IBM Remote Support Manger for Storage

Installation Hints and Tips

Version 4.28, June 19, 2012

This document is updated frequently. If viewing a hardcopy version of this document, please visit the RSM for Storage web site to verify that this is latest version. https://www.ibm.com/storage/disk/rsm

Contents

Information for installing the RSM for Storage software and required Linux OS on the following System x servers:

System x Server	Firmware Updates	Options	Linux OS	
x306m	See page 9	Single SATA HDD	SLES 10	See page 11
			SLES 9	See page 13
			RHEL 4 AS	See page 15
		Two SATA or SAS HDD with RAID 1 Mirroring	SLES 10	See page 11
			SLES 9	See page 13
			RHEL 4 AS	See page 15
X3250	See page 9	SATA controller - No internal RAID	SLES 10	See page 16
			SLES 9	See page 18
			RHEL 4 AS RHEL 5	See page 20
		LSI SAS controller – RAID 1 with two drives	SLES 10	See page 17
			SLES 9	See page 18
			RHEL 4 AS RHEL 5	See page 21
Any			SLES 11.x	See Page 2

If you are installing RSM for Storage on a server other that those listed above, you will need to refer to your server documentation and the System x support web site to determine if there are special procedures for configuring your server and installing the Linux OS. The following page describes how to locate information for your server on the IBM support website.

Note: Some System x servers have a base board management function that affects the operation of the serial port. Please review the BIOS setup recommendations on page 22.

Locating Support Information for your System x Server

To find additional support information for System x servers go to http://www.ibm.com/support

- Under “Search Technical Support” enter the machine type and model of your server
- On the “Search Results page, you can enter “Additional search terms” to refine the results.

Also note that the OS installation instructions in the RSM documentation will not have been tested with other servers and there may be some slight differences. The click by click Linux OS instructions may not apply and should therefore be viewed as a guide.

If you need assistance in completing the BIOS setup or Linux OS install for your server, you will need to contact System x support or support for the Linux OS. Depending on the terms of your support contracts, additional fees may apply.

To find instructions for installation of the Linux OS for servers other than those listed above go to:
http://www.ibm.com/support

- Under “Search Technical Support” enter the machine type and model of your server
- On the “Search Results page, in the “Additional search terms” box type either “SUSE” or “Red Hat”

Follow the instructions for configuring the server BIOS and starting the Linux Installation. When you reach the point in the System x instructions where Partitioning is selected, return to the RSM for Storage Planning, Installation and User’s Guide document. Continue with **Part 3** of the Linux Installation instructions.

Installing SLES 11.x

Some System x servers require special procedures, drivers or kernels when installing SuSE SLES 11.x.

To see if your system has special requirements, go to the IBM Support Portal at

http://www-947.ibm.com/support/entry/portal

and enter: “Installing SUSE Linux Enterprise Server 11” in the search box on the upper right of the page.

If special procedures are required, follow any instructions for configuring the server BIOS and starting the Linux Installation. When you reach the Installation Setting screen of the installation, return to the *RSM for Storage Planning, Installation and User’s Guide* document and continue with **Part 3** of the Linux Installation instructions for SLES 11.

Errata for the *RSM for Storage – Planning, Installation and User's Guide*

None

Special instructions for installing the Mutt e-mail agent

These steps should be done prior to starting the configuration of RSM for Storage in Chapter 3 of the *Planning, Installation and User's Guide*.

These steps only apply to installation on the following Operating Systems:

SuSE SLES 10.4
SuSE SLES 11.0
SuSE SLES 11.1

For all other operating system continue with Chapter 3 Installing RSM for Storage in the *Planning, Installation and User's Guide.*

