



AIX System Recovery Guide

Version 6.3



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1. Introduction

The ***SBAAdmin AIX System Installation Guide*** is a supplement to the ***SBAAdmin User Guide***, providing details on reinstalling an ***AIX*** system from an ***SBAAdmin System Backup***. Note that a System Backup is not limited to reinstalling the same system from which it was made, but it may also be used to “clone” the original system onto different systems containing the same or different hardware.

When to Use this Guide

This guide provides instructions for booting and reinstalling a system from an SBAAdmin System Backup. This document should be reviewed after first installing the software to become familiar with this process and its requirements BEFORE a system installation is required.

Installation from a System Backup is fairly intuitive, but there is information and steps that must be taken to be prepared in the event that a system re-installation is required. The System Backup contains all of the backup data and the information needed to recreate the system and restore the data. If the System Backup is on a tape, then you can boot the system from the tape, so no other media is required. If your System Backup was written to a disk image file on a server, then you must either create a network boot image for booting the client, or a separate Boot-only tape for booting the client to the installation menus.

This guide will refer to information found in the ***SBAAdmin User Guide***. When doing so, the reference term or section will be shown in **Blue Text**. If you need to refer to that information in the Administrator User Guide, highlighted sections (**in bold**) can be found in the **Table of Contents**, and other terms can be found in the **Index**.

Note that some of the screens in this guide are not seen when you are using the ***TSM Edition***.

2. Create Boot Media for System Installation

The SBAAdmin Backup Administrator User Interface provides a very simple procedure for creating boot media, which is described in this section. This interface may be used to create bootable **tapes**, boot **CDROM** images, **network boot** images, or can configure a local **hard disk** to boot the system recovery process. This interface may create any of the boot media types. Also refer to the **stmakeboot** command in the [Commands Reference](#), which may be run on any client to make bootable media directly from that system.

If using a *Network Administrator*, you should have boot media available for every client. If different clients are of the same **platform type**, **AIX release level**, and have the same **adapter support** installed, then they may typically use the same boot media. If you have one system with all device support installed, that system may be used to create boot media that will boot any system regardless of its own platform type or attached hardware. Keep in mind, however that you must create boot media using the same AIX release level you will be installing from the backup.



You must create boot media using the same **AIX** release level you will be installing from the backup!

When to Create Boot Media

It is generally a good idea to create bootable media for each individual system that is backed up using SBAAdmin. This is because most systems do not run under the same AIX release level, have the same device support installed and configured, and have the same software level of various device support and other applications installed.

If you attempt to boot from media created using one AIX release level (i.e. "5.2"), then attempt to install the system from a backup that was running under release 5.3, you may run into problems during or after the installation completes. This is because the devices and filesystems created during the system recovery will be later accessed by a different *AIX kernel* that may not be compatible or provide the proper support. For this reason, the SBAAdmin Installation process provides strong warnings if you boot from a different release level than was running at the time the backup was created. The installation process also verifies that your boot media contains the device support that is required to install the system, based on those devices that were in use at the time of the backup. If the support is not provided by the bootable media, devices may not appear which are needed for the install process.

If you have multiple systems, all running the same AIX release (but not necessary the exact same modification or fix level), it is generally safe to use the same boot media to boot and install different systems. Because the boot media is *probably the most important boot media you will ever need*, it is probably a good idea to keep at least one spare or create boot media of different types.

