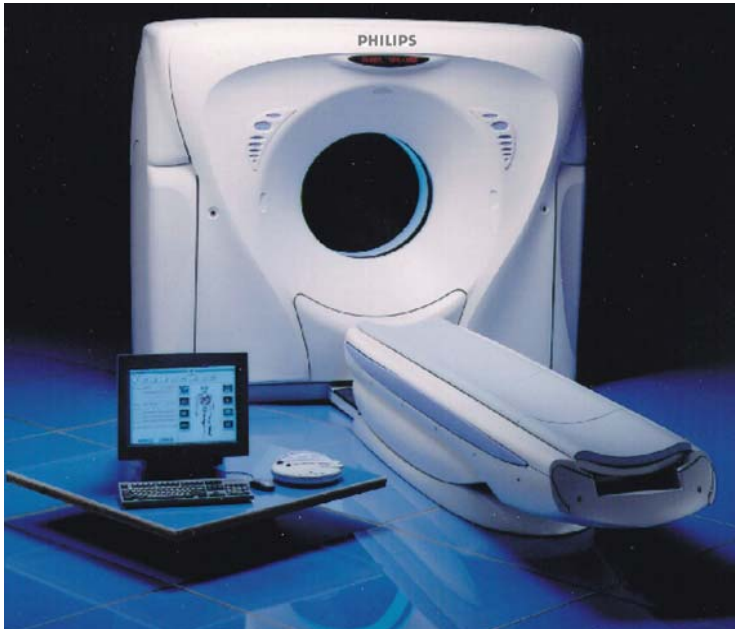
Mx8000 Quad

Software Version 2.64 for New Computer Installation Instructions



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Revision A

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Philips Medical Systems

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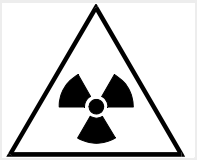
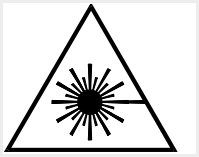
Symbol Descriptions

Attention symbol

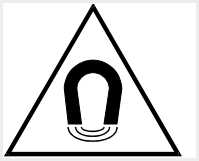


Radiation warning symbol

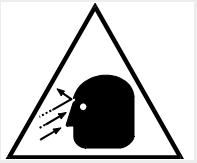


Laser warning symbol

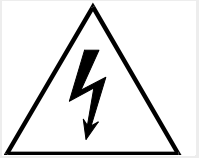
Biohazard warning symbol



Magnetism warning symbol



Projectile warning symbol



Electrical warning symbol

Revision History

ECO #	Revision	Date	Comments
E13040004	A	July 2004	New Release

This document was prepared by the CT PMG Haifa Service Innovation Department.
For any additions, corrections, or suggestions, contact:
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Safety Information

To the User of This Manual

The user of this manual is directed to read and carefully review the instructions, warnings and cautions contained herein prior to beginning installation or service activities. While you may have previously installed or serviced equipment similar to that described in this manual, changes in design, manufacture or procedure may have occurred which significantly affect the present installation or service.

Installation and Environment

Except for installations requiring certification by the manufacturer per federal standards, see that a radiation protection survey is made by a qualified expert in accordance with NCRP 102, section 7, as revised or replaced in the future. Perform a survey after every change in equipment, workload, or operating conditions which might significantly increase the probability of persons receiving more than the maximum permissible dose equivalent.

Diagnostic Imaging Systems - Mechanical-electrical Warning

All of the moveable assemblies and parts of this equipment should be operated with care and routinely inspected in accordance with the manufacturer's recommendations contained in the equipment manuals.
Only properly trained and qualified personnel should be permitted access to any internal parts. Live electrical terminals are deadly; be sure line disconnects are opened and other appropriate precautions are taken before opening access doors, removing enclosure panels, or attaching accessories.
Do not under any circumstances, remove the flexible high tension cables from the x-ray tube housing or high tension generator and/or the access covers from the generator until the main and auxiliary power supplies have been disconnected. Failure to comply with the above may result in serious or fatal bodily injuries to the operator or those in the area.

Electrical-grounding Instructions

The equipment must be grounded to an earth ground by a separate conductor. The neutral side of the line is not to be considered the earth ground. On equipment provided with a line cord, the equipment must be connected to properly grounded, three-pin receptacle. Do not use a three-to-two pin adapter.

Diagnostic Imaging Systems - Radiation Warning

X-ray and Gamma-rays are dangerous to both operator and others in the vicinity unless established safe exposure procedures are strictly observed.
The useful and scattered beams can produce serious or fatal bodily injuries to any persons in the surrounding area if used by an unskilled operator. Adequate precautions must always be taken to avoid exposure to the useful beam, as well as to leakage radiation from within the source housing or to scattered radiation resulting from the passage of radiation through matter.
Those authorized to operate, participate in or supervise the operation of the equipment must be thoroughly familiar and comply completely with the current established safe exposure factors and procedures described in publications, such as: Subchapter J of Title 21 of the Code of Federal Regulations, "Diagnostic X-ray Systems and Their Major Components", and the national council on radiation protection (NCRP) no. 102, "Medical X-ray And Gamma-ray Protection For Energies Up To 10 Mev-equipment Design and Use", as revised or replaced in the future.
Those responsible for planning of x-ray and gamma-ray equipment installations must be thoroughly familiar and comply completely with NCRP no. 49, "Structural Shielding Design and Evaluation For Medical Of X-rays and Gamma-rays of Energies Up to 10 Mev", as revised and replaced in the future. Failure to observe these warnings may cause serious or fatal bodily injuries to the operator or those in the area.
Add additional safety information as needed

Only qualified and system trained Philips service staff is allowed to perform service (installation, maintenance, quality assurance) on the Mx8000 systems. Make sure that the latest version of the service instructions are available. Read the corresponding instructions carefully prior to working on the system. For your own safety and for more detailed safety information, refer only to the current version of the documents.
Use only specified tools and auxiliary materials. After finishing any service activity, ensure that all covers of the Mx8000 Quad, including the mylar gasket, are closed

Precautionary Measures Regarding Electrical Voltage

Before you start the procedure outlined in this manual, make sure that you read and understand the warnings listed below.

WARNING **PRIOR TO ANY SERVICE AND MAINTENANCE ACTIVITIES INSIDE COMPONENTS: SWITCH OFF THE SYSTEM AT THE MAIN POWER SUPPLY, (USING THE ON-SITE ON-OFF SWITCH) AND THE INTERNAL/EXTERNAL UNINTERRUPTIBLE POWER SUPPLY (UPS). MAKE SURE THAT NO OTHER PERSON CAN SWITCH ON POWER OR SWITCH OFF THE SECURITY MEASURES, WHEN INSTALLATION, MAINTENANCE OR SERVICE WORK ON THE SYSTEM IS PERFORMED.**

WARNING **WHEN PERFORMING ANY PROCEDURE INSIDE THE PDC: SWITCH OFF ALL EXTERNAL POWER, E.G. POWER FOR X-RAY WARNING LAMP. PRIOR TO ANY INTERVENTION IN THE PDC, ALLOW AT LEAST FIVE MINUTES DISCHARGE TIME AFTER THE LAST SCAN. HAZARDOUS VOLTAGE LEVELS (>500V) MAY BE PRESENT EVEN IF THE SYSTEM IS SWITCHED OFF.**

WARNING **IN ADDITION TO THE WARNINGS LISTED ABOVE, MAKE SURE TO FOLLOW ALL SAFETY GUIDELINES AS DESCRIBED IN CHAPTER 1 OF THE MX8000 FAMILY SERVICE MANUAL. FAILURE TO DO SO CAN RESULT IN SEVERE PERSONAL INJURY.**

CAUTION **Always use an ESD protection wrist strap when servicing any component in the system.**

Contents

Contents

Preface

Mx8000 Software Version 2.64 adds new features, improvements to the existing application, and service options.

The Software Version 2.64 installation procedure is for both Quad and Dual models of the Mx8000 multi-slice scanner. This document describes only the procedure for the Dual model.

NOTE

- Use this document only when upgrading from Version 2.51 to Version 2.64.
- If there is a version earlier than V2.51 installed, you must upgrade first to V2.51 and then to V2.64.
- When a new installation is required (for example, following a hard disk crash), perform the procedures described in the *Version 2.64 for New Computer / Disk Installation Instructions* document.