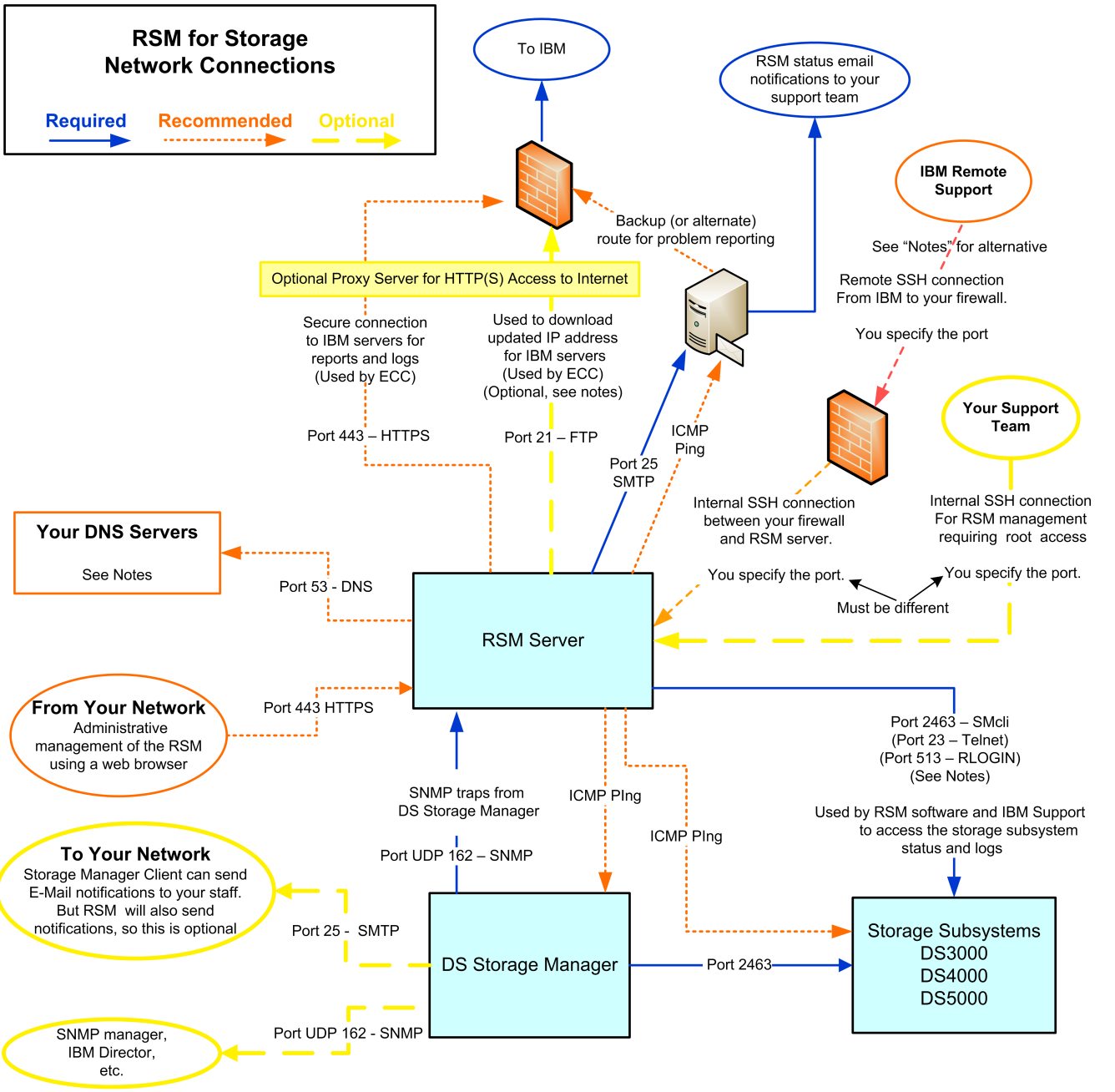
1. As the root user:
   A ."cd /usr/bin"
   B. "cp mutt mutt-original-1.5.x"

2. Download the source code for the mutt email client version 1.4.xx As the root user:
   A. Create the /packages directory - "mkdir /packages"
   B. Download mutt-1.4.2.3.tar.gz from http://www.mutt.org/download.html and save in /packages
   C. Uncompress the source files
      1. "gzip -d mutt-1.4.2.3.tar.gz"
      2. "tar -xf mutt-1.4.2.3.tar"
      3. "cd mutt-1.4.2.3"
   D. Compile the source code
      1. "./configure"
      2. "make install"
   E. "cp mutt /usr/bin/mutt"

3. Continue with Chapter 3, "Installing RSM for Storage," on page 17.

Network Connection Diagrams

The diagrams on the next two pages show the network connections that may be required for setting up the RSM for Storage system in your network.



Notes: TELNET (Port 23) and RLOGIN (Port 513) may be used by IBM Support to connect to the storage controller shell interface for resolution of some problems. Which protocol may be needed depends on the level of controller firmware on the storage subsystem. The ability to access to your storage controller's shell interface is controlled by you using the DS Storage Manager Client In addition, TELNET may be used by RSM for Storage for other functions in the future.

Use of ICMP Ping to verify connectivity between the RSM and other devices can be disabled, but can make troubleshooting some problems more difficult.

Remote Access from IBM to the RSM system is strongly recommended and can be provided by an SSH connection or TTY modem connection.

For problem reporting and sending logs to IBM, you can choose to use ECC (HTTPS) , or Email, or ECC with email as a backup. The FTP connection for ECC is not required if the RSM software is kept current.

If DNS (Port 53) is not available in your network , manual configuration of a /etc/hosts file with IP addresses and domains will be required. As remote IP addresses can change over time, not having DNS available can cause RSM to stop working.

See the chart on the next page for information about IBM IP addresses you may need to use in configuring your firewall.

