

## RIS Installation Steps

The basic steps for installing a RIS server are as follows:

- Install Windows 2003 Server
- Install Remote Installation Services
- Run the Remote Installation Services Setup Wizard
- Authorise the RIS server in Active Directory
- Grant the appropriate users the right to create computer accounts in the domain

### 1. Install Windows 2003 Server

- a. Create a C:\ and D:\ NTFS partitions. C:\ should be approximately 10Gb. D:\ should be the remainder of the HDD. RIS cannot store images on the C:\ partition
- b. Assign the server a static IP address
- c. Join the RIS server to the domain
- d. Install Anti-Virus and Microsoft Service Packs/Patches

### 2. Install Remote Installation Services

- a. Click Start -> Control Panel -> Add/Remove Programs
- b. Click Add/Remove Windows Components. From the list of available components select "Remote Installation Services"



### 3. Run the Remote Installation Services Setup Wizard

- a. Open the run command and type **RISetup.exe**. This launches the Remote Installation Services Setup Wizard. Click Next
- b. Type in the path to where the RIS server will store the images (eg d:\). This must be an NTFS volume and not the System (C:\) volume. Click Next
- c. Choose how the RIS server will respond to clients. Click Next
- d. Specify the location of the installation files **for the operating system you wish to create an image for!!** This may be the path to your CD-ROM drive or a network location. eg. if you are building an XP image, insert the XP CDROM. Click Next
- e. Type in a **descriptive** name for the folder that will host the image of the operating system. eg XPProSP2, or 2003SvrStdSP1 Click Next
- f. Type in a friendly description and help text. This information is by clients used to identify images. Click Next, Click Finish

### 4. Authorise the RIS server in Active Directory

- a. Authorise the server in Active Directory by running the **RISetup -check** command. **You must be a member of the Enterprise Administrators group to authorise a RIS server on the domain.**

### 5. Remote Installation (BINLSVC) Service on the RIS Server

- a. This service on the RIS Server should be set to **Automatic** and started  
*This service manages requests made by PXE-enabled client computers.*

### 6. Trivial FTP Daemon (TFTPD) Service on the RIS Server

- a. This service on the RIS Server should be set to **Automatic** and started  
*Implements the Trivial FTP standard, which does not require a username or password.*

### 7. Single Instance Storage Groveler (GROVELER) Service on the RIS Server

- a. This service on the RIS Server should be set to **Automatic** and started  
*Scans the hard-disk volumes on a RIS server for duplicate copies of files within images.*

**NOTE : Make sure these services are not disabled by Group Policy on the domain**

## **8. Grant the appropriate users the right to create computer accounts in the domain**

- a. IT administrators should be given the rights to create computer accounts in the domain. You can set the location of the computer accounts in Step 2. d. of Post RIS Server Creation Tasks.

## **9. Add an IP-Helper Address to your router for your RIS and DHCP server**

- a. If the RIS server and the DHCP server are on different machines that don't reside in the same broadcast segment as the PXE client, both servers must be included in the IP helper field at the router, and you must verify that both servers get the DHCP Discover packet from the router.

## **10. Enabling DHCP Options 60, 66 and 67**

- a. If you choose to configure RIS and DHCP on the same server, you must configure the Remote Boot service to communicate using a port that does not conflict with DHCP. From the DHCP console, verify that option 67 has not been selected. You must also configure DHCP to include the server option 60 and 66.

To configure option 60 on the Microsoft DHCP Server from the command line:

```
C:\Windows\System32>netsh
netsh>dhcp
netsh dhcp>server \\server_machine_name
netsh dhcp>add optiondef 60 PXEClient String 0 comment=PXE support
netsh dhcp>set optionvalue 60 STRING PXEClient
netsh dhcp>exit
```

- b. If you choose to configure RIS and DHCP on separate servers, you must configure the Remote Boot service to communicate using DHCP port 67. From the DHCP console, verify that the Use DHCP Port 67 option has been selected. The DHCP server must not include server option 60. DHCP option 66 should also be enabled. Microsoft do not recommend this configuration, so only use it if your servers are not responding to the DHCP/PXE requests.

To configure options 66 and 67, load the DHCP console and select your scope.

