

Acquisition Workstation (Solaris)

Installation Guide

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Part number 13386R8

Release date 2004-12-01

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Acquisition Workstation Installation – Solaris

1 Description

This document provides installation procedures for a standard SUN acquisition computer for CTBTO.

1.1 Conventions

- ◆ Text file content is in bold text.
- ◆ Command line entries are in Courier font.
- ◆ All files, commands and file paths given in this document are examples only. However, you may have to find the right file and directory when copying or running files.
- ◆ IP addresses included in this document are taken from the standard Nanometrics Factory Acceptance Test setup. They will have to be changed before the final system is shipped or when installation is made.
- ◆ Any items enclosed in [] are descriptions of what should replace this item in the procedure. It does not include the brackets. Replace this description with the value to be configured.

1.2 Acquisition computer hardware and software to be installed

- ◆ Solaris 8 operation system
- ◆ Recommended patches for Solaris 8
- ◆ Java Runtime Environment
- ◆ Recommended patches for J2SE.
- ◆ Chrysalis card reader and device driver
- ◆ Nanometrics Software: NAQSServer, AutoDRM, NmxToCD1, NmxToCD11, NAQSClient, Playback, SMConsole, RM4Application, NmxUI, Calibrate, DataServer, NaqsToUdp, NmxCLI, NmxToCSS3, Nanometrics Libraries and General Utilities

2 System Prerequisites

Hardware:

- ♦ SUN Blade 150 UltraSPARC-III 550MHz workstation
- ♦ At least 128 MB RAM
- ♦ At least 9 GB hard disk
- ♦ Onboard PGx24 graphics adapter
- ♦ LAN adapter, 10Base-T with RJ45 connector
- ♦ Authentication card reader and DOCK controller card

Operating System:

- ♦ Solaris 8

3 Resources

- ♦ Solaris 8 Installation Kit (with CDs)
- ♦ Nanometrics Release CD

4 Setup Instructions

4.1 Solaris 8 Operating System Installation

1. Turn on the computer.
2. When the system boots and the display is active, press STOP + a.
3. Place the CD “Solaris 8 Installation” into the CD-ROM drive.
4. At the command prompt, type:

```
boot cdrom
```

The computer will attempt to boot from the CD-ROM. Retry the command if it is unable to boot. You might have to power cycle the computer and repeat the above steps.

5. Follow the instructions given by the installation prompt. You will have to format the drive in order to create an /nmx partition. Use the following questions/answers as a guide:

```
Can c0t0d0s4 be used for Solaris installation software?      NO
Go back and reselect a splace to hold the Solaris inst. s/w? NO
Do you want to format /dev/dsk/c0t0d0?                     YES
Use the default swap slice                                  512MB
Can the swap slice start at the beginning of the disk?     YES
Is this ok? (all info will be erased)                      YES
```

6. If the formatting is successful, the graphical interface will be loaded. Select custom installation.

7. Enter the following configuration parameter values when prompted:
 - Networking:

Network Connectivity:	Networked
DHCP:	No
 - Hostname:

Enter the workstation name. The workstation name can range from ws01-ca01, ws02-ca01... to ws10-ca01. Consult system test bulletin board for workstation name availability. For example,

Hostname: ws01-ca05
 - IP Address:

Enter the IP address that corresponds to your workstation name. For example, if your workstation name is ws05-ca01, then your IP address is,

IP address:	10.17.224.6
Netmask:	255.255.0.0
MTU:	400
IPv6:	Yes
Default Router:	10.17.224.1
Enable Kerberos:	No
Name Service:	DNS
Domain Name:	gci.ctbto.org
DNS Server Address:	193.218.117.161
	193.218.117.162
DNS Search List:	None
Time zone:	offset from GMT, +0
 - Root Access:

Root password: ctbto
 - Proxy Info:

Proxy info: Direct connection to the internet
8. Confirm the installation information. At this point, the system will be configured with the above information and the computer will reboot.
9. Indicate yes when prompted for installer options to reboot and eject the disk automatically following software installation.
10. Select CD/DVD as the media from which to install Solaris Operating Environment.
11. When prompted, place CD “Solaris 8 Software Disc 1 of 2” into the CD-ROM drive.
12. Select custom installation and enter the following configuration parameter values when prompted (use the defaults for all other items):

Software Localizations:

Select English (Canada), English (United States) and optionally, locale specific to the system installation site.