When You Should Create New Boot Media

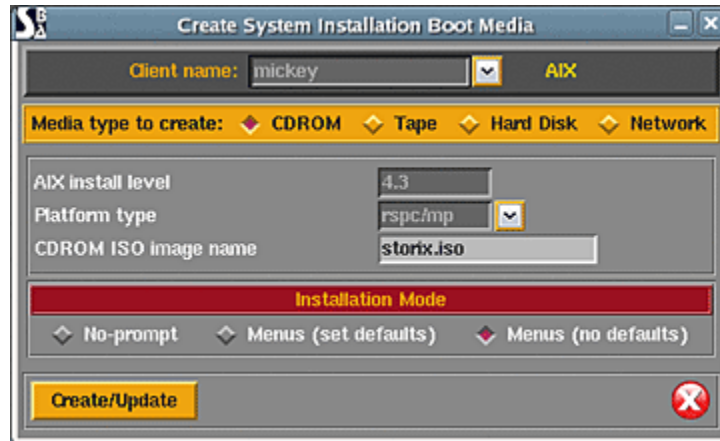
1. Any time you apply operating system updates to AIX. Even if the release level has not changed, some new device support may have been added, shared libraries may have changed, or even the kernel may have been updated.
2. Any time you install a new *release level* of [SBAAdmin System Backup Administrator](#). Although we try to maintain compatibility between current and past versions, there may be times when a new feature supported by the backup software also adds new support to the system recovery process. Since the

system recovery programs are written to your boot media, you will need to remake the boot media to make sure you are using the latest installation programs.

Creating System Installation Boot Media

To create the boot media, select **Utilities->Create System Installation Media** from the menu bar in the administrator main menu. If using a **Network Administrator**, you will be prompted to select the client on which the boot media will be created. Note that the boot media is created on the selected **client**, but may be used to boot other clients of similar system type and operating system release levels.

When selecting an **AIX Client name**, a screen similar to the following will appear:



The selected client (or the local system if not a *Network Administrator*) will be queried, and the **AIX install level** and **Platform type** will be displayed in the appropriate fields. You may change the **Platform type** if you want to create the image so it will boot on a different platform than the client. The **AIX install** level is for information only and cannot be changed.

You must select at the top of the screen the **Media type to create**. Note that the above example is for creating **CDROM** boot media. The options which appear in the center portion of this screen will differ slightly, depending on the media type selected.

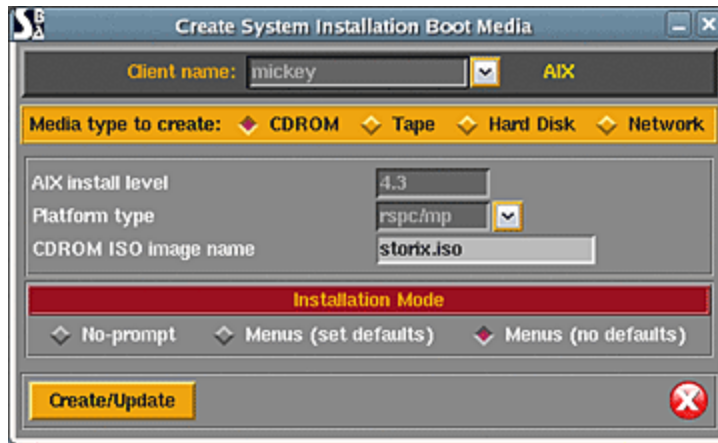
Remember to use the **QuickHelp** (right mouse button) on any button or entry field for details on the use and options for each.

Creation of each media type is described separately:

CDROM image

This process will make a CDROM ISO image, but will not actually burn the image to the CDROM. This image may be copied to any system where your CD/RW device resides where you can use any software or program you choose to copy the image to the CDROM. When making a CDROM, network support (described below) is always included. If using the *Network Administrator* you can make the CDROM image for the local system or for any other client or server system you have configured.

To create a bootable CDROM, select **Utilities->Create System Installation Boot Media**, then press the **CDROM** button at the top of the screen.



The only entry required is the [CDROM ISO image name](#). You must specify the name of the file to create, but you may not specify the full directory path. All other options will contain a default value, based on the configuration of the system. The CDROM image will be saved on the client or server on which it was created in the `/storix/temp` directory (where `/storix` is your SBAAdmin data directory).

When this process is complete, you may copy this image to the system containing the CD writer device, if different, and use your CD writer program to copy it to a CDROM drive. Recommendations on how this may be done from your **AIX** system will be provided upon completion.

