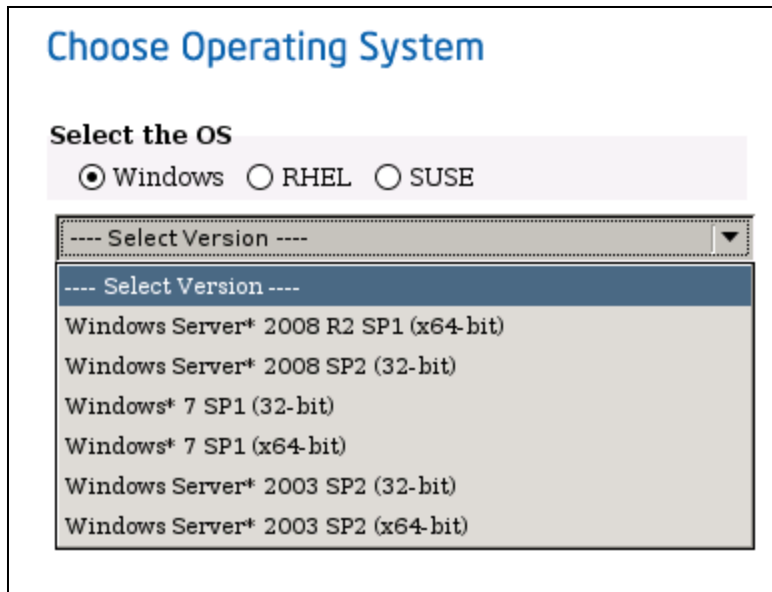
1. To enter the IDA unattended OS installation function area,

- Click IDA main menu **OS Installation**
or
- Click **OS Installation** at IDA My Server page.

All IDA supported OS are organized into three groups—Windows*, RHEL* and SUSE* — that correspond to Windows Server* family, RedHat* Linux OS and SuSE* Linux OS.

2. To choose the OS that you want to install, click the group name and click button **Select Version**

Figure 34: Choose OS



3.5.2 Supported OS

- Windows Server* family
 - Windows Server 2008 SP2* (32-bit)
 - Windows Server 2008 R2* SP1 (64-bit)
 - Windows 7* SP1 (32-bit)
 - Windows 7* SP1 (64-bit)
 - Windows Server 2003 SP2* (32-bit)
 - Windows Server 2003 SP2* (64-bit)

Note: All Windows Server 2003* editions at here contain corresponding Enterprise and Standard version

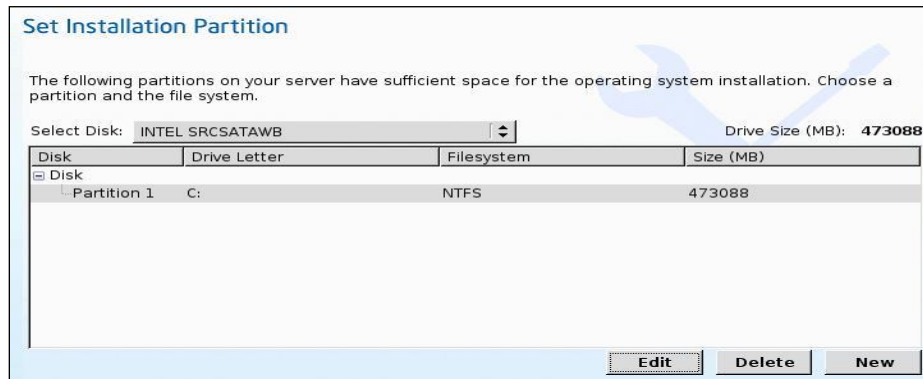
- RedHat* Linux
 - Red Hat* Enterprise Linux 5.0 Update 7 (x86-64bit)
 - Red Hat* Enterprise Linux 6.0 Update 1(32-bit)
 - Red Hat* Enterprise Linux 6.0 Update 1 (x86-64bit)
- SuSE* Linux
 - SUSE* Linux Enterprise Server 10 SP4 (32-bit)
 - SUSE* Linux Enterprise Server 10 SP4 (x86-64bit)
 - SUSE* Linux Enterprise Server 11 SP1 (32-bit)
 - SUSE* Linux Enterprise Server 11 SP1 (x86-64bit)


3.5.3 Installing OS Unattended

Windows Server* Series

1. At Choose Operation System page, select server to install from Windows Server 2003* series.
2. At Set Installation Partition page, create Partition.

Figure 35: Set Partition for Windows* Installation



If server system has more disk controller such as SATA, SAS or RAID controller, you can click  at Select Disk to choose active disk. IDA will switch to corresponding disk that is under the selected disk controller.

- To create new parathion on disk free space, click **New**.
- To remove a partithion Button **Delete**.
- To change partithion size click **Edit**.

Partition file system can only be formatted as NTFS by IDA for Windows installation for following:

- Region and Location
 - Windows 2003 Server* series
 - IDA requests you to select Time Zone, Windows* Language and additional language.
 - Windows 2008 Server* series
 - IDA only requests you to select Time Zone.
- Personalization
 - Enter server owner name and organization.
- License Information
 - Enter Windows Server* production key.

Note: Wrong Windows* 2008 and Windows* 7 production key may cause subsequent OS installation stop. User can leave the production key as blank in this IDA page if it is not available or unknown. OS allows user enter production key after installation completed.

- Name and password
 - Windows 2003 Server* series
You need to set server computer name and administrator password
 - Windows 2008 Server* series
You just need to set server computer name. Because administrator password will be reset when Windows 2008 Server* installation completed, IDA doesn't request Windows* administrator password.
- Network Settings
Enter the network configuration settings for the onboard network adapters that will be detected by the Operating System during installation.

Figure 36: Network Setting For Windows* Installation

Network Settings

Set up the network configurations for the Operating System to use on this server.

Network Interface	IP Address	Subnet Mask	Gateway	DNS
Adapter 0	dhcp			
Adapter 1	dhcp			
Adapter 2	dhcp			
Adapter 3	dhcp			

Workgroup or Network Domain

Choose whether this server will be part of a domain.

No Network or no domain. Enter a workgroup name.

Join this domain.

Note: These settings will not affect the network settings for the BMC. Intel® recommends that you set different IP addresses for the Operating System and BMC. The "network interface" column lists each network adapter detected by the Intel® Deployment Assistant. Your Operating System may have a different name after you install the Operating System.

- Get Updated Drivers
This section allows you to select the source that IDA can download serve drivers packages. Those drivers will be automatically installed to OS by IDA.

Figure 37: Get Updated Drivers

Get Updated Drivers

It is important to install the latest drivers which are available at www.intel.com.

Where would you like to get the driver package?

From www.intel.com (Make sure only one NIC is connected)

From the Deployment Assistant Boot Media (CD-ROM/USB key)

From my network

From USB Disk on Key or Hard Disk

Choose one of the following options:

From www.intel.com

To get the latest drivers from the Intel® support website, select this option. Please check that the server is only connected to one network during the download.

You can get the last Intel® server drivers but you need to consider that will spend a long time if internet speed is low.

From Intel® Deployment Assistant CD

Directly use the driver packages that store in IDA CD. Although IDA CD may not contain the last driver packages, but this option is the fast. IDA selects this option as default choice.

From my network

IDA can download a driver package stored on a network share folder. You need to manually download the latest drivers from <http://downloadcenter.intel.com> website and copy to your network share.

From USB Disk on Key or Hard Drive

IDA can get the drivers stored on a USB key or USB hard disk drive. You need to manually download the latest drivers from <http://downloadcenter.intel.com> website and copy to USB key.

- Choose Drivers to Install

IDA shows all available drivers downloaded from the driver source.

Uncheck the drivers that you don't want to install. But if you want to install an OS on a RAID volume, you can deselect the driver for the appropriate RAID controller.

The path to the selected drivers will be stored and will then be used to download and install the drivers during the Operating System installation.

Figure 38: Choose Drivers for Windows* Installation

Choose Drivers to Install

The following drivers will be installed. If you are installing an operating system on a RAID volume, please do not deselect the driver for the appropriate RAID controller.

Component...	Version	Name
<input checked="" type="checkbox"/> Chipset	9.2.3.1017	Intel S5000/S5400/S3000/S3200/S7000/S5500/S5520/S3420/S2600 Chipset
<input checked="" type="checkbox"/> Video	20110516	iBMC-G200e
<input checked="" type="checkbox"/> Intel Lan	16.3	Intel PRO1000 Network Connection
<input checked="" type="checkbox"/> Storage SATA/S...	3.0.0.1073.	AHCI-C600
<input checked="" type="checkbox"/> SW/Onboard R...	.15.00.0728...	PBG-ESRT2

Please select if you want to add Additional Drivers from a different location

IDA can load third party drivers by selecting the option – Please select if you want to add Additional Drivers from a different location.

- Insert OS CD

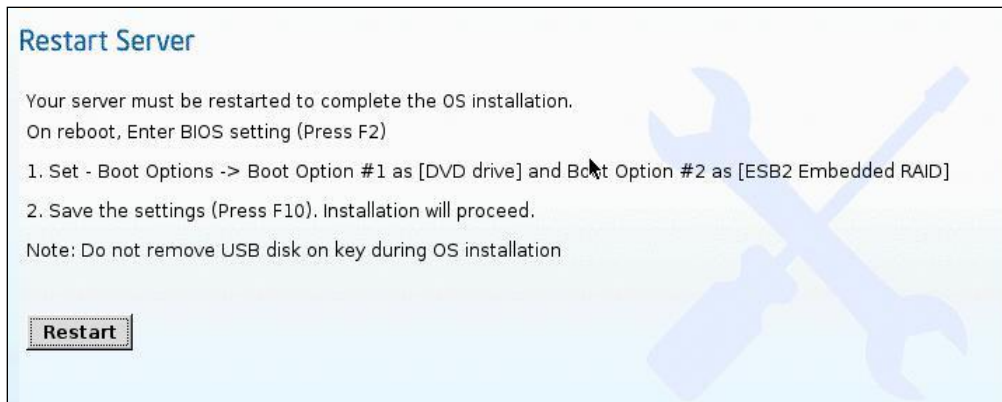
- Windows 2003 Server* series

Insert Windows 2003* OS CD and click **Next** button for IDA to apply all settings. After completing this process, IDA asks to reboot server system. You need to leave the OS CD in the CD-ROM, and system will automatically complete all OS install steps after this reboot.

- Windows 2008 Server* series

Insert Windows 2008* OS DVD and a USB key with at least 10M free space, which IDA can store server driver temporary. Click **Next** button for IDA to apply all settings. After IDA completes this process, click **Restart** button to reboot server.