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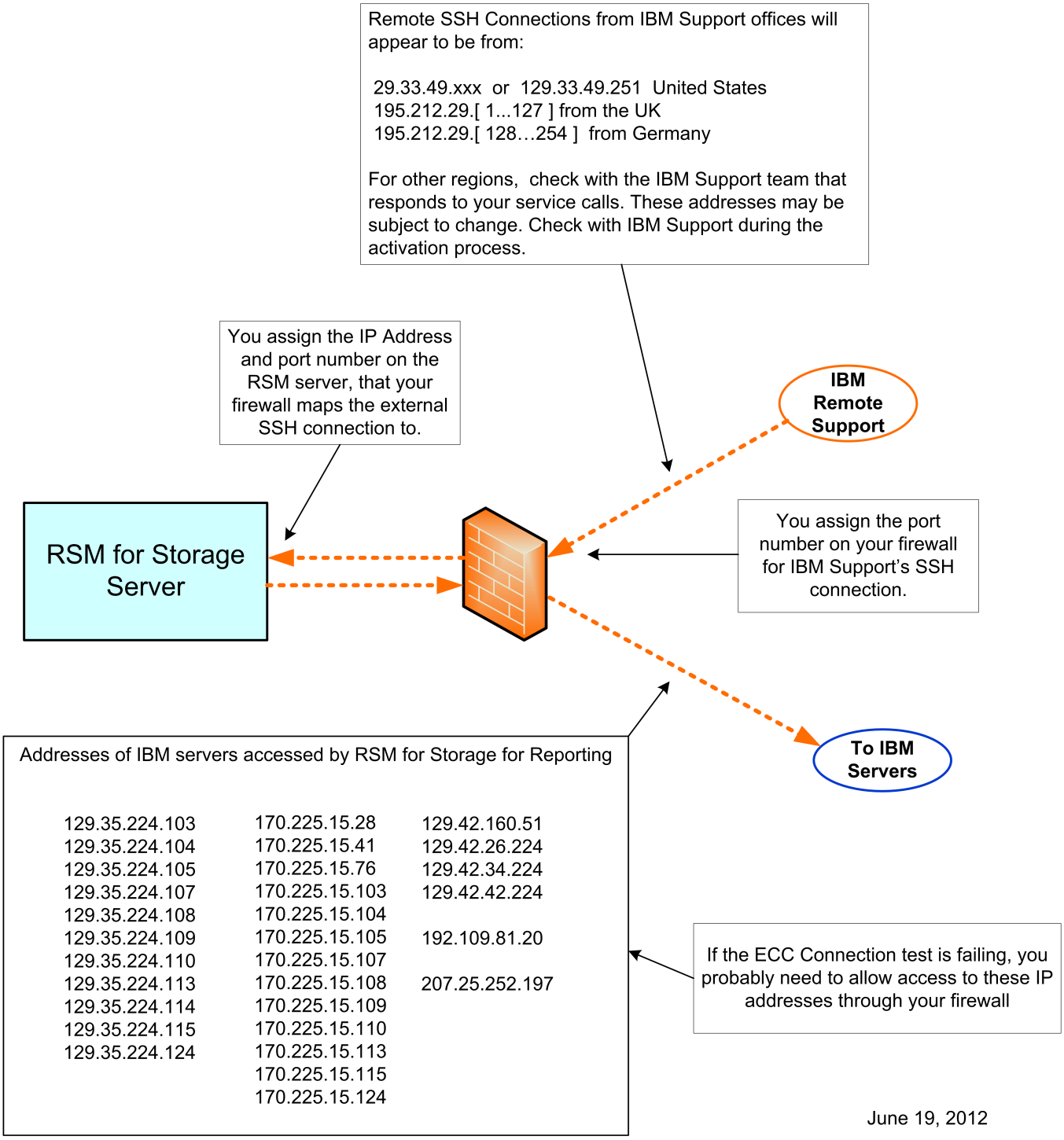
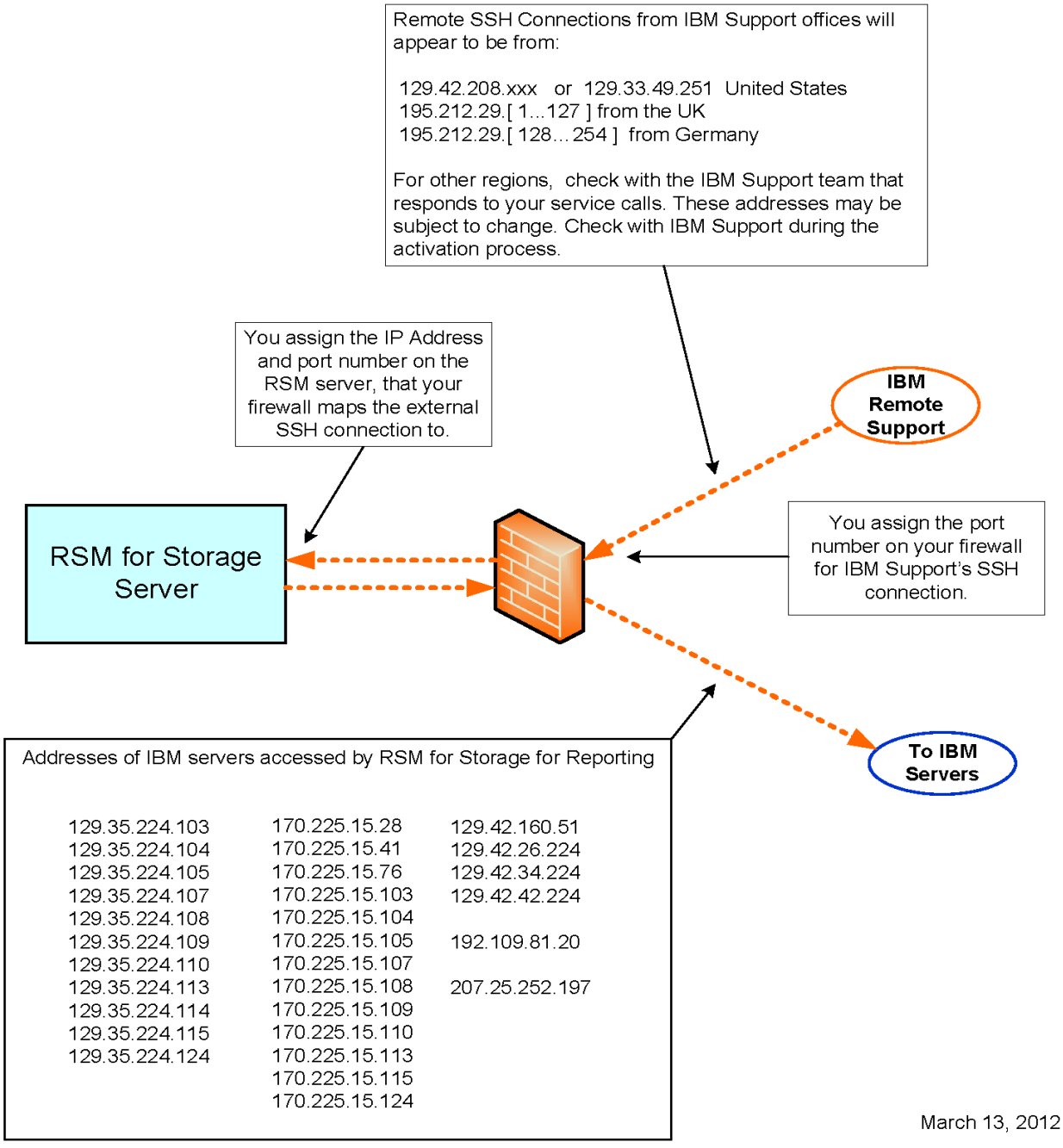
IBM RSM for Storage