If any question arises concerning new Software Version 2.64, contact the **PMSTL Support Call Center** by phone or E-mail, to obtain appropriate information.

E-mail:_1HFA_Support_e2@philips.com

Tel.:+972-4-831-0822

Fax:+972-4-855-1074

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Version 2.64 Full Version Installation

Mx8000 Software Version 2.64 adds new options, features, and improvements to the existing application, and service options.

NOTE **The Software Version 2.64 installation procedure is for both Dual and Quad models of the Mx8000 multi-slice scanner. This document describes only the procedure for the Quad model. Perform the procedures described in this chapter only when a complete new installation is required. For example, this procedure should be used following a computer hard disk crash, when no recent backup exists.**

How This Installation is Organized

This chapter provides all the information required for the installation of the Mx8000 Software version 2.64.

The installation procedure is comprised of six steps:

Step 1: Pre Installation Procedures

- Acquire Processor Speed
- System Tables Backup (**if the backup was performed in Version 2.64**)
- Network Verification (For Systems With External Devices Connected Through a Router)

Step 2: UNIX IRIX 6.3 Operating System Installation.

This step requires the following CD's:

Description	Qty
IRIX 6.3 for O2 including R10000 (Sequence No. 200)	1
IRIX 6.3 Applications November 1996 (Sequence No. 201)	1
IRIX 6.3 Recommended/Required patches (1 of 2) June 1999	1

Step 3: Mx8000 Version 2.51 Installation Instructions.

This step requires the following CD's:

Description	Qty
Mx8000 Software Complete Quad Version 2.51 CD-ROM	1
CANpro F/W and Error List Laptop Configuration CD-ROM	1
USP Version 1.522 CD-ROM	1

Step 4: Mx8000 Version 2.64 Upgrade Installation Instructions.
Step 5: System Physical Calibrations and Proper Functioning Check
Step 6: Final Steps

Step 1: Pre Installation Procedures

Installation Prerequisites

Ensure that all the following required items are present at the site before starting the O2 computer hard disk format:

- UNIX 6.3 Operating System
- USP and the Mx8000 Quad Software Version 2.64 installation CD's
- EOD Cartridge For System Tables Backup

System I.D Verification

Verify the system ID matches the options serial number print-out

1. Log on as **root** (password **pkserv99**).
2. Type: **sysinfo – s** and press **<Enter>**.
3. Read the system identifier (176XXXXXXX—Total of ten digits).
4. Verify that the system ID matches the number listed along with the serial number in the Options print-out**.**
5. Obtain the license key as follows:
   a. Enter the URL: *http://intranet.hfa.ms.philips.com/homepage/engineering/Rnd/keySearch*. The Service and Options Key Search web page appears.
   b. From the **Key Type** drop-down menu, choose **Options**. From the **System** drop-down menu, choose **Mx8000 IDT 2.51 Ver**. In the **S/N** field, enter the System Serial Number (for example, 3xxx). Then click the right arrows. The License Key data appears.

Installation Procedure Selection

There are two possible scenarios for installing Mx8000 Software Version 2.64:

- Using System Tables Backup/Restore
- Without using System Tables Backup/Restore

NOTE **The backup is necessary to re-install the current version. Use the Backup/Restore of System Tables Procedure only if the backup was performed in Version 2.64. Do not use a backup from any previous software versions.**

Mx8000 Software version 2.64 Installation Using Backup/Restore of System Tables

Install Mx8000 Software version 2.64 using System Tables Backup/Restore as follows:

- System Tables Backup
- Network Verification (For Systems With External Devices Connected Through a Router)
- Install the UNIX IRIX 6.3 Operating System:
  - UNIX IRIX 6.3 Operating System Installation After Hard Disk Format
  - UNIX IRIX 6.3 Operating System Installation Without Hard Disk Format
- UNIX IRIX 6.3 Patches Installation
- USP V1.522 Installation Instructions
- Step 3: Mx8000 Version 2.51 Installation Instructions
- Step 4: Mx8000 Version 2.64 Upgrade Installation Instructions
- System Tables Restore
- Step 5: System Physical Calibrations and Proper Functioning Check
- Step 6: Final Steps

Mx8000 Software version 2.64 Installation Without Using System Tables Backup/Restore

Install the Mx8000 Software version 2.64 without using System Tables Backup/Restore as follows:

- Network Verification (For Systems With External Devices Connected Through a Router)
- Install the UNIX IRIX 6.3 Operating System:
  - UNIX IRIX 6.3 Operating System Installation After Hard Disk Format
  - UNIX IRIX 6.3 Operating System Installation Without Hard Disk Format
- UNIX IRIX 6.3 Patches Installation
- USP V1.522 Installation Instructions
- Step 3: Mx8000 Version 2.51 Installation Instructions
- Step 4: Mx8000 Version 2.64 Upgrade Installation Instructions
- Hardware Dependant Tables Completion
- Step 5: System Physical Calibrations and Proper Functioning Check
- Step 6: Final Steps

Acquire Processor Speed

The installation procedures are different for O2 computers with 200 MHz processors or with 300 MHz processors. To acquire the processor's speed do the following:

1 Log on as **root**.

2 Type **hinv** and press **<Enter>.**

3 Look for information about O2 computer processor speed and the memory size.

Use acquired information to choose the appropriate installation procedure when you are asked to proceed to the next action.

System Tables Backup Instructions

System Tables Backup

NOTE **The backup is necessary to re-install the current version. Use the Backup/Restore of System Tables Procedure only if the backup was performed in Version 2.64. Do not use a backup from any previous software versions.**

1 Log on as **Mx8000**.

2 Insert formatted EOD cartridge.

3 Select **Service | Save/Restore Tables** in the **System** menu. The **Backup/Restore** window opens.

4 Select the following check boxes in the **Backup/Restore** window:

- **Backup**
- select the device **EOD**,
- select **Select All** for a comprehensive restore.

5 Click **Start Backup**. The backup takes a few minutes.

6 The backup ends when **Done** and **End Backup** are displayed in the **Report window**.

NOTE **Every additional backup to the EOD does not overwrite the previous backup but creates a new backup directory sorted by date and time.**

7 Proceed to Network Verification (For Systems With External Devices Connected Through a Router)

Network Verification (For Systems With External Devices Connected Through a Router)

If you have an archive device connected through a router, verify the connection as follows:

1. Log on as **root** (password **pkserv99).**
2. In **Toolchest**, select **System** | **System Manager** | **Network and Connectivity** | **Set Up and Start Networking**.
3. Click **Next** twice.
4. Write down the number in **Use Default Netmask**.
5. Click **Cancel.**
6. Select **Modify Networking Settings**.
7. Click **Next** twice**.**
8. Write down the **Default Route IP Address**.
9. Click **Cancel** and Log off
   The System Hard Disk Formatting (Low Level Format)
10. Proceed to Step 2: UNIX IRIX 6.3 Operating System Installation.

Step 2: UNIX IRIX 6.3 Operating System Installation

There are two installation methods:

- UNIX IRIX 6.3 Operating System Installation With Hard Disk Format
- UNIX IRIX 6.3 Operating System Installation Without Hard Disk Format

UNIX IRIX 6.3 Operating System Installation With Hard Disk Format

NOTE **Ensure that the items listed in Installation Prerequisites, are present on the site before starting the O2 computer hard disk format, UNIX 6.3 Operating System installation, USP ver. 1.522 installation, and the Mx8000 Software Version 2.51 installation procedure.**

CAUTION **IRS should be OFF during the O2 computer hard disk format.**

During the O2 operating system upgrade, the USP and the Mx8000 software installation O2 computer should be Disconnected from the Network during: the O2 computer hard disk format, the UNIX 6.3 operating system installation, the USP installation, and the Mx8000 software installation.