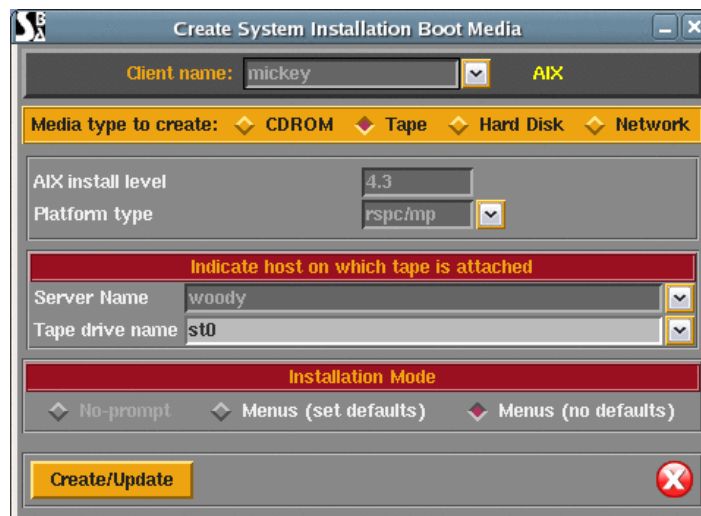
Tape



Tape option does not appear when you are using [TSM Edition](#).

Tapes will automatically be made bootable when you create an [AIX System Backup](#) to the start of the tape. You can stack additional System Backups to the tape, but no further boot images will be written since they must be at the start of the tape. If you have system backups on a tape (or disk) that are not themselves bootable, you can create a separate bootable tape to boot the system, and then select a different installation media.

To create a bootable tape, select [Utilities](#)→[Create System Installation Boot Media](#), then press the **Tape** button at the top of the screen.



This option allows you to create the tape from any client, but write to a tape drive on a different server. The selected client (or the local system if not a *Network Administrator*) will be queried, and the **AIX install level** and **Platform type** will be displayed in the appropriate fields. You may change the **Platform type** if you want to create the image so it will boot on a different platform than the client. The **AIX install level** is for information only and cannot be changed.

If using a **Network Administrator**, select the **Server name**. Then select the **Tape Drive Name**.

To boot from the tape, you must have the tape in the drive, and select to boot from the tape device within the system firmware (**OpenFirmware** on **IBM System p and System i** hardware). After booting from a bootable system backup, the tape will be the default install device, and you can continue the system installation from the same tape without a need to select any other options.

Hard Disk



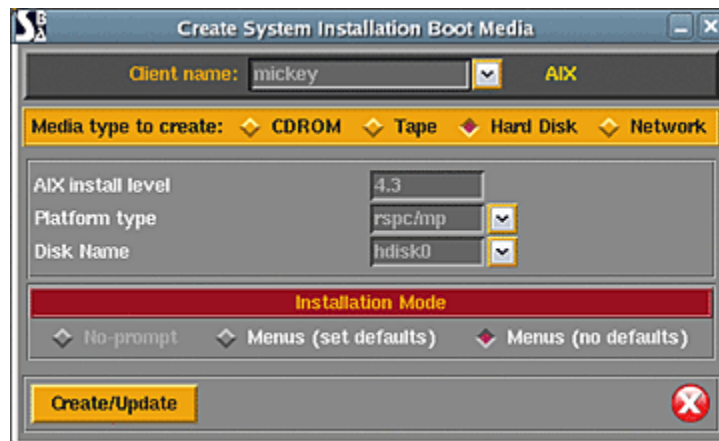
Hard Disk option does not appear when you are using **TSM Edition**.

If you configured a disk for **System Backups** (see **SBAAdmin User Guide**), then this disk (or disks) can also be made bootable to boot directly to the system recovery process. This allows you to perform your system backups to a local (or SAN-attached/portable) disk, then boot and reinstall the system from that same disk with no need for other backup media.