IP Addresses you may need to configure in your external firewall for reporting and remote access



IBM RSM for Storage

IP Addresses you may need to configure in your external firewall for reporting and remote access



March 13, 2012

Configuring a U.S. Robotics modem

The following DIP switch settings and initialization strings have been found to work with most US Robotics modems.

1. For Sportster and Courier modems: Set the DIP switches 3, 4, 5 and 8 to the ON position (usually down)

These settings should configure the following:
- DTR - normal
- Verbal result codes
- Enable result codes
- Disable echo in offline commands
- Disable auto answer
- Carrier Detect – normal
- Enable result codes in all modes
- Enable AT commands
- No disconnect with +++
- Load NVRAM Defaults

Note that some modems do not have DIP switches for all of the above settings.

2. Create a custom modem configuration file

As the root user, create a file named **rsm-modem.conf** with the line: STRING AT&F1&W OK
After the installation of the RSM software, place this file in the directory: **/etc/rsm** and then restart the RSM daemon with the commands: **rsm-stop** followed by: **rsm-start**

> Tip: If you are not familiar with Linux text editors, you can also create this file with a single command:
> **echo STRING AT&F1&W > /etc/rsm/rsm-modem.conf**
>
> Then verify the results with:
> **cat /etc/rsm/rsm-modem.conf**
>
> Then restart the RSM daemon with the commands:
> **rsm-stop** followed by **rsm-start**

Installing Firmware Updates

To install firmware updates prior to loading an Operating system, you will need to create diskettes from the .IMG files provided on the System x Support web site for the server.

Finding updates for your server

Go to: http://www.ibm.com/support
- Under “Support by product”, click Systems
- Under Product Support, click System x
- Enter your Product Family (such as x306m or x3250) and click Go.
- The result screen will list the recent updates available for your server.
- Follow the “Software and Device Drivers” link for additional updates.

To update firmware before loading an operating system, you should download the DOS versions of the updates which are packaged as .IMG files. To create floppy diskettes from .IMG files, use a tool such as EMT4WIN: http://perso.wanadoo.fr/dvalot/emtcopy.htm

Review the README file for each update for installation instructions.

For more information about media formats look on the individual firmware pages for the link: “New firmware update file formats”. This page explains how to create the media for each of the available file formats for the update.

Installing the Linux OS on the System x 306m server

Installing SLES 10 on the x306m Server with a single HDD

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 - Configure the server BIOS

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select “Load Default Settings”, press Enter
4. Select “Date and Time”, press Enter
a. Set the time to UTC (Coordinated Universal Time)
b. Press Esc
5. Select Save Settings.
6. Exit BIOS Setup and reboot the system.