System Locale:

Select English – Canada.

Products to Install:

Select everything except Solaris 8 Documentation Asian.

File Systems Lay Out:

Name	Size
/	1000 MB
swap	514 MB
/usr	1500 MB
/var	1000 MB
/home	2000 MB
/opt	2000 MB
/nmx	whatever value is remaining (i.e. 30144 MB)

13. Proceed with installation of the above information when prompted.
14. From this point forward, follow the instructions prompted and proceed with the default installation. This will require the use of the installation CDs “Solaris 8 Software Disc 2 of 2”, “Solaris 8 Documentation”, and “Software Supplement for the Solaris 8 Operation Environment”.
15. Upon completion of installation, log into the Common Desktop Environment as root.

4.2 Copying Files from the Nanometrics Release CD

1. Copy the releases.tar (or any other name which contains the Nmx software) from the Nanometrics release CD to /nmx:

```
cd /cdrom/[CD name]/  
cp releases.tar /nmx/.
```
2. Unpack the file. Be sure to use all the options given for tar:

```
cd /nmx  
tar xvpf releases.tar
```
3. Alternatively, copy the releases.zip file from G:\Production\CDReleases to workstation using ftp to the directory /nmx. Unzip the file in /nmx:

```
cd /nmx  
unzip releases.zip
```

4.3 Installing the Solaris Patch

1. Log in as root.
2. Change directory to /nmx/releases/Solaris/Solaris_Patch/8_Recommended:

```
cd /nmx/releases/Solaris/Solaris_Patch/8_Recommended
```
3. Unzip the 8_Recommended.zip file:

```
unzip 8_Recommended.zip
```
4. Change directory to /nmx/releases/Solaris/Solaris_Patch/8_Recommended/8_Recommended:

```
cd /nmx/releases/Solaris/Solaris_Patch/8_Recommended/  
8_Recommended
```
5. Run the install_cluster program. (Run error messages can be ignored. They appear because the patches have already been installed.):

- ```
./install_cluster
```
6. Change directory to /nmx/releases/Solaris/Solaris\_Patch/J2SE\_Recommended:  

```
cd /nmx/releases/Solaris/Solaris_Patch/J2SE_Recommended
```
  7. Unzip the J2SE\_Solaris\_8\_Recommended.zip  

```
unzip J2SE_Solaris_8_Recommended.zip
```
  8. Change directory to /nmx/releases/Solaris/Solaris\_Patch/J2SE\_Recommended/J2SE\_Recommended:  

```
cd /nmx/releases/Solaris/Solaris_Patch/J2SE_Recommended/J2SE_Recommended
```
  9. Run the install\_cluster program. (Run error messages can be ignored. They appear because the patches have already been installed.):  

```
./install_cluster
```
  10. Reboot the workstation after installation:  

```
reboot
```

## 4.4 Installing the Java Runtime Environment

1. Log in as root.
2. Create a /usr/jre1\_4\_2 directory on the Solaris workstation:  

```
mkdir /usr/jre1_4_2
```
3. Copy /nmx/releases/Solaris/jdk1.4.2/j2re-1\_4\_2\_04-solaris-sparc.sh to /usr/jre1\_4\_2.  

```
cp /nmx/releases/Solaris/jdk1.4.2/j2re-1_4_2_04-solaris-sparc.sh /usr/jre1_4_2
```
4. Make sure that execute permission are set on the file:  

```
chmod +x /usr/jre1_4_2/j2re-1_4_2_04-solaris-sparc.sh
```
5. Change directory to:  

```
cd /usr/jre1_4_2
```
6. Run the self-extracting binary:  

```
./j2re-1_4_2_04-solaris-sparc.sh
```
7. The binary code license is displayed and you are prompted to agree to its terms.
8. Once the files have been extracted, remove the old java version by:  

```
cd /usr
rm java
```
9. Make the new java version the default by creating a symbolic link:  

```
ln -s /usr/j2re1.4.2_04/bin/java java
```
10. Reboot the workstation:  

```
reboot
```