Figure 39: Screen Indication to Install Windows 2008 Server*




During server POST, press <F2> key to enter server BIOS configuration interface. If your server has more than one hard disk device, edit the [Hard Disk Order] in BIOS menu [Boot Options] to move the disk that are installed Windows 2008 Server* by IDA as the first **Hard Disk #1**. Return back to BIOS [Boot Option] page, set **Boot Option #1** to the DVD-ROM that has Windows 2008 Server* DVD, set disk that are installed Windows 2008 Server* as **Boot Option #2**. Press <F10> to save BIOS setting and leave.

Server will boot from Windows 2008* DVD. Observe the Windows 2008* start to install automatically. Don't remove USB key on this server during this process.

Linux* Server Series

Select one of Linux* server from Red Hat* or SuSE* series that you want to install at IDA Choose Operation System page

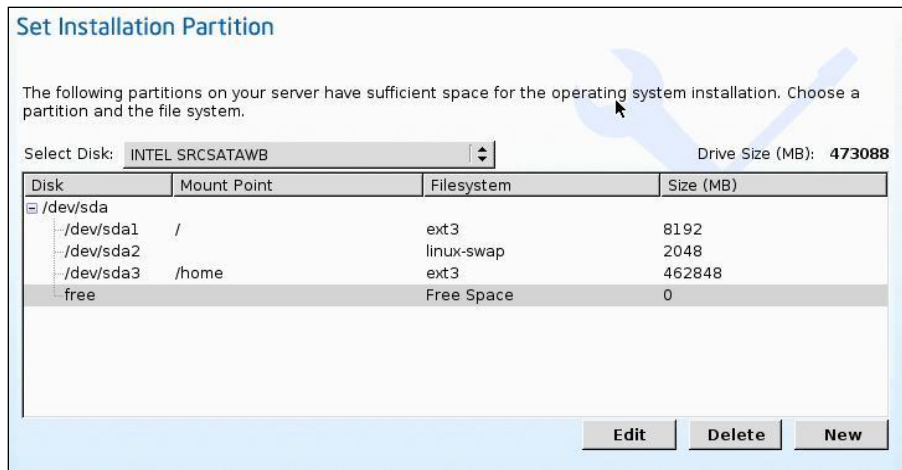
Create Partition at Set Installation Partition page.

If the server system has more disk controller such as SATA, SAS or RAID controller, you can click  at **Select Disk** to choose active disk controller. IDA will switch to corresponding disk that is under the selected disk controller and display a recommended default partition.

Button **New** is used to create new parathion on disk free space. Button **Delete** is for removing a partition and button **Edit** is used to change partition size.

Partition Root and Swap are necessary. If use misses them, IDA will generate an alert message. IDA gives you a suggested partition solution, accept it if you are not familiar with Linux* partition.

Figure 40: Set Partition for Linux* installation



- Basic configuration

Edit below items at Basic Configuration page.

- Root Password
- Default language
- Keyboard
- Time Zone
- Additional Languages

Figure 41: Basic Configuration for Linux* Installation



Package Selection

Select all Linux* packages that you want to install on server.

Network Settings

Enter the network configuration settings for the onboard network adapters that will be detected by the Operating System during installation.

Note: These settings will not affect the network settings for the BMC. Intel® recommends that you set different IP addresses for the Operating System and BMC.

The "network interface" column lists each network adapter detected by the Intel® Deployment Assistant. Your Operating System may have a different name after you install the Operating System.

Get Updated Drivers

This section allows you to select the source that IDA can download server drivers packages. Those drivers will be automatically installed to OS by IDA.

Choose one of the following options:

From <http://www.intel.com/support>

To get the latest drivers from the Intel® support website by select this option. Please check that the server is only connected to one network during the download.

You can get the last Intel® server drivers but you need to consider that will spend a long time if internet speed is low.

From Intel® Deployment Assistant CD

Directly use the driver packages that store in IDA CD. Although IDA CD probably did not contain the last driver packages, this option is the fastest. IDA selects this option as default choice.

From my network

IDA can download a driver package stored on a network share folder. You need to manually download the latest drivers from <http://downloadcenter.intel.com> website and copy it to your network share.

From USB Disk on Key or Hard Drive

IDA can get the drivers stored on a USB key or USB hard disk drive. You need to manually download the latest drivers from <http://downloadcenter.intel.com> website and copy to USB key.

Choose Drivers to Install

IDA shows all available drivers that downloaded from the driver source.

Uncheck the drivers that you don't want to install. But if you want to install an OS on a RAID volume, you can deselect the driver for the appropriate RAID controller.

The path to the selected drivers will be stored and will then be used to download and install the drivers during the Operating System installation.

Figure 42: Choose Drivers for Linux* Installation

Choose Drivers to Install

The following drivers will be installed. If you are installing an operating system on a RAID volume, please do not deselect the driver for the appropriate RAID controller.

	Component Type	Version	Name
<input checked="" type="checkbox"/>	Intel Lan e1000/e1000e/igb	13.4	Intel PRO1000 Network Connection

Please select if you want to add Additional Drivers from a different location

Insert OS CD

You need to insert Linux* Server OS CD 1 and click **Next** button, IDA will start to apply all settings. After completed this process, IDA will inform you to reboot the server system. You should leave the OS CD in the CD-ROM, system will automatically complete all OS install steps after this reboot.

3.5.4 Package Third Party Driver

Overview

IDA unattended OS installation allows you to load third party device drivers if your server has hardware device which driver didn't contain IDA driver list.

Any customer's driver to be slipstreamed into an OS using the Intel® Deployment Assistant must be packaged in the format described as below:

- All driver files for the hardware component should be packaged into a single zip file.
- The zip package cannot contain zip files inside. It can contain tar.gz and .img files.
- The zip file should contain a properly formatted osd.xml file in the root of the zip file.

osd.xml

The file osd.xml is an xml file providing information required for slipstream installation.

- Driver zip file name.
- Hardware device category name and device name,
- Location of the inf file of the drivers included in the package,
- A tag for any installation script included for Linux*

The basic xml file structure is shown below and can be used as a template. Replace all sections shown as () with specific information for this pack.

```
<?xml version="1.0" encoding="utf-8"?>
<osi-meta>
  <jdp pid=?platform IDs, separated by comma)?>
  <jdrivers os_type=?OSs supported by the pack)?>
    <osi_driver name="(hardware)" devname=(device name) inf_loc="(inf
location)" ver="(driver version)"/>
  </jdrivers>
</jdp>
</osi-meta>
```

Note: Do NOT include any spaces between commas when listing multiple options. (platform IDs), use a Comma to separate list.

For example:

S2600CP, S2600JF, S2600GZ, S2600GL, S2400SC, S2600CO,S1400FP, S1400SP,
S1600BP, S1400BB, S2400BB, S2400GP, S2600IP, S2400EP, S2600WP, S2400LP,
S1600JP, W2600CR, S4600LH.

Note: Please refer Intel® Server TPS for your platform ID name

(OSs supported by the pack), use a Comma to separate list. For example:

w2k,wsbs,w2k3,w2k3x64,wxp,wxpx64
rhel4x86,rhel4x64,rhel4u2x64,rhel4u2x86,rhel4u3x64,rhel4u3x86,rhel5x86,rhel5x64,
sles9x86,sles9x64,sles9sp1x86,sles9sp1x64,sles9sp2x86,sles9sp2x64,sles9sp3x86,sles
9sp3x64,sles10x86,sles10x64

(hardware)

For example:

BackPlane, Intel® PRO1000 Network Connection, chipset, HW/External RAID, RAID
SAS,

(device name)

For example:

Intel® Lan e1000, SRCSAS144E,SRCSAS18E,SROMBSAS18E

(inf location)

Replace with relative path to the info file.

Each different location should be specified using a separate xml node with `os_type` attribute value. For Linux*, the `inf` location can be an empty string or an `img` file name.

Sample ".\".

(Release script Only used for Linux* driver package).

put bash scripts to `untar` and compile the source or empty script for a precompile `.img` file.

Steps to create `osd.xml` file and ZIP driver pack.

- Copy the above template or a real `osd.xml` from a driver pack to a file
- Replace the () sections if using the template.
- Save the file as `osd.xml`
- Extract the driver files to a folder
- Put the newly created `osd.xml` in the folder
- Zip the folder into a single file.

Sample `osd.xml` Files

- Sample 1 windows `osd.xml`

```
<?xml version="1.0" encoding="utf-8"?>
  <osi-meta>
<jdp pid="S5000PAL,S5000XAL,S5000PSL,S5000XVN" >
<jdrivers os_type=w2k,w2k3,wsbs,wxp?
<osi_driver name="RAID SAS" devname=
"Intel SRCAS144E/SRCAS18E" inf_loc=".\" ver="1.18.0.32"/>
</jdrivers>
</jdp>
  </osi-meta>
```

- Sample 2 Linux `osd.xml` - package contains source and script

```
<?xml version="1.0" encoding="utf-8"?>
  <osi-meta>
<jdp
pid="S5000PAL,S5000XAL,S5000PSL,SC5400RA,S5000XSL,S5000XVN,S5000VSA,S5
000VCL,S3000AHX,S3000AHV,S3000AH">
```

```
<jdrivers
os_type="rhel4u2x86,rhel4u2x64,rhel4u3x86,rhel4u3x64,sles9sp2x86,sles9
sp2x64,sles9sp3x86,sles9sp3x64">
  <osi_driver name="Intel PRO1000 Network Connection"
devname="Intel Lan e1000" inf_loc="" ver="12"/>
</jdrivers>
</jdp>
```

```
<script><![CDATA[#!/bin/sh
# script to install Intel e1000 LAN driver
MAIN_DRIVER_FILE=intel-lan_linux_v11.1.tar.gz
DVER=7.2.7
SUB_DRIVER_FILE=e1000- $\$$ DVER.tar.gz
if [ ! -f  $\$$ MAIN_DRIVER_FILE ];then
    echo "Main Driver not found!"
    exit
fi

tar zxvf  $\$$ MAIN_DRIVER_FILE|| {
    echo "Unable to extract main driver !"
    exit
}

cd drivers/
if [ ! -f  $\$$ SUB_DRIVER_FILE ];then
    echo "Sub Driver not found!"
    exit
fi
tar zxvf  $\$$ SUB_DRIVER_FILE|| {
    echo "Unable to extract sub driver !"
    exit
}

tar zxvf e1000- $\$$ DVER.tar.gz
rmmod e1000
cd e1000- $\$$ DVER
```

```
cd src/
make && make install && depmod
modprobe e1000

cd ../../../../
RH_NW_SETUP=rhel_nwsetup.sh
SL_NW_SETUP=sles_nwsetup.sh

if [ -f /etc/redhat-release ];then
    chmod +x $RH_NW_SETUP
    ./rhel_nwsetup.sh
fi
if [ -f /etc/SuSE-release ];then
    chmod +x $SL_NW_SETUP
    ./sles_nwsetup.sh
fi

cd /]]></script>
</osi-meta>
```

- Sample 3 Linux osd.xml with .img

```
<osi-meta>
    <jdp
pid="S5000XSL,S5000PSL,S5000PAL,S5000XAL,S5000VSA,SC5400RA,S5000XVN,X5
000VCL,S3000AH,S3000AHV,S3000AHX">
    <jdrivers
os_type="rhel4u2x86,rhel4u3x86,rhel4u2x64,rhel4u3x64">
        <osi_driver name="HW/External RAID" devname="SRCAS18E
SAS-3G,SRCSAS144E SAS-3G,SROMBSAS18E SAS-3G"
            inf_loc="ir3_sas-v00.00.03.03-1-rhel40-all.img"
            ver="00.00.03.03-1"/>
    </jdrivers>
</jdp>

<script><![CDATA[#!/bin/sh
echo no script for DuDs
```

```
]]></script>  
</osi-meta>
```

3.6 Multi-Server Cloning

The IDA multi-server cloning feature is designed for users who need to repeat the same deployment work on more than one server which have the same hardware configuration. This feature deployment can improve server efficiency and save user's human resource via copying all deployment work on first server to other servers automatically.