Step 3 - Return to the *RSM for Storage – Planning, Installation and User’s Guide*. Continue the installation of SLES 10 starting with Part 2 – SLES 10 Installation

Installing SLES 10 on the x306m Server with a two HDD

Before starting this procedure you will need:

- a blank formatted floppy diskette
- a USB floppy diskette drive

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 - - Determine which driver you need

If the server has hot-swap drives (they have handles for removal just like the drives in the storage subsystems), you will need the adpahci driver. The current System x name for this driver is “IBM ServeRAID-8e SAS/SATA II hot-swap drivers for SUSE Linux Enterprise Server (64-bit) - Servers and IntelliStation”.

The driver should have a name similar to: ibm_dd_hr94xx_x.xx.xxxx_sles10_x86-64.img.

Search for the appropriate driver at http://www.ibm.com/support/us/ In the “Search technical support” box enter “ServeRAID-8e hot-swap SUSE 64”

If you have simple-swap drives, you will need the adpahci driver. The current System x name for this driver is “IBM ServeRAID-8e SATA for SLES 10 (32-bit and 64-bit) - Servers and IntelliStation”. The driver should have a name similar to : ibm_dd_adpahci_x.xx.xxxx_sles10_x86-64.img.

Search for the appropriate driver at http://www.ibm.com/support/us/ In the “Search technical support” box enter “ServeRAID-8e SATA SLES 10”

To install the RAID driver during the SLES installation, you will need to create a diskette using the .IMG file.
IMG files are diskette images. Use a tool such as EMT4WIN to create it:
http://perso.wanadoo.fr/dvalot/emtcopy.htm

Step 3 – Configure the server BIOS and HostRAID

1. When the prompt **Press F1 for Configuration/Setup** is displayed, press F1.
2. Select **Load Default Settings**
3. In the **Load Default Configuration Now**? window press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. Select **Devices and I/O Ports**
    a. Verify that Serial Port A is set to "Port 3F8, IRQ 4"
    b. Select **Advanced Chipset Control**

i. Set SATA Controller Mode Option: to "Enhanced"
ii. If you have hot-swap HDD, Set **SATA RAID Enable** to "Disabled" and press Esc twice to return to the main menu
iii. If you have simple swap HDD, Set **SATA RAID Enable** to "Enabled", and press Esc twice to return to the main menu

6. Select **Save Settings**
7. In the **Save Configuration Changes Now**? window press Enter
8. Exit Setup. System will reboot
9. When promoted, press Ctrl-A to enter Adaptec SAS/SATA Configuration Utility
    a. If **Array Configuration Utility** is not present in menu select **Serial Select Utility**
    b. Select **Controller Configuration**
        i. Change RAID Support to Enabled
    c. Press ESC two times
    d. Select **Array Configuration Utility**

i. Select **Manage Arrays**
ii. If an array is shown press Delete to remove it
iii. In the Array Properties window select DELETE
iv. Select yes at the Warning Screen
v. Under the Deleting Information select BOTH

    a. Select **Create Array**

i. Press Insert two times to select the drives, and the press Enter
ii. Select **RAID 1** (Mirror)
iii. Enter a label such as System
iv. For **Create Array** via, select Quick Init
v. Press Enter two times

    e. Press Esc two times to exit the Adaptec SAS/SATA Configuration Utility

The system will reboot

Step 4 – Starting the installation of the SLES 10 operating system

1. Insert the SLES 10 CD #1 in the CDROM Drive
2. At the first screen, press F5 (Driver) and then **Yes**.
3. Connect the USB Floppy Drive to the system and insert the Drive diskette that you created in Step 2.
4. Select Installation and before pressing Enter type the following on the screen (without quotes)
   "broken_modules=aic94xx"

5. Select Driver Media (usually an USB Floppy) and select **OK**
6. Select OK after the driver update completes.
7. You will be presented with the Driver Update menu again. As you don't need any additional updates, select **Back**
8. Click your language and click **Next**.
9. Respond to the license agreement and click **Next**..

Step 5 - Return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of SLES 10 starting with Chapter 3 – SLES 10 Installation

Important note: Do not install any Linux kernel patches with this hardware configuration.

Installing SLES 9 on the x306m Server with a single HDD

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Configure the server BIOS

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select “Load Default Settings”, press Enter
4. Select “Date and Time”, press Enter
a. Set the time to UTC (Coordinated Universal Time)
b. Press Esc
5. Select Save Settings.
6. Exit BIOS Setup and reboot the system.

Step 3 - Return to the *RSM for Storage – Planning, Installation and User’s Guide*. Continue the installation of SLES 9 starting with Part 2 – SLES 9 Installation

Installing SLES 9 on the x306m Server with a two HDD

Before starting this procedure you will need:

- a blank formatted floppy diskette
- a USB floppy diskette drive

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 - Determine which driver you need

If the server has hot-swap drives (they have handles for removal just like the drives in the storage subsystems), you will need the adp94xx driver. The current xSeries name for this driver is “IBM ServeRAID-8e SAS/SATA II hot-swap drivers for SUSE Linux (64-bit)”. The driver should have a name similar to ibm_dd_adp94xx_x.xx.xxxx_sles9sp3_64.tar. Search for the appropriate driver at http://www.ibm.com/support/us/ In the “Search technical support” box enter x306m adp94xx

If you have simple-swap drives, you will need the adpahci driver. The current xSeries name for this driver is “ServeRAID-8e SATA II simple-swap drivers for SUSE Linux (64-bit)”. The driver should have a name similar to ibm_dd_adpahci_x.xx.xxxx_sles9sp3_64.tar. Search for the appropriate driver at http://www.ibm.com/support/us/ In the “Search technical support” box enter x306m adpahci

Extract all the files from the .tar file.

