

INSTALLATION AND OPERATIONS GUIDE

MSC.Dytran

Version 4.7 for UNIX

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PREFACE

“MSC.Software Corporation provides quality engineering software and related support services for the long term.”

This document provides basic instructions for installing, configuring, and running MSC.Dytran Version 4.7. It should be read by system administrators or anyone who is going to perform the installation. MSC.Dytran users will benefit from reading the chapters on configuring and running MSC.Dytran Version 4.7.

1	Introduction and Overview	1-1
1.1	Who Should Read This Guide	1-1
1.2	Overview of the MSC.Dytran System	1-1
1.2.1	FLEXlm	1-1
1.3	Documentation Conventions	1-2
1.3.1	Directory Path Convention	1-3
2	Required Hardware and Software Configurations	2-1
2.1	RAM, Swap, and Disk Space	2-1
2.2	System Specific Requirements	2-2
2.2.1	Digital Alpha Digital Unix Requirements	2-2
2.2.2	Hewlett-Packard HP-UX Requirements	2-2
2.2.3	IBM AIX Requirements	2-3
2.2.4	Silicon Graphics IRIX Requirements	2-3
2.2.5	SUN Sparc Solaris Requirements	2-3
2.3	Running MSC.Dytran on Non-Release OS Levels	2-4
3	Installing MSC.Dytran	3-1
3.1	Overview	3-1
3.2	Installing MSC.Dytran with mscsetup	3-2
3.2.1	Mounting the CD ROM	3-3
3.2.2	Starting the mscsetup Installation Utility	3-5
3.2.3	Inputting the Installation Directory	3-6
3.2.4	Selecting the Products to Install	3-6
3.2.4.1	Automatic Selection of Products to Install	3-7
3.2.4.2	Manual Selection of Products to Install	3-8
3.2.5	Selecting a Product Installation Type	3-8
3.2.6	FLEXlm and License File Setup	3-9
3.2.7	Configuring Installed Products	3-9
3.2.8	Authorization Request Form	3-12
3.2.9	Installation Review	3-13
3.2.10	Installation Messages	3-13



3.3	Testing the Installation	3-14
3.3.1	Testing the MSC.Dytran Version 4.7 Solver Using the dytran Command	3-14
3.3.2	Testing the MSC.Dytran Solver Using the XDYTRAN Utility	3-15
3.3.3	Testing the XDEXTR Utility	3-15
3.3.4	Testing the XMPLAY Utility	3-16
3.3.5	Testing the Binary File Conversion Utilities	3-16
4	Using MSC.Dytran	4-1
4.1	Running MSC.Dytran Using XDYTRAN	4-1
4.2	Running MSC.Dytran Using the dytran Command	4-1
4.3	Stopping MSC.Dytran	4-3
4.4	Advanced Techniques	4-4
4.4.1	Estimating Resources	4-4
4.4.2	Memory Management Using a User-Defined Subroutine	4-5
4.4.3	Using MSC.Dytran with MADYMO-3D	4-6
4.4.4	User-Modifiable MSC.Dytran	4-6
4.5	MSC.Dytran Utility Programs	4-7
4.5.1	XDYTRAN	4-7
4.5.2	XDEXTR	4-7
4.5.3	XMPLAY	4-7
4.5.4	EXTRACTSTEPS	4-8
4.5.5	Floating Point Conversion	4-8
4.5.6	SWABY	4-8
5	Problems and Resolutions	5-1
5.1	MSC.Dytran Problems and Resolutions	5-1
5.2	FLEXlm and Licensing Problems	5-2
A	Installing FLEXlm	A-1
A.1	Overview	A-1
A.2	Installing Using a Server	A-1
A.2.1	Obtaining an MSC.Dytran License File for Your Server	A-1
A.2.2	Placing the License File on the Server.	A-2
A.2.3	Checking Paths and Server Names in the license.dat File	A-2



- A.2.4 Starting the Manager Deamons A-2
- A.2.5 Setting the Imgrd Daemon to Execute on Reboot A-2
- A.2.6 Setting up Clients to Access the Floating License A-3
- A.3 Installing Using a Nodelock File A-3
- A.4 Additional Documentation A-3

Introduction and Overview

1.1 Who Should Read This Guide

MSC.Software Corporation designed this manual to guide system administrators and users through the installation of MSC.Dytran. The installation instructions assume that you have a basic knowledge of UNIX commands and root level access to the target workstations.

This manual also provides instructions for setting up individual user environments. You do not normally need to have root level access to complete this setup.

1.2 Overview of the MSC.Dytran System

The MSC.Dytran Version 4.7 software system consists of the MSC.Dytran solver and several utility programs. For the basic MSC.Dytran installation procedure, see Chapter 3, [Installing MSC.Dytran](#).

1.2.1 FLEXlm

MSC.Dytran uses the FLEXlm licensing system. FLEXlm functions as a distributed license system or as a stand-alone nodelock license server.

For the Basic FLEXlm installation instructions, see Appendix A, [Installing FLEXlm](#).