Uses of this feature include:

- In mass deployment environments by placing on a PXE or WDS server
- Build templates for future deployments on similar systems
- Help user quickly recover server configure for crashed systems or replacements
- Supply to technicians for quick fix of systems without the need for Internet access. All the parts can be included with the image.

IDA can record users operations, including system firmware update, server asset, BIOS and BMC configuration, RAID configuration and OS unattended installation on first server, and create a self-contained bootable image. The image is called the IDA multi-server cloning image.

There are two methods to deliver the IDA multi-server cloning image to other servers

- IDA can save the image to a USB key and make the USB key bootable. User can then boot the other servers with this USB key and the image can copy all deployment work to the target server.
- IDA image can be delivered to other servers over network by a PXE server. The image boots the target servers and copies all deployment work to them.

Some parameters within the IDA multi-server cloning image can be modified during cloning phase, such as BMC IP address, OS host name, etc, so that user can avoid conflicts between the first server and other servers. Multi-server cloning image reads the file – config.ini, which contains the settings to those parameters. Parameters for each target server are organized in one section and start with the server onboard NIC1 MAC address that is used to recognize different target servers by the image. Refer to section 3.6.3 for config.ini format.

The first server and other servers should have similar hardware configuration. However, depending on what is being cloned, they don't necessarily have to have the exact same configuration. The following are the different requirements for configurations based on what is being cloned.

- Cloning asset, BIOS and BMC configuration, the server board should be the same.
- Cloning the system firmware update includes BIOS, BMC and FRUSDR, the server

board and chassis should be the same.

- Cloning the RAID configuration, the RAID card and hard disks should be the same.
- Cloning the OS installation, the server board and storage sub system(RAID or SAS/SATA) should be the same.

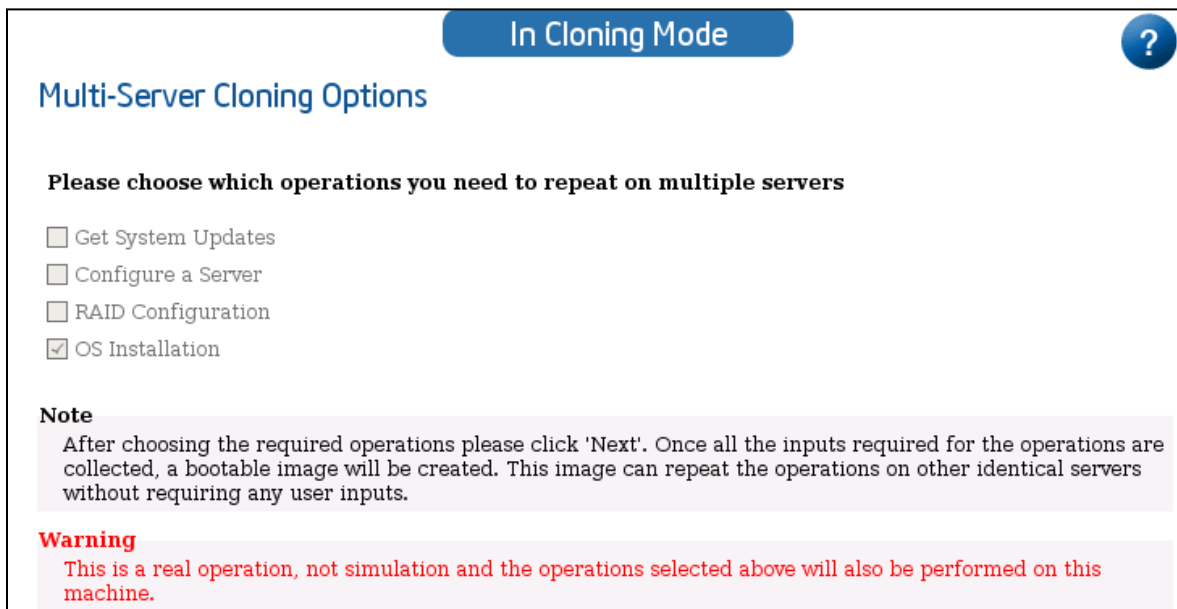
3.6.1 Multi-Server Cloning Options

After clicking the **Multi-Server Cloning** button on the IDA home page, IDA enters the page of **Multi-Server Cloning Options**. IDA provides four options that are allowed to copy to multiple servers,

- Get System Update
- Configure a Server
- RAID Configuration
- OS installation

User can select all options or any options at one time.

Figure 43: Multi-Server Cloning Options



The operations for those four options in Cloning Mode are the same as the IDA normal mode. Refer to section 3.2 for detailed operations of "Get System Updates", section 3.3 for detailed operations of "Configure a Server", section 3.4 for detailed operations of "RAID Configuration" and section 3.5 for detailed operations of "OS installation".

Note: Those operations will really be performed on your server, original configuration or partition will be changed.

Note: IDA cannot clone Windows 2008* and Windows 7* unattended OS installation at this time.

3.6.2 Creating IDA Multi-Server Clone Image

After IDA collected all inputs on the first server, multi-server clone image can be created as bootable image on USB key or packaged as PXE image file to save to a USB key at the IDA Create Clone Image page.

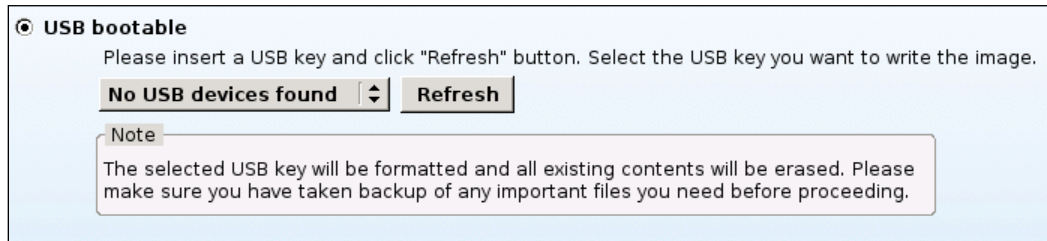
USB Bootable Option

Select the option USB bootable and insert a USB key (free space must be larger than 512MB), then click Refresh button, and after IDA recognizes the USB key click Next button to create the bootable image to USB key.

Note: The USB key will be formatted and all original data will be erased.

Note: If the cloning image contains Windows* 2003 installation, the USB key space should be more than 2GB

Figure 44: Make Bootable USB key



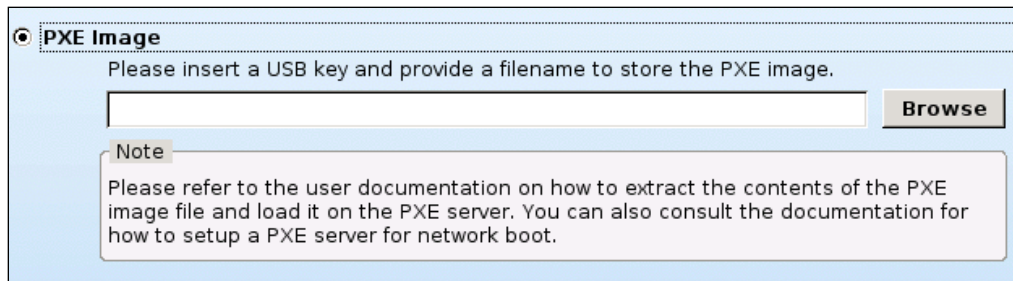
Creating bootable USB key takes about 5 minutes. IDA will copy the multi-server clone image to USB key and make it bootable. The bootable USB key contains a Linux* ext3 format partition and a FAT format partition. User can edit file config.ini and save it to the FAT partition (Refer to the section 3.6.3 for details of config.ini). After all processes are completed, user can boot other servers with this USB key and start the server cloning.

Note: Additional network file server is needed if multi-server cloning contains OS installation. Refer to **Appendix B** for an example of cloning Linux* OS installation with multi-server cloning image on USB key.

PXE Image Option

Select the option PXE Image and insert a USB key (free space must be larger than 512MB), after around 5 seconds and click Browser button. If the USB key can be recognized, IDA will pop up a window that will allow you define a file name for the PXE image package.

Figure 45: Save PXE Image



After clicking the **Next** button, IDA will automatically save PXE image package as a ZIP format file, which usually contains the following files and folder.

- vmlinuz
- initrd.gz
- drivers.zip
- update_package.zip
- config_template.ini
- stage2.tar.gz

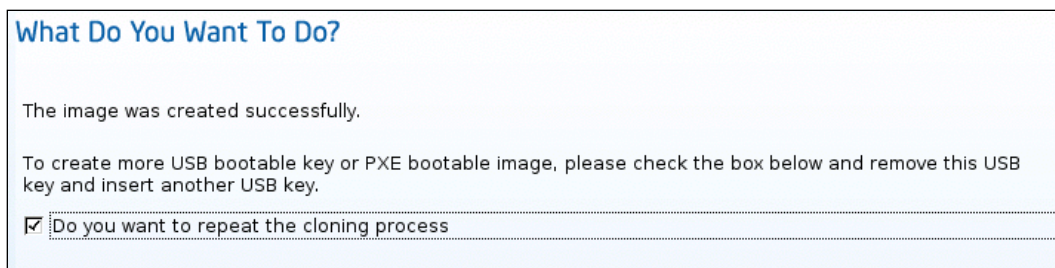
File "drivers.zip" and "update_package.zip" will not be included in PXE image package except user selects OS installation and firmware upgrade cloning.

Note: Refer **Appendix C** for how to integrate IDA multi-server cloning PXE image with Linux* version PXE server.

Create more multi-server cloning images

IDA allow user select an option of repeat the cloning process to create more bootable USB key or PXE bootable image.