Using this option will not change how the system boots by default. After configuring a disk to boot to the SBAAdmin System Install process, you must select to boot from that disk from within your system firmware boot menus.

To create a bootable disk, select **Utilities**→**Create System Installation Boot Media**, then press the **Hard Disk** button at the top of the screen.



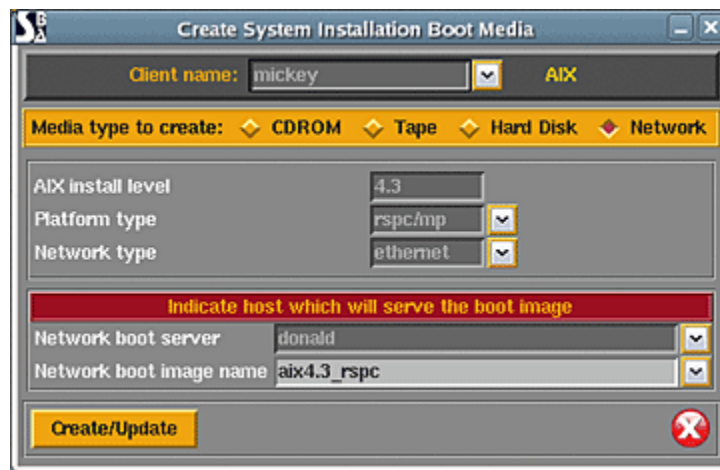
Select the disk to configure in the **Disk Name** field by using the arrow to the right of the entry field. When pressing the arrow, the system will be queried to find one or more disks that were configured using the option **Configure a Disk for System Backup/Recovery** in the **SBAAdmin User Guide**. If no disks are listed, then none were configured for system backup/recovery.

Network

Use this option to create a **network boot image** to be used to boot a client system over the network from a **network boot server**.

To create a network boot image on any configured client or server and save the image on the boot server, select either:

[Configure](#)→[Network Boot/Install](#)→[Create/Update a Network Boot Image](#) or
[Utilities](#)→[Create System Installation Boot Media](#)



If creating a network boot image from one system which will be used to boot other systems, the original system must be running the same level of AIX as the backup that will be installed onto the client, and must also have the device support installed to support the client system.

The AIX level, platform type and primary network type of the selected host will be automatically displayed. The **AIX install level** shown confirms the AIX level of the boot image that will be created and may not be changed. If the **Platform Type** shown is not the same as that of the client to be installed, you must change this field to the platform type of the client. The **Network Adapter Type** field will show the first network type detected on the system. If this not the same as the network from which the **client** will be booted, change this field accordingly.

NOTE

If device support for the selected **platform type** or **network adapter type** selected was not installed on the system the boot image is created on, an error message will be displayed. If so, you must either select a different system on which to create the boot image or install the required device support from the AIX installation media.

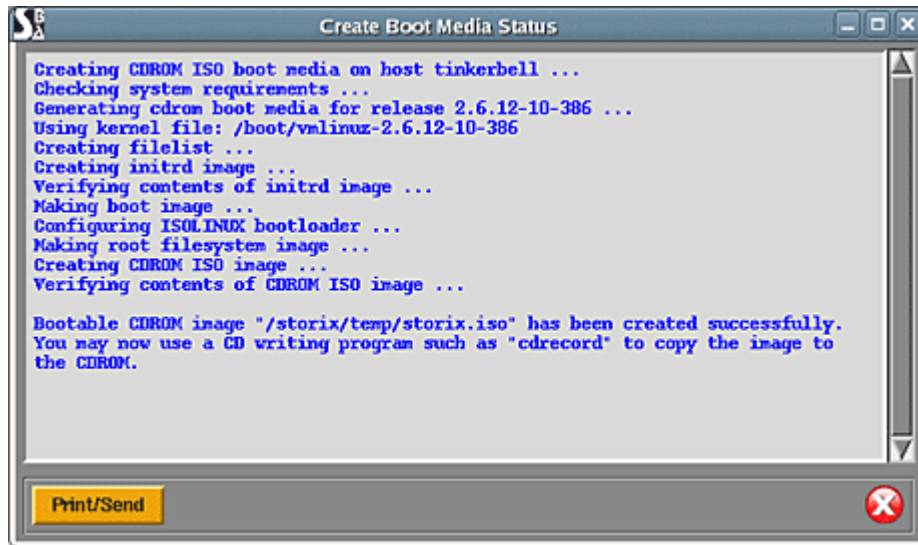
Select the name of the **Network boot server**. This is the server on which the network boot image will stored after it is created. The network boot server may be the same system from which the network boot image is created.