Prior to the O2 computer hard disk format perform the following:

1. Log off, and then click **Shutdown** to shutdown the O2 computer.
2. Turn the IRS power OFF.

NOTE **Only if you have a 200 MHz processor, remove memory in excess of 256 MB from the O2 computer.**

3. Disconnect the O2 computer from the network.
4. Proceed to Hard Disk Format Procedure.

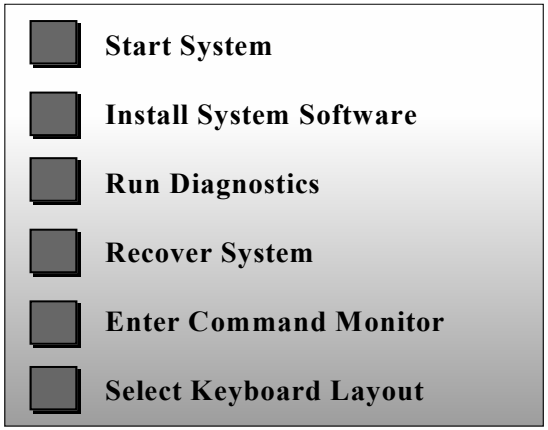
Hard Disk Format Procedure

Entering Format Procedure Session

1 Power ON the O2 computer (IRS should be OFF). When the message "The System is starting up**"** appears, click **Stop for Maintenance** or press **<Esc>** immediately to get the appropriate menu.

NOTE **You have just five seconds to press <Esc> before the message disappears and the system starts up. If you fail to do so, wait until the system comes up (the log on dialog box appears). Turn off the system and start again.**

The **Maintenance Menu** is displayed:



2 Click **Enter Command Monitor**. A window opens and the **>** prompt appears.

3 Insert the **IRIX 6.3 for O2 including R10000** CD-ROM.

4 Proceed to Format Procedure.

Format Procedure

1 To perform low level format, at the prompt **>** type:
boot -f dksc(0,4,8)sashARCS and press **<ENTER>.**

2 When the process pauses and **sash**: is displayed, type:
boot -f dksc(0,4,7)stand/fx.ARCS --x and press **<ENTER>.**

— The middle number should be according to the SCSI ID of the CD-ROM.

— Type a double minus sign before the **x**.

3 Press **<ENTER>** three times (to confirm the default parameters - **dksc, 0, 1**). The prompt: **fx>** appears.

4 Type: **f** and press **<ENTER>**.

5 Press **<ENTER>** (for current) to continue.
A warning states that the contents of the disk will be destroyed.

6 At the **O.K.?** prompt, type: **y** and press **<ENTER>**.

NOTE **The formatting procedure takes usually up to 15 minutes (unless there are problematic areas on the hard disk and then it can take up to 90 minutes. as it is displayed. During that time the dialog box is disabled.**

When the prompt **fx>** appears again, type: **r** (for repartition) and press **<ENTER>**.
The prompt: **fx/repartition>** appears.

7 Type **ro** and press **<ENTER>** (for root drive).

8 The message "".....type of data partition=(xfs)" appears. Press **<ENTER>** to confirm. **"**….continue?**"** is displayed.
Type: **yes (**or **y)** and press **<ENTER>** to continue.

9 At the **fx/repartition>** prompt, type: **. .** (two periods) and press **<ENTER>**.
Type **l** (for label) and press **<ENTER>**.

10 Type: **c** (for create) and press **<ENTER>**.

11 Type: **a** (for all) and press **<ENTER>**.

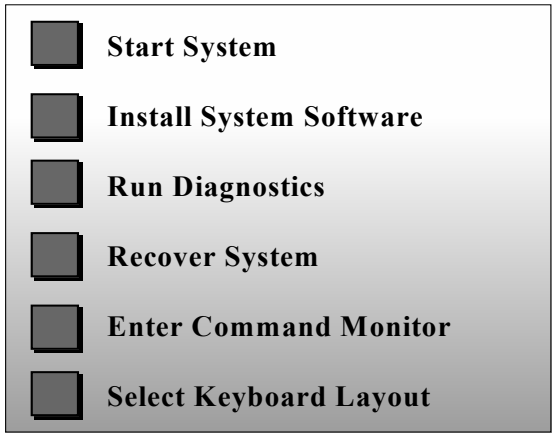
12 Type: **. .** (two periods) and press **<ENTER>**.

13 Type: **. .** (two periods) again and press **<ENTER>**.

14 At the **fx>** prompt, type: **exit** and press **<ENTER>** to exit the formatting session.

15 The following message appears: "write out changes? (Yes)". Press **<ENTER>**.

The **fx** program is now completed and, after a delay of few seconds, the **Maintenance Menu** is displayed.



NOTE **Do not click any selection yet.**

To install the UNIX operating system **after hard disk format,** proceed to UNIX IRIX 6.3 Operating System Installation After Hard Disk Format.

UNIX IRIX 6.3 Operating System Installation After Hard Disk Format

Install the UNIX IRIX 6.3 Operating System Installation on an O2 Computer (after hard disk format) as follows:

- For 200 MHz speed processor, proceed to UNIX IRIX 6.3 Operating System Installation on an O2 Computer with a 200 MHz Processor.
- For 300 MHz speed processor, proceed to UNIX IRIX 6.3 Operating System Installation on an O2 Computer with 300 MHz Processors.

UNIX IRIX 6.3 Operating System Installation on an O2 Computer with a 200 MHz Processor

NOTE **This procedure is performed after hard disk formatting**

Install the IRIX 6.3 Operating system as follows:

1 From the **Maintenance** menu select **Install System Software**.

2 A dialog box with possible installation sources opens. Click the default source (**local CD-ROM**).
*** Local SCSI CD-ROM drive 4** is displayed.
Click **[install]**.

3 The next window opens; click **[continue]**. The progress window of the initial installation stage **Copying installation tools to disk** opens. This process takes about 2 min. The system reboots after all the files are copied. The following message is displayed: "**Make a new file system on /dev/dsk/dks0d1s0 (yes/no)**?". Type: **yes** and press **<ENTER>**.

4 When the following message appears: "Are you sure?", type: **y** and press **<ENTER>**.

5 When asked "........[efs/xfs]", type: **xfs** and press **<ENTER>**.

6 When asked "........[512/4096]", type: **4096** and press **<ENTER>**.

7 At the **inst>** prompt, type: **list** and press **<ENTER>**.

8 When asked "..... more?(h=help)", press the **<SPACEBAR>**.
The following menu appears:
1. /CDROM/dist/
2. done (no action)

Install software from [CDROM/dist]

9 Eject the **IRIX 6.3 for O2 including R10000** CD-ROM and insert the **IRIX 6.3 Applications November 1996** CD-ROM.

NOTE **During the course of the installation procedure you are prompted to swap CD-ROM's several times. Carefully follow the instructions and pay attention to the order. Generally, when swapping the CD's, the installation program automatically continues after a delay.**

10 After waiting a few seconds press **<ENTER>** and then press the **<SPACEBAR>** twice when asked "..... more? (h=help)".

11 When the following menu appears:
1. /CDROM/dist/
2. done (no action)

Install software from [CDROM/dist]

Type: **2** and press **<ENTER>** for done.

12 When the "more? (h=help)" message appears type: **q** (to quit) to exit the list and get the **inst >** prompt.

13 At the **inst >** prompt type: **install eoe.sw.uucp** and press **<ENTER>**.

14 At the **inst >** prompt type: **install eoe.sw.ppp** and press **<ENTER>**.

15 At the **inst >** prompt, type: **go** and press **<ENTER>**.

16 After about 2 min. (at 16% of installation progress) the message "Type control - C to interrupt" appears**.**

Eject the **IRIX 6.3 Applications November 1996** CD-ROM and insert the **IRIX 6.3 for O2 including R10000** CD-ROM.

The installation continues automatically after a few seconds. This step takes approximately 7 min.

17 The installation pauses at 54% of installation progress and the following message appears: "Type control - C to interrupt".

Eject the **IRIX 6.3 for O2 including R10000** CD-ROM and insert the **IRIX 6.3 Applications November 1996** CD-ROM.

The installation continues automatically after a few seconds. This step takes approximately 20 min.

NOTE **Ignore the error messages if any appear between 96% and 97%. Ignore the message: "errors occurred after ....100% done..."**

18 The **inst >** prompt appears at the end of procedure. Proceed to UNIX IRIX 6.3 Patches Installation.

UNIX IRIX 6.3 Operating System Installation on an O2 Computer with 300 MHz Processors

Install the UNIX IRIX 6.3 Operating System Installation on an O2 Computer with a 300 MHz Processor (after hard disk format) as follows:

NOTE **The following commands (steps 1 and 2) override the necessity for the physical removal of memory above 256 MB from the O2 computer.**
If you have already removed any additional memory in excess of 256 MB, omit steps 1 and 2 and proceed to step 3.