Figure 46: Option of repeat the cloning process



3.6.3 Config.ini

IDA multi-server cloning image supports the ability to change parameters of target servers according to the config.ini, which includes:

- BMC channel 1 IP address

- BMC channel 3 IP address (RMM module IP address)
- BMC DHCP_HOSTNAME
- Machine Name for Email Alerting
- From Email Address for Email Alerting
- LICENSE for OS installation
- Computer Name for OS installation
- Admin Password for OS installation

Those parameters for each target server are organized in one section and start with the onboard NIC1 MAC address that is used to recognize different target servers by the image.

Config.ini content:

[GENERAL]

mode =

Comments: mode has three options "nfs", "network_share", "cdrom" and "usb"

- "nfs" is for Linux* OS installation. NFS file server should be prepared by user. All content of Linux* OS CD/DVD should be copy to a share folder of NFS server.
- "network_share" is for Windows* OS installation. Windows* uses Server Message Block protocol to share files over network. All content of Windows* OS CD/DVD should be copy to a Windows* share folder or a share folder of Samba service on a Linux* server.
- "cdrom" is for scenario that target server has local CDROM/DVDROM, server can be installed from local media. This option supports Linux* and Windows* OS.
- "usb" is for Windows* OS installation with USB key. User can create bootable USB key with IDA, and extract all the contents of Windows* 2003 CD to the first partition of this USB key. Boot up other homogeneous server with this USB key, the deployment of Windows * 2003 installation can be cloned.

Note: If USB mode is selected, minimum 2 GB pen drive is required.

- The option can be blank if multi-server cloning image doesn't include OS installation.

server =

Comments: enter file server IP address "XXXX.XXXX.XXXX.XXXX" at here.

dir =

Comments: enter share folder name at here. Such as "/nfs1/RHEL5U4/"

username =

Comments: enter user name to access the file server. Such as "root" "administrator".

password =

Comments: enter user password to access the file server.

workgroup =

Comments: This option is for Windows* file server, enter workgroup or domain name if that is needed to access file server.

Note: All above options can be blank if IDA multi-server cloning image doesn't include OS installation.

[Server onboard NIC1-MAC-ADDRESS]

Comments: Enter onboard NIC1 MAC address of target server at here. Example: [00:15:17:8B:4E:12].

Note: The MAC address at here is case sensitive, only capital can be accepted.

Note: onboard NIC1 MAC address usually can be found as a label on server board or chassis. User also can find this address at BIOS configuration interface. Refer server technical specification or user guide about onboard NIC MAC address.

lan1_i =

Comments: Enter BMC LAN channel 1 IP address.

lan1_netmask =

Comments: Enter subnet mask for BMC LAN channel 1

lan1_gateway =

Comments: Enter BMC LAN channel 1 gateway address of BMC LAN channel 1

lan3_ip =

Comments: Enter BMC LAN channel 3 (RMM) IP address.

lan3_netmask =

Comments: Enter subnet mask of BMC LAN channel 3 (RMM)

lan3_gateway =

Comments: Enter Gateway address of BMC LAN channel 3 (RMM)

dhcp_host_name =

Comments: Enter BMC host name if BMC IP address is assigned by DHCP server

from_addr =

Comments: Enter sender's email address of BMC Lan channel 1 alert email.

from_addr_lan3=

Comments: Enter sender's email address of BMC Lan channel 3 alert email.

machine_name=

Comments: Enter machine name of BMC Lan channel 1 alert email.

machine_name=

Comments: Enter machine name of BMC Lan channel 3 alert email.

os_computer_name=

Comments: Enter server host name for OS install

os_password=

Comments: Enter OS root or administrator Password for OS install

os_license=

Comments: Enter OS License key for OS install

Note: Refer to **Appendix A** for config.ini templates

3.7 Online Patch Update

IDA Online patch update provides user a quick path to get new IDA features or fix critical issues. IDA can search <http://downloadcenter.intel.com> and automatically find the online patch files that match with the user server system. User can save patch files to a USB key, and IDA can load it from USB key next time and don't need to download patch file again.

Click IDA menu **Help** and select **Upgrade to New Version** to enter the page of Upgrade Intel® Deployment Assistant.

3.8 OS-HTML

OSHTML is a set of HTML pages contains links to download drivers, utilities and latest IDA ISO image. The HTML pages are located in DVD and can automatically run when the DVD is put in a machine running Windows*/Linux* operating systems. This HTML pages gets executed in a default browser which could be an internet explorer or Mozilla Firefox* browser.

You can get below information when OS-html automatically loads by browser

1. Home page

Introduce the Intel® Server System hardware features

2. Server Deployment Toolkit

Introduce Intel® Deployment Assistant features.

3. System Management Software

Introduce System Management Software stacks

4. Drivers and Utilities

In this page, you can download server hardware drivers and utilities that organized in different OS sub-page. For example, you click Microsoft Windows* to enter a sub-page that contains all available drivers and utilities in IDA DVD.

5. Configuration and Management Tools

Introduce multiple tools are available for updating and/or configuring the BIOS, firmware, FRUSDRs, as well as for specialized applications including SEL log viewing.

6. Documentation

You can find current Intel® Server System and devices user guide or spec documents at this page.

7. Customer Support

This page contains Intel® Server System technical support information.

4 Rebranding Intel® Deployment Assistant

4.1 Important Syntax Requirements

File names in this utility are case dependent. For consistency, all file names including the file extension uses only small case letters. If you use upper case letters, the files will not be found by the utility. You must use underscore to separate words in the file name. If you use dash, the files will not be found by the utility.

Branding should only be performed on the files mentioned in this document as explained in this document. Additional information will be available later.

All files can be edited with a simple text editor and should not be edited using Microsoft* Word* or any other tool that adds formatting characters or line breaks.

Almost all branding is contained in graphic files which are obtained from the file `\ui\rebrand\qd-oem.css`. All graphics are located in `\ui\images\`(subfolder).

In most cases, there are two different methods to change the image displayed. In either case, all images must be of the same size (height x width in pixels) as the file they replace.

Method 1: Use the image of your choice with a filename of your choice, and change the filename of the graphic used in the CSS file accordingly.

The syntax of calling a graphic in the CSS is always

```
(  
    list-style-image: url("folder/yourfile.gif");  
)
```

where items in bold are constant.

Method 2: Keep the graphics filename the same and change the image content. (Take `yourfile.gif` and rename it `intel_logo.gif`. Then overwrite the existing `intel_logo.gif` with your file.)

4.2 Common Screen Elements

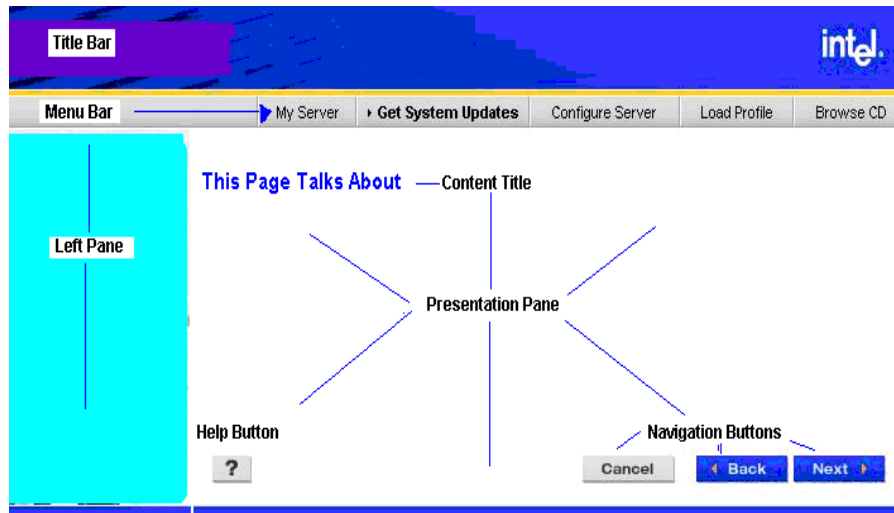
This is explained in detail later in this document.

Every screen shares a common look and feel. The screen is divided into the following major areas:

- Title Bar
- Menu Bar
- Left Pane

- Presentation Pane which contains the Content Title, Content Area, and Navigation Buttons

Figure 47: Common Screen Elements



The Title Bar, Menu Bar, Left Panel, Screen Title, and Buttons are made entirely using graphic files. Any text in this area is part of an image. Actual text on the Presentation Pane cannot be changed in this version.

4.3 The Title Bar

The Title Bar appears on every screen. Any change to the graphics in the title bar will reflect in all pages.

4.4 The Menu Bar

The Menu Bar appears on most of the screens after the introductory screen (For example, after the license and loading screens) and provides buttons to the minor navigation areas: My Server, Get System Updates, Configure Server, Load Profile, and Browse CD. There is no Intel® brand element in the Menu Bar.

4.5 The Left Pane

The Left Pane appears on all pages, but the content varies. The Left Pane may contain an image of a person or may include a left “breadcrumb” navigation list. There is no Intel® brand element in the Left Pane. If you change any graphic in the Left Pane, it will reflect in all screens that use that graphic.

4.6 The Presentation Pane

The Presentation Pane appears on every page (after the initial splash screen) and contains a Content Title unique to the specific screen, the Navigation Buttons, and the

“Content”, which is text describing the current task. All User interaction (other than choosing a navigation link from the Menu Bar) occurs in this panel. Some Intel® branded text may occur in the GUI and the Help content. Changing of this text is not supported in this release.

4.6.1 The Content Title

The Content Title is unique to each screen and each one is a graphic file. Changing of these graphic files is not supported in this release.

4.6.2 The Help and Navigation Buttons

The Help and Navigation Buttons are graphic files (text is part of the image), but these buttons do not contain any Intel® brand elements. Changing the image used for a button will change the image of that button on every screen in which it appears.

4.7 Unique Screens

4.7.1 Initial Splash Screen

After booting up, the Splash Screen is displayed. This image is located at `\ui\images\juntura_splash.jpg`. The image is 1024x768 pixels in 24bit color at 72dpi.

Figure 48: Splash Screen



4.7.2 License Screen

The License screen is not available for branding at alpha release. At final release, the Intel® license will be required, but additional OEM licensing may be added.

4.7.3 Loading Screens

Screens which show the progress bar used while copying, downloading, or updating files are not branded and change is not supported.

4.8 Rebranding the Common Elements

Method 1

Most of the graphic files that can be rebranded are obtained from the cascading style sheet (CSS) file located at `\ui\rebrand\qd-oem.css` except the unique screens such as the Splash Screen. To change an image using Method 1, you must change the name of the graphic file used in the `qd-oem.css` file.

Recap of Method 1 – Use your image named with a filename of your choice and change the filename listed in the file “qd-oem.css”. The new filename graphic must match the pixel dimension of the graphic file it is replacing. You do not need to match the file location if you provide the complete path in the URL.