1.3 Documentation Conventions

This guide uses the following font styles to denote computer file names, system messages, and user input:

- Filenames appear in a plain Courier font (e.g., `/usr/netls`).
- System messages or prompts also appear in a plain Courier font and appear on a line by themselves:

```
-r--r--r--  1 bin      bin          40 Nov  2  1991 .pwrshd
```

- User inputs are in a bold Courier font and are usually set off on a line by themselves:


```
# openwin -dev /dev/cgtwelve0 defdepth 24
```
- The “#” command prompt signals that someone with root or superuser access must enter the command.
- The “%” command prompt signals that a common user can enter the command.
- Since the UNIX operating system is case sensitive (i.e., lowercase vs. uppercase), the computer output and user input appear in the correct case. Command parameters shown in italics indicate where you must substitute an appropriate item or text string.
- This guide uses input conventions as shown in this table.

Description	Text String	Definition
Return Key	<cr>	The return key is not usually shown in the commands. Assume that you must press the return key after typing a command or other input to the system, unless instructed otherwise.
Control Key	<Ctrl-z> <Ctrl-c>	This means you must type the letter while holding down the Control (Ctrl) key. For example, <Ctrl-z> means hold down the Control key and type the letter z.
Bracketed Items	[]	Any parameter enclosed in square brackets is optional.
Ellipses	⋮	A vertical ellipsis indicates that part of the format or example has been omitted.

1.3.1 Directory Path Convention

Enclosing a descriptive name in angle brackets indicates a reference to a user-defined path, such as the directory chosen for product installation. Additionally, product directories may include an “x” in the place of decimal version numbers. For example,

```
<installation_dir>/dytranxx/bin
```

In this case, <installation_dir> refers to the directory chosen during the mscsetup process, see Chapter 3, [Installing MSC.Dytran](#). For example, if you chose /msc as the installation directory for MSC.Dytran Version 4.7, the above path would be equivalent to:

```
/msc/dytran47/bin
```


Required Hardware and Software Configurations

2.1 RAM, Swap, and Disk Space

MSC.Dytran hardware requirements vary according to model size and the actual functions that you execute. Solvers or other software programs that run concurrently with MSC.Dytran increase RAM, swap, and disk space requirements.

Total memory is the sum of swap space and RAM. A given process requires a minimum amount of total memory. If the minimum memory to execute a process is higher than the total memory available, MSC.Dytran typically generates memory or memalloc errors.

Since RAM is very fast in comparison to the disk-based swap, more RAM generally translates into better performance.

[Table 2-1](#) shows disk space, swap and RAM guidelines for small, medium, and large analysis models. MSC.Dytran may actually run with fewer resources than shown, but we recommend these minimums for practical use of MSC.Dytran.

Table 2-1. Disk Space and Memory Requirements.

	Small Models	Medium Models	Large Models
Random Access Memory (RAM) per user	128 MB	256 MB	512 MB
Scratch Disk Space (/tmp)	50 MB	100 MB	200 MB

The `mcssetup` utility (see Section 3.2, [Installing MSC.Dytran with mcssetup](#)) indicates required installation disk space for each product set. A full installation of MSC.Dytran requires 225 MB of disk space.

Note that the installation process requires some small additional space for file decompression. Typically, decompression requires about 50 MB beyond product disk requirements. The mscsetup utility attempts to use /tmp for decompression if insufficient space is available in the installation directory.

2.2 System Specific Requirements

This section identifies the hardware and software requirements for various platforms.

2.2.1 Digital Alpha Digital Unix Requirements

MSC.Dytran Version 4.7 was developed and tested on the following Digital Unix hardware and software:

Table 2-2. Digital Alpha Digital Unix Requirements.

Hardware Platforms	Digital Alpha
Operating Systems	Digital Unix 4.0
Compiler Versions	FORTRAN V4.1 C V5.2-040
Windowing System	X11 R6, Motif 1.2.4

2.2.2 Hewlett-Packard HP-UX Requirements

MSC.Dytran Version 4.7 was developed and tested on the following HP-UX hardware and software:

Table 2-3. Hewlett-Packard HP-UX Requirements.

Hardware Platforms	HP 9000-7xx	K-Class
Operating Systems	HP-UX 10.20	HP-UX 11.0
Compiler Versions	HP FORTRAN 77 B.10.20.09 HP C 10.32.20	HP FORTRAN 90 V2.2 HP C A 10.32.20
Windowing System	X11 R6, Motif 1.2.5	X11 R6, Motif 2.1.0

2.2.3 IBM AIX Requirements

MSC.Dytran Version 4.7 was developed and tested on the following IBM AIX hardware and software:

Table 2-4. IBM AIX Requirements.

Hardware Platforms	IBM RISC System /6000
Operating System	AIX 4.1.4
Compiler Versions	IBM FORTRAN 3.2.4.0, IBM C 3.1.3.3
Windowing System	X11 R5, Motif 1.2.3/4

2.2.4 Silicon Graphics IRIX Requirements

MSC.Dytran Version 4.7 was developed and tested on the following SGI IRIX hardware and software

Table 2-5. Silicon Graphics IRIX Requirements.

Hardware Platforms	R4x00/R5000	R10000
Operating System	IRIX 6.2	IRIX64 6.4,6.5
Compiler Versions	SGI FORTRAN 77 V 7.2.1 SGI C 7.2.1	SGI FORTRAN 77 V 7.2.1 SGI C 7.2.1
Windowing System	X11 R6, Motif 1.2.4	X11 R6, Motif 1.2.4

2.2.5 SUN Sparc Solaris Requirements

MSC.Dytran supports the following SUN Solaris hardware and software:

Table 2-6. SUN Solaris Requirements.