## 4.5 System Configuration

### 4.5.1 User Accounts

1. Log in as root.

- Right-click over the desktop and select “Tools > Admintool” to start the Admintool. Add the following user accounts. After entering each user’s account information, click on “OK” instead of “Apply”. Ignore any message warning you that there has been a user account already created with that name.

| User name | Password | Shell | Home Directory |
|-----------|----------|-------|----------------|
| nmx       | nmxadmin | C     | /home/nmx      |
| autodrm   | autodrm  | C     | /home/autodrm  |
| operator  | operator | C     | /home/operator |
| ims       | ims      | C     | /home/ims      |

#### 4.5.2 Power Management

- Log in as root.
- Right-click on the desktop and select “Tools > Power Manager” to start Power Manager.
- Select “Minimal” from the drop down menu. This setting saves power on the monitor only and not the disks.
- Logout and log back in as nmx.

#### 4.5.3 Directory Structure

- Use `su` to login as root.
- Create the following directories on the `/nmx` partition:
 

```
mkdir /nmx/bin
mkdir /nmx/user
mkdir /nmx/log
mkdir /nmx/ringbuffer
```
- Give full access to user `nmx` to `/nmx` partition by running the following commands in the root directory:
 

```
cd /
chown -R nmx:nmx /nmx
```

\*please note that there is a space between `nmx` and `/nmx`
- Exit `su` mode.

#### 4.5.4 IP Networking

- Use `su` to login as root.
- Go to `/etc` directory.
- Create a new file called `defaultrouter` (or edit the existing file if there is one). Enter the IP address of the gateway host: `10.17.224.1`. The following is a sample default router file:

```
#
Install the default routers,
#
use IP address since DNS not running yet and saves using /etc/hosts
```

```
#
send to the ISDN router (pipeline.nanometrics.ca)
10.17.224.1
```

4. Edit the hostname.eri0 file. Ensure that it has included the hostname of the computer. A sample hostname.eri0 file:

```
ws05-ca01
```

5. Edit the nodename file. Ensure that it has included the hostname of the computer. A sample nodename file:

```
ws05-ca01
```

6. Edit the hosts file. Ensure that it has the IP address and the corresponding hostnames of all computers included with the system. Ensure that it has **loghost** appended to the line of the hostname of the computer being configured. A sample hosts file:

```
#
Internet host table
#
127.0.0.1 localhost
10.17.224.6 ws05-ca01 loghost
```

7. Edit the netmasks file and ensure that the configured netmask is 255.255.0.0. A sample netmasks file:

```
10.17.224.6 255.255.0.0
```

8. Edit the nsswitch.conf file. Ensure that the host name resolution is done using both the hosts file and DNS. The line starting with hosts should read:

```
hosts: files dns
```

9. Create a new resolv.conf file (if it doesn't already exist). Ensure that the IP address configured in the file is 193.218.117.161 and 193.218.117.162. A sample resolv.conf file:

```
domain gci.ctbto.org
nameserver 193.218.117.161
nameserver 193.218.117.162
```

#### 4.5.5 Time Service

1. Use `su` to login as root.
2. Go to the `/etc/inet` directory.
3. Open the `ntp.conf` file, or if one does not exist, create one.
4. Enter the following line(s) in the `ntp.conf` file:

```
server [IP address]
```

where [IP address] should be replaced with the IP address of the selected time server(s). The time server should be a Europa-T or Cygnus which has GPS timing information. Add an additional line for each time server.