Example of implementing a change with Method 1:

- a. Start with your logo file named “logo.jpg” (matching the pixel size of the file from Intel® “images/js_topnav/intel_logo2.gif”.)
- b. Place logo.jpg in the “images” directory.
- c. Change the file qd_oem.css from:

```
#img_intel_logo
(
    list-style-image: url("images/js_topnav/intel_logo2.gif");
)
```

to read

```
#img_intel_logo
(
    list-style-image: url("images/logo.jpg");
)
```

Important NOTE: There are some branding changes that cannot use Method 1 because the graphic filename is specifically called by software code to which you do not have access. This will be noted in the affected sections.

Method 2

The alternative method, which can be used in all cases, requires that you use the same graphic filename that Intel® used and replace the image.

Recap of Method 2: Use the graphic filename set by Intel®, but change the image to one of your choice. You must match the filename, the file format (.gif, .jpg), and the pixel dimensions of Intel®’s original file. But you do not need to edit the CSS file.

Example of Method 2:

- a. Start with your logo file named “logo.gif” (matching the pixel size of the file from Intel® “images/js_topnav/intel_logo2.gif”.)
- b. Rename logo.gif as intel_logo2.gif.
- c. Place your intel_logo2.gif into the folder /images/js_topnav/ (overwriting Intel®’s

file of the same name).

The following tables lists:

- The graphic filename and its directory location
- The qd-oem.css section for Method 1
- The Intel® provided image of that filename with pixel size requirements

For Method 1, change the URL of the graphic filename. This is always in the following format; you need to change only the sections in bold.

list-style-image: url("images/directory/filename.format");

With Method 2, do not edit the qd-oem.css file. Name your graphic file the same as listed and place the renamed file in the listed directory.




4.8.1 Display Screen

To change the display screen, modify the display.cfg file at boot\isolinux to contain the desired name of the product.

4.8.2 The Title Bar



Main section. Any change will apply to all pages.

Table 6: Title Bar

FileName/Location	CSS section	Intel® Image
images/js_topnav/ topheader2.jpg (also topheader.jpg)	#img_topheader	 97x58
images/js_topnav/ my_topheader_bk.jpg	#my_topheader_bk	
images/js_topnav/ intel_logo2.gif	#img_intel_logo	 85x70 for intel_logo2
images/js_topnav/ intel_logo.gif images/js_lftnav/ intel_logo.gif	97x58 pixels	

4.8.3 Other Common Frame Graphics

Table 7: Color Bar Graphics

FileName/Location	CSS section	Intel® Image
images/js_topnav/ yellow_band.gif	#img_yellow_band (yellow line)	 750x5
images/js_topnav/ footer.gif	#footer	 750x8
Cannot change	White Space	1x1

4.9 The Menu Bar

To change the navigation choices, the images need to be changed, but the file names must remain the same. Changing these menu text graphics is not supported in this release. These files are located in \ui\images\js_topnav and each graphic has both a non-bold and also a bold (selected state) image. The plain state is named "topnav_(text).gif". The bold state naming convention is "topnav_(text)_on.gif".

Table 8: Menu Bar

FileName/Location	CSS section	Intel® Image
Images\js_topnav\ topnav_horizontal_bg.gif	Not changeable	Gray Background 10x20
images\js_topnav\ topnav_v_divider.gif	Not changeable	Vertical divider 2x21
images\js_topnav\ topnav_black_arrow.gif	Not changeable	Black >> arrow 7x7
images\js_topnav\ topnav_black_arrow_ back.gif (left)	Not changeable	Black << arrow 7x7

4.10 The Left Pane

The files are stored in \ui\images\js_lftsd_photos in .jpg format. Images that include top navigation colors are 200x621 pixels and images without top navigation are 174x139 pixels.

Table 9: Left Pane

Filename/Location	CSS section	Intel® Image size
Images/js_lftsd_photos/lftside_photo_man.jpg	#img_photo_manwithservers	200X621
Images/js_lftsd_photos/lftside_photo_woman.jpg	#img_photo_noTopNav_womanserver	200X621

4.11 Content Titles

Changing the Content Title is not supported in this release. The text is in graphic files stored in \ui\images\js_headers using the naming convention hdr_(description).gif and the filenames must not be changed. Each image is 440x25 pixels.

4.12 The Help and Navigation Buttons

Buttons are graphics (including any text) and are stored in \ui\images\js_buttons\. Buttons except icons are 18 pixels high; the width varies by the volume of text.




Button Naming Conventions:

Bottom navigation button files	btn_(color)_(description)_(state).gif.
Main Menu Icon based buttons	btn_Icon_(text).gif (36 pixels high)
Plain arrow buttons	btn_(arrow type)_(color).gif

Most buttons exist in 3 styles – normal, down, and inactive.

- inactv (not available for user to choose),
- dwn (a darker blue indicating user has clicked this button) and
- normal (not selected but available).

Table : Save Buttons

btn_blu_save_inactv.gif		Inactive (not available)
btn_blu_save_dwn.gif		Down (user clicked)
btn_blu_save.gif		Normal state

4.13 Watermark Graphics

The three watermark (semitransparent) images showing navigation use the same style images as the three main Menu icons. They are kept in \ui\images\js_bkgrnd_icons and are 280x280 pixels.

4.14 Product Name

You can change the default product name “Intel® Deployment Assistant” by modifying the entry for productName in “ui/rebrand/qd-oem.dtd” file.

4.15 Changing Font Styles and Sizes

You can change font properties and background color of the main Presentation Pane by editing the qd-oem.css file.

Table 10: Font Settings

Qd-oem.css location	Settings	Value
vbox#vbox_main	background-color:	White;
vbox#content_box	font-family:	Arial;
	font-weight:	Normal;
	font-size:	12px;
	background-color:	White;
	max-width:	59em;

4.16 Rebranding the Help files

To rebrand the Help files, you must update each file in /ui/help folder. On Linux systems, you can use the sed command to replace the files with the desired company name.

For example, `sed -i "s,Intel ,companyname ,g" *`

4.17 Rebranding the Update Packages

System Software Update Packages must be packed in a .zip format and can be placed at any known web path location; that path must be listed in the jmaster.xml file. All packages must be enumerated (described) in a file named jmaster.xml which follows a very strict format and syntax. The location of the jmaster.xml file is called out in the qd_oem.dtd file.

4.17.1 The Update Package

The actual Update Package contains system software files for one particular model server board at a certain time. There is no changeable branding in the package. (Branding may occur within files that go into an Update Package, their customization is not covered in this document.)

4.17.1.1 Contents of the Update Package

Update packages must have the below listed system configuration files compressed into a .zip format. There is no required naming format for the Update Packages other than the .zip file extension. It is suggested that the files be named to easily distinguish their version, board model, and date.

- Frusdr.exe (utility to update the FRU/SDR records)
- Master.cfg (contains the FRU/SDR config questions)
- One or more FRU/SDR Records (*.fru and *.sdr)
- autoexec.bat (to call frusdr.exe, optional)
- Firmware files (*.hex or *.ima files for BMC, HSC, and LCP)
- flashupdt.cfg (contains FW, BIOS, FRUSDR filenames)
- BIOS update file (*.rom)
- Front Panel information files (*.pef)
- BMC sensor bridge table records (*.tbl)

4.17.1.2 Location of the Update Packages

Update packages may be placed in any location which can be described using a URL address. This address is listed in the jmaster.xml file per package so each package may be stored in a separate location if desired.

4.17.2 The Update Packages Description File: jmaster.xml

The single file that describes all available Update Packages is named jmaster.xml. You do not need to change the file on the Intel® Deployment Assistant media; you need to change the file on the update website that is set up for the Update Packages. The location of this file is obtained from the utility which learns the location of this file from the qd_oem.dtd file located on the Intel® Deployment Assistant media at \ui\rebrand\.

Only one jmaster.xml file should be used and may refer to multiple Update Packages at one or multiple web based addresses where the packages are stored.

4.17.3 Web location of the jmaster.xml file

The web address of the jmaster.xml file is specified in the file qd_oem.dtd (This is not necessarily the address of the Update Packages themselves.) This is currently the only definition in the qd_oem.dtd file.

```
<!--Web location of the Sup Server-->
```

```
<!ENTITY remoteSupServer "http://(IP#)/ofu/jmaster.xml">
```

The URL can be either the IP address or the "name" (text address) of a webhost (for example, www.intel.com) along with any subdirectory structure to navigate to the jmaster.xml file.

4.17.4 File structure of the jmaster.xml content

The xml file must follow very strict structure and syntax.

The header section of jmaster.xml must not be changed.

```
<?xml version="1.0" encoding="UTF-8"?>
<ofu-meta xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance
xsi:noNamespaceSchemaLocation="jmaster.xsd">
```

Packages should be grouped by exact platforms. The first information to provide is the Platform IDentification (pid).

```
<platform pid="SE7520BD22">
```

Each package needs to have its file location, filename, date, and overall version plus repeat of platform type provided.

```
<sup loc="http://support.intel.com/SE7520BD22/Dec.zip" date="dec-
2005.zip" sup_date="Dec-2005" sup_ver="1.0"
platform_type="SE7520BD22">
```

Each package must then provide the content information per component listing element name (bios, bmc, frusdr, hsc, lcp), version, filename, and date.

```
<sup_element name="bios" ver="SE7520BD22.86B.P.07.20.0066.03"
file="sbd2a066.rom" date="07-MAR-2005"/>
<sup_element name="bmc" ver="0.42" file="7520BD42.hex" date="07-
MAR-2005"/>
<sup_element name="frusdr" ver="6.6.2" file="SBD2BMCM.SDR,
SBD2m_VM.SDR" date="21-Feb-2005"/>
```

After each package listing, close the package information.

```
</sup>
```

You can then add additional packages for the same board (exact model).

```
<sup loc="http://.....
.....>
```


</sup>

At the end of a list of packages for the first model of board, close the platform type.

</platform>

Add additional board types by starting with the PID.

<platform pid="SE7520BD23">

When finished, close the file.

</ofu-meta>

In the future, it may be possible to have more than one jmaster.xml; only one file and one file URL address is supported in the qd_oem.dtd file now.

4.18 Customizing Software Feature

The Customizing software feature allows an OEM to remove/hide specific features available in the Intel® Deployment Assistant utility. Unpack the .ISO and edit the customize.ini file located in the ui/rebrand directory of the CD. Then create a new ISO using the provided rebranding script.

Each feature in the UI is identified by a string with a value set to 1. The feature can be removed from the UI by setting the value of the corresponding feature string to 0. Additionally the list of supported OS can be limited. No new OS can be added to the list, but those present can be removed from the list by setting their value to 0.

Procedure

Following are the steps to remove the feature.