1. From the **Maintenance** menu click **Enter Command Monitor**.
2. Type **setenv -p maxpmem 262144** and press **<ENTER>**
3. Type **Exit** and press **<ENTER>** to close the window and to return to the Maintenance menu.
4. Insert the **IRIX 6.3 Recommended/Required patches (1 of 2) June 1999** CD-ROM.
5. From the **Maintenance** menu click **Install System Software**.
6. A dialog box with possible installation sources opens. Click the default source (**local CD-ROM**).
   *** Local SCSI CD-ROM drive 4** is displayed.
   Click **Install**.
7. The next window opens; click **continue**. The progress window of the initial installation stage **Copying installation tools to disk** opens. This process takes about 2 min. The system reboots after all the files are copied. The following message is displayed: "**Make a new file system on /dev/dsk/dks0d1s0 (yes/no)?**". Type **yes** and press **<ENTER>**.
8. When the following message appears: "Are you sure?", type **y** and press **<ENTER>**.
9. When asked ".....[efs/xfs]", type **xfs** and press **<ENTER>**.
10. When asked: ".....[512/4096]", type **4096** and press **<ENTER>**.
11. At the **inst>** prompt, eject the **IRIX 6.3 Recommended/Required patches(1 of 2) June 1999** CD-ROM.
12. Insert the **IRIX 6.3 for O2 including R10000** CD-ROM.
13. Type: **list** and press **<ENTER>**.
14. When asked "..... more?(h=help)", press the **<SPACEBAR>**.
    The following menu appears:
    1. /CDROM/dist/
    2. done (no action)
    Install software from [CDROM/dist]

15 Eject the **IRIX 6.3 for O2 including R10000** CD-ROM and insert the **IRIX 6.3 Applications November 1996** CD-ROM.

NOTE **During the course of the installation procedure you are prompted to swap CD-ROM's several times. Carefully follow the instructions and pay attention to the order. Generally, when swapping the CD's, the installation program automatically continues after a delay..**

16 After waiting a few seconds press **<ENTER>** and then press the **<SPACEBAR>** twice when asked "..... more?(h=help)".

17 When the following menu appears:
1. /CDROM/dist/
2. done (no action)

Install software from [CDROM/dist]

18 Type **2** and press **<ENTER>** for done.

19 When the "more? (h=help)" message appears type: **q** (for quit) to exit the list and get the **inst >** prompt.

20 At the **inst >** prompt type **install eoe.sw.uucp** and press **<ENTER>**.

21 At the **inst >** prompt type **install eoe.sw.ppp** and press **<ENTER>**.

22 At the **inst >** prompt, type **go** and press **<ENTER>**.

23 After about 2 min. (at 16% of installation progress) the message "**Type control - C to interrupt**" appears**.** Eject the **IRIX 6.3 Applications November 1996** CD-ROM and insert the **IRIX 6.3 for O2 including R10000** CD-ROM.
The installation continues automatically after a few seconds. This step takes approximately 7 min.

24 The installation pauses at 54% of installation progress and the following message appears Type control - C to interrupt.

Eject the **IRIX 6.3 for O2 including R10000** CD-ROM and insert the **IRIX 6.3 Applications November 1996** CD-ROM.

The installation continues automatically after a few seconds. This step takes approximately 20 minutes.

NOTE **Ignore the error messages if any appear between 96% and 97%. Ignore the message "errors occurred after ....100% done...".**

25 The **inst >** prompt appears at the end of procedure. Proceed to UNIX IRIX 6.3 Patches Installation.

UNIX IRIX 6.3 Operating System Installation Without Hard Disk Format

Prior to the UNIX IRIX 6.3 Operating System Installation

Ensure that the items listed in Installation Prerequisites are present on the site before starting the installation procedure of the UNIX 6.3 Operating System, the USP, and the Mx8000 Software Version 2.51.

CAUTION

The IRS should be OFF during the installation of the UNIX 6.3 operating system, the USP, and the Mx8000 software.
The O2 computer should be Disconnected from the Network during the installation of the UNIX 6.3 operating system, the USP, and the Mx8000 software.

Prior to the UNIX 6.3 Operating System installation perform the following:

1. Log off, and then click **Shutdown** to shutdown the O2 computer.
2. Turn the IRS power **OFF**.
3. Disconnect the O2 computer from the network.

To install the UNIX operating system proceed to the following sections:

- For 200 MHz speed processor proceed to UNIX IRIX 6.3 Operating System Installation on an O2 Computer with a 200 MHz Processor.
- For 300 MHz speed processor proceed to UNIX IRIX 6.3 Operating System Installation for O2 Computer with 300 MHz Processor.

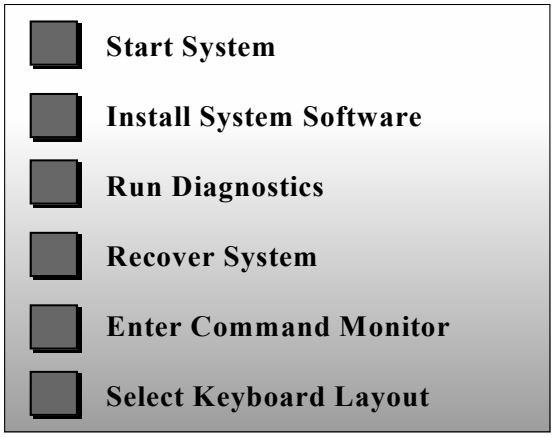
UNIX IRIX 6.3 Operating System Installation for O2 Computer with 200 MHz processor

Install the UNIX IRIX 6.3 Operating System as follows:

1. Remove the memory above of 256 MB from the O2 computer.
2. Turn the system **ON**. Immediatly afer the message “The System is starting up" appears, click **Stop for Maintenance** or press **<Esc>**.

NOTE **You have just five seconds to press <Esc> before the message disappears and the system starts up. If you fail to do so, wait until the system comes up (the log on dialog box appears), turn off the system and start again.**

3 The following menu appears:



4 Click **Install System Software.** Proceed to UNIX IRIX 6.3 Operating System Installation.

UNIX IRIX 6.3 Operating System Installation for O2 Computer with 300 MHz Processor

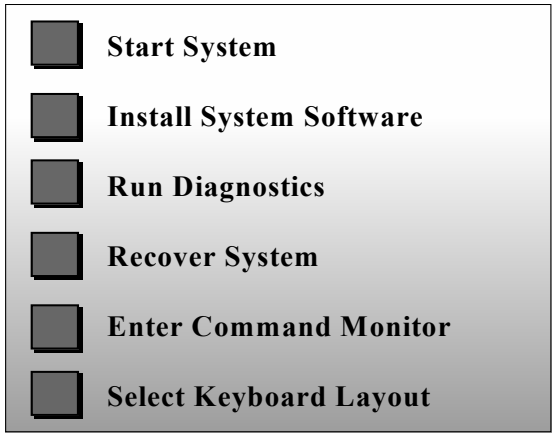
Install the UNIX IRIX 6.3 Operating System as follows:

NOTE **The steps in this section override the necessity for the physical removal of memory above 256 MB from the O2 computer.**
In case you have removed any additional memory in excess of 256 MB omit steps 1and 2 and proceed to step 3.

1 Turn the O2 computer ON. When the message “The System is starting up" appears, click **Stop for Maintenance** or press **<Esc>** immediately to get the appropriate menu.

NOTE **You have just five seconds to press <Esc> before the message disappears and the system starts up. If you fail to do so, wait until the system comes up (the log on dialog box appears), turn off the system and start again.**

The **Maintenance** menu appears:



2 From the **Maintenance** menu click **Enter Command Monitor**.

3 Type: **setenv -p maxpmem 262144** and press **<ENTER>**

4 Type **Exit** to close the window and return to the Maintenance menu.

5 Proceed to UNIX IRIX 6.3 Operating System Installation.

UNIX IRIX 6.3 Operating System Installation

Continue to install the UNIX IRIX 6.3 Operating System as follows:

1 Insert the **IRIX 6.3 Recommended/Required patches (1 of 2) June 1999** CD-ROM.

2 From the **Maintenance** menu, click **Install System Software**.

3 A dialog box with possible installation sources opens. Click the default source (**local CD-ROM**).
"*Local SCSI CD-ROM drive 4" is displayed.
Click **install**.

4 The next window opens; click **continue**. The progress window of the initial installation stage **Copying installation tools to disk** opens. This process takes about 2 min. The system reboots after all the files are copied and the **Inst >** prompt appears.

