Agilent
VnmrJ 4 and RHEL OS

Installation Guide

Agilent Technologies
Notices

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1 Introduction

Collecting Network Information  6

Compatibility

VnmrJ is compatible with RHEL versions 5.3 and 6.3. Current workstations purchased from Agilent, ship with RHEL 6.3 pre-installed and the Agilent RHEL 6.3 Kick start DVD.

Do not upgrade RHEL beyond version 6.3 until Agilent announces compatibility with newer RHEL versions.
1 Introduction

Collecting Network Information

Table 1 lists names reserved for system use.

<table>
<thead>
<tr>
<th>Table 1 Reserved system names</th>
</tr>
</thead>
<tbody>
<tr>
<td>inova, rf4, rf5, rf6, rf7, rf8, rf9, rf10, rf11, rf12, rf13, rf14, rf15, rf16, pfg1, pfg2, ddr1, ddr2, ddr3, ddr4, ddr5, ddr6, ddr7, ddr8, ddr9, ddr10, ddr11, ddr12, ddr13, ddr14, ddr15, ddr16</td>
</tr>
</tbody>
</table>

Use Table 2, Network information worksheet, to record your network information that will be used during the Linux installation. The network administrator for the site must provide all the required network information.

<table>
<thead>
<tr>
<th>Table 2 Network information worksheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
</tr>
<tr>
<td>Host name</td>
</tr>
</tbody>
</table>
**Table 2  Network information worksheet (continued)**

<table>
<thead>
<tr>
<th>Network</th>
<th>Comments</th>
<th>Your configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network device</td>
<td>The network interface (Ethernet board) installed in the workstation. Linux system shows <code>eth1</code> for the primary workstation (on board) interface and <code>eth0</code> as the secondary (card slot) interface. NOTE: Dell Factory - installed Red Hat RHEL reverses the sense of <code>eth0</code> and <code>eth1</code>.</td>
<td></td>
</tr>
</tbody>
</table>
| IP address (`eth1`) | The network IP number for the Ethernet board connected to the NMR console. IP addresses, select one:  
  • 172.16.0.1 (if your main network address does not start with 172.16)  
  • 10.0.0.1. (If your main network address does start with 172.16) |                    |
| IP address (`eth0`) | The network IP number for the Ethernet board connected to the network.  
  • Supplied by the local network administrator. |                    |
| Netmask      | The associated netmask or subnet mask number.                            |                    |
| Gateway      | For the secondary network card.                                          |                    |
| Name service | Depends on the local network setup. NIS+, NIS, DNS, DCE, or similar.     |                    |
| Domain name  | Network domain name; for example: `our.domain`.                          |                    |
| Name server  | Network name server and IP address.                                      |                    |
| Proxy server (optional) | Proxy server name; for example, proxy.domain.com.            |                    |
|              | • Supplied by the local network administrator.                          |                    |
1 Introduction
This chapter provides installation requirements and describes how to:

- set up network configurations.
- install an NVIDIA driver, if needed.
- reinstall RHEL, if needed.
2 RHEL Installation

RHEL 6.3 System Requirements

- HP Z400 or HP Z420 workstation purchased from Agilent with pre-installed RHEL 6.3.
- The HP Z400 or HP Z420 workstation must have two disk drives. Default for HP Z400 and HP Z420 workstations purchased from Agilent.
- For RHEL 6.3 restoration procedures, the Agilent RHEL 6.3 Kickstart DVD is needed.
Network Configuration

This section provides information to configure networks for HP Z420 workstations purchased from Agilent with pre-installed RHEL 6.3.

Configure eth0 and eth1 configuration files directly from the terminal window using a text editor.

**NOTE**
For pre-installed RHEL workstations, the console connects to the external network card.

---

**CAUTION**
Replace the example hostname, “Agilent-NMR”, in the following instructions with the hostname for your system.

Do not solely use upper-case letters, digits, or underscores for the hostname of your system.