1. Extract the ISO using the rebranding script.
2. Locate the customize.ini file in the ui/rebrand directory.
3. Identify the feature to remove.
4. Edit customize.ini by altering the value from 1 to 0 for the feature to be removed.
5. Create the ISO using the rebranding script as described in section 10.

Note: Removing the feature string line will not remove the feature. The string must remain and have its value set to 0.

4.18.1 Default customize.ini Contents

Feature Configuration options

SystemUpdate=1

SystemConfigure=1

SystemInformation=1

BIOSConfigure=1

BMCConfigure=1

RaidConfigure=1

UnattendedOS=1

MultiServerClone=1

Operating System list

"Windows* 7 (32-bit)" [w7] = 1

"Windows* 7 (x64-bit)" [w7x64] = 1

"Windows* 7 SP1 (32-bit)" [w7sp1] = 1

"Windows* 7 SP1 (x64-bit)" [w7sp1x64] = 1

"Windows Server* 2008 R2 (x64-bit)" [w2k8r2x64] = 1

"Windows Server* 2008 R2 SP1 (x64-bit)" [w2k8r2sp1x64] = 1

"Windows Server* 2008 (32-bit)" [w2k8] = 1

"Windows Server* 2008 (x64-bit)" [w2k8x64] = 1

"Windows Server* 2008 SP2 (32-bit)" [w2k8sp2] = 1

"Windows Server* 2008 SP2 (x64-bit)" [w2k8sp2x64] = 1

"Windows Server* 2003 Release 2 (32-bit)" [w2k3] = 1

"Windows Server* 2003 Release 2 (x64-bit)" [w2k3x64] = 1

"Windows Server* 2003 SP2 (32-bit)" [w2k3] = 1

"Windows Server* 2003 SP2 (x64-bit)" [w2k3x64] = 1

"Windows Server* 2003 SP1 (32-bit)" [w2k3] = 1

"Windows Server* 2003 SP1 (x64-bit)" [w2k3x64] = 1

"Windows Server* 2003 SBS SP1 (32-bit)" [w2k3] = 1

"Windows Server* 2003 SBS SP1 (x64-bit)" [w2k3x64] = 1

"Windows Server* 2003 SBS Release 2 (32-bit)" [w2k3] = 1

"Windows Server* 2003 SBS Release 2 (x64-bit)" [w2k3x64] = 1

"Windows Vista* (32-bit)" [wvisx86] = 1

"Windows Vista* (x64-bit)" [wvisx64] = 1

"Windows Vista* SP1 (32-bit)" [wvissp1x86] = 1

"Windows Vista* SP1 (x64-bit)" [wvissp1x64] = 1
"Windows Vista* SP2 (32-bit)" [wvissp2x86] = 1
"Windows Vista* SP2 (x64-bit)" [wvissp2x64] = 1
"Windows* XP (32-bit)" [wxp] = 1
"Windows* XP (x64-bit)" [wxpx64] = 1
"Windows* XP SP2 (32-bit)" [wxp] = 1
"Windows* XP SP2 (x64-bit)" [wxpx64] = 1
"Windows* XP SP3 (32-bit)" [wxp] = 1
"Windows* XP SP3 (x64-bit)" [wxpx64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 2 (32-bit)" [rhel4u2x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 2 (x86-64)" [rhel4u2x64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 3 (32-bit)" [rhel4u3x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 3 (x86-64)" [rhel4u3x64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 4 (32-bit)" [rhel4u4x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 4 (x86-64)" [rhel4u4x64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 5 (32-bit)" [rhel4u5x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 5 (x86-64)" [rhel4u5x64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 6 (32-bit)" [rhel4u6x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 6 (x86-64)" [rhel4u6x64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 7 (32-bit)" [rhel4u7x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 7 (x86-64)" [rhel4u7x64] = 1
"Red Hat* Enterprise Linux* 4.0 Update 8 (32-bit)" [rhel4u8x86] = 1
"Red Hat* Enterprise Linux* 4.0 Update 8 (x86-64)" [rhel4u8x64] = 1
"Red Hat* Enterprise Linux* 5.0 (32-bit)" [rhel5x86] = 1
"Red Hat* Enterprise Linux* 5.0 (x86-64)" [rhel5x64] = 1
"Red Hat* Enterprise Linux* 5.0 Update 1 (32-bit)" [rhel5u1x86] = 1
"Red Hat* Enterprise Linux* 5.0 Update 1 (x86-64)" [rhel5u1x64] = 1
"Red Hat* Enterprise Linux* 5.0 Update 2 (32-bit)" [rhel5u2x86] = 1
"Red Hat* Enterprise Linux* 5.0 Update 2 (x86-64)" [rhel5u2x64] = 1
"Red Hat* Enterprise Linux* 5.0 Update 3 (32-bit)" [rhel5u3x86] = 1
"Red Hat* Enterprise Linux* 5.0 Update 3 (x86-64)" [rhel5u3x64] = 1
"Red Hat* Enterprise Linux* 5.0 Update 4 (32-bit)" [rhel5u4x86] = 1
"Red Hat* Enterprise Linux* 5.0 Update 4 (x86-64)" [rhel5u4x64] = 1
"Red Hat* Enterprise Linux* 5.0 Update 5 (32-bit)" [rhel5u5x86] = 1
"Red Hat* Enterprise Linux* 5.0 Update 5 (x86-64)" [rhel5u5x64] = 1
"Red Hat* Enterprise Linux* 5.0 Update 6 (32-bit)" [rhel5u6x86] = 1

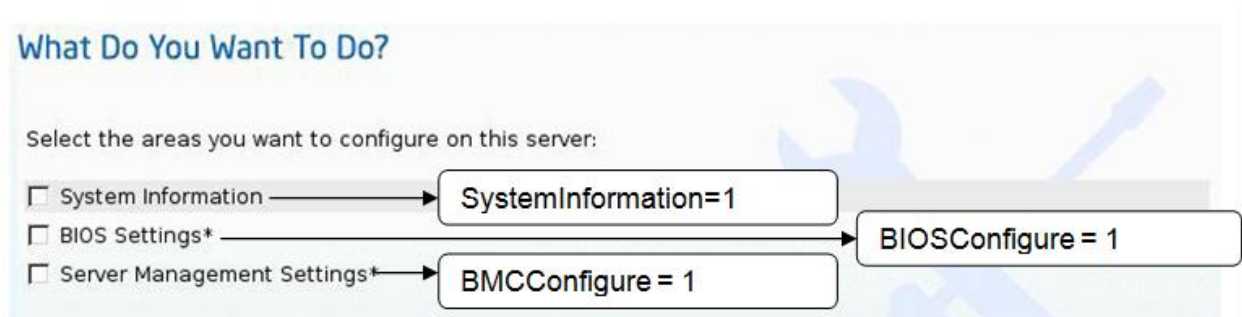
"Red Hat* Enterprise Linux* 5.0 Update 6 (x86-64)" [rhel5u6x64] = 1
"Red Hat* Enterprise Linux* 6.0 (32-bit)" [rhel6x86] = 1
"Red Hat* Enterprise Linux* 6.0 (x86-64)" [rhel6x64] = 1
"Red Hat* Enterprise Linux* 6.0 Update 1 (32-bit)" [rhel6u1x86] = 1
"Red Hat* Enterprise Linux* 6.0 Update 1 (x86-64)" [rhel6u1x64] = 1
"SUSE* Linux* Enterprise Server 9 SP2 (32-bit)" [sles9sp2x86] = 1
"SUSE* Linux* Enterprise Server 9 SP2 (x86-64)" [sles9sp2x64] = 1
"SUSE* Linux* Enterprise Server 9 SP3 (32-bit)" [sles9sp3x86] = 1
"SUSE* Linux* Enterprise Server 9 SP3 (x86-64)" [sles9sp3x64] = 1
"SUSE* Linux* Enterprise Server 9 SP4 (32-bit)" [sles9sp4x86] = 1
"SUSE* Linux* Enterprise Server 9 SP4 (x86-64)" [sles9sp4x64] = 1
"SUSE* Linux* Enterprise Server 10 (32-bit)" [sles10x86] = 1
"SUSE* Linux* Enterprise Server 10 (x86-64)" [sles10x64] = 1
"SUSE* Linux* Enterprise Server 10 SP1 (32-bit)" [sles10sp1x86] = 1
"SUSE* Linux* Enterprise Server 10 SP1 (x86-64)" [sles10sp1x64] = 1
"SUSE* Linux* Enterprise Server 10 SP2 (32-bit)" [sles10sp2x86] = 1
"SUSE* Linux* Enterprise Server 10 SP2 (x86-64)" [sles10sp2x64] = 1
"SUSE* Linux* Enterprise Server 10 SP3 (32-bit)" [sles10sp3x86] = 1
"SUSE* Linux* Enterprise Server 10 SP3 (x86-64)" [sles10sp3x64] = 1
"SUSE* Linux* Enterprise Server 10 SP4 (32-bit)" [sles10sp4x86] = 1
"SUSE* Linux* Enterprise Server 10 SP4 (x86-64)" [sles10sp4x64] = 1
"SUSE* Linux* Enterprise Server 11 (32-bit)" [sles11x86] = 1
"SUSE* Linux* Enterprise Server 11 (x86-64)" [sles11x64] = 1
"SUSE* Linux* Enterprise Server 11 SP1 (32-bit)" [sles11sp1x86] = 1
"SUSE* Linux* Enterprise Server 11 SP1 (x86-64)" [sles11sp1x64] = 1
"VMware* ESX 4.0 Update 1 (x86-64)" [esx4u1x64] = 1
"VMware* ESX 4.1 Update 1 (x86-64)" [esx41u1x64] = 1
"VMware* ESXi 4.1 (x86-64)" [esxi41x64] = 1

4.19 Customizable UI Screens

Figure 49: Customizable UI Screens



Figure 50: Associated Feature String with the GUI Buttons



4.19.1 Example

If the user likes to remove the feature BIOS Settings, the Server Management Settings under Configure Server the customize.ini should be modified as follows:

```
# Feature Configuration options
```

SystemUpdate=1
SystemConfigure=1
SystemInformation=1
BIOSConfigure=0
BMCConfigure=0
RaidConfigure=1
UnattendedOS=1
MultiServerClone=1

Figure 51: UI Screen after Customization



4.20 Recreating the ISO Image

You must follow the steps below to recreate the OEM branded version of the Intel® Deployment Assistant CD.

Step-by-step instructions (for Linux OS only)

1. Make sure you have appropriate permissions.
2. Mount the ISO so that it can be modified.

For example:

a. `# mkdir /home/oem`

b. If you have the ISO file, issue the following command.

```
# mount -o loop ida.iso /home/oem (This will be a read only file system)
```

If you have CD ROM already mounted, issue the following command.

```
# mount /dev/cdrom /mnt/cdrom (Assuming /dev/cdrom is the CD ROM device)
```

c. `# mkdir /home/oem_new`

d. `# cp -r /home/oem/ /home/oem_new/`

- e. # cd /home/oem_new/
3. Copy the iso_creator.sh (attached to this document) to /home/oem_new/.
4. Modify the files as described for the component you wish to rebrand.
5. Run the "iso_creator.sh" script in the directory above where the CD contents were extracted.