Select scope options and add the following:

66	wsfm000ris.hdwa.health.wa.gov.au	(must be the FQDN)
67	OSChooser\i386\startrom.com	

## **Uploading an image from a client PC to the RIS Server**

- a. Load the operating system, applications and configure as necessary
- b. Once complete, run the following command from the client PC:

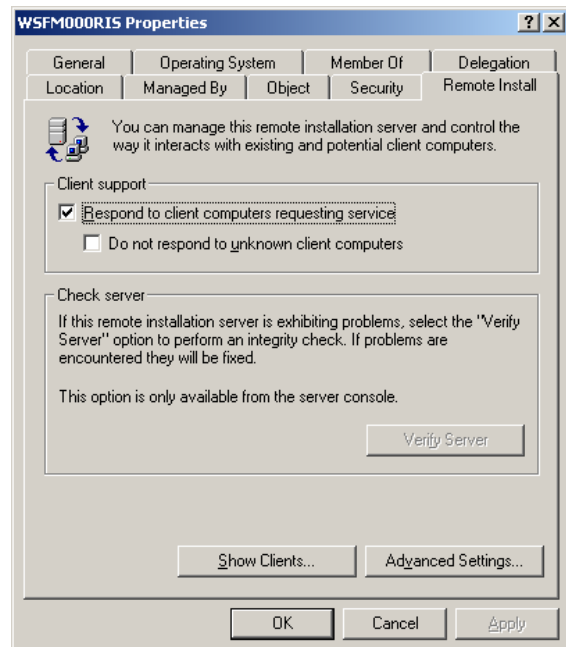
```
\\RISserver\REMINST\Admin\i386\RIPrep.exe
```

Follow the instructions as they are presented

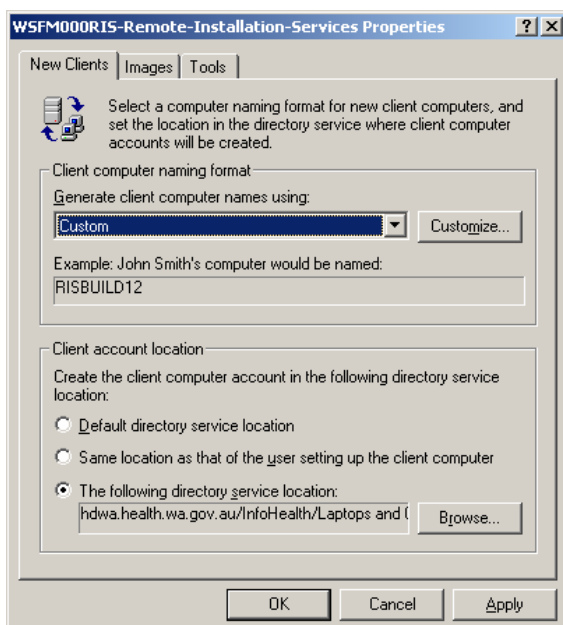
## Post RIS Server Creation Tasks

### 1. Authorise the RIS Server to respond to client requests

- Locate the RIS server in "Active Directory Users and Computers"
- Right-click the server and click Properties
- Click the "Remote Install" Tab
- Select (Check) the "Respond to client computers requesting service" checkbox
- Make sure the *"Do not respond to unknown client computers"* checkbox is unchecked. Typically client PCs are not pre-staged so they will not have an authorised GUID in Active Directory and RIS will not respond to their PXE requests.



### 2. Configure Naming conventions and location for computer account



- Click the *"Advanced Settings"* button
- Select *"Custom"* from the dropdown box and click *"Customize"*
- Enter a meaningful name followed by %#, such as **RISBUILD%#**
- Select *"The following directory service"* option and browse to the location in Active Directory where you want to create the computer accounts. Make sure IT Administrators have permissions to this location as in Step 8.