For use of the RAID driver during the SLES installation, you will need to create a diskette using the .IMG file. IMG files are diskette images. Use a tool such as EMT4WIN to create it:
http://perso.wanadoo.fr/dvalot/emtcopy.htm

Step 3 – Configure the server BIOS and HostRAID

1. When the prompt **Press F1 for Configuration/Setup** is displayed, press F1.
2. Select **Load Default Settings**
3. In the **Load Default Configuration Now**? window press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. Select **Devices and I/O Ports**
    a. Verify that Serial Port A is set to "Port 3F8, IRQ 4"
    b. Select **Advanced Chipset Control**

i. Set SATA Controller Mode Option: to "Enhanced"

ii. If you have hot-swap HDD, Set **SATA RAID Enable** to "Disabled" and press Esc twice to return to the main menu

iii. If you have simple swap HDD, Set **SATA RAID Enable** to "Enabled", and press Esc twice to return to the main menu

6. Select **Save Settings**
7. In the Save **Configuration Changes Now**? window press Enter
8. Exit Setup. System will reboot
9. When promoted, press Ctrl-A to enter Adaptec SAS/SATA Configuration Utility
    a. If **Array Configuration Utility** is not present in menu select **Serial Select Utility**
    b. Select **Controller Configuration**

i. Change RAID Support to Enabled

    c. Press ESC two times
    d. Select **Array Configuration Utility**
        i. Select **Manage Arrays**
        ii. If an array is shown press Delete to remove it
        iii. In the Array Properties window select DELETE
        iv. Select yes at the Warning Screen
        v. Under the Deleting Information select BOTH
    e. Select **Create Array**
        i. Press Insert two times to select the drives, and the press Enter
        ii. Select **RAID 1** (Mirror)
        iii. Enter a label such as System
        iv. For **Create Array** via, select Quick Init
        v. Press Enter two times
    f. Press Esc two times to exit the Adaptec SAS/SATA Configuration Utility

The system will reboot

Step 4 – Starting the installation of the SLES 9 operating system

1. Insert the SLES 9 Service Pack 3 CD #1 in the CDROM Drive
2. At the first screen, press F6 (Driver) and then select Installation and press Enter
3. Select Driver Media and select OK
4. Select OK after the driver update completes.
5. You will be presented with the Driver Update menu again. As you don't need any additional updates, select Back
6. When prompted for "CD number 1", insert the base SLES 9 CD #1 and select OK
7. Click Installation from the first screen.
8. Respond to the license agreement.
9. Click your language and click Accept.
10. On the Installation Settings screen, click New Installation.

Step 5 - Return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of SLES 9 starting with Part 3 – SLES 9 Installation

Important note: Do not install any Linux kernel patches with this hardware configuration.

Installing RHEL 4 on the x306m Server with a single HDD

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Configure the server BIOS

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select “Load Default Settings”, Press Enter
4. Select “Date and Time”, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. Select Save Settings.
6. Exit BIOS Setup and reboot the system.

Step 3 - Return to the *RSM for Storage – Planning, Installation and User’s Guide*. Continue the installation of RHEL 4 starting with Part 2 – RHEL 4 Installation

Installing RHEL 4 on the x306m Server with a two HDD

NOTE: The device driver required to use two SATA drives to create a HostRAID configuration is not available for Red Hat Enterprise Linux. The second HDD will not be used.

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Configure the server BIOS

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select “Load Default Settings”, Press Enter
4. Select “Date and Time”, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. Select Save Settings.
6. Exit BIOS Setup and reboot the system.

Step 3 – Return to the *RSM for Storage – Planning, Installation and User’s Guide*. Continue the installation of RHEL 4 starting with Part 2 – RHEL 4 Installation

Installing the Linux OS on the System x 3250 server

The x3250 server is available two hard disk drive controllers. The SATA Controller does not allow the HDDs to e configured for RAID. The LSI SAS Controller allows the HDDs to be configured for either RAID 0 or RAID 1.

Installing SLES 10 on the x3250 Server with the SATA Controller - no RAID available

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Configure the server BIOS

If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature, by completing the following steps, before installing SUSE Linux Enterprise Server 10:

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select **Load Default Settings**, Press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature:
    a. Select **Advanced setup** and select CPU Options.
    b. Highlight EIST and press the Right Arrow or Left Arrow key until Disabled is selected.
    c. Press Esc twice.
6. Select **Save Settings**.
7. Exit BIOS Setup and reboot the system.