Hardware Platforms	SUN Sparc
Operating System	Solaris 2.6
Compiler Versions	FORTRAN 77 V4.2 GNU-cc 2.6
Windowing System	X11 R6, OpenWindows 3.2, Motif 1.2.6

2.3 Running MSC.Dytran on Non-Release OS Levels

In the previous section an overview is given of the hardware and OS levels on which MSC.Dytran Version 4.7 was developed and tested.

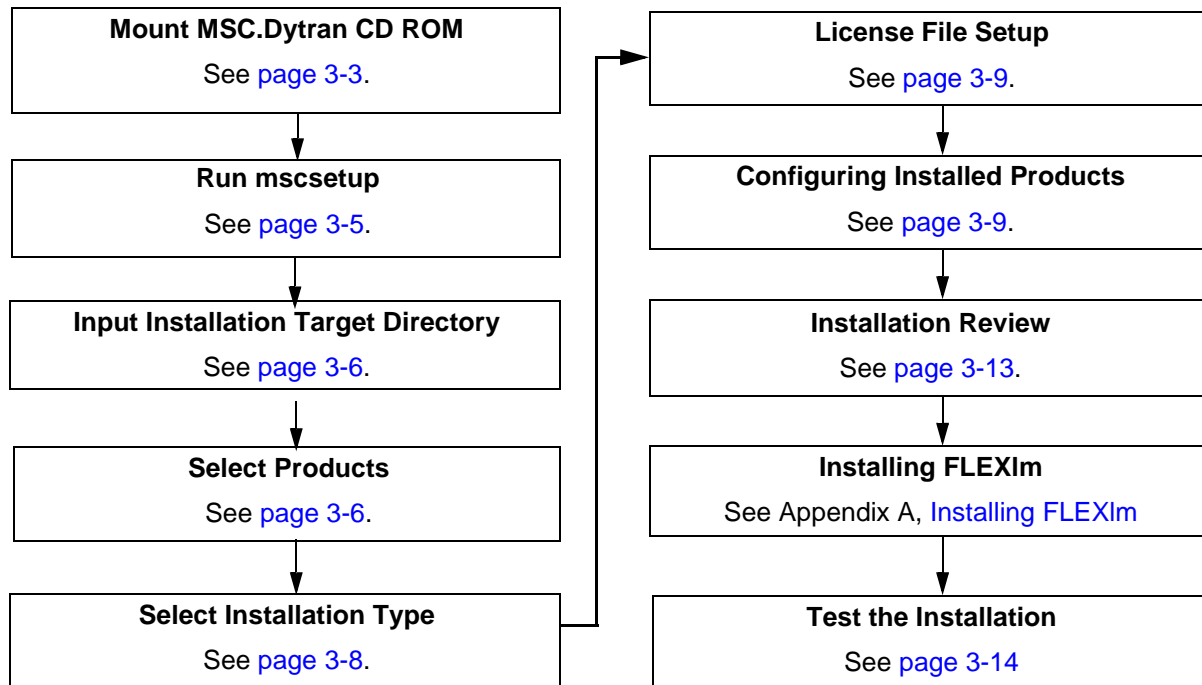
MSC.Dytran Version 4.7 will install without any problem on a non-release OS level. However, since MSC has only tested and validated MSC.Dytran Version 4.7 on the release OS levels, it is not guaranteed that running MSC.Dytran Version 4.7 on higher OS levels will provide the same results as the validated results on the release OS levels.

In most cases you will not encounter any problems, because hardware manufacturers provide upward binary compatibility between different OS levels. Before running MSC.Dytran Version 4.7 on a higher OS level, please be sure that your hardware manufacturer provides upward binary compatibility.

Installing MSC.Dytran

3.1 Overview

The following flowchart outlines the steps for installing MSC.Dytran



3.2 Installing MSC.Dytran with mscsetup

The `mscsetup` utility performs almost all of the steps necessary to get MSC.Dytran running. It creates a log file, `mscsetup.log`, as a record of all messages, prompts, and user input. The `mscsetup` utility also creates a playback file, `mscsetup.pbk`.

For a basic interactive installation, MSC recommends executing the `mscsetup` utility with no flags or options. For advanced installers, `mscsetup` offers the following additional capabilities:

- To generate several identical installations, run in install-only mode and specify an existing playback file:

```
# mscsetup mscsetup.pbk
```

- To install a new `license.dat` file, execute:

```
# mscsetup flex <license.dat_file>
```

- To obtain usage information on the utility, execute:

```
# mscsetup help
```

- To display the MSCID, execute (used to generate licenses—see Appendix A, [Installing FLEXlm](#)):

```
# mscsetup id
```

Table 1 lists useful command line options available with the `mscsetup` utility.

Table 3-1. mscsetup Command Line Arguments.