---

**Configuring eth0**

**NOTE**
Root privileges are required to modify configuration files.

---

**Logging in**

If you are logging into RHEL 6.3 for the first time:

1. Select **Other** user.
2. Enter **root** as the user.
3. Enter **agilent1** as the password.
2 RHEL Installation

**For DHCP configurations**

1. Edit the `ifcfg-eth0` file from a terminal window.
   The following examples use the gedit Text Editor.
   a. Enter:
      
      ```bash
      cd /etc/sysconfig/network-scripts
      ```
   b. Enter:
      
      ```bash
      gedit ifcfg-eth0
      ```
   c. Verify that `BOOTPROTO` equals “dhcp”.
   d. Update `DHCP_HOSTNAME` for your workstation as follows:
      ```
      DHCP_HOSTNAME="Agilent-NMR" (Replace Agilent-NMR with the hostname for your workstation.)
      ```
   e. Click Save and close the gedit window.

   **CAUTION**
   
   The DHCP hostname must match the hostname for your workstation.
   Do not solely use upper-case letters, digits, or underscores for the hostname of your system.

2. Edit the `network` file from a terminal window.
   The following examples use the gedit Text Editor.
   a. Enter cd `/etc/sysconfig`
   b. Enter gedit network
   c. Update `HOSTNAME` for your workstation as follows:
      ```
      HOSTNAME="Agilent-NMR" (Replace Agilent-NMR with the hostname for your workstation.)
      ```
   d. Click Save and close the gedit window.

3. Edit the `hosts` file from a terminal window.
   The following examples use the gedit Text Editor.
   a. Enter cd `/etc`
   b. Enter gedit hosts
Verify that the 127.0.0.1 line includes the hostname for your workstation. For example:

```
127.0.0.1 localhost localhost.localdomain localhost4 localhost.localdomain4 Agilent-NMR
(Replace Agilent-NMR with the hostname for your workstation.)
```

c Click Save and close the gedit window.

For static IP configurations

1 Edit the ifcfg-eth0 file from a terminal window. The following examples use the gedit Text Editor.
   a Enter cd /etc/sysconfig/network-scripts
   b Enter gedit ifcfg-eth0
   c If HOSTNAME, BROADCAST, and NETWORK are listed, verify that they are correct.
   d Enter BOOTPROTO="none" or "static".
   e Verify that IPADDR is correct.
   f Verify that GATEWAY is correct.
   g Verify that NETMASK is correct.
   h Verify that IPV6INIT="no" (if present)
   i Add a line for the IP address of each DNS server, if applicable.

      For example:
      DNS1=xxx.xxx.xxx.xxx
      DNS2=xxx.xxx.xxx.xxx

2 Verify that the hostname is correct in the /etc/sysconfig/network file.

3 Verify the following in the /etc/hosts file:
   a The IP address and host name are present in the file. For example:
      10.190.22.38 Agilent-NMR Agilent-NMR
      The hostname for your workstation should display instead of "Agilent-NMR".
   b The hostname appears in the line starting with "127.0.0.1"

      For example:
      127.0.0.1 localhost.localdomain localhost Agilent-NMR
RHEL Installation

The hostname for your workstation should display instead of “Agilent-NMR”.

4 Type the domain and nameservers in the /etc/resolv.conf file, if applicable.

For example:

```
search scs.agilent.com
```

Replace the above example domain name, “scs.agilent.com”, with the domain name of your workstation.

```
nameserver xxx.xxx.xxx.xxx
(nameserver of your DNS server)
nameserver xxx.xxx.xxx.xxx
(nameserver of your DNS server)
```

Configuring eth1

**NOTE** Root privileges are required to modify configuration files.

1 In a terminal window, go to:

```
cd /etc/sysconfig/network-scripts
```

2 Verify that the following lines are in the ifcfg-eth1 file.

- DEVICE="eth1"
- BOOTPROTO="none" or BOOTPROTO="static"
- IPADDR="172.16.0.1" or IPADDR="10.0.0.1"
- IPV6INIT="no" (if present)
- NETMASK="255.255.255.0"
- NM_CONTROLLED="no" (if present)
- ONBOOT="yes"
- TYPE="Ethernet"

3 Add the following in the /etc/hosts file:

```
172.16.0.1 wormhole (or 10.0.0.1 wormhole)
```
Post-Network Configuration

If you have purchased an HP Z400/HP Z420 workstation from Agilent or if you are using the Agilent RHEL 6.3 Kickstart DVD, continue on to “VnmrJ Installation”.