Step 3 - Return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of SLES 10 starting with Part 2 – SLES 10 Installation

Installing SLES 10 on the x3250 Server with the LSI SAS Controller - allows two HDD to be mirrored (RAID 1)

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Configure the server BIOS

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select **Load Default Settings**, Press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature:
    a. Select **Advanced setup** and then **CPU Options.**
    b. Highlight EIST and press the Right Arrow or Left Arrow key until Disabled is selected.
    c. Press Esc twice.
6. Select **Save Settings**.
7. Exit BIOS Setup and reboot the system.

Step 3 – Configure RAID 1

1. Turn on the server and press Ctrl+C when prompted.
2. Select the **SAS controller (SAS1064E**), from the Adapter List.
3. Select **SAS Topology**.
4. Select **Direct Attach Devices** to expand the device list.
5. If you wish to format the hard disks, complete the following steps for each drive. Formatting might take up to 30 minutes, depending on the drive size
    a. Highlight a device and type Alt-D.
    b. Select Format.
    c. Press F to format the drive.
    d. When the formatting is completed, press ESC twice.
6. Repeat these steps for each physical device in the list.
7. Press Esc.
8. On the adapter properties – SAS1064E screen, select **Advanced Adapter Properties**, and then select **Restore Defaults** and press Enter
9. Press ESC once
10. Select **RAID Properties**
    a. If **View Existing Array** is available, an array already exists. You can press Enter to view the array information, manage the array or delete it.
    b. If an existing array is not present, Select **CREATE IM Volume**

i. Set **RAID Disk** to Yes for both drives
ii. Press C to create array
iii. Select **save changes then exit this menu** and press Enter
iv. Press Esc

    c. Select **save changes then exit this menu** and press Enter
11. Press Esc
12. Insert CD labeled SLES 10 CD #1 in the CDROM drive.
13. Select “Exit the Configuration Utility and Reboot”, and press Enter

Step 4 - Return to the *RSM for Storage – Planning, Installation and User’s Guide*. Continue the installation of SLES 10 starting with Part 2 – SLES 10 Installation.

Installing SLES 9 on the x3250 Server with the SATA Controller - no RAID available

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Configure the server BIOS

1. Power on the server
2. When the prompt Press F1 for Configuration/Setup is displayed, press F1.
3. Select Load Default Settings, Press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature:
    a. Select **Advanced setup** and select CPU Options.
    b. Highlight EIST and press the Right Arrow or Left Arrow key until Disabled is selected.
    c. Press Esc twice.
6. Select **Save Settings**.
7. Exit BIOS Setup and reboot the system.

Step 3 - Return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of SLES 9 starting with Part 2 – SLES 9 Installation

Installing SLES 9 on the x3250 Server with the LSI SAS Controller - allows mirroring of two HDD (RAID 1)

Before starting this procedure you will need a blank formatted floppy diskette and a USB floppy diskette drive.

Step 1 – Verify that your server has the latest firmware. See page 9

Step 2 – Create the driver diskette for the RAID setup.

1. Go to https://www.ibm.com/support
    a. Under Search Technical Support enter: x3250 lsi 1064 suse
    b. Locate the "IBM SAS HBA Controller and LSI 1064 Driver for SUSE Linux Enterprise Server 9"
    c. Download the diskette image file for SLES9 SP3 64-Bit: ibm_dd_mptsas_x.xx.xx_sles9sp3_x86-64.img
2. Use a tool such as EMT4WIN to create a diskette: http://perso.wanadoo.fr/dvalot/emtcopy.htm

Step 3 – Configure the server BIOS

If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature, by completing the following steps, before installing SUSE Linux Enterprise Server 9:

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select **Load Default Settings**, Press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature:
    a. Select **Advanced setup** and select CPU Options.
    b. Highlight EIST and press the Right Arrow or Left Arrow key until Disabled is selected.
    c. Press Esc twice.
6. Select **Save Settings**.
7. Exit BIOS Setup and reboot the system.

Step 4 – Configure RAID 1

1. Turn on the server and press Ctrl+C when prompted.
2. Select the **SAS controller (SAS1064E**), from the Adapter List.
3. Select **SAS Topology**.
4. Select **Direct Attach Devices** to expand the device list.
5. If you wish to format the hard disks, complete the following steps for each drive. Formatting might take up to 30 minutes, depending on the drive size
    a. Highlight a device and type Alt-D.
    b. Select Format.
    c. Press F to format the drive.
    d. When the formatting is completed, press ESC twice.
6. Repeat these steps for each physical device in the list.
7. Press Esc.
8. Select **Advanced Adapter Properties**, and then select Restore Defaults.
9. Press ESC once
10. Select **RAID Properties**
    a. If **View Existing Array** is available, an array already exists. You can press Enter to view the array information, manage the array or delete it.
    b. If an existing array is not present, Select **CREATE IM Volume**

i. Set **RAID Disk** to Yes for both drives
ii. Press C to create array
iii. Select **save changes then exit this menu** and press Enter
iv. Press Esc

    c. Select **save changes then exit this menu** and press Enter
11. Press Esc
12. Insert CD labeled SLES 9 Service Pack 3 in the CDROM drive. After booting with Service Pack 3 CD #1, you will later be prompted to insert Disk 1. This is CD #1 of the base SLES 9 set. You will be prompted for other service pack or base CDs as you go through the installation.
13. Install the USB floppy diskette drive. Do not insert the driver diskette at this time.
14. Select “Exit the Configuration Utility and Reboot”, and press Enter