5 Eject the **IRIX 6.3 Recommended/Required patches (1 of 2) June 1999** CD-ROM.

6 Insert the **IRIX 6.3 for O2 including R10000** CD-ROM.

7 At the prompt **Inst >** type **sh** and press **<ENTER>**.

8 Type **umount /root** and press **<ENTER>**.

9 At the new prompt (#), type **mkfs_xfs /dev/dsk/dks0d1s0** and press **<ENTER>**.

10 Type **mount /root** and press **<ENTER>**.

11 At the prompt (#), type **exit** and press **<ENTER>**.

12 If asked "..... more?(h=help)", press the **<SPACEBAR>**.

13 After completion of the initial stage the **Inst >** prompt appears.

14 At the **Inst >** prompt, type **list** and press **<ENTER>**.

15 If asked "..... more?(h=help)", press the **<SPACEBAR>**.

16 The following menu appears:
1. /CDROM/dist/
2. done (no action)

Install software from [CDROM/dist]

17 Eject the **IRIX 6.3 for O2 including R10000** CD-ROM and insert the **IRIX 6.3 Applications November 1996** CD-ROM.

NOTE **During the course of the installation procedure you are prompted to swap CD-ROM's several times. Carefully follow the instructions and pay attention to the order. Generally, when swapping the CD's, the installation program automatically continues after a delay.**

18 After waiting a few seconds press **<ENTER>**. Press the **<SPACEBAR>** twice when asked "..... more?(h=help)".

19 When the following menu appears:
1. /CDROM/dist/
2. done (no action)
Install software from [CDROM/dist]

20 Type **2** and press **<ENTER>** for done.

21 A list appears. Type **q** (to quit) to exit the list and get the **inst >** prompt.

22 At the **inst >** prompt, type **install eoe.sw.uucp** and press **<ENTER>**.

23 At the **inst >** prompt, type **install eoe.sw.ppp** and press **<ENTER>**.

24 At the **inst >** prompt, type **go** and press **<ENTER>**.

25 After about 2 min. (at 16% of installation progress) the following message appears: "Type control - C to interrupt." Eject the IRIX 6.3 Applications November 1996 CD-ROM and insert the IRIX 6.3 for O2 including R10000 CD-ROM.

The installation continues automatically after a few seconds. This step takes approximately 7 minutes.

26 The installation pauses at 54% of installation progress and the following message appears: "Type control - C to interrupt."

Eject the IRIX 6.3 for O2 including R10000 CD-ROM and insert the IRIX 6.3 Applications November 1996 CD-ROM.

The installation continues automatically after a few seconds. This step takes approximately 18 minutes.

NOTE **Ignore the error messages if any appear between 96% and 97%. Ignore the message "errors occurred after ....100% done...".**

27 The **inst >** prompt appears at the end of procedure. Proceed to UNIX IRIX 6.3 Patches Installation.

UNIX IRIX 6.3 Patches Installation

Install the UNIX IRIX 6.3 Patches as follows:

1 At the inst >prompt, eject the IRIX 6.3 Applications November 1996 CD-ROM and insert the **IRIX 6.3 Recommended/Required patches (1 of 2) June 1999 CD-ROM**. Wait a few seconds and at the inst > prompt. Type **from /CDROM/dist/6.3_O2/** and press **<ENTER>**.

NOTE **Use an uppercase O when typing 6.3_O2 and not a zero.**

2 A menu appears with the message "Please enter a choice [1]". Press **<ENTER>**.

3 At the **inst >** prompt, type **go** and press **<ENTER>**. This step takes approximately 7 minutes.

4 After the installation has been completed the **inst >** prompt appears.
Type **quit** and press **<ENTER>**. This step takes approximately 10 minutes. and when it is finished the following message is displayed: "Ready to restart the System. Restart (y/n/sh/h)?"

5 Eject the CD-ROM, type **y** and press **<ENTER>**. The system restarts.
The Unix operating system is installed.

6 Log on as **root** username (no password required) and perform shutdown.

7 If the memory in excess of 256 MB has been removed, perform the following:

a Reinstall the additional memory above 256 MB.

b Turn the O2 computer ON.

If no memory has been removed, perform the following:

a Turn the O2 computer ON.
When the message "Starting up the system" appears,
click **Stop for Maintenance**, or press **<Esc>** immediately to get the **Maintenance** menu.

b Click **Enter Command Monitor**.

c Type: **resetenv** and press **<ENTER>**. (This step restores the default memory size.)

d Type: **reboot** and press **<ENTER>**. The system restarts.

THE UNIX OPERATING SYSTEM IS NOW INSTALLED.

8 Proceed to USP V1.522 Installation Instructions.

USP V1.522 Installation Instructions

CAUTION **Ensure that IRS is OFF during the USP and the Mx8000 software installation**
Ensure that the O2 computer is Disconnected from the Network during the USP and the Mx8000 software installation.

1. Insert the **USP V1.522** CD-ROM.
2. Log on as **root** and press **<ENTER>** twice.
   Open a Unix Shell window (by **Menu** --> **Desktop** --> **Open Unix shell**).
3. Type **tcsh** and press **<ENTER>.**
4. Type **cd /CDROM/** and press **<ENTER>**.

NOTE **To type the path in a command, type the first or first and second letter of each directory and then press the <TAB> key to complete each directory name of the path.**

5. Type **pwd** and press **<ENTER>** to verify that you are in the correct path.
6. Type **./install** and press **<ENTER>** to activate the installation program. The total installation time is about 30 minutes.

NOTE **There is a pause for about one minute after the first line Create a swap file …... Wait patiently and ignore the message: "failed for /swap1 no such file or directory not found…"**

7. When the following message appears after 1 minute: "Create a mount point for the EOD (if not already exist)" there is a pause of 5 minutes in which the installation process takes place.
8. After the pause, the following message appears: "Enter the License key manually".
   Type **y** and press **<ENTER>**. If you have a backup of the tables, you can type **n** and press **<ENTER>**

NOTE **To restore the tables refer to System Tables Restore Instructions.**

NOTE **At this stage of the installation, you must enter the license key.**
Use only License Key generated for Version 2.64.

9. Enter the options license key **generated for V2.64** by typing 16 groups of 4 hexadecimal digits in each group from a printout according to your system S/N.
10. After completing all groups, enter the checksum number when prompted.

NOTE **If you incorrectly enter the license key, complete the Mx8000 Software Installation and then see *Entering an Option License Key (from a printout)*.**

11 At the prompt, type **cd /** and press **<ENTER>.**

12 Type **eject** and press **<ENTER>** to eject the CD-ROM.

13 Reboot is not necessary at this stage. Proceed to Step 3: Mx8000 Version 2.51 Installation Instructions.

Step 3: Mx8000 Version 2.51 Installation Instructions

CAUTION **Ensure that the IRS is OFF during the Mx8000 software installation**
Ensure that the O2 computer is Disconnected from the Network during the Mx8000 software installation.

Table 1: CD's Required for Mx8000 SW V.2.51

Description	Qty
Mx8000 Software Complete Quad Version 2.51 CD-ROM	1
CANpro F/W and Error List Laptop Configuration CD-ROM	1

Install the Mx8000 version 2.51 software as follows:

1. Insert the **Mx8000 version 2.51** CD-ROM.
2. To start installation, type **cd /CDROM/V2.51/Install** and press **<ENTER>**. (Note that the first letter of Install is in upper case.)
3. Type **pwd** and press **<ENTER>** to verify that you are in the correct path.
4. Type **./install** and press **<ENTER>**.
5. Type **y** and press **<ENTER>** to activate the installation program. The installation starts automatically and takes about 10 minutes.
6. At the prompt, type **cd /** and press **<ENTER>.**
7. Type **eject** and press **<ENTER>** to eject the CD-ROM.
8. At the end of this step the # prompt appears. Reboot the system by typing: **/etc/reboot** and pressing **<ENTER>**.
9. Shut down the O2.

Step 4: Mx8000 Version 2.64 Upgrade Installation Instructions

NOTE **Ensure that you have the USP 1.522 and V2.64 disks.**
Turn OFF the IRS before proceeding.
Be aware that Unix commands are case sensitive.