Lastly, type the name of the boot image in the **Network boot image name** field or select the name of an existing image to overwrite by pressing the arrow button to the right of the entry field. If you enter a unique name, a new image will be created using that name. If you select an existing name, the named image will be overwritten.

Note that the network boot "*image*" actually consists of several files on disk, but will always be referred to within the application as a single image by a unique **boot image name**. The files are copied into the directory specified as the **Directory for Network Boot Images** when the server was configured. If you specify the name of an image which already exists, that image will be overwritten.

Upon successful completion, the network boot image will be created and transferred, if necessary, to the boot server. It will now be possible to configure any client to boot from this image using the option "[Enable/Disable Network Installation of a Client](#)" below.

When all selections are complete, press the **Create/Update** button. A new window will appear with the output of the command to create the media and any error message if they should occur, such as in the following example:



No-prompt Installation

CDROM and **Network** boot media may be created with the default installation options set, also allowing the system to be installed as soon as a system is booted from this media. This allows an installation to take place simply by booting from a network boot image, for instance, with no operator intervention required.

NOTE

To prevent a system from being inadvertently reinstalled by simply booting from the wrong device, this option is not available when booting from a hard disk. Be very careful, however, not to leave the CDROM in the drive and the system firmware set to boot from CDROM first, as a no-prompt installation could occur without any user intervention.

Be very careful when using this option, as the user will not have the option of intervening in the system recovery process if the boot media was created for no-prompt installation. The exception, however, is if the defaults are not valid (such as an installation device not being available), or if the backup data will not fit onto the new system's hardware without some re-configuration.

When creating **CDROM** boot media, the following options are available when using the option to [Create System Installation Media](#). For **Network** boot media, the options are available when selecting to [Enable Network Installation of a Client](#). The reason is that, when creating network boot media, a single network boot image may be used for different client systems, and each client system can be configured with different defaults. Refer to each corresponding section for additional details.

If you select either "**No-prompt**" or "**Menus (set defaults)**" for the **Installation Mode**, additional information will appear within the window, such as in the following example:

The screenshot shows the 'Installation Mode' dialog box with the 'Default Install Options' section. The 'Install Server (if any)' field is set to 'none'. Other fields include 'Device or File to install from' (st0), 'Backup sequence number' (1), and 'ASCII terminal type' (linux). A 'Configure' button is visible.

The [Install Server](#) is available only if using a *Network Administrator* license. If the client will install from a locally-attached tape drive, leave this field set to “none”. If the system will be installed from a remote server, use the arrow button to the right of this field to select a server name.

When selecting a server name, and (when [Enabling a Client for Network Boot/Install](#)) the install server differs from the boot server, more information will appear on the screen below this field:

The screenshot shows the 'Installation Mode' dialog box with the 'Default Install Options' section. The 'Install Server (if any)' field is set to 'mickey'. A sub-dialog box is open for network configuration, showing fields for 'Use Alternate Server IP/hostname?' (Yes/No), 'Client Name' (tinkerbell), 'Client Network Adapter' (eth0), 'Gateway Address (optional)' (192.168.1.1), and 'Subnet Mask (optional)' (255.255.255.0).

For the client to be installed from a remote server, you must select the name of the client to be installed (which must have been configured from the *Network Administrator* interface). Also, the network adapter name (of the client) will be required. Other fields are optional, but may be required for the client to contact the server.