Command Line Arguments	Purpose
-b <installation_dir>	Sets the default installation directory.
-f <setup_file>	Runs mscsetup from a different setup file. For installation of MSC.Dytran it is recommended that the default setup files (in the CDRom tools directory) be used.
-l <log_file>	Write the installation log to <log_file>. Default is mscsetup.log.
-m cd: <cd_path>	Specifies media type (cd for MSC.Dytran) and path to media.
-n	Turns off screen handling for text-only scrolling mode.
-p <playback_file>	Write the playback file to <playback_file>. Default is mscsetup.pbk.
-r <user@node>	Sets the user and node for remote installation.
-t <tmp_dir>	Sets the directory mscsetup will use for scratch. Default is /tmp.
-x	Expert mode. Shows menus and prompts with no explanatory text. Recommended only for users very familiar with mscsetup.

3.2.1 Mounting the CD ROM

Mounting the CD ROM may vary according to the setup of your operating system. The steps in this section represent “default” mounting procedures; however, simpler tools are often available as part of user environment packages such as the Common Desktop Environment (CDE) or SGI’s 4DWM. Consult your operating system documentation for the best method of mounting CD ROM devices.

1. Create a directory for the CD ROM, if it does not already exist:

```
# mkdir /CDROM
```

2. Mount the CD-ROM drive by issuing one of the following commands:

Digital UNIX: # mount -t cdfs /dev/rzUA /CDROM

where U = CD ROM unit, A = a or c.

HP 10.x: # mount -F cdfs /dev/dsk/c0tUd0 /CDROM

where U = the SCSI controller # for the CD ROM drive

IBM: # mount -rv cdrfs /dev/cd0 /CDROM

Installing MSC.Dytran

Installing MSC.Dytran with mscsetup

SGI: `# mount -rt iso9660 /dev/scsi/scCdU10 /CDROM`

where **C** = the SCSI controller # and **U** = CD ROM unit #. These values can be found by entering the command, `/bin/hinv`.

NOTE: The “1” in `scCdU10` is the lowercase letter “L”, not a “one”.

Sun Solaris: You do not need to enter a mount command, since the MSC.Dytran CD ROM will automatically be mounted by the Solaris vold daemon. The actual mount point is specified in the file, `/etc/vold.conf`, which by default, is `/cdrom/cdrom0`. If this directory does not appear after inserting the CD ROM, make sure the vold daemon is running.

3. Remove the MSC.Dytran CD ROM, by entering:

```
# cd <other_dir>
```

```
# umount /CDROM
```

Where `<other_dir>` is any directory, other than `/CDROM`.

4. Press the eject button on the CD ROM drive (On Sun Solaris, enter `# eject cdrom`).

3.2.2 Starting the mscsetup Installation Utility

You must be root to run mscsetup. Remember that the mscsetup utility keeps a log of important information so it is not necessary to make detailed notes. Depending on the hardware configuration you install from, you can execute mscsetup from the CD ROM, by entering:

```
# <cdrom_dir>/mscsetup
```

```
System type: Silicon Graphics R8K, R10K  
MSC ID:      <FFFFFF>  
User:       user
```

Products On This Delivery

* MSC.Dytran V4.7 Solver and Utilities

MSC.Dytran V4.7 will not run until you have one of the following:

- New license data for MSC.Dytran Version 4.7.

* Only ROOT can install system directory links and app-default files.

* FLEXlm V5.12

This will install the FLEXlm License Server and End-User tools on a license server machine. You should have a file or an e-mail message containing licensing data before installing this product.

* Only ROOT can automatically start FLEXlm during system boot.

Do you want to continue (default = Y)? **Y**

3.2.3 Inputting the Installation Directory

The installation directory is the location where you will install all products. For example, if you choose /msc as the installation directory, a typical installation would look like this at completion:

```
# ls -l /msc
drwxr-xr-x  7 root      sys    512 Apr 21 16:33 dytran47
drwxr-xr-x  2 root      sys    512 Apr 21 16:33 bin
drwxr-xr-x  3 root      sys    512 Apr 21 16:33 flexlm
```

The utility also checks the amount of disk space available at that path. Note that mscsetup requires additional space for decompression.

```
Enter the pathname of the directory you want to install into.
Enter ? to browse a pathname.
Enter B to go back to the previous screen.
Enter X to completely exit this installation.
```

```
Pathname (default = /msc)?
```

```
Checking available disk space
```

```
The size of the filesystem containing this directory is 1400 MB, with 519MB
currently available.
```

```
Do you want to use this directory (default = Y)? y
```

3.2.4 Selecting the Products to Install

If you want mscsetup can automatically select all products from the CD ROM for which you currently have a valid license file. For example, when you already have MSC.Dytran Version 4.5 installed with a valid license file, mscsetup will choose to install only MSC.Dytran Version 4.7 from the CD ROM, because you do not need a new FLEXlm installation or a new license file.

```
MSC.Software Installation and Setup - Select Products Based on License Data
```

```
If you want, mscsetup can automatically select all products for which you
currently have a valid license.
```

```
To do this, you must identify one of the following:
```

- An operating FLEXlm license server (or servers) offering valid licenses for MSC.Software products.
- A file, provided by MSC.Software, containing FLEXlm license information.

```
Enter Y to automatically select all currently licensed products.
Enter B to go back to the previous screen.
Enter N to go to the next screen.
Enter X to completely exit this installation now.
```

```
Automatically select licensed products (default = Y)?
```