Step 5 – Start the SLES 9 Installation

1. On the first SLES screen, Press F6 to indicate you have a driver to load
2. If you have not already done so connect the USB diskette driver to the server.
3. Select “Installation”, and press Enter
4. When prompted, insert the driver diskette and press Enter
5. The driver will be located and loaded during the initial part of the installation.
6. When you should see the message: “Driver Updates added”. Press Enter
7. You will be prompted to choose another media for another driver. Select Back and press Enter
8. When prompted, insert CD #1 from the base SLES 9 CD set. Select OK and press Enter.
9. Respond to the license agreement.
10. Click your language, and click Accept
11. On the Installation Settings screen, click New Installation.

If prompted that an OS is already installed, select New installation and click OK

Step 4 - Return to the *RSM for Storage – Planning, Installation and User’s Guide*. Continue the installation of SLES 9 starting with Part 3 – SLES 9 Installation

Important note: Do not install any Linux kernel patches with this hardware configuration.

Installing RHEL 4 AS or RHEL 5 on the x3250 Server with the SATA Controller - no RAID available

Step 1 – Configure the server BIOS

If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature, by completing the following steps, before installing RHEL 4 AS:

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select **Load Default Settings**, Press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature:
    a. Select **Advanced setup** and select CPU Options.
    b. Highlight **EIST** and press the Right Arrow or Left Arrow key until Disabled is selected.
    c. Press Esc twice.
6. Select **Save Settings**.
7. Exit BIOS Setup and reboot the system.

Step 2 – For RHEL 4 AS, return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of RHEL 4 AS starting with Part 2 – RHEL 4 Installation.

For RHEL 5, return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of RHEL 5 starting with Part 2 – RHEL 5 Installation.

Installing RHEL 4 AS or RHEL 5 on the x3250 Server with the LSI SAS Controller - allows two HDD to be mirrored (RAID 1)

Step 1 – Configure the server BIOS

If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature, by completing the following steps, before installing Red Hat Enterprise Linux 4, Advanced Server:

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press **F1**.
3. Select **Load Default Settings**, Press Enter
4. Select **Date and Time**, press Enter
    a. Set the time to UTC (Coordinated Universal Time)
    b. Press Esc
5. If your server has Intel Xeon or Core 2 DUO CPU, you need to disable the EIST feature:
    a. Select **Advanced setup** and select CPU Options.
    b. Highlight **EIST** and press the Right Arrow or Left Arrow key until Disabled is selected.
    c. Press Esc twice
6. Select **Save Settings**.
7. Exit BIOS Setup and reboot the server

Step 2 – Configure RAID 1

1. Turn on the server and press Ctrl+C when prompted.
2. Select the **SAS controller (SAS1064E**), from the Adapter List.
3. Select **SAS Topology**.
4. Select **Direct Attach Devices** to expand the device list.
5. To format each hard disk individually, complete the following steps. Formatting might take up to 30 minutes, depending on the drive size
    a. Highlight a device and type Alt-D.
    b. Select Format.
    c. Press F to format the drive.
    d. When the formatting is completed, press ESC twice.
6. Repeat these steps for each physical device in the list.
7. Press Esc.
8. Select **Advanced Adapter Properties**, and then select **Restore Defaults**.
9. Press ESC once
10. Select **RAID Properties**
    a. If **View Existing Array** is available, an array already exists. You can press Enter to view the array information, manage the array or delete it.
    b. If an existing array is not present, Select **CREATE IM Volume**

i. Set **RAID Disk** to Yes for both drives
ii. Press C to create array
iii. Select **save changes then exit this menu** and press Enter
iv. Press Esc

    c. Select **save changes then exit this menu** and press Enter
15. Press Esc
16. Insert CD #1 for RHEL 4 AS, Update in the CDROM drive.
17. Select Exit **the Configuration Utility and Reboot**, and press Enter

Step 3 – for RHEL 4 AS, return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of RHEL 4 starting with Part 2 – RHEL 4 Installation.

For RHEL 5, return to the *RSM for Storage – Planning, Installation and User's Guide*. Continue the installation of RHEL 5 starting with Part 2 – RHEL 5 Installation.

BIOS settings for System x servers with a base-board management function

Some System x servers have a base-board management function that can be configured to share the serial port with the main system. In order to use the server with a modem, you should initialize all BIOS parameters to their default settings.

Note that these settings only apply to use of the serial port. Other BIOS changes may be required for configuration of functions such as on-board RAID.

1. Power on the server
2. When the prompt **Press F1 for Configuration/Setup** is displayed, press F1.
3. Select **Load Defaults**
4. Select **Date and Time**, press Enter
   a. Set the time to UTC (Coordinated Universal Time)
   b. Press Esc
5. Select **Devices and I/O Ports**
   a. Press Enter on Devices and I/O Port
   b. Verify that Serial Port A is not disabled
   c. Press Esc and Save Changes

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