Select **Yes** to the [Use Alternate Server IP/Hostname](#) field if the server was configured with an alternate server adapter. In this case, the client will retrieve the backup data from the server using this alternate adapter. Be sure to select the correct adapter name the client will use to contact the server via its alternate adapter.

Enabling Remote Installation Manager

This feature will allow connection to the SBAAdmin *System Installation Process* from any remote system. With proper authority, a remote user can connect to, diagnose and perform system installation of a system after that system has been booted from the SBAAdmin boot media. This process may be started from the SBAAdmin interface on a *Network Administrator* system, or from any SSH client application. Therefore, installation of even a *Workstation Edition* system may be managed remotely.

The remote user will be required to enter a password to access the system installation process. This password may have been defined when the boot media was created or may be defined in the system installation menus after booting from the media.

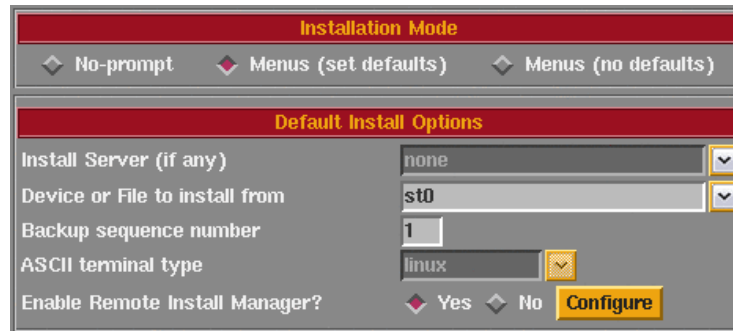
The Remote Install Manager (RIM) may be configured and started in one of two ways:

Configuring RIM when Creating Boot Media

To start RIM automatically when booting a system from SBAAdmin boot media:

[Utilities](#)→[Create System Installation Media](#)

Select either **Menus (set defaults)** or **No prompt** for the installation mode. The screen will expand to include the following options:



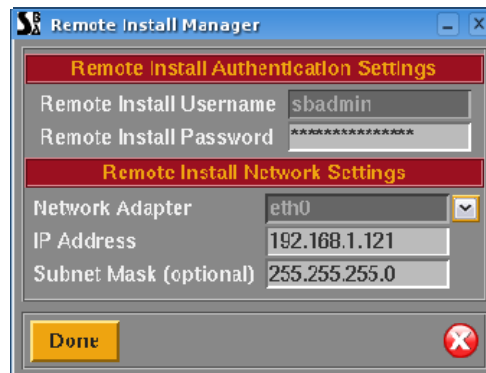
The screenshot shows a window titled "Installation Mode" with three radio buttons: "No-prompt", "Menus (set defaults)" (which is selected), and "Menus (no defaults)". Below this is a section titled "Default Install Options" with the following fields:

Install Server (if any)	none
Device or File to install from	st0
Backup sequence number	1
ASCII terminal type	linux
Enable Remote Install Manager?	<input checked="" type="radio"/> Yes <input type="radio"/> No

A "Configure" button is located at the bottom right of the "Default Install Options" section.

Select "Yes" for **Enable Remote Install Manager**

Select the **Configure** button to the right to configure the settings. You will be presented with the following window:



The screenshot shows a window titled "Remote Install Manager" with two sections:

Remote Install Authentication Settings

Remote Install Username	sbadmin
Remote Install Password	*****

Remote Install Network Settings

Network Adapter	eth0
IP Address	192.168.1.121
Subnet Mask (optional)	255.255.255.0

A "Done" button is located at the bottom left, and a close button (X) is at the bottom right.

The **Remote Install Username** is set to "sbadmin" and may not be changed. Enter a password in the **Remote Install Password** field. The password will be necessary to login to the remote install client.

Select the **Network Adapter** that should be configured to connect to the remote install client. If performing a network boot, then you may select **UseBootAdapter** to use the adapter that was used to perform the network boot. If you configured the **Client Network Adapter** on the previous screen, you can select **UseInstallAdapter** to use the same adapter configured for network installation.