3.2.4.1 Automatic Selection of Products to Install

If you choose to install automatically, you need to define the license server or the location of a license file. The mscsetup utility will automatically search for existing license servers or license files to find out for what products you have a license.

```
MSC.Software Installation and Setup - FLEXlm License Server
```

```
Please identify one or more FLEXlm license servers.
```

```
Servers may be identified using any of the following forms:
```

- simple hostname, e.g., mycomputer
- absolute domain name, e.g., mycomputer.mygroup.myorg.mydomain
- an IP address in dotted format, e.g., 192.73.8.2
- The pathname of a FLEXlm license.dat file.

```
A list of servers are entered with colons (:) separating each server.  
Any server not using the standard FLEXlm port number 1700, must specify  
the port using the form "alternate-port@host".
```

```
Enter a FLEXlm license server specification.  
Enter ? to browse for a FLEXlm license.dat file.  
Enter B to go back to the previous screen.  
Enter X to completely exit this installation now.
```

```
FLEXlm server specification (default = 1701@tadema:1700@benelux3)
```

```
Validating license server/file specification...
```

```
1701@tadema: OK  
1700@benelux3: OK
```

```
Determining license server status, please wait...
```

```
1701@tadema: UP  
1700@benelux3: UP
```

```
Determining available license features, please wait...
```

```
The following products will be selected for installation:
```

```
MSC.Dytran V4.7
```

```
Is this OK (default = Y)?
```

3.2.4.2 Manual Selection of Products to Install

If you do not want mscsetup to automatically select the products to install, you can skip to the next menu when you are at the “Select Products Based on License Data” menu described in Section 3.2.4, [Selecting the Products to Install](#).

```
MSC.Software Installation and Setup - Select Products On This Delivery
```

```
754 MB available in installation directory.
```

Products On This Delivery	Comments
1. MSC.Dytran V4.7	Not selected for installation.
2. FLEXlm License Server V5.12	Not selected for installation.

```
Enter a list of product numbers to select/deselect
(you may use spaces or commas, a dash indicates a range, e.g., "1,3-5").
Enter B to go back to the previous screen.
Enter N when you are done selecting products; or.
Enter X to exit this installation.
```

```
Enter 1, 2, B, or X (no default)?
```

Selecting a product and then choosing a **Custom** installation in Section 3.2.5, [Selecting a Product Installation Type](#), allows you to see the full contents of each product set.

Important: Select a product set that you wish to install. You must select a product one at a time since each product set selection is followed by appropriate setup questions.

FLEXlm licensing only needs to be installed if no FLEXlm licensing has been installed before. When you already use MSC.Software products that run with FLEXlm, like MSC.Nastran or MSC.Patran, you can use the existing FLEXlm license server.

3.2.5 Selecting a Product Installation Type

Each product set contains several standard installation configurations. Each configuration option includes a description and identifies disk space requirements. For example, the MSC.Dytran solver option includes this description

```
MSC.Software Installation and Setup - MSC.Dytran V4.7 Installation Type
```

```
754 MB available in installation directory.
```

1. Default Installation.
Install standard files and directories for MSC.Dytran V4.7 on Hewlett-Packard 9000 systems. 197 megabytes required. This includes the MSC.Dytran demo files and utilities.

- 2. Minimum Installation.
Install required files and directories for MSC.Dytran V4.7 on Hewlett-Packard 9000 systems. 153 megabytes required. This excludes the MSC.Dytran demo files and utilities.
 - 3. Custom Installation.
Select specific architectural and optional components to install.
- B. Go back to the previous screen.
X. Completely exit this installation now.

Enter 1-3, B, or X (default = 1)?

3.2.6 FLEXlm and License File Setup

You have selected to install **FLEXlm** in Section 3.2.4.2, [Manual Selection of Products to Install](#), mscsetup will install all required software necessary to configure this machine as a FLEXlm license server. However, mscsetup does not start up the license manager daemon. Before you can run MSC.Dytran, you have to start the license manager daemon manually, after the installation is finished. How to start up the license server daemon is explained in Section A.2.4, [Starting the Manager Deemons](#).

If you do not want to use the machine you are installing on as your license server and therefore do not install FLEXlm, you must define the name of a license server or the location of a license file to be used by MSC.Dytran at the “Configuring Installed Products” menu below. You don’t necessarily have to set up licensing during the installation; you can do this after the installation, as described in Section A.2.6, [Setting up Clients to Access the Floating License](#).

3.2.7 Configuring Installed Products

When you have chosen the products to install, mscsetup will try to configure your installed products.

Via the “System Configuration” menu, you come to the “Configure Products” menu. If you want mscsetup to configure the installed products, enter the product number to be configured.

MSC.Software Installation and Setup - Configure Products

Products Selected For Installation	Install Test	License OK
-----	-----	-----
1. MSC.Dytran V4.7	(Not configured.)	
2. FLEXlm License Server V5.12	(Not configured.)	

Enter a list of product numbers to configure
(you may use spaces or commas, a dash indicates a range, e.g., “1,3-5”).
Enter B to go back to the previous screen.
Enter N when you are done configuring products.
Enter X to exit this installation.