NVIDIA Driver Installation

If you have purchased an HP Z400/HP Z420 workstation from Agilent or if you are using the Agilent RHEL 6.3 Kickstart DVD, continue, on to “VnmrJ Installation”.

Use the following instructions to install Dynamic Kernel Module Support (DKMS) Nvidia drivers using the VnmrJ installation or by using the Nvidia driver obtained from Nvidia's website.

Using VnmrJ Nvidia Driver Installation Script

VnmrJ must be installed to use this script.

1 Run the script: /vnmr/adm/linux/installNvidiaDKMS to install the nvidia DKMS drivers.

   This script performs various checks to be sure it is safe to install the driver.

2 Reboot the system after running this script to fully install the graphics driver.

3 After the system is rebooted, proceed to “Setting Up the Xorg File” on page 19.

Manually Installing DKMS Nvidia Drivers

The DKMS Nvidia Driver is the preferred driver with RHEL OS.

1 To install the DKMS Nvidia drivers, use the following packages within the VnmrJ installation under the directory, /vnmr/adm/linux. Use these if you have installed the RHEL from the RHEL DVD.

   The exact names may vary as newer drivers are obtained, for example:
   dell-nvidia-180.29-1dkms_rhel5.x.x86_64.rpm
2 To install the DKMS driver, issue the following commands as root within the directory containing the rpms.

```bash
rpm -Uvh dkms-2.0.19-1.noarch.rpm
rpm -Uvh dell-nvidia-180.29-1dkms_rhel5.x.x86_64.rpm
```

3 Enter `reboot` to reboot the system.

## Installing the Nvidia Driver from Nvidia's Web Site

**CAUTION**

Use the following procedures only if you need the latest driver or you are instructed by Agilent because these are not DKMS drivers.

Video drivers can be installed using incompatible methods, notably Dell and Nvidia. Attempting to use the Nvidia's `.run` file installation on a system that has a DKMS installed driver will result in both drivers being used simultaneously, resulting in an inoperable display.

Nvidia's driver packages use a `.run` file (for example, `NVIDIA-Linux-x86_64-180.51-pkg2.run`), which is a self-extracting archive. When executed, it extracts the contents of the archive and runs the contained nvidia-installer utility, which provides an interactive interface to walk you through the installation. You must shut down the X Server before you install this driver.

Nvidia-installer will also install itself to `/usr/bin/nvidia-installer`, which may be used later to uninstall drivers, auto-download updated drivers, and so on.

**NOTE**

The DKMS driver must be removed before using the Nvidia `.run` file installation.

1 As Root, enter the following to determine the installed DKMS drivers:

```bash
dkms status
```

Sample output:
2 RHEL Installation

nvidia, 180.29, 2.6.18-128.el5, x86_64: installed

2 Note the Nvidia display driver.

The DKMS status gives the information needed to remove it properly:
The module name “nvidia” and version “180.29”.

3 As Root, enter the following to remove the driver module:

dkms remove -m nvidia -v 180.29 -all

4 After removing the driver module, install the Nvidia driver.

5 As Root, type the command: /sbin/init 3

This should prompt you to log on. If the system is unresponsive to the keyboard, press ALT+F2 combination to obtain a new shell window.

6 Log on as Root at the shell logon prompt.

7 Install the Nvidia video driver according to Nvidia’s installation instructions; for example:

sh ./NVIDIA-Linux-x86_64-180.51-pkg2.run

Use the defaults when asked for input from the installation.

8 Return Linux to full operation by typing:

/sbin/init 5

For the Nvidia driver installation, occasionally, you must give the kernel path with the option --kernel-source-path /usr/src/kernels/your_kernel_here.

a Use: “uname -r” to obtain the running kernel revision, for example:

uname -r

2.6.18-128.1.10.el5 is the /usr/src/kernels directory to get the precise name base on the kernel revision

b Invoke the installation with the kernel path option:
Setting Up the Xorg File

After installing an Nvidia driver for the first time, you must run the nvidia-xconfig and nvidia-settings applications to set up the display with the new driver.

1. Within a shell terminal, run the following (as Root):
   ```bash
   nvidia-xconfig
   ```

2. Some text output should appear, indicating the xorg.conf was changed.
   ```bash
   nvidia-settings
   ```

3. Log out then log in and the system will use the new Xorg.conf.

4. Select on **X Server Display Configuration** on the NVIDIA X Server Settings window.

5. From the **Display** tab, set the left **Resolution** box to **Auto**
2 RHEL Installation
6 Within the X Screen Tab, set Color Depth to 16.7 Million Colors (Depth 24).