For example:

```
# sh ./iso_creator oem_assistant.iso /home/oem_new
```



iso_creator.sh

[The iso_creator.sh requires mkisofs (version: mkisofs-2.01.1-5) to be installed on the system. The script requires two arguments: the name of the ISO to be created and the folder to create the ISO from.]

If successful, the newly created ISO image (oem_assistant.iso) can be found in the current directory (that is, /home/oem_new).

Appendix A: Summary of Rebrandable Elements

Element Name	File name/Location	Image resolution, bitmap	CSS Location
Splash Screen	\ui\images\juntura_splash.jpg	1024x768, 24bit color at 72dpi	N/A
Display Screen	\boot\isolinux\display.cfg	N/A	N/A
Title Bar	images/js_topnav/topheader2.jpg (also topheader.jpg) images/js_topnav/my_topheader_bk.jpg	854X70, 24bits	#img_topheader #my_topheader_bk
Logo	images/js_topnav/intel_logo2.gif	85x70, 8bits	#img_intel_logo
Color Bar Graphics	images/js_topnav/yellow_band.gif images/js_topnav/footer.gif	750x5, 8 bits 750x8, 8 bits	#img_yellow_band (yellow line) #footer
Save Button	\ui\images\js_buttons\btn_blu_save_inactv.gif \ui\images\js_buttons\btn_blu_save_dwn.gif \ui\images\js_buttons\btn_blu_save.gif	73X18, 8 bits 73X18, 8 bits 73X18, 8 bits	
Left Pane	Images/js_lftsd_photos/lftside_photo_man.jpg Images/js_lftsd_photos/lftside_photo_woman.jpg	200X621, 24 bits 200X621, 24 bits	#img_photo_manwith servers #img_photo_noTopNav_womanserver

Appendix B: config.ini template

```
## Description:
## =====

## Sample config file for providing system specific settings during
server cloning

##           with Intel(R) Deployment Assistant.

##

## This file helps in customizing system specific settings during
server cloning.

##

## Notes:
## =====

## 1. Any line starting with the symbol '#' is a comment, and hence
ignored.

## 2. For use with USB key based cloning, the filename has to be
renamed to 'config.ini'

## 3. This file is just an example, please modify the values as
required.

##

## Tip:
## =====

## The configuration parameters are commented out below, starting
with a single '#'.

## They can to be uncommented (by removing the leading '#') and
proper values need to

## be entered.

##=====
```

```
## The GENERAL section contains settings that are common to all
servers during PXE-based

## deployment

# [ GENERAL ]

#mode = "network_share"           # Possible values are:
network_share (Windows*), nfs (RHEL* and SUSE*), cdrom (common for all
OS), usb(Windows*)

                                # ** NOTE ** The parameter "mode" with
value "usb" is applicable only for USB based cloning

#dir = "share"                   # ** IMPORTANT ** The directory/folder name
that is being shared,

                                # it should _NOT_ be a sub-directory within
a shared folder.

                                # For # Windows(R) installations, this
directory should contain

                                # the 'i386' folder

#username = "user"               # Username for the Windows(R) share or NFS

#password = "password"          # Password

#workgroup="WGROU"              # Only required for Windows(R) share

## Any setting that is specific to a server needs to be grouped under
a section with the

## MAC address of the first NIC

# [ 00:15:17:8B:4E:12 ]          ## Server Specific setting ##

##-- Basic LAN Configuration -

#lan1_ip = "xxx.xxx.xxx.xxx"     # IP address of BMC LAN channel
1

#lan1_netmask = "xxx.xxx.xxx.xxx" # Netmask for BMC LAN channel 1

#lan1_gateway = "xxx.xxx.xxx.xxx" # Gateway address of BMC LAN
channel 1

#lan3_ip = "xxx.xxx.xxx.xxx"     # IP address of LAN3
```

Intel® Deployment Assistant v5.0 User Guide

```
#lan3_netmask = "xxx.xxx.xxx.xxx"          # Netmask of LAN3
#lan3_gateway = "xxx.xxx.xxx.xxx"         # Gateway address of LAN3
##-- Email alert settings --
#from_addr = "some_user@domain.com"       # Sender email address for
LAN channel 1
#machine_name = "mc_name"                 # Sender machine name for LAN
channel 1
#from_addr_lan3 = "some_user@domain.com"  # Sender email address for
LAN channel 3
#machine_name_lan3 = "mc_name"            # Sender machine name for
LAN channel 3
#dhcp_host_name = "hostname"              # DHCP hostname
##-- For OS Installation --
#os_computer_name = "computer"            # Computer name. Only applicable
for Windows* installations
#os_password = "password"                 # Administrator/root password for the
OS
#os_license = "XXXX-XXXX-XXXX-XXXX"       # License key. Only applicable
for Windows* and RedHat* Linux
```

Appendix C: An example of cloning Linux* OS installation with multi-server cloning image on bootable USB key

1. Create multi-server image that contains Linux* RHEL* 5 Update 7 installation with IDA and make a bootable USB key.
2. Create config.ini and save to the FAT partition of that bootable USB key. The following is an example of config.ini. The mode option could be "nfs", "share_server" and "cdrom". "nfs" is for Linux* OS installation, "network_share" is for Windows* OS installation, and "cdrom" is for scenario that target server has local CDROM/DVDROM, server can be installed from local media.

```
[ GENERAL ]
mode =      "cdrom"
server =
dir =
username =
password =
workgroup =

[ 00:15:17:DE:D9:84 ]
os_computer_name = "test1"
os_password = "123456"

[ 00:15:17:DE:84:08 ]
os_computer_name = "test2"
os_password = "password"
```

3. Insert Linux* RHEL* 5 update 5 OS installation DVD to DVD-ROM of target server.
4. Boot the target server with the USB key and start to run multi-server cloning image, reboot server when the process is completed.

```
Intel(R) Deployment Assistant 5.0 (1120)
=====

Starting automatic configuration (cloning)

Downloading the config file           [ OK ]
Downloading the system update file    [ OK ]
Downloading the drivers                [ OK ]
Detecting system components           [ OK ]
Applying server configurations        [ OK ]
=
Cloning completed                     [ OK ]

The following operations were completed successfully:
  * Configure Server

The system has been cloned successfully.
Please remove the USB key, if any, and press 'Enter' to restart the system
```

5. After server reboot, additional OS installation process will be started automatically.

Appendix D: Setting up a Linux* PXE server and integrating IDA multi-server cloning image HOWTO

Overview

This appendix describes how to set up a Pre-boot eXecution Environment (PXE) server on Red Hat* Linux 5.4 and how to integrate Intel® Deployment Assistant (IDA) multi-server cloning bootable image with the PXE server

Setting up a Linux* PXE server requires an Intel® Xeon® based server and two key software components that provides PXE functionality: 1> the DHCP server; 2> the TFTP server.

The PXE portion will be handled by the syslinux package. The Syslinux 3.11 package included in Red Hat* Linux 5.4

Notes: Refer to the section 3.6 for how to create IDA multi-server cloning bootable image.

Refer to Intel® server TPS for how to enable PXE client on PXE-enabled network interface controller (NIC) on Intel® server board or system

Pxelinix Functionality

The pxelinix functionality occurs in this order:

- The client machine (the server that needs to be cloned) boots from PXE client which requests a DHCP address.
- The DHCP server responds with an IP address for the client machine along with the address of a TFTP server and filename to load "pxelinix.0" from that server
- The client machine downloads "pxelinix.0" from the TFTP server and executes it
- "pxelinix.0" then searches the "pxelinix.cfg" directory on the PXE server for a configuration file that matches the IP address of the machine. If no matches are found, it will attempt to load a file called "default"
- The configuration file loaded by "pxelinix.0" will have instruction on what to do next. Some of the choices include boot to local hard drive, boot to an image file, or load vmlinuz and initrd.img

Setting up the PXE server

1. Install Red Hat* Linux 5.4 on a suitable Intel® Xeon® based server as PXE server.
2. Install the following packages:
 - dhcp-3.0.5-21
 - tftp-server-0.49-2

If multi-server cloning image contains OS installation, it also needs network file server to access the OS installation content. Network file server includes NFS for Linux* OS installation, CIFS (SMB) for Windows* OS installation. The file server could be a standalone server in network or NFS and samba service on the same server with PXE service.

Additional NFS and samba services may need to be installed.

- nfs-utils-1.0.9-42
- nfs-utils-lib-1.0.8-7.6.el5
- portmap-4.0-65.2.2.1
- samba-common-3.0.33-3.14
- samba-client-3.0.33-3.14
- samba-3.0.33-3.14

3. Setup static IP and hostname for PXE server, for example: IP=192.168.5.1, hostname =pxeserver.pxe.com

4. Setup DHCP service

- Run the following command to ensure that DHCP server can be started at each boot

```
chkconfig --level 345 dhcpd on
```

- A sample DHCP server configuration file "dhcpd.conf" is located at

```
/usr/share/doc/dhcp-3.0.5/dhcpd.conf.sample. Copy this sample to /etc/dhcpd.conf.
```

- Edit /etc/dhcpd.conf. The following is an example for dhcpd.conf, and item "next-server 192.168.5.1" defines the tftp server address, item "filename "pxelinux.0" " indicates the first file that PXE client download from tftp server.

```
ddns-update-style interim;
#ignore client-updates
subnet 192.168.5.0 netmask 255.255.255.0 {
range 192.168.5.100 192.168.5.150;
default-lease-time 86400;
max-lease-time 86400;
option ip-forwarding off;
option broadcast-address 192.168.5.255;
option subnet-mask 255.255.255.0;
option ntp-servers 192.168.5.100;
option domain-name-servers 192.168.5.100;
option netbios-name-servers 192.168.5.100;

next-server 192.168.5.1;
filename "pxelinux.0";
}
```

- After modifying `/etc/dhcpd.conf`, notify the dhcpd server of the changes by using the following command:

```
service dhcpd restart
```

Note: Do not run a new DHCP server on a network with an existing one unless you have configured the network for multiple DHCP servers. Running two or more DHCP servers on the same network without taking special precautions causes conflicts.