Enter 1, 2, B, N, or X (default = N)?

Configuring MSC.Dytran

To make MSC.Dytran Version 4.7 and the different MSC.Dytran utilities available to all users on the system, the mscsetup procedure will generate symbolic soft links in the /usr/bin directory.

The following MSC.Dytran utility names will be created:

- `dytran` Command line based-script to “launch” MSC.Dytran runs.
- `xdextr` An X11/Motif-based application for translating result files produced by MSC.Dytran to various third-party import file formats.
- `xdytran` An X11/Motif-based application to “launch” MSC.Dytran runs.
- `gebod` Preprocessor program to generate ATB input of various dummy models.

The following results file utility names are created (not relevant for all platforms):

- `xmplay` Utility to play animations in MPEG format.
- `extractsteps` Utility to extract one or more time steps from a big archive to create a new smaller archive.
- `bin2i3e` Utility to convert CRAY native results files to IEEE floating point format.
- `i3e2bin` Utility to convert results files in IEEE format to CRAY native results files.
- `swaby` Utility to convert MSC.Dytran results files in Digital Alpha format to the byte ordering used by other machines and vice versa.

During the configuration of MSC.Dytran you have to provide the name of a license server or the location of the license file to be used by MSC.Dytran. If you do not want to set the licensing information now, you can do this later, see Section A.2.6, [Setting up Clients to Access the Floating License](#).

MSC.Software Installation and Setup - Licensing Information

MSC.Dytran V4.7 requires authorization before use.

This requirement can be satisfied by specifying the name of an existing license server machine on your network; or by supplying the path of a license.dat file or an e-mail message (complete with headers) containing licensing information.

NOTE: None of the selections below will cause this machine to be configured as a license server. To install the license server software on this system, select "FLEXlm" from the "Select Product" menu.

1. Identify a network license server.
MSC.Dytran V4.7 will not run until licenses are installed on the server.

- 2. Install an existing file with licensing info.
- D. Do not set authorization information now.
Select this if licensing information is already configured or will be configured after this installation.
- B. Go back to the previous screen.
- X. Completely exit this installation now.

Enter 1, 2, B, D, or X (default = D)?

Important: You can only configure MSC.Dytran Version 4.7 and its utilities if you install with root permission.

In case you do not want to use the MSC.Software supplied default symbolic links, you can make MSC.Dytran available to all users on your system by either including the executable directory in their paths, or create a symbolic link or script in a common path location such as `/usr/bin`.

MSC.Software recommends creating symbolic links automatically during the installation. This insures consistency with other MSC.Software products.

To include executables in the user's path, add the following to each MSC.Dytran user's `.cshrc` or `.profile` files:

Configuring FLEXlm

During the configuration of FLEXlm you have to supply the location of a valid license file for the FLEXlm installation. You do not necessarily have to set up the license file during the installation; you can do this later after the installation as described in Section A.2, [Installing Using a Server](#).

The `mscsetup` utility will install all required software necessary to configure this machine as a FLEXlm license server. However, `mscsetup` does not start up the license manager daemon. Before you can run MSC.Dytran, you have to start the daemon manually after the installation is finished. How to start up the license server daemon is explained in Section A.2.4, [Starting the Manager Deemons](#).

MSC.Software Installation and Setup - FLEXlm License Server V5.12
Configuration Parameters

Please carefully review the following default configuration parameters for FLEXlm License Server V5.12.

Some values may have been obtained either through examination of your system or from an existing iMSC.Software Installation and Setup - FLEXlm License Server V5.12 Configuration Parameters

Please carefully review the following default configuration parameters for FLEXlm License Server V5.12.

Some values may have been obtained either through examination of your system or from an existing installation of this MSC.Software product.

Parameter	Value
1. License file:	[none]
2. Install /etc/inittab entry:	Y
3. Start /etc/inittab command now:	Y
4. Process/file owner:	root
5. /etc/inittab ID:	mscl
6. /etc/inittab run levels:	23456
7. /etc/inittab action:	once
8. /etc/inittab command:	/msc/bin/flexlm l

Enter a list of item numbers to change
 (you may use spaces or commas, a dash indicates a range, e.g., "1,3-5").
 Enter OK to accept changes and return to previous screen.
 Enter C to cancel changes and return to previous screen.
 Enter X to exit this installation.

Enter 1-8, OK, C, or X (no default)?

3.2.8 Authorization Request Form

If you have not already received licenses from MSC.Software, or do not have an existing license server, the install procedure prompts you to generate an "Authorization Request Form". This step creates a file containing the system information that MSC.Software needs to generate FLEXlm license codes.

MSC.Software Installation and Setup - Product Licensing Requirements

Products Selected For Installation	Licensing Methods	Licensing Installed
MSC.Dytran V4.7	None	N/A

You can generate a contract amendment that can be completed and mailed or faxed to MSC.Software.

Enter Y to generate a contract amendment.
 Enter B to go back to the previous screen
 Enter N to go to the next screen.
 Enter X to completely exit this installation now.

Do you want to generate a contract amendment (default = N)? y
 Saved "/net/potter/videodisk2/msc/mscauth.txt"
 as "/net/potter/videodisk2/msc/mscauth.txt.1"

The MSC.Software Contract Amendment has been written to:

/net/potter/videodisk2/msc/mscauth.txt

Press ENTER or RETURN to continue....