Enter the **IP Address** used to configure the network adapter. This field will be disabled if you selected to use either the boot or install adapter, which will already be enabled.

Enter the **Subnet Mask** (if necessary) used when configuring the network adapter. This field will be disabled if you select to use either the boot or install adapter.

After pressing **Done**, the settings will be saved in the boot configuration. The adapter will be enabled, and a remote connection (with appropriate password) will be accepted when booting from this media.

Configuring RIM after Booting from the Boot Media

To enable RIM from within the *system Installation menus* after booting from the SBAAdmin boot media.

From within the system installation menus select [System Recovery Utilities](#). Then select [Configure Remote Install Manager](#), and follow the instructions for [Configuring Remote Install Manager](#) in the Utilities section.

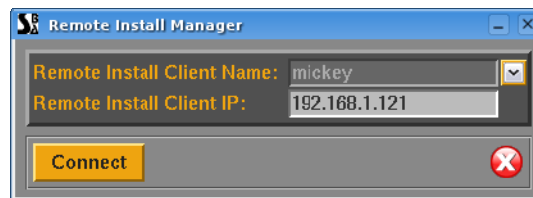
Connecting to the Remote Install Process

To connect to the remote install client use one of the following:

- a. **SSH** client program (i.e. "**ssh sbadmin@192.168.1.121**"): Note that you will always use the user id "sbadmin" and the password you selected in the previous step. If you do not have an ssh client program, you can use the one installed on the Network or Workstation Admin System. This program is called strimsh (i.e. "**/opt/storix/bin/stremsh sbadmin@192.168.1.121**").

or

Select [Actions](#)→[Remote Install Manager](#) from the **Network Administrator**. A window will appear where you must enter the remote install password:



Select the **Remote Install Client Name** from the drop-down list. The primary IP address of the client will be shown in the **Remote Install Client IP** field. You may change this IP address if you are connecting using a different adapter.

When you press the **Connect** button, a new terminal window will display, and the [System Installation Menus](#) will appear. You can, from this window, perform all system installation and maintenance tasks for the remote client.

3. Network Boot/Install Configuration

The information provided in this section will prepare a client system for network boot and installation from a backup server.

Understanding Network Boot and Network Installation

Any client system defined to the [admin system](#) may be installed or reinstalled from a [System Backup](#). That System Backup will typically reside on the disk or on a tape device attached to a backup server. In order for the client to restore from this backup data, it must first be *booted* over the network from a [boot server](#), and then installed from an [install server](#).

- The **boot server** is used solely to provide a basic operating system with which the client will run the remainder of the installation process. If the boot server is not running the same level of AIX as the client to be installed or does not have the device support installed for the client, then a network boot image must be created on another system that meets this requirement, and then placed on the boot server.
- The **install server** is used only to provide access to the data to be restored and its operating system level is not relevant. If the backup is on tape, the install server will be the system on which the tape drive is attached. Likewise, if the backup is a disk image file, the disk will be attached to the install server.

Although the boot server and install server are typically the same system, this is not a requirement. If, for instance, there are several systems on which tape drives are attached, the client may be installed from any tape on any system, even though the client is always booted from the same boot server.

If the client to be booted is running the same level of AIX as the boot server and all device support for the client's platform type and base system devices is already installed on the boot server, then you may skip directly to the option "[Enable/Disable Network Installation of a Client](#)".

If the client and boot server are to run a different level of AIX or if the device support for the client is not already installed on the boot server, then you will need to create a network boot image from the client or any other system running the same level of AIX that you will be installing. The system from which the network boot image is created must also have installed the device support for the client. To create a network boot image on any system and copy the boot image to the boot server, refer to "[Create Bootable Installation Media - Network](#)".