#### 4.5.6 Mail Service

1. Use su to login as root.
2. Install the pop3 server program. Create a directory local in /usr:  

```
mkdir /usr/local
```
3. Create a directory lib in /usr/local:  

```
mkdir /usr/local/lib
```
4. Copy the popper file:  

```
cd /nmx/releases/Solaris/Nanometrics/AutoDRM/[ver]/bin
cp ./popper /usr/local/lib/.
```
5. Set the popper file to be executable:  

```
chmod +x /usr/local/lib/popper
```
6. Copy the mail.jar and activation.jar files:  

```
cd /nmx/releases/Solaris/Nanometrics/AutoDRM/[ver]/bin
cp mail.jar /usr/j2se/jre/lib/ext/.
cp activation.jar /usr/j2se/jre/lib/ext/.
```
7. Configure the pop3 service. Change access permissions the file /etc/inet/inetd.conf:  

```
chmod +w /etc/inet/inetd.conf
```
8. Edit the file /etc/inet/inetd.conf and add the following line to the end of the file:  

```
pop3 stream tcp nowait root /usr/local/lib/popper qpopper -s
```
9. Reset the access permissions using the following command:  

```
chmod -w /etc/inet/inetd.conf
```
10. Configure the sendmail service. Edit the file /etc/mail/sendmail.cf. Note that it may be necessary to change the access permissions on the file in order to do so. Follow the command used in the previous steps. In the file /etc/mail/sendmail.cf, after the line:  

```
#Dj$w.Foo.COM
```

Add a new line with the following:

```
Dj$w.gci.ctbto.org
```
11. In the same file (/etc/mail/sendmail.cf), to the front of line:  

```
Dsmailhost$?m.$m$.
```

insert

```
#
```

to read

```
#Dsmailhost$?m.$m$.
```
12. Reset the access permissions using the following command:  

```
chmod -w /etc/mail/sendmail.cf
```

13. Copy the existing mail folder (preserving all attributes) to /nmx:  

```
cp -rp /var/mail /nmx
```
14. Rename the old mail directory:  

```
mv /var/mail /var/mail.old
```
15. Create a new symbolic mail link to /nmx/mail in /var:  

```
cd /var
ln -s /nmx/mail mail
```
16. Change the group ownership of the symbolic link to mail:  

```
chown -h root:mail /var/mail
```

## 4.6 Installing the Chrysalis Luna Card reader software and device driver

1. Ensure that a Luna DOCK controller card is installed in the workstation. Refer to the documentation of the card reader for further information.
2. Ensure that the workstation is started with the card reader connected and powered. The token card should NOT be in the card reader at this point.
3. Use su to login as root.
4. To install the Luna software:  

```
pkgadd -d /nmx/releases/Solaris/LunaHSM/lunasys.ds
```
5. A dialog will appear, showing the available packages. Select the package shown and following any instructions prompted.
6. To install the Luna DOCK controller card 64-bit device driver:  

```
pkgadd -d /usr/luna/drivers/lunacr64.ds lunacr64
```
7. The program will install the package and then look for the appropriate devices. Allow time for completion of system checks before the program terminates with a message indicating the package was added.

## 4.7 Installing Nanometrics Programs and Utilities

1. Copy all files from the /nmx/releases/Solaris/Nanometrics/.../bin directories to /nmx/bin:  

```
cd /nmx/releases/Solaris/Nanometrics/
cp */*/bin/* /nmx/bin
cp */*/bin/.run* /nmx/bin
```
2. Copy all files from the /nmx/releases/Nanometrics/.../user directories to /nmx/user:  

```
cp */*/user/* /nmx/user
```
3. Use su to login as root.
4. Set the ownership of all Nanometrics files to nmrx:  

```
cd /
chown -R nmrx:nmrx /nmx
```
5. Set all files, except jar files, in /nmx/bin to executable:  

```
cd /nmx/bin
chmod +x *
chmod +x .run*
chmod -x *jar
```