3.2.9 Installation Review

Prior to actually performing the installation, the mscsetup utility reviews your current selections. You may change the installation source, target directory, or product selection.

MSC.Software Installation and Setup - Installation Review

```
Installation Source:      Local CD-ROM /CDROM
                        2805 MB total
                        1041 MB available
```

Products Selected For Installation	Type	Size	Test
-----	-----	-----	----
FLEXlm License Server V5.12	Standard	4 MB	N/A
MSC.Dytran V4.7	Standard	182 MB	N/A
-----	-----	-----	----
Total		186 MB	

```
Enter Y to begin installing the software now.
Enter B to go back to the previous screen.
Enter W to write a playback file now.
Enter X to cancel this installation now.
```

```
Finish installation (no default)?
```

3.2.10 Installation Messages

As the mscsetup utility performs the installation, it issues messages informing you of its progress. Note that this information is recorded to the mscsetup.log file, which resides on the installation directory.

For a successful installation the last two messages should be:

```
Done configuring products.          Fri Jun  5 18:28:13 MET DST 1998
Installation complete.              Fri Jun  5 18:28:13 MET DST 1998
```

3.3 Testing the Installation

This section provides instructions on testing your installation of MSC.Dytran Version 4.7.

Login and Change to a Scratch Directory

Login as a nonprivileged user (that is, not root) on each workstation that will be running MSC.Dytran and change to a scratch directory that has at least 50 MB of disk space.

3.3.1 Testing the MSC.Dytran Version 4.7 Solver Using the dytran Command

1. Copy the file named `impulse_a.dat` from the MSC.Dytran Version 4.7 demo directory `<installation_dir>/dytran47/Demo/EP1_1`, using the UNIX command:

```
% cp <installation_dir>/dytran47/Demo/EP1_1/impulse_a.dat .
```

2. Start up the MSC.Dytran Version 4.7 analysis by entering:

```
% dytran jid=impulse_a
```

(Be sure `<installation_dir>/bin` is part of your command search path, as instructed in Section 3.2.7, [Configuring Installed Products](#).)

3. The MSC.Dytran analysis will take about 10 seconds to finish. You can check if the analysis was successful by looking at the bottom of the printed output file `IMPULSE_A.OUT`, with the UNIX command:

```
% tail -30 IMPULSE_A.OUT
```

The following printout on your screen indicates that the analysis has run successfully:

```
*****
*
*          THE TIME LIMIT HAS BEEN REACHED          *
*
*          THE PROBLEM WILL NOW TERMINATE           *
*
*****
```

3.3.2 Testing the MSC.Dytran Solver Using the XDYTRAN Utility

Start the XDYTRAN utility by entering:

```
% xdytran
```

(Be sure <installation_dir>/bin is part of your command search path, as instructed in Section 3.2.7, [Configuring Installed Products](#).)

The XDYTRAN main window should appear. Before you can start an MSC.Dytran analysis you must first define a process to run by selecting the **Create Process** button. The *Create/modify MSC.Dytran process* window appears, after which you should select *impulse_a.dat* under *Files*. Select **OK** under the box *Selected input file*, and finish the process definition by selecting **OK** at the bottom of the window.

Start the MSC.Dytran analysis using the selected input file *impulse_a.dat* by selecting **Run** under *Process Sate*, after which the MSC.Dytran analysis will begin. If you did not remove the results files of the previous test run of section Section 3.3.1, XDYTRAN will prompt you to remove the existing results files. After deletion of the old results files the analysis proceeds. When the process status circle turns green, the analysis is finished and you can look at the printed output results by selecting **View normal output** under *Output*. The printed output file will be displayed on the screen and you can scroll down to the end to see if the run was successful. A successful run should have the following printout at the end:

```
*****
*
*          THE TIME LIMIT HAS BEEN REACHED          *
*
*          THE PROBLEM WILL NOW TERMINATE           *
*
*****
```

You can end the XDYTRAN session by selecting **File** at the left top corner of the window and choosing **Quit**.

3.3.3 Testing the XDEXTR Utility

If you use MSC.Patran for MSC.Dytran results processing, you probably do not use XDEXTR and there is no need to test this utility.

If you use XDEXTR to convert the binary MSC.Dytran results files to the format of your postprocessing system, you can test XDEXTR using the command:

```
% xdextr
```

(Be sure <installation_dir>/bin is part of your command search path, as instructed in Section 3.2.7, [Configuring Installed Products](#).)

The XDEXTR main window should appear. Select `IMPULSE_A_ZDIS.THS` under *Files* and click on **OK**. The entity selection window will appear. For testing purposes you can use the default results selection provided by XDEXTR. The time history file can be converted to Patran 2.5 format by selecting **Do** → **Translate** → **Patran 2.5 format**. The Translation window appears and you can select **OK** to write out the converted time history file. You can exit XDEXTR by selecting **Window** → **Close** and after that **File** → **Quit**.

The XDEXTR utility program has been installed successfully if the Patran 2.5 XY-data file with name `th_zdis_gp31.pat` has been written out.