Host Software Installation

1. Insert the **Mx8000 Upgrade Version 2.64 CD-ROM**.
2. To start Mx8000 Version 2.64 installation, type "**/CDROM/V2.64/Install/install**" and press **<ENTER>**.

NOTE **The first install is typed with "I" in upper case and the second install is typed with "i" in lower case.**

3. The following message appears:

   This will install Mx8000 to V2.64. Continue? (y/n)

4. Type: **y** and press **<ENTER>** to start the installation process. The following message appears:

   Copying files. Please wait...

   The installation process takes approximately 30 minutes.

   At the end of this step the following message appears:

   The installation of Mx8000 was completed and the # prompt appears.

5. Type: **eject** and press **<ENTER>** to eject the CD-ROM.
6. Type: **/etc/reboot** and press **<ENTER>** to reboot the system.
7. After the system reboots, click **shutdown** to shut down the O2.
8. If the Pinpoint option is installed continue to Pinpoint MX V2.64 Option Installation.
9. If the Pinpoint option is not installed, continue with Step 5: System Physical Calibrations and Proper Functioning Check.

Pinpoint MX V2.64 Option Installation

NOTE **This procedure is for customers with the Pinpoint Option.**

Introduction

These instructions describe the Pinpoint version 2.64 upgrade procedure.

Prerequisites

- Mx8000 software version 2.64 must be installed on the Mx8000 scanner.

NOTE **This change is not backward compatible. Pinpoint software needs to be in sequence with the Mx8000 system software.**

- The terminal server device address setting (DIP switches) for the DIGI box is set to ID #6: 1, 2, 3 switches are UP and 4 is DOWN.

Tools Required

- Digi Terminal CD-ROM
- Stereotactic Arm Data CD-ROM

Installing the "Digi Box" Terminal Server Serial Driver

NOTE **Begin the software installation through the Mx8000 application icon.**

Commands in UNIX are case sensitive.

1. Turn on the Host computer. Make sure software application runs.
2. Click the root icon (password **pkserv99**) and press <**Enter**>.
3. Open a winterm shell as follows:
   a. Click on the shortcut menu.
   b. select **Desktop | open Unix shell**.
4. At the prompt, type: **eject** and press <**Enter**>.

5 Insert the Digi Terminal Server CD-ROM.

6 Close the CD-ROM tray and wait for 30 seconds for the CD-ROM to spin up.

7 Type: **sh /CDROM/Install** and press <**Enter**>

8 Answer the questions as they open in dialog boxes.

- Which operating system are you going to install the driver on?
  - type: **5** (i.e. Irix 6.3)
- Please select the drive you wish to install?
  - type: **S** (i.e Digi SCSI Terminal Server)

9 Answer the rest of the answers as follows:

- Desired install directory (default is /var/sts). Press <**Enter**>.
- Do you wish to unpack the driver now? (n/y). Type: **y** and press <**Enter**>.
- Have you previously read and agreed to the terms of the Digi Driver License Agreement? (y/n/D). Type: **y** and press <**Enter**>.
- Begin extracting files from this SIS file? (y/n). Type: **y** and press <**Enter**>.
- Begin the installation procedure? (y/n). Type: **y** and press <**Enter**>.
- Desired base directory (default is usr/locar/STS)? Press <**Enter**>.
- Desired bin directory (default is /sbin)? Press <**Enter**>.
- Desired main directory (default is usr/shuse/catman/local)? Press <**Enter**>.
- A message appears about Patch 1773: “Press <**Enter**> to continue ...” . Press <**Enter**> to view the release notes.
- Press the space bar to move through the notes until a dialog box opens: “Press <**Enter**> to proceed”. Press <**Enter**>.

The display clears and the list of the SCSI device addresses appears. The text may differ for different hardware drives installed.

Bus 0 Target 1: DISK IBM DNES-309170YS61 SA30

Bus 0 Target 4: CDROM CD-ROM XM-6201TA TOSHIBA 1037

Bus 1 Target 3: Optical SMO-F551 Sony 1.18

Bus 1 Target 6: Comm ST-1800B+ DigiIntl v7.0

10 Confirm Target 6 is the Digi Box. If it is not, check the DIP switch settings.

11 Press any key to continue.

12 The system asks “Do you wish to rebuild the Kernel?” (y/n). Type: **y** and press <**Enter**>.

13 A dialog box open “Do you wish to power the machine down?” Type: **y** and press <**Enter**>.

14 Restart the system back up and follow the instructions Install PinPoint V. 2.64 Software below.

Install PinPoint V. 2.64 Software

NOTE **Begin the software installation through the Mx8000 application icon.**

1 Open the root window: right mouse click on the desktop and select new window (root).

2 Type the password: **pkserv99** and press <**Enter**>.

3 Type: **eject** and press <**Enter**>.

4 Remove the Digi Terminal Server CD.

5 Type: **cd /usr/diamond.root/Install/Pinpoint** and press <**Enter**>.

6 Type: **./install** and press <**Enter**>.

7 When the software installation is completed, shutdown the system and bring it back up again. The PinPoint software installation is now compete.

Loading the Stereotactic Arm Data CD

A Data CD is shipped with the Stereotactic Arm. The data files on the CD are matched to the Arm by serial number. After installing (or replacing) the Arm perform the following procedure:

1 Verify the PinPoint system is powered by verifying the LED lights on the Sereotactic Arm are on.

2 Press the Solenoid Toggle switch and move the Sereotactic Arm out of the Storage position into the left or right user detent position.

NOTE **Enter through the Mx8000 application icon.**

3 Open the root window: right mouse click on the desktop and select new window (root).

4 Type the password: **pkserv99** and press <**Enter**>.

5 Type: **ppstartdiag** and press <**Enter**> to start the PinPoint diagnostics.

6 Move the arm about each joint.

7 Verify the encoder values change/update.

8 Verify the firmware shows “DOES NOY MATCH”.

9 Attach a laser to laser end of wrist (port with orange o-ring).

10 Verify laser is on and the diagnostic dialog box of laser shows the laser is connected.

11 Select exit.

12 Select exit or press **Ctrl+C** and press <**Enter**> to exit diagnostics.

13 Type **eject** and press <**Enter**>. The CD-ROM tray opens).

14 Insert the PinPoint Arm’s Data CD-ROM and close the tray. Wait about 30 seconds for the CD to spin up.

15 Type: **ppfromcd** and press **<Enter>**.

16 Wait until the CD ejects and then remove the CD and close the tray.

17 Verify the firmware now shows “MATCH”.

18 Select **Exit** or press **Ctrl+C** and press <**Enter**> to exit diagnostics.

19 Perform PinPoint system calibration for T55E-1279 Revision D or later.

NOTE **The data files on the CD are matched to the arm by serial number and are required to properly calibrate the arm. Be sure to store the CD in a secure location. DO NOT LOSE THE DATA CD.**

20 If you want to restore system tables proceed to System Tables Restore Instructions.

— If you do not want to restore system tables proceed to Hardware Dependant Tables Completion.

System Tables Restore Instructions

System Tables Restore

Restore the system tables as follows:

1. Turn the IRS ON and then turn the O2 ON
2. Log on as **Mx8000**.
3. Ensure that the EOD cartridge with the previously performed backup is inserted in the EOD drive.
4. Select **Service|Save/Restore Tables** from the System menu. After a delay the **Backup/Restore** window opens.
5. Select the following check boxes in the **Backup/Restore** window:
   - Restore
   - the device EOD
   - Select All for a comprehensive restore
6. Click **Start Restore**. The restore takes a few minutes.
7. Click **Exit** when "Done" and "End Restore" are displayed in the **Report** window.
8. Eject the EOD cartridge.
9. Log off and then log on as **Mx8000** the changes to take place.
10. Proceed to Verifying Network Settings.

Verifying Network Settings

1. Reconnect the network cable.
2. Log off from the host.
3. Log on as **root** (password **pkserv99**).
4. In **Toolchest**, select **System|System Manager|Network** and **Connectivity|Set Up** and **Start Networking**.
5. Click **Next** twice.
6. Verify that the **Use Default Netmask** number is identical to the number you recorded previously in Network Verification (For Systems With External Devices Connected Through a Router).

7 Click **Cancel**.

8 Select **Modify Networking Settings**.

9 Click **Next** twice.

10 Select **Add Default Route**.

11 Verify that the **Default Route IP Address** number is identical to the number the you recorded previously in Network Verification (For Systems With External Devices Connected Through a Router).