## Troubleshooting RIS Installations

### CLIENT INSTALLATION WIZARD

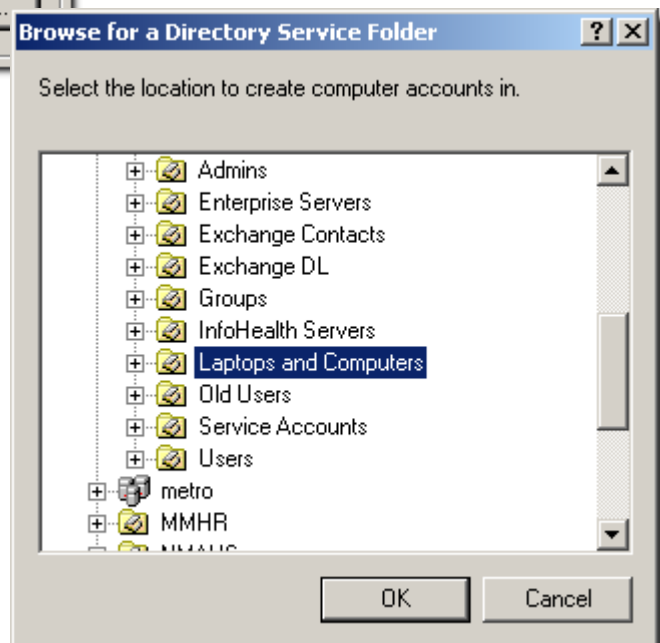
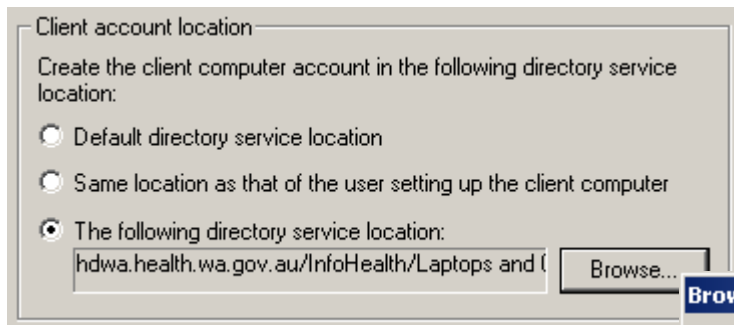
#### Unable to create or modify computer account

The user currently logged on to this computer does not have the permissions needed to create a computer account or modify the computer account RISBUILD2 within the domain hdwa.health.wa.gov.au.

This error may also indicate that the server WSFM000RIS supporting this client cannot contact the directory service to perform the operation. Restart this computer and try again. If the problem persists, contact your network administrator for assistance.

By default RIS will attempt to create computer accounts in **<Domain Name>\Computers**. If you do not have "create computer account" permissions to this location, you will receive the following message: **"Unable to create or modify Computer Account"** when using the Client Installation Wizard.

Complete the steps on Page 3 – Post RIS Server Creation Tasks and pay particular attention to Step 2. d. Make sure the accounts installing the image have permissions to create computer accounts in the desired location in Active Directory.



## CLIENT INSTALLATION WIZARD

The operating system image you selected does not contain the necessary drivers for your network adapter. Try selecting a different operating system image. If the problem persists, contact your system administrator.

Setup cannot continue. Press any key to exit.

If the above error message appears during the Client Installation Wizard, complete the following two steps:

### 1. Putting a driver into text mode RIS setup

*If the driver is in a ZIP file or a self-extracting archive you'll have to unpack it. Some driver packages contain drivers in various languages and for various platforms, i.e. XP, Win2000, NT and so on. Pick the right architecture for your RIS image. If you find an .INF file in a directory, you need all the files in that directory.*

Please note: The steps below are written for a Windows XP RIS image target computer with an Intel Pro 1000 Gigabit Adapter. The NIC manufacturer of your chosen target computer may have different instructions for steps 4 & 5 (below), and the manufacturer's instructions should take priority over the following steps.

- a. Create a folder called \$oem\$ in \\SERVER\\REMINST\\Setup\\Language\\Images\\RIS\_Image (RIS\_Image being your CD based image for this entire step). In \$oem\$ create another directory called \$1. In \$1 create the directory Drivers.
- b. In Drivers create a directory using a name no longer than 8 characters that describes the hardware for which you are installing the driver. Eg Intel. You end up with the directory \\SERVER\\REMINST\\Setup\\Language\\Images\\RIS\_Image\\\$oem\$\\\$1\\Drivers\\Intel
- c. Copy the raw drivers into that directory. If the source directory that contains the INF file has sub-directories, Microsoft suggests that you create these sub-directories in the destination directory as well.
- d. Copy the INF and SYS files into \\SERVER\\REMINST\\Setup\\Language\\Images\\RIS\_Image\\i386
- e. In \\SERVER\\REMINST\\Setup\\Language\\Images\\RIS\_Image\\i386 and its subdirectories, search for a file called Ristndrd.sif. It's usually located directly in i386 but Microsoft says it's in i386\\templates. Add or update the following statements to the [Unattended] section
  - i. DriverSigningPolicy = Ignore
  - ii. OemPreinstall = yes
  - iii. OemPnpDriversPath = Drivers\\Intel

Make sure there is only one line starting with OemPreinstall. The default SIF file may already have "OemPreinstall = no". In this case do not add a second one, but change the no to yes. The same applies to the other two statements.