6. Move the S95nmX file from the General Utilities software package to /etc/rc3.d  

```
mv /nmX/bin/S05nmX /etc/rc3.d
```
7. Move the K05nmX file from the General Utilities software package to /etc/rc2.d and /etc/rc0.d  

```
cp /nmX/bin/K05nmX /etc/rc2.d
mv /nmX/bin/K05nmX /etc/rc0.d
```
8. Move the S02CHECKFSYS file from the General Utilities software package to /etc/rc2.d  

```
mv /nmX/bin/S02CHECKFSYS /etc/rc2.d
```
9. Exit the root login.
10. In /nmX/bin, install the cron script that will erase log files older than 30 days on the computer every day (WARNING: DO NOT RUN THIS COMMAND WHILE IN SUPER-USER MODE)  

```
crontab /nmX/bin/nmXcron
```
11. Edit the /home/nmX/.cshrc file. Add:  

```
/usr/sbin /nmX/bin
```

to the end of the path list before the “.”. The line will look like:  

```
set path=(/bin /usr/bin /usr/local/bin /etc /usr/sbin /nmX/bin .)
```

Edit the /home/nmX/.cshrc file. Add the following lines to the end of the file:  

```
setenv LD_LIBRARY_PATH /nmX/bin
set filec
```
12. Go to /nmX/bin and copy the RM4Application into new files called RM4\_[SN], where [SN] is replaced by the serial number(s) of the RM4s being shipped with the system. Make one file for each RM4:  

```
cp -p RMApplication RM4_101
```
13. Edit each RM4\_[SN] file to incorporate the IP address for the corresponding RM4. In the line:  

```
java -cp /nmX/bin/rm4gui02_02.jar RM4Show [IP address of RM4]
```

where [IP address of RM4] is the IP address of the RM4 for the site.
14. Create icons on the desktop for the following programs:  
Waveform  
NaqsView  
ConfigUI  
RM4\_[SN]
15. To do this, open File Manager, go to /nmX/bin. Right click on each of the listed file icons and select “Put in Workspace”.
16. Log out of the computer.
17. Log back in as nmX. This has now saved the icons to the workspace.
18. Check that the icons work by double clicking on each one to start their respective programs.

## 4.8 Configuring the LUNA Token

1. Insert the token into the card reader.
2. Launch SMConsole.
3. Select <2> Workstation / <2> Initialize Token.
4. Respond yes, initialize the token.
5. Set all pins to CTBTO, and leave the token title blank.
6. Select <4> Login User, and enter the PIN.
7. Select <6> Generate KeyPair.
8. Choose the default names for the keys.
9. Select <11> Generate CertReq.
10. Use the following guidelines for parameters in the certificate request:
 

|                         |                                          |
|-------------------------|------------------------------------------|
| Subject Name (CN):      | [The computer name, like ws01-JMIC]      |
| Organization (O):       | CTBTO                                    |
| Organization Unit (OU): | IMS                                      |
| Locality (L):           | [The 3-4 letter station code, like JMIC] |
| Country (C):            | [not used - hit carriage return]         |
11. Save the file in /nmx/user/[Computer Name].crq.
12. Email this file to CTBTO, requesting the workstation certificate as well as the certificate of the Certificate Authority (CA) that issued the workstation certificate, in return.
13. When the certificates are received, login as user again.
14. Select <7> Load Certificate
15. Load the CA certificate. It will probably be called cacert.pem.
16. Select <7> Load Certificate
17. Load the workstation certificate. It will probably be called [computer name].pem.

## 4.9 Enabling the Xfree86-xvfb package

This package is required only if this workstation is used to save jpeg files using the Calibrate command line interface.