12 Click **Cancel** and Log off.

Default Device Storage List

1 Log on as **Mx8000**.

2 Verify that the selected device storage list is according to the customer's request by clicking **Service|Default Store Devices.** The **Generate Default Target Devices** window opens. Modify, if necessary.

3 Proceed to Step 5: System Physical Calibrations and Proper Functioning Check.

Hardware Dependant Tables Completion

The following procedures should be performed if you installed the Mx8000 Software Version 2.51 without performing the Backup/Restore procedure.

System Tables General Description

There are some tables used to define hardware configuration of the system. The tables listed below contain the following information:

- **T9B** - P-Plane Collimator Encoder Settings
- **T0A** - Water Cooling System (WCS) type definition
- **T2A** - Tilt Motor type definition

Table T9B has different format than T0A and T2A Tables. These differences are described in appropriate procedures in this section.

If the Water-Water Cooling System is installed on the site you can omit the procedure described in Cooling System Type Definition (T0A Table).

If the Tilt Motor of a new type installed on the site you can omit the procedure described in Tilt Motor Type Definition (T2A Table).

Proceed to P-Plane Collimator Encoder Settings.

P-Plane Collimator Encoder Settings

The P-Plane collimator encoder settings for each system cradle are specified in the P-Plane Collimator document shipped with the system (D/N 451-7180-0506 in the envelope with the DMS, Data Measuring System). This procedure describes how to enter the new encoder settings on the host computer.

1. With the application software running on the host computer, click on **Service | MCU Utilities** to display the MCU bar window.
2. Click **Edit Table** to display the Edit Table window (see Figure 1).

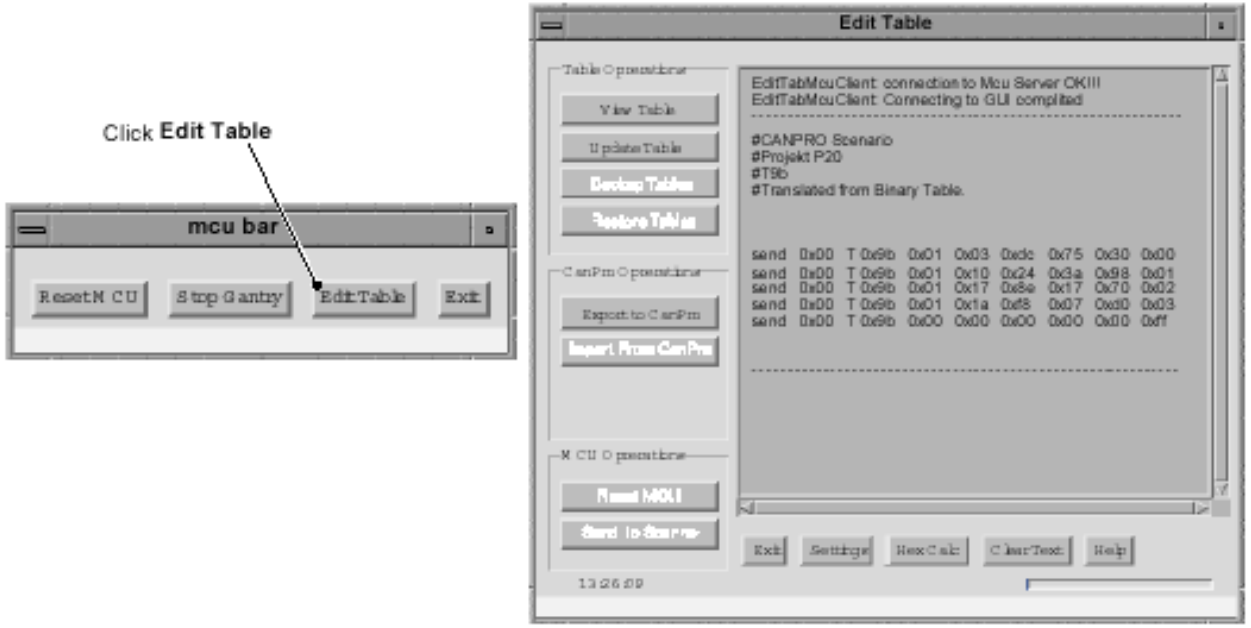


Figure 1: MCU bar and Edit Table Windows

NOTE **Only the first two lines in the Edit Table window are displayed when the Edit Table window is first displayed. Table values are shown only after viewing a selected table.**

3 Click **Update Table** to display the File Selection window (see Figure 2).

4 Scroll down to find and select table T9B. Click **OK** (see Figure 2).

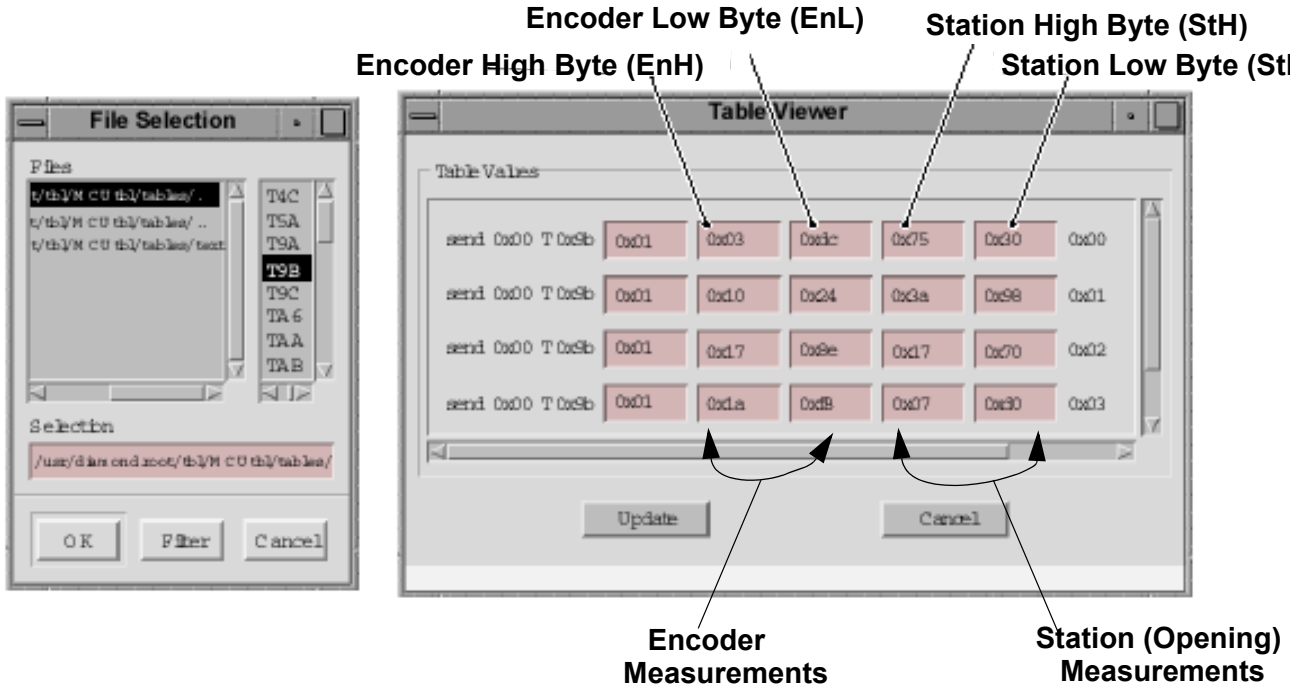


Figure 2: File Selection Window and Table Viewer

5 Modify the values in the Table Viewer window. Replace the **EnH**, **EnL**, **StH** and **StL** values in each line with the appropriate values from the P-Plane Collimator document.

In the P-Plane Collimator document there are two tables: one table of encoder measurements and on of station measurements. In these tables there is a column that says "(Hexa)". The numbers in this column are the numbers that you enter in the Window.

The number in the first row in the document goes in row **0x00** in the window; the number in the second row in the document goes in row **0x01** in the window; etc.

Divide each four-digit number into two two-digit numbers. (If the number is only three digits, add a leading zero). Enter the first two digits in the high byte field, and the last two digits in the low byte field.

For example: If the first number in the "Encoder Measurements (Hexa)" column is 415, you enter 0x04 in **EnH** and 0x15 in **EnL**.