Repeat steps the steps 3 to 6 for every driver you want included in text mode setup. Separate the entries in OemPnpDriversPath by a semicolon.

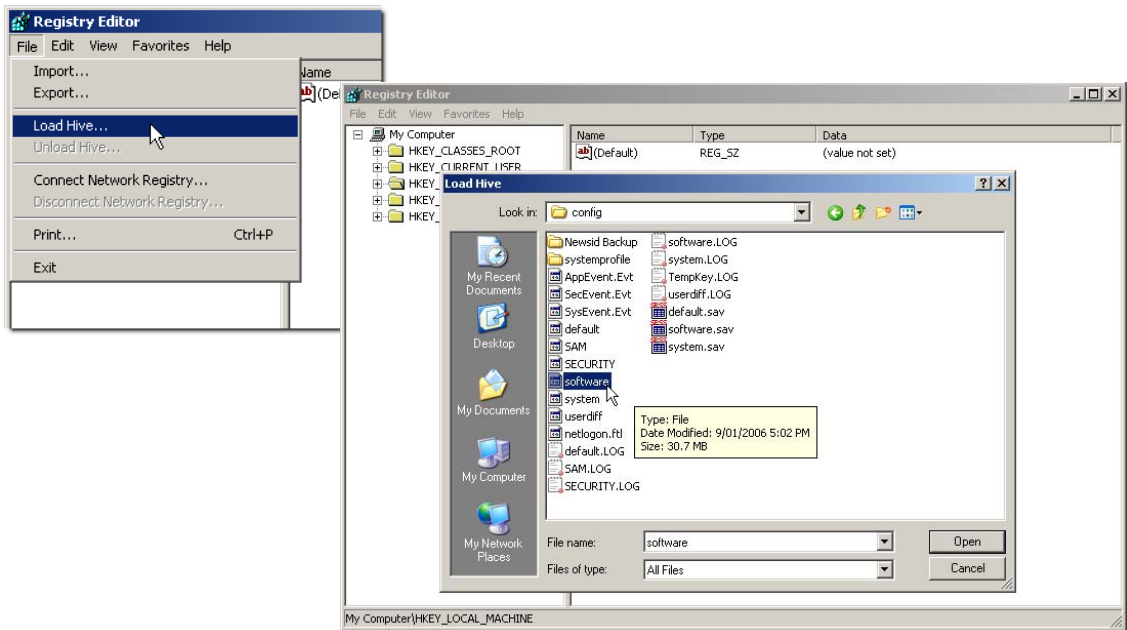
Eg - OemPnpDriversPath = Drivers\\Intel;Drivers\\AC97

- f. On the RIS server, restart the BINL service by launching cmd.exe and typing
  - i. net stop binlsvc
  - ii. net start binlsvc

## 2. Putting a driver into a RIS image

To do this copy the raw driver files into a directory that's part of the image and then update the DevicePath accordingly. As the driver directory belongs to the image, it will be copied to the machine's hard disk. When the machine reboots after the image is installed, Windows should (re-)detect PNP hardware it doesn't have a driver for and look up possible driver locations from DevicePath. This time Windows will find the driver and install it.

- a. On the RIS server create the driver name directory in the image's local files - \\SERVER\\REMINST\\Setup\\Language\\Images\\WinXP\_SP2\\i386\\Mirror1\\UserData\\Drivers\\Intel (In this step WinXP\_SP2 is the RIS image you are trying to deploy to target machines). Remember that "Intel" signifies your hardware. This name is just an example and you will need to adjust it to suit your requirements.
- b. Copy the driver files into the newly created directory.
- c. On the server (or your personal workstation), load regedit.
- d. Load the Software registry hive of the image by selecting HKEY\_LOCAL\_MACHINE and clicking "File" then "Load Hive". Navigate to \\SERVER\\REMINST\\Setup\\Language\\Images\\WinXP\_SP2\\i386\\Mirror1\\UserData\\Windows\\system32\\config and pick the *Software* file.



- e. Type RIS Image as the temporary name of the hive.
- f. In the registry tree, navigate to
- g. HKEY\_LOCAL\_MACHINE\\RIS Image\\Microsoft\\Windows\\CurrentVersion and in the right pane double click the DevicePath value.
- h. Add ;%SystemDrive%\\Drivers\\Intel to the value.
- i. Unload the hive by navigating to HKEY\_LOCAL\_MACHINE\\RIS Image and selecting Unload Hive on the File menu. Don't forget this step because otherwise the hive will not be saved until you reboot your personal workstation.
- j. Install the RIS image on a test machine.