7 Select Save to X Configuration File.

8 Clear the Merge with existing file checkbox on the Save X Configuration window and select Save.

9 Select Quit.

10 Log off and then log on to enable the new video driver.
Restoring RHEL 6.3

Use the following procedure to restore your workstation to RHEL 6.3 using the Agilent Kickstart DVD for RHEL 6.3.

CAUTION
The restoration procedure completely erases the hard drive. Back up any data before beginning restoration procedures.

1 Insert the Agilent RHEL 6.3 Kickstart DVD and power off the workstation.
2 Power on the workstation and press F9 at bootup.
3 Select Legacy Boot Sources > ATAPI CD/DVD Drive > SATA2.
4 Select the appropriate kickstart file based on your workstation model:
   • Agilent Installation for HPZ420 Computers
   • Agilent Installation for HPZ400 Computers
   • Agilent Installation for Dell Computers
   • Install or upgrade an existing system
   • Install system with basic video driver
   • Rescue installed system
   • Boot from local drive
   • Memory test
5 Press Enter to begin installation.
6 When prompted, Reboot the workstation.
This chapter provides information on VnmrJ installation requirements, installation procedures and options, software patches, and VnmrJ restoration procedures.

VnmrJ installations accommodate Agilent and non-Agilent distributed workstations with preconfigured Red Hat Enterprise Linux (RHEL) 5.3 or RHEL 6.3.
Installation Requirements

This section contains the requirements for installation of RHEL and VnmrJ.

Required items

- VnmrJ Installation DVD
- RHEL Installation DVD, if needed

Required settings

- Firewall must be disabled.
- SElinux must be disabled.
- Workstation and console must be connected and powered-on.
- Network configurations must be completed, see “Network Configuration”.

**CAUTION**

Firewalls and SElinux must be disabled to install VnmrJ.
VnmrJ Installation

When the VnmrJ DVD is first loaded, the installation program checks RHEL to ensure that required software packages are installed to run VnmrJ.

If additional RHEL software packages are required, a message displays indicating that the RHEL Installation DVD is needed, see Step 4.

Installing VnmrJ software

NOTE Root privileges are required to install VnmrJ software.

1 Insert the VnmrJ DVD.
   A window will appear after the DVD has been mounted by the system. The title bar displays the DVD name to use in the next step.

2 In a terminal window, go to the DVD directory:
   cd /media/DVD_Name
   for example:
   cd /media/Vnmrj4

3 Enter the following to begin installation:
   sh ./load.nmr

4 If additional RHEL software packages are required, a message box displays indicating that the RHEL Installation DVD is required.
   Installing required RHEL software packages:
   a Eject the VnmrJ DVD:
      cd /
      eject
   b Insert the RHEL Installation DVD and enter:
      cd /tmp/agilent_preinstall
   c Wait for the DVD to automatically mount and enter:
      ./installpkgs
3 Installing VnmrJ

Installing RHEL software packages may take a few minutes.

d When prompted, click Enter.
e Eject the RHEL Installation DVD:
eject
f Restart the VnmrJ installation from Step 1.

5 If no additional software packages are required, the VnmrJ Installation window displays.

a Select the System tab associated with the installation.
b Select the standard and password-protected VnmrJ options, described in Table 3 and Table 4.
When a password-protected option is selected, a field appears to type the case-sensitive password.