1. Login as root using `su`.
2. Create the directory /usrX11R6:
 

```
mkdir /usr/X11R6
```
3. Copy the file /nmx/releases/Solaris/Xvfb/X11R6\_bin.tar.gz.tar:
 

```
cp /nmx/releases/Solaris/Xvfb/X11R6_bin.tar.gz.tar /usr/X11R6
```
4. Unzip the file:
 

```
cd /usr/X11R6
tar xvpf X11R6_bin.tar.gz.tar
gunzip X11R6_bin.tar.gz
tar xvpf X11R6_bin.tar
```

5. Delete the original file:
 

```
rm X11R6_bin.tar
```

  - ▶ To verify the proper setup of Xvfb, execute the following commands which should display the graphical clock:
 

```
xclock -display :1 &
xwd -display :1 -root | xwud
```

 (Press q to close the graphical clock.)

## 4.10 Enabling Solaris UFS File Logging

This is to enable UFS logging of the mounted file systems.

1. Login as root (su -).
2. Make the script to enable UFS file logging executable and run it:
 

```
/nmx/bin/enable_ufs_logging
```

 or (to disable UFS logging)
 

```
/nmx/bin/disable_ufs_logging
```
3. Verify that the new modified file system resembles the following example:

| #device           | device              | mount   | FS   | fsck | mount   | mount   |  |
|-------------------|---------------------|---------|------|------|---------|---------|--|
| #to mount         | to fsck             | point   | type | pass | at boot | options |  |
| #                 |                     |         |      |      |         |         |  |
| #/dev/dsk/c1d0s2  | /dev/rdisk/c1d0s2   | /usr    | ufs  | 1    | yes     | -       |  |
| fd -              | /dev/fd             | fd -    | no   | -    |         |         |  |
| /proc -           | /proc               | proc -  | no   | -    |         |         |  |
| /dev/dsk/c0t0d0s1 | -                   | -       | swap | no   | -       |         |  |
| /dev/dsk/c0t0d0s0 | /dev/rdisk/c0t0d0s0 | /       | ufs  | 1    | no      | logging |  |
| /dev/dsk/c0t0d0s3 | /dev/rdisk/c0t0d0s3 | /usr    | ufs  | 1    | no      | logging |  |
| /dev/dsk/c0t0d0s4 | /dev/rdisk/c0t0d0s4 | /var    | ufs  | 1    | no      | logging |  |
| /dev/dsk/c0t0d0s5 | /dev/rdisk/c0t0d0s5 | /home   | ufs  | 2    | yes     | logging |  |
| /dev/dsk/c0t0d0s7 | /dev/rdisk/c0t0d0s7 | /nmx    | ufs  | 2    | yes     | logging |  |
| /dev/dsk/c0t0d0s6 | /dev/rdisk/c0t0d0s6 | /opt    | ufs  | 2    | yes     | logging |  |
| swap -            | /tmp                | tmpfs - | yes  | -    |         |         |  |

4. Reboot the workstation.

## 5 Basic Configuration of Input Files for Nanometrics Software

There are 4 primary software applications used on Nanometrics data acquisition workstations:

- ◆ NAQS Server – NAQS Server is a data acquisition system designed to receive, process, and store serial data, seismic data, and state-of-health information received from Nanometrics' latest generation of data acquisition and communications equipment.
- ◆ AutoDRM – AutoDRM is an Automatic Data Request Manager that allows users, via email, to request seismic data from, and send commands to, a Nanometrics data acquisition system.
- ◆ NmxToCSS3 – This software converts the incoming waveform data to CSS3 format and stores them at the data acquisition workstation.

- ◆ NmxToCD1 / NmxToCD11 – NmxToCD1 is designed to forward seismic data from a Nanometrics data acquisition system (NaqsServer) to an IDC data center, using the CD-1 data format and protocol defined in IDC 3.4.2 (May 1998). NmxToCD11 forwards time series data from a Nanometrics data acquisition system (NaqsServer) to an IDC data center, using the CD-1.1 data format and protocol defined in IDC 3.4.3 Rev. 2 (December 2001). It is important to note that NmxToCD1 and NmxToCD11 cannot be run at the same time. The data acquisition system must be configured for one or the other.

Basic configuration information for each application is provided in the following sections.