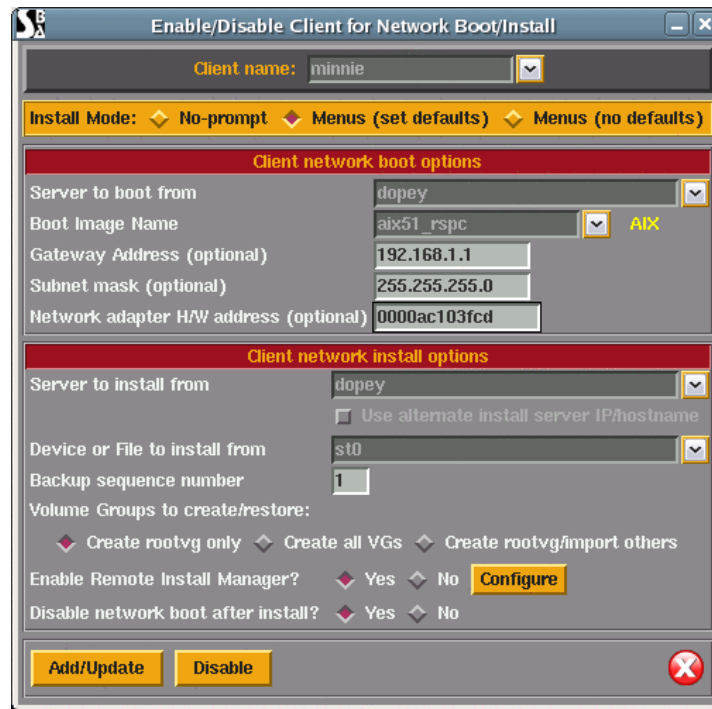
Enable/Disable Network Installation of a Client

This section provides details on configuring a client to be booted and installed from a network **boot server** and/or network **install server**. Although the basic settings are simple, there are optional settings which may be used for more flexibility, such as configuring a [no-prompt installation](#) of the client, or installing (reading the backup data) from a different network adapter than the one the client was booted from.



For AIX clients which are **SP Nodes**, most of the information on this screen will be filled in automatically if the **admin server** is also the **control workstation** for the node. This includes the **Network Adapter Hardware Address**, which is **required** for SP Nodes to boot using the **Network Boot** option of the PSSP software.

To setup the client, select the option [Configure→Network Boot/Install→Enable/Disable Network Installation of a Client](#) from the menu bar. You will be prompted for the client to configure. Select the client and press the [Continue](#) button. A screen similar to the following will appear:



Options may appear or disappear from this screen depending on your selections. The screen is broken into two main sections; one for configuring the [Client network boot options](#) and one for configuring the [Client network install options](#). The setting for the **Install Mode** at the top of the screen determines whether or not the **Client network install options** section will appear.

The following fields are used to configure the client to boot from a [boot server](#):

1. **Install mode:** You must select here whether you want to perform a no-prompt or menu-driven installation:
 - a. By selecting **No-prompt**, the client will be installed without entering any information on the client. This is referred to as a [no-prompt install](#). If selected, all of the remaining prompts must be filled in.
 - b. If **Menus (set defaults)** is selected, you will be provided the additional prompts now, all of which are optional. The information you provide will appear as defaults on the client after it is booted, but those options may also be changed on the client.
 - c. If **Menus (no-defaults)** is selected, it is assumed that and all install options will be selected from the client install menus once it is booted. When selected, all remaining options will disappear from the screen as they no longer apply.
2. **Server to boot from:** If the server in this field is incorrect, use the arrow button to list and select a different server from which to boot from. By default, the boot server is assumed to be the install server as well. However, the [install server](#) may be changed as described later.
3. **Boot Image Name:** Use the arrow button to the right of the entry field to select from a list of boot images previously created using the [Create Bootable Installation Media \(Network\)](#) option. The boot image name selected will determine the [AIX level](#), platform, and network type that will be used to install the client.

NOTE

When more than one client operating system type is supported, the Boot Image Name selected will determine the additional options which appear, specific to the operating system type of the boot image.