5. Configure TFTP service

- TFTP service is started and stopped by demon "xinetd", using the following command to ensure xinetd can be started at each boot

```
chkconfig --level 345 xinetd on
```

- Notify xinetd that the TFTP service has been enabled with the following command:

```
service xinetd restart
```

- Install pxelinux.0 and memdisk into the `/tftpboot` directory with following commands:

```
mkdir -p /tftpboot/pxelinux.cfg  
cp -a /usr/lib/syslinux/pxelinux.0 /tftpboot/
```

6. Enable NFS on the server

- Enable the NFS server by using following commands

```
chkconfig --level 345 portmap on
```

```
chkconfig --level 345 nfslock on
```

```
chkconfig --level 345 nfs on
```

- Edit `/etc/exports`. The following is an example that allow access NFS share folder `"/nfs1"` with anonymous user. Access NFS help for more information of NFS setting.

```
/nfs1          *(ro,  
sync,all_squash,anonuid=40,anongid=40)
```

- Start or restart NFS service by using the following commands

```
service portmap restart
```

```
service nfslock restart
```

```
service nfs restart
```

7. Enable samba service

- Enable samba service by following command

Chkconfig –level 345 smb on

- Edit /etc/samba/smb.conf. The following is an example that allows to access the samba share folder “/share/win2003r2” with anonymous user. Access samba help for more information of samba setting.

```
[global]
workgroup = mygroup
server string = Samba
security = share
wins support = no
guest ok = yes
netbios name = myserver
[win2003r2]
path = /share/win2003r2
guest ok = yes
available = yes
public = yes
```

- Test “smb.conf” by following command
testparm
- Start or restart samba service by using the following command
service smb restart
- Linux* may prevent samba search the share folder, such as “/share”, alter file context by using the following commands
chcon –R –t samba_share_t `./share`

Steps to integrate IDA multi-server cloning image with Linux* PXE server

1. Unzip IDA multi-server cloning image to Linux TFTP root folder “/tftpboot”. IDA multi-server cloning image is a zip file, it usually contains:

```
Input zip contains:
- vmlinuz
- initrd.gz
- drivers.zip
- update_package.zip
- conflig_template.ini
- stage2.tar.gz
□
```

2. Create file "config.ini" at folder "/tftpboot/", you can find a config.ini template in the package of IDA multi-server cloning image.

Note: refer to the user guide section 3.6.3 for detailed config.ini definition

3. We have created the directory "/tftpboot/pxelinux.cfg". The pxelinux.0 configuration files will be stored in this directory. Because more than one system may be booted from the same server, the configuration file name depends on the IP address of the booting machine. PXELINUX will search for its configuration file on the boot server in the following way:

First, it will search for the configuration file using the hardware type (using its ARP type code) and address, all in lower case hexadecimal with dash separators; for example, for an Ethernet (ARP type 1) with address 88:99:AA:BB:CC:DD it would search for the filename 01-88-99-aa-bb-cc-dd.

Next, it will search for the configuration file using its own IP address in upper case hexadecimal, e.g. 192.0.2.91 -> C000025B (192->C0, 0->00, 2->02, 91->5B). If that file is not found, it will remove one hex digit and try again. Ultimately, it will try looking for a file named "default" (in lower case). As an example, if the boot file name is /mybootdir/pxelinux.0, the Ethernet MAC address is `88:99:AA:BB:CC:DD` and the IP address 192.0.2.91, it will try following files (in that order):

```
/mybootdir/pxelinux.cfg/01-88-99-aa-bb-cc-dd
/mybootdir/pxelinux.cfg/C000025B
/mybootdir/pxelinux.cfg/C000025
/mybootdir/pxelinux.cfg/C00002
/mybootdir/pxelinux.cfg/C0000
/mybootdir/pxelinux.cfg/C000
/mybootdir/pxelinux.cfg/C00
/mybootdir/pxelinux.cfg/C0
/mybootdir/pxelinux.cfg/C
/mybootdir/pxelinux.cfg/default
```

- Example of "default" file:

```
DEFAULT Example
prompt 0

label Example
kernel vmlinuz
append initrd=initrd.gz server_ip=192.168.5.1
stage2_path= quiet
```

- "vmlinuz" and "initrd.gz" are files from the IDA multi-server cloning image zip package.
 - "server_ip" is PXE server IP address
 - "stage2_path" is the sub-folder name that contains file "stage2.zip". The sub-folder means the sub-folder under TFTP root folder "tftpboot". At this example, the value of "stage2_path" is blank, as "stage2.zip" is at TFTP root folder "tftpboot".
4. Multi-server cloning image also can be integrated to a sub-folder under TFTP root folder. PXE server supports boot menu function, so user can arrange several multi-server cloning images on one PXE server, and can select them by boot menu.
- Copy file "menu.c32" from syslinux package to TFTP root folder "tftpboot"
 - Create folder "test1" under "tftpboot", unzip multi-server cloning image to folder "/tftpboot/test1"
 - Create file "config.ini" at folder "/tftpboot/test1", you can find a config.ini template file at multi-server cloning image

Note: refer to the user guide section 3.6.3 for detailed config.ini definition

Edit "/tftpboot/pxelinux.cfg/default" as following:

```
default menu.c32
PROMPT 0
TIMEOUT 300
MENU TITLE PXE Boot Menu

label SR1625 MPHW RAID 15G Windows2003
MENU DEFAULT
kernel test1/vmlinuz
append initrd=test1/initrd.gz server_ip=192.168.7.1
        stage2_path=test1 quiet

label SR1625 FW update
kernel test2/vmlinuz
append initrd=test2/initrd.gz server_ip=192.168.7.1
        stage2_path=test2 quiet
```

5. Copy content of OS installation CD or DVD to file server

If multi-server cloning image contains OS installation, it needs to access the content of OS installation CD/DVD from local CDRom of target server or network file server.

In this example, we copy all content of RHEL* Linux 5 U5 DVD to folder "/nfs1", and copy all content of Windows* 2003 R2 to folder "/share/win2003r2"

6. Example of deploying firmware update multi-server cloning with PXE server

- Create multi-server image that contains firmware update and server management configuration with IDA and save PXE image to a USB key
- Unzip the image to "/tftpboot/test2"
- Check "/tftpboot/pxelinux.cfg/default", it should follow step 4
- Create "/tftpboot/test2/config.ini". The following is an example of config.ini. After system firmware updated, BMC DHCP hostname will be updated with different name.

Note: If multi-server cloning image only contains firmware update operation, config.ini is not needed.

```
[ GENERAL ]
mode =
server =
dir =
username =
password =
workgroup =

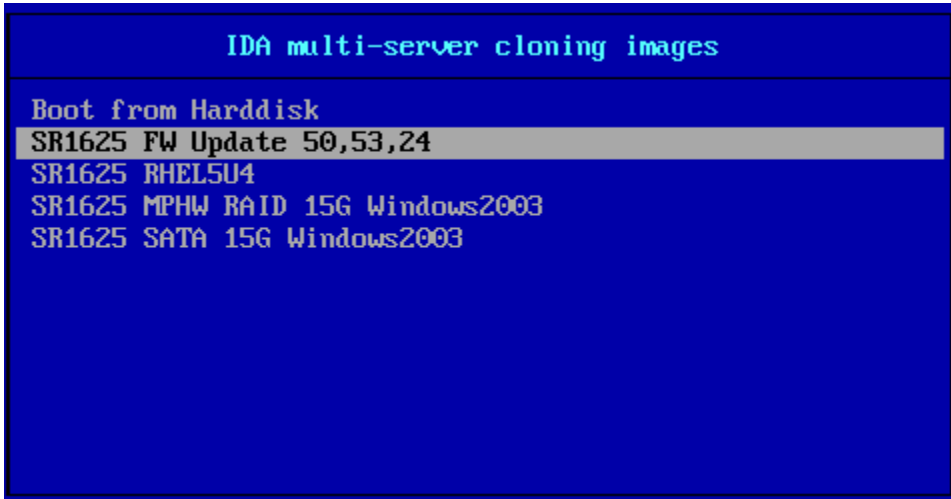
[ 00:15:17:DE:D9:84 ]
dhcp_host_name = "BMC001"

[ 00:15:17:DE:84:08 ]
dhcp_host_name = "BMC002"
```

- Start other servers and enter "F12" key to boot from PXE client.



- Select update FW menu from PXE menu in this example



- Multi-server cloning image start to update server firmware, reboot server when the process completed.

```
Intel(R) Deployment Assistant 5.0 (1120)
=====

Starting automatic configuration (cloning)

Downloading the config file           [ OK ]
Downloading the system update file    [ OK ]
Downloading the drivers                [ OK ]
Detecting system components           [ OK ]
Updating system software               [ OK ]
=====
Cloning completed                     [ OK ]

The following operations were completed successfully:
* System Updates

The system has been cloned successfully.
Please remove the USB key, if any, and press 'Enter' to restart the system
```

Notes:

- Server onboard NIC1 is usually recommended to connect to network. If other onboard NIC are not connected to server, multi-server cloning image may report those unconnected NIC fail to get IP address from DHCP server. This is working as design and will not impact the deployment cloning.
- When multi-server cloning image is updating server firmware, do not power off server. Otherwise system firmware may be damaged. If server lost power due to an accident during FW updating, multi-server cloning image will fail to run on this server again. User need to force update system BIOS, BMC and FRUSDR to recover it. Refer to the server system TPS for how to force update system firmware.

7. Example of deploying Windows 2003* installation multi-server cloning with PXE server

- Create multi-server image that contains Windows 2003* installation with IDA and save PXE image to a USB key.
- Unzip the image to "/tftpboot/test1", Check "/tftpboot/pxelinux.cfg/default", it should follow step 4.
- Create "/tftpboot/test1/config.ini". The following is an example of config.ini.

```
[ GENERAL ]
mode =      "network_share"
server = "192.168.7.1"
dir =      "win2003r2"
username = "root"
password = "password"
workgroup ="mygroup"

[ 00:15:17:DE:D9:84 ]
os_computer_name = "test1"
os_password = "123456"

[ 00:15:17:DE:84:08 ]
os_computer_name = "test2"
os_password = "123456"
```

- Start other servers and enter "F12" key to boot from PXE client.
- Select SR1625 MPHW RAID 15G Windows2003 menu in this example.
- Multi-server cloning image start to OS installation, reboot server when the process completed. After server reboot, additional OS installation process will be started automatically.

```
Intel(R) Deployment Assistant 5.0 (1120)
=====

Starting automatic configuration (cloning)

Downloading the config file           [ OK ]
Downloading the system update file    [ OK ]
Downloading the drivers                [ OK ]
Changing machine name for OS installation [ OK ]
Changing password for OS installation [ OK ]
Detecting system components           [ OK ]
Creating partitions====               [ OK ]
Setting up for OS installation        [ OK ]

Cloning completed                     [ OK ]

The following operations were completed successfully:
  * OS Installation

Note: On reboot, boot from hard disk/volume to continue the OS installation

Note: Before rebooting the system for network based OS Installation, please ensure Network port 1 is connected to network.

The system has been cloned successfully.
Please remove the USB key, if any, and press 'Enter' to restart the system
```