**NOTE**

VnmrJ password-protected options can be installed by the administrator after the VnmrJ installation.
To access and install these options, type vnmrjOptions in the VnmrJ command line.
### Table 3  Standard VnmrJ options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VNMR</td>
<td>Loads the standard VnmrJ and VNMR software.</td>
</tr>
<tr>
<td>BIR_Shapes</td>
<td>Loads the B1 Independent Rotations (BIR4) pulse shapes (not used on 400MR).</td>
</tr>
<tr>
<td>Biopack</td>
<td>Loads Biomolecular NMR software (not used on 400MR).</td>
</tr>
<tr>
<td>Chinese</td>
<td>Loads the Chinese language support.</td>
</tr>
<tr>
<td>Fiddle_Example</td>
<td>Loads an example dataset for Fiddle Reference deconvolution.</td>
</tr>
<tr>
<td>Imaging_or_Triax</td>
<td>Loads Imaging or Triple-Axis gradient software (not used on 400MR).</td>
</tr>
<tr>
<td>JChemPaint</td>
<td>Loads the integrated JChemPaint molecular editing software.</td>
</tr>
<tr>
<td>Japanese</td>
<td>Loads the Japanese language support.</td>
</tr>
<tr>
<td>Jmol</td>
<td>Loads the integrated Jmol molecular viewing software.</td>
</tr>
<tr>
<td>Secure_Environments</td>
<td>Option enhanced with security features, validation features, audit trails, and other tools to help facilitate compliance with regulations associated with electronic record authenticity.</td>
</tr>
<tr>
<td>userlib</td>
<td>Loads the user-contributed library.</td>
</tr>
</tbody>
</table>

### Table 4  VnmrJ password-protected options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backprojection</td>
<td>Loads the Backprojection software (not used on 400MR).</td>
</tr>
<tr>
<td>Biosolids pack</td>
<td>Loads the Biosolids NMR software (not used on 400MR).</td>
</tr>
<tr>
<td>CSI</td>
<td>Loads the Chemical Shift Imaging software (not used on 400MR).</td>
</tr>
<tr>
<td>DOSY_for_VnmrJ</td>
<td>Loads High-Resolution Diffusion-Ordered Spectroscopy for VnmrJ software.</td>
</tr>
</tbody>
</table>


3 Installing VnmrJ

At the bottom of the Installation window, the following fields display default values and may be modified: VnmrJ home directory, User name, and Group name.

Click Install. A second window will pop-up and display the installation progress.

**NOTE**

For VnmrJ upgrade installations:

After installation has completed, VnmrJ Admin will open. Update users in VnmrJ Admin, see “For upgrade installations” on page 35.

6 Continue to “Configuring acquisitions communication”.

---

**Table 4** VnmrJ password-protected options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAST</td>
<td>Loads the VAST software (not used on 400MR).</td>
</tr>
<tr>
<td>Imaging_Sequences</td>
<td>Loads Imaging_Sequences software  (not used on 400MR).</td>
</tr>
<tr>
<td>Imaging_Sense</td>
<td>Loads Imaging_Sense software (not used on 400MR).</td>
</tr>
<tr>
<td>LC-NMR</td>
<td>Loads Liquid Chromatography NMR software (not used on 400MR).</td>
</tr>
<tr>
<td>STARS</td>
<td>Loads the Spectrum Analysis of Rotating Solids software (not used on 400MR).</td>
</tr>
<tr>
<td>CRAFT</td>
<td>Loads the CRAFT data analysis tool.</td>
</tr>
</tbody>
</table>
Configuring acquisitions communication

This section describes how to use the `setacq` command to establish communication between the workstation and the NMR console.

1 Run `setacq` by entering the following in a terminal window:
   ```bash
   /vnmr/bin/setacq
   ```
2 Enter `y` to blink the `eth1` port. This is to ensure that the console network is connected to the `eth1` port. The blinking will time out in 20 seconds.
3 After confirming that `eth1` is connected to the console, enter `y` to run `setacq`.
4 When prompted, enter `reboot` to restart the workstation.
5 Log in as `vnmr1`.
6 Continue on to “Starting and stopping console communication” on page 29.

Starting and stopping console communication

Console communication programs, known as the “proc-family,” directs communication between the workstation and the console.

If this is the first time VnmrJ has been installed on the computer, you must create the `acqproc` user.

To create an `acqproc` user:

1 As root, enter the following in a terminal window:
   ```bash
   /vnmr/bin/makesuacqproc
   ```
2 To start or stop console communication programs, enter the following in a terminal window as root:
   ```bash
   su acqproc
   ```
3 Continue on to “System settings” on page 30.

System settings

After VnmrJ is installed, configure software for your system.

1 Log in as the administrator.

VnmrJ automatically sets up “vnmr1” as the administrator account.

NOTE

2 Launch VnmrJ by double-clicking on the VnmrJ desktop icon or by entering `vnmrj` in a terminal window.

3 Open the System Settings window, Edit > System settings.

The System Settings window has two tabs: System and Display/Plot.