6 Click **Update** after entering the data for the system to accept the data.

7 On the **Edit Table** window, click **View Table**, select **T9B** and click **OK** to check that the host is updated.

8 Switch off the Gantry.

9 Select **Log off** from the **File** menu on the **Patient Data dialog box**. Switch ON the Gantry and log on.

— If the Water-Water Cooling System is installed on the site you can omit the Cooling System Type Definition (T0A Table),

— Otherwise, proceed to WCS and Tilt Motor Type Definition.

WCS and Tilt Motor Type Definition

Use the following procedure to edit the T0A and T2A Tables:

1 Log on as **Mx8000**.

2 Verify the tables by **Service | MCU Utilities | Edit Table | View Tables.**

3 Make sure to select the table (**T0A** or **T2A**), that you are going to change and click **OK.**

4 Change the underlined and bold fields as shown in the appropriate subchapters below (see Cooling System Type Definition (T0A Table) or Tilt Motor Type Definition (T2A Table)).

5 Click **Update** and **Exit**.

6 **Log off** and than **log on** for the changes to take effect.

Cooling System Type Definition (T0A Table)

T0A Table is used for the Water Cooling System (WCS) type definition: for Water-Water or Water-Air WCS.

The following underlined and bold parameters should be changed according to the WCS type installed in the system.

T0A WCS Parameters for Water-Water Exchanger (default)

— send 0x00 T 0x0A 0x01 0x18 0x00 0xAA **0x01** 0x00

— send 0x00 T 0x0A 0x00 0xB9 0x17 0x70 0x0F 0x01

— send 0x00 T 0x0A 0x05 0x14 0x00 0x64 0x00 0x02

— send 0x00 T 0x0A 0x00 0x00 0x00 0x00 0x00 0xFF

T0A WCS Parameters for Water-Air Exchanger

- send 0x00 T 0x0A 0x01 0x18 0x00 0xAA **0x02** 0x00
- send 0x00 T 0x0A 0x00 0xB9 0x17 0x70 0x0F 0x01
- send 0x00 T 0x0A 0x01 0xF4 0x01 0x2C 0x00 0x02
- send 0x00 T 0x0A 0x00 0x00 0x00 0x00 0x00 0xFF

1. If the Tilt Motor of new type installed on the site, you can skip Tilt Motor Type Definition (T2A Table)
2. Otherwise, proceed to Tilt Motor Type Definition (T2A Table).
3. To determine which Tilt Motor is installed in the system, see Figure 3 and Figure 4.

Tilt Motor Type Definition (T2A Table)

T2A Table is used for the Tilt Motor type definition: New Tilt motor.

T2A for New Tilt Motor (see Figure 3) (default)

- send 0x00 T 0x2A 0x03 0x60 0x14 0x00 0x01 0x00
- send 0x00 T 0x2A 0x64 0x09 0x88 0x07 0xF8 0x01
- send 0x00 T 0x2A 0x8C 0x8C 0x28 0x64 0x64 0x02
- send 0x00 T 0x2A 0x08 0x08 0x52 **0xDC** 0x14 0x03
- send 0x00 T 0x2A **0x3C** 0x03 0x0F 0x14 0x00 0x04
- send 0x00 T 0x2A 0x00 0x64 0x00 0x00 0x00 0x05
- send 0x00 T 0x2A 0x07 0x07 0x02 0x4B 0x17 0xFF

T2A for Old Tilt Motor (see Figure 4)

- send 0x00 T 0x2A 0x03 0x60 0x14 0x00 0x01 0x00
- send 0x00 T 0x2A 0x64 0x09 0x88 0x07 0xF8 0x01
- send 0x00 T 0x2A 0x8C 0x8C 0x28 0x64 0x64 0x02
- send 0x00 T 0x2A 0x08 0x08 0x52 0xC8 0x14 0x03
- send 0x00 T 0x2A 0x28 0x03 **0x13 0x00** 0x00 0x04

- send 0x00 T 0x2A 0x00 0x64 0x00 0x00 0x00 0x05
- send 0x00 T 0x2A 0x07 0x07 0x02 0x4B 0x17 0xFF

Figure 3: New Tilt Spindle

Figure 4: Old Tilt Spindle

Step 5: System Physical Calibrations and Proper Functioning Check

System Physical Calibrations

Perform the procedure described below if, after Mx8000 software installation, the System Tables Backup Restore is not performed/not available.

All Physical and Air calibrations listed below, should be performed for all modes according to the Mx8000 Physics file.

See Service and Calibration Menus for additional instructions on performing the following system calibrations:

- A-Collimator Z-Direction Calibration
- DFS and Axis Calibration (Current Calibration)
- Impulse Response Measurement
- Slice Width Measurement
- Phantom calibrations
- Air Calibration
- Image Noise (SD) Check
- HCOR calibration
- Image Quality Check
- Filament Calibration
- Current Calibration

Proceed to HIS/RIS Settings Verification (Only for Sites using HIS/RIS).

If the System Tables Backup Restore is performed, the following calibrations have to be done.

- Filament Calibration
- Current Calibration

Proceed to HIS/RIS Settings Verification (Only for Sites using HIS/RIS).

HIS/RIS Settings Verification (Only for Sites using HIS/RIS)

1 Check that the Modality Work List (HIS/RIS) on the site is used as follows:

a Check **New Patient** to open the **Patient Data** window.

b If the icon **HIS/RIS** exists, **HIS/RIS** is used on this site.

2 Perform the following procedure if Modality Work List (HIS/RIS) is used:

a Select **Service|Service Parameters**. The **Configuration** dialog box appears.

b Select the **HIS/RIS** tab.

c If **Station Name** in the check box is unchecked—click **Cancel**.
If **Station Name** in the check box is checked — deselect it, click **OK,** and perform Log off.
Log on as **Mx8000** for changes to take effect.

d Check that HIS/RIS functions properly.

NOTE **In a multi-scanner environment, it is possible to perform MWL query per scanner as follows:**

a. Define the AE title in the HIS/RIS.

b. Enable the "station name" in the scanner in the HIS/RIS service parameters settings.

3 Proceed to Service (IRS) Diagnostic Key Installation.

Service (IRS) Diagnostic Key Installation

The Service (IRS) Diagnostic Key installation is not a mandatory step of the software installation procedure. Skip the Service (IRS) Diagnostic Key installation if you do not have a Service (IRS) Diagnostic Key printout on the site. It can be installed later at any time.

NOTE **For the Service (IRS) Diagnostic Key installation see Entering Service (IRS) Diagnostic Key.**

- Proceed to System Proper Functioning Check.

System Proper Functioning Check

Check image quality and the system proper functioning by performing some scans on Head and Body Layers of the System Phantom at different modes.

- Proceed to Mx8000 System Network Configuration.

Mx8000 System Network Configuration

To perform the network configuration see "Network Components Connection" in the **Mx8000 Service Manual**.

- Proceed to Step 6: Final Steps.

Step 6: Final Steps

System Performance and Image Quality Check

Check the system with the Mx8000 Version 2.64 software and firmware. Perform some scans in various modes with different scan parameters to ensure proper system functioning and image quality. Check the proper connection and functioning of all network devices.

Proceed to Version 2.64 System Tables Backup.

Version 2.64 System Tables Backup

Perform a backup of all system tables to an EOD.

License Keys

Entering an Option License Key (from a printout)

Enter an option license key separately after the Software Installation, as follows:

1. Log on as **root**. Open a Unix shell.
2. Type: **cd /usr/usp.root/tamar/bin/** and press **<ENTER>**.
3. To verify the path, type: **pwd** and press **<ENTER>**.
4. Type: **./setpwd** and press **<ENTER>**.
5. Enter the license key by typing 16 groups of 4 hexadecimal digits in each group from a printout according to your system S/N.
6. After completing all groups it asks for the checksum number.
7. At the prompt, reboot the system by typing: **/etc/reboot** and pressing **<ENTER>**.

Verifying the System Options

Type: **/usr/diamond.root/bin/test_key** and press **<ENTER>**. The installed options are displayed on the dialog box.

Entering Service (IRS) Diagnostic Key

1. Log in as **root**
2. Type: **cd /usr/diamond.root/diagnostic** and press **<ENTER>**.
3. Type: **./installKey** and press **<ENTER>**.
4. Enter the 32 hexadecimal digit and the 4 check sum number from a printout according to your system S/N.
   - No user interface changes.
   - Full calibration takes about 25 minutes more.