## 5.1 NAQS Server

The NaqsServer software is configured through the Naqs.ini and the Naqs.stn files. For more detailed information on how to configure NAQSServer, refer to the NAQSServer section of the Software Reference Manual. The NAQS Server manual provides comprehensive information on every configuration parameter. Below is the basic NaqsServer configuration information for CTBTO.

Naqs.ini:

- ◆ Naqs log files should be located in /nmx/log/naqs  
**LogPath = /nmx/log/naqs**
- ◆ Multicast group should be set to where the RM4s/Europas are sending to. Nanometrics default is 229.1.4.1  
**MulticastGroup = 229.1.4.1**

Naqs.stn:

- ◆ The Network Name at the top of the Naqs.stn file should be set to the 3-4 letter Station Code provided by CTBTO. This is the same code as used in the NmxToCD1.ini file.
- ◆ All SohBufferPaths should point to /nmx/ringbuffer in the InstrumentPrototype sections.  
**SohBufferPath = /nmx/ringbuffer**
- ◆ SohChannelName in the InstrumentPrototype section should be as follows, for each instrument:
 

|            |     |                                   |
|------------|-----|-----------------------------------|
| Europa     | EUR |                                   |
| RM-4       | RM4 |                                   |
| Cygnus     | CYG | (used in only some CTBTO systems) |
| Carina     | CAR | (used in only some CTBTO systems) |
| Trident    | TR  | (not used in most CTBTO systems)  |
| TimeServer | TSR | (not used in most CTBTO systems)  |
- ◆ All RingbufferPaths should point to /nmx/ringbuffer in the ChannelPrototype and SerialChannelPrototype sections.  
**RingBufferPath = /nmx/ringbuffer**
- ◆ Ringbuffer sizes should be set so that the Seismic (Channel) ringbuffers are roughly 10-12 times the size of the Authentication (SerialChannel) ringbuffers,

since authentication takes about 10-12 times less room than seismic data. For example, use 500MB and 50MB.

## 5.2 AutoDRM

The AutoDRM software is configured through the AutoDRM.ini file. For more detailed information on how to configure AutoDRM, refer to the AutoDRM section of the Software Reference Manual. The AutoDRM manual provides comprehensive information on every configuration parameter.

- ◆ HostMailServer should be localhost.
- ◆ MailDomain should be gci.ctbto.org.
- ◆ StationCode should be set to the same 3-4 letter code used in Naqs.stn and NmxToCD1.ini.
- ◆ Log, Request, and Response directories should be in /nmx/log/autodrm.
- ◆ For Authentication parameters, use:

```
TokenID = any
PIN = ctbto
KeyID = 1
VerificationDepth = 0
```

- ◆ From the /nmx/user directory, create the autodrm and the autodrm/scheduleItems subdirectories.

```
cd /nmx/user
mkdir autodrm
mkdir autodrm/scheduleItems
```
- ◆ Copy the Calibration.ini from the user directory to the autodrm subdirectory

```
cp Calibration.ini autodrm/
```
- ◆ Modify the autodrm/Calibration.ini to change the SchedDir entry to /nmx/user/autodrm/scheduleItems
- ◆ Modify the AutoDRM.ini and change the following entries:
  - CalibrationFile to /nmx/user/autodrm/Calibration.ini
  - SchedDir to /nmx/user/autodrm/scheduleItems



**Note** If you change the SchedDir in /nmx/user/AutoDRM.ini or SchedDir in /nmx/user/autodrm/Calibration.ini, you must change the autodrm watchdog script to use the new directories.

## 5.3 NmxToCSS3

The NmxToCSS3 software is configured through the NmxToCSS3.ini file. For more detailed information on how to configure NmxToCSS3, refer to the NmxToCSS3 section of the Software Reference Manual. The NmxToCSS3 manual provides comprehensive information on every configuration parameter.

- ◆ The StationCode should be set to the 3-4 letter code provided by CTBTO.

- ◆ Log file should be located in /nmx/log/nmxtocd1, and should be run in VERBOSE mode.