4 Configure system settings appropriate for the spectrometer system.

5 Continue on to “Spectrometer hardware configuration” on page 31.
Spectrometer hardware configuration

Use the Configuration window to configure the software for your spectrometer hardware.

1 Log in as the administrator.

**NOTE**

VnmrJ automatically sets up “vnmr1” as the administrator account.
3 Installing VnmrJ

2 Launch VnmrJ by double-clicking on the VnmrJ desktop icon or by entering `vnmrj` in a terminal window.

3 Click the System config button on the System Settings window, **Edit > System settings**.

4 Confirm or enter correct hardware configuration values. For more information on configuration values, see Table 6 and Table 7.

5 Click **OK** to save system settings or **Cancel** to make no changes and close the System Settings window.

6 Exit and restart VnmrJ.

**NOTE**
For information on administrative tasks, see the *VnmrJ Administration Guide*.

---

Table 6 General configuration

<table>
<thead>
<tr>
<th>Label</th>
<th>Choices</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Spectrometer, Data station</td>
<td>Sets whether the function of the workstation is to control a spectrometer or to operate as a separate data station. If Data Station is selected, VnmrJ does not allow acquisitions (the go command, its aliases, and related commands do not work).</td>
</tr>
<tr>
<td>Proton frequency</td>
<td>85, 100, 200, 300, 400, 500, 600, 700, 750, 800, 900, 3T, 4T</td>
<td>Sets $^1$H frequency for spectrometer-type systems.</td>
</tr>
<tr>
<td>VT controller</td>
<td>Not present, present</td>
<td>Sets whether a VT controller is present.</td>
</tr>
<tr>
<td>X axis gradient, Y axis gradient, Z axis gradient</td>
<td>Not present, Gradient coordinate Rotator Performa I, Performa IV, Performa XYZ, Homospoil</td>
<td>Sets appropriate values for installed gradient amplifiers.</td>
</tr>
<tr>
<td>System gradient coil</td>
<td>Enter value or <strong>None</strong></td>
<td>Selects the gradient coil configuration file that defines the current installed gradient coil (sysgcoil). <strong>None</strong> is the default value.</td>
</tr>
<tr>
<td>Number of RF channels</td>
<td>1, 2, 3, 4, 5</td>
<td>Set number of RF channels equal to the number of RF controllers.</td>
</tr>
<tr>
<td>Label</td>
<td>Choices</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PFG board</td>
<td>Present, not present</td>
<td>Present—Select if there is only a PFG controller board.</td>
</tr>
<tr>
<td></td>
<td>Microimaging</td>
<td>Not Present—Select if there is only a gradient controller board. Microimaging—Select if both a PFG and gradient controller board are present.</td>
</tr>
<tr>
<td>RF interface</td>
<td>Type 1, Type 2 (ProPulse)</td>
<td>Type 1 — RF routing scheme on 400MR, DD2 and VnmrS systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type 2 (ProPulse) — RF routing scheme on ProPulse system</td>
</tr>
<tr>
<td>Probe ID</td>
<td>Not present, present</td>
<td>Selects whether the Probe ID hardware is present.</td>
</tr>
<tr>
<td>Sample changer</td>
<td>None, VAST, LC-NMR, 768 AS,</td>
<td>Sets the type of optional sample changer. Select None if no sample changer is present or to disable an attached sample changer.</td>
</tr>
<tr>
<td></td>
<td>7510-AS, 7600-AS</td>
<td></td>
</tr>
<tr>
<td>Sample changer port</td>
<td>None, Com1, Ethernet</td>
<td>Sets communications port used for the sample changer. Select Not Used if no sample changer is present.</td>
</tr>
<tr>
<td>Shim set</td>
<td>Agilent 14 Shims</td>
<td>Sets type of shims on the system.</td>
</tr>
<tr>
<td></td>
<td>Agilent 15 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxford 15 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxford 18 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 21 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 23 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 26 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 27 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 28 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 29 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 32 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 35 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 40 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ultra 18 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ultra 39 Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Whole Body</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent Combo Shims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agilent 28 Thin Shims</td>
<td></td>
</tr>
<tr>
<td>Shim power supply</td>
<td>Standard power, high power</td>
<td>Selects the standard or high power shim power supply.</td>
</tr>
<tr>
<td>Number of receivers</td>
<td>Enter value.</td>
<td>Sets the number of receivers available in the system.</td>
</tr>
</tbody>
</table>
3 Installing VnmrJ

### Table 6  General configuration (continued)

<table>
<thead>
<tr>
<th>Label</th>
<th>Choices</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiver configurations</td>
<td>Single receiver, Parallel, Multi nuclear</td>
<td>Single Receiver—Only one receiver is present. Parallel—Multi receiver configuration for Imaging. Multi nuclear—For dual or multi-receiver non-Imaging systems.</td>
</tr>
<tr>
<td>Lock frequency</td>
<td>Enter value.</td>
<td>Enter the value of the lock frequency in MHz. It is recommended to set the lock frequency to 0.1Hz with “9999” as the last four digits. For example, the lock frequency value for a 500 MHz system may be “76.3249999”.</td>
</tr>
<tr>
<td>Automatic probe tuning</td>
<td>Present, not present</td>
<td>Select present if ProTune hardware is installed and in use.</td>
</tr>
<tr>
<td>CryoBay</td>
<td>Present, not present</td>
<td>Select present if CryoBay hardware is installed and in use.</td>
</tr>
<tr>
<td>VT Flow Range</td>
<td>0 to 25, 0 to 50</td>
<td>Set according to the flow range available to the flow monitor.</td>
</tr>
<tr>
<td>Cryogen Monitor</td>
<td>Present, not present</td>
<td>Select present if cryogen monitor hardware is installed.</td>
</tr>
</tbody>
</table>

### Table 7  RF channels configuration

<table>
<thead>
<tr>
<th>Label</th>
<th>Choices</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Channel</td>
<td></td>
<td>Sets the number of rf channels displayed. It is determined by the value set in Number of RF Channels. See Table 6.</td>
</tr>
<tr>
<td>Synthesizer</td>
<td>None, PTS320, PTS500, PTS620, PTS1000, Direct Digital, Direct Digital II, Agilent MRS</td>
<td>Sets the type of frequency synthesizer.</td>
</tr>
<tr>
<td>Maximum power</td>
<td>Enter value.</td>
<td>Sets the maximum power (upper limit) to the current RF channel. The recommended value is 63.</td>
</tr>
<tr>
<td>Type of linear amplifier</td>
<td>Full band, Low band, Broadband Shared</td>
<td>Select Full band.</td>
</tr>
</tbody>
</table>

VnmrJ Installation Guide
Post-Installation Tasks

For new installations

After installation is complete, use standard Linux tools to change the password for the administrator if desired.

For upgrade installations

Run Update Users in VnmrJ Admin if you have not already done so.

After Update Users is run the previous administrator login is available.

1 In VnmrJ Admin, go to Configure > Users > Update Users.

2 Select user accounts to update on the left side of the Update VnmrJ Users window. Hold the Control and Shift keys to select multiple accounts with the same interface.

3 Click the highlighted, green arrow to move the accounts to Update Users.

4 Click Update Users.

5 Exit from VnmrJ Admin, Management > Exit.
VnmrJ Patches

Checking the patch level

In VnmrJ, go to Help > About VnmrJ.

Any installed patches will be displayed on the About VnmrJ pop-up.

Updating software patches

1. Log in as the VnmrJ administrator.
2. Download the software patch from https://spinsights.chem.agilent.com/community/resources/patches.
3. Follow the installation instructions in the “Readme” file.
Restoring Older Versions of VnmrJ

In order to revert to a previously installed version of VnmrJ, the perform the following steps. By default, VnmrJ is installed in the /home directory. The directories are named VnmrJ_<version>, where the <version> changes. In the example below, the <version> should be replaced with your previous version number. From a terminal widow, type ls /home to see the available VnmrJ versions.

1. As root, type the following in a terminal window:
   
   rm /vnmr

2. Confirm removal of symbolic link by typing “y”, as shown below.
   
   rm: remove symbolic link `/vnmr'? y

3. Establish symbolic link to a previous version of VnmrJ by typing:
   
   ln -s /home/vnmrj_<version> /vnmr
   
   where <version> is substituted with the appropriate version number.

4. Run setacq.

5. Run dbsetup.
3 Installing VnmrJ