**LogPath** = /nmx/log/nmxtocss3

**Verbosity** = VERBOSE

- ◆ For testing purposes, use the following parameters. Parameters not shown should be left as default.

**NaqsAddress** = localhost

**NaqsPort** = 28000

**DataServerAddress** = localhost

**DataServerPort** = 28002

**DataServerUser** = ?

**DataServerPwd** = ?

**CalibrationAddress** = 230.0.0.2

**CalibrationPort** = 4501

**CalHistoryFile** = calHistory.cd1 or calHistory.cd11

...

- ◆ Add entries for all instruments of interest.



**Note** If you change the waveforms directory in the NmxToCSS3.ini file, you must change the nmxcron to use the new directory.

## 5.4 NmxToCD1

The NmxToCD1 software is configured through the NmxToCD1.ini file. For more detailed information on how to configure NmxToCD1, refer to the NmxToCD1 section of the Software Reference Manual. The NmxToCD1 manual provides comprehensive information on every configuration parameter.

- ◆ The StationCode should be set to the 3-4 letter code provided by CTBTO that is registered with the CD1 Receiver.
- ◆ Log file should be located in /nmx/log/nmxtocd1, and should be run in VERBOSE mode.

**LogDirectory** = /nmx/log/nmxtocd1

**Verbosity** = VERBOSE

- ◆ For testing purposes, use the following parameters. Parameters not shown should be left as default.

**IdcAddress** = 172.22.241.62

**IdcPort** = 7600

...

**ReTxDelayMinutes** = 30, 120, 720 \*

**TxHistoryHours** = 336  
**TxHistoryStart** = 2002-10-10 12:00:00 (set this to the current date/time)

\* Not valid for version 1.40.03 and later.

- ◆ All ringbuffers should be located in /nmx/ringbuffer.
- ◆ NmxChannelName and HdrChannelName should be the Ringbuffer file names of the relevant Seismic and Authentication channels. The IdcChannelName should have the same prefix, as shown in this example:

**NmxChannelName** = STN01.BHZ  
**IdcChannelName** = STN01/ch1  
**HdrChannelName** = STN01.AUZ  
**RbfDirectory** = /nmx/ringbuffer  
**HdrDirectory** = /nmx/ringbuffer

- ◆ The Calibration Factor should be calculated based on the system sensitivity of the system, brought down into units of ground motion (nm/count). The Calibration period is almost always left as 1.

## 5.5 NmxToCD11

The NmxToCD11 software is configured through the NmxToCD11.ini file. For more detailed information on how to configure NmxToCD11, refer to the NmxToCD11 section of the Software Reference Manual. The NmxToCD11 manual provides comprehensive information on every configuration parameter.

- ◆ For testing purposes, use the following parameters. Parameters not shown should be left as default.

**NaqsAddress** = localhost  
**NaqsPort** = 28000  
**IdcAddress** = 172.22.241.63  
**IdcPort** = 11000  
**FrameCreator** = [station code]  
**FrameDestination** = IDC

- ◆ The StationName should be set to the 3-4 letter code provided by CTBTO that is registered with the CD1.1 Receiver.

**StationName** = [station name]  
**StationType** = IMS

- ◆ The TxHistoryStart field is used to specify a date and time. NmxToCD11 will forward all data corresponding to a date and time subsequent to the date and time indicated in this field.

**TxHistoryHours** =168  
**TxHistoryStart** = 2002/11/15 12:00:00 (set this to the current date/time)

- ◆ The Log file should be located in /nmx/log/nmxtocd1, and should be run in VERBOSE mode

**LogDirectory = /nmx/log/nmxtocd1**

**Verbosity = VERBOSE**

- ◆ The NaqsRunDir field is used to specify the absolute path to the directory in which NAQS is running. This is the directory which contains the Naqs.stn configuration file.

**NaqsRunDir = /nmx/user**

- ◆ List all the NAQS data channels to be built into the data frame using the dotted station-channel name.

**STN01.BHZ**

**STN01.BHN**

**STN01.BHE**

**STN02.SHZ**