3.3.4 Testing the XMPLAY Utility

The XMPLAY utility allows you to view MPEG animation files. The XMPLAY utility can be tested as follows:

1. Copy the file named `impules_strip.mpg` from the MSC.Dytran Version 4.7 demo directory `<installation_dir>/dytran47/Demo/EP1_1`, using the UNIX command:

```
% cp <installation_dir>/dytran47/Demo/EP1_1/impulse_strip.mpg .
```

2. Start the XMPLAY utility by entering:

```
% xmpplay
```

The `xmpplay` window appears. Select the MPEG file `impulse_strip.mpg` from the select window and select **Play**, after which the mpeg will start playing.

You can stop playing the mpeg by selecting **Exit** on the *MPEG Player Controls* window. Close the XMPLAY utility by selecting **Quit**.

3.3.5 Testing the Binary File Conversion Utilities

If you do not run MSC.Dytran on CRAY or Digital Alpha machines, you probably do not use these utilities, and there is no need to test them.

Testing SWABY on Digital Alpha

For Digital systems, the program SWABY is included in the release. It converts MSC.Dytran results files in Digital Alpha format to the byte ordering used by other machines and vice versa.

You can test SWABY by converting the binary time history file `IMPULSE_A_ZDIS_0.THS` that was created during the test analysis in Section 3.3.1, [Testing the MSC.Dytran Version 4.7 Solver Using the `dytran` Command](#) or Section 3.3.2, [Testing the MSC.Dytran Solver Using the `XDYTRAN` Utility](#), with the command:

```
% swaby IMPULSE_A_ZDIS.THS IMPULSE_A_ZDIS_SW.THS
```


The SWABY utility has been successfully installed if the file `IMPULSE_A_ZDIS_SW.THS` has been created and has the same size as the file `IMPULSE_A_ZDIS.THS`.

Testing bin2i3e and i3e2bin on CRAY

For CRAY systems, the programs `bin2i3e` and `i3e2bin` are included in the release. These programs convert the floating point numbers in MSC.Dytran results files to and from IEEE floating point format respectively.

You can test `bin2i3e` and `i3e2bin` by converting the binary time history file `IMPULSE_A_ZDIS_0.THS` that was created during the test analysis in Section 3.3.1, [Testing the MSC.Dytran Version 4.7 Solver Using the `dytran` Command](#) or Section 3.3.2, [Testing the MSC.Dytran Solver Using the `XDYTRAN` Utility](#), with the commands:

```
% bin2i3e IMPULSE_A_ZDIS.THS IMPULSE_A_ZDIS_IEEE.THS
% i3e2bin IMPULSE_A_ZDIS_IEEE.THS IMPULS_A_ZDIS_NEW.THS
```

Both utilities `bin2i3e` and `i3e2bin` for CRAY machines have successfully been installed if the files `IMPULSE_A_ZDIS_SW_IEEE.THS` and `IMPULS_A_ZDIS_NEW.THS` have been created and the files `IMPULSE_A_ZDIS.THS` and `IMPULS_A_ZDIS_NEW.THS` have the same size.

Using MSC.Dytran

4.1 Running MSC.Dytran Using XDYTRAN

The easiest way to start an MSC.Dytran analysis job interactively is to use the graphical user interface program, XDYTRAN. For more information on how to use XDYTRAN, see Appendix A, “Using XDYTRAN,” of the *MSC.Dytran User’s Manual*. To start a batch job, use the run script documented in Section 4.2, [Running MSC.Dytran Using the dytran Command](#).

4.2 Running MSC.Dytran Using the dytran Command

MSC.Dytran can also be run using the command procedure `dytran`. The `dytran` procedure processes its command line arguments and creates a second command procedure, which is submitted to a batch queue, or is executed interactively. Here is how to use the `dytran` procedure:

```
dytran      jid=JobId size=small|medium|large rid=RestartId atb=AtbId
            madymo=yes|no bat=yes|no notify=yes|no exe=executable imm=IMMfile
            user_rout=user_routines_file ask_rem=yes|no
            print=print_prefix output=out_prefix
```

Examples

```
% dytran  jid=mydata  exe=my_exe.exe
% dytran  jid=mydata  bat=no ( interactive run )
% dytran  jid=mydata  bat=no print=printout
% dytran  jid=mydata
```

Command Line Arguments	Purpose
jid=JobId	Name of the input file (file type is detected). Script will look for the file JobId.dat. No default is applicable here.
rid=RestartId	Restart file of a previous analysis from which to restart. Script will look for the file RestartId.RST. No default is applicable here.
size=small/medium/large	Defines the size of allocated memory by the executable. You can choose small, medium or large.
atb=AtbId	Script will look for the ATB input file with name AtbId.ain. No default is applicable here.
imm=IMMfile	Name of an Initial Metric Method file name (if any). Script will look for IMMfile.dat. No default applicable here.
bat=yes/no	Indicates the way in which the job will be run. bat=yes means run job in background. bat=no means run job interactively. Default is yes.
notify=yes/no	If notify=yes, a message will be sent to the terminal when the job finishes. If notify=no, no message is sent. Default is yes.
exe=my_exe.exe	This command line argument enables you to use your own modified MSC.Dytran executable with name my_exe.exe. Default executable is <installation_dir>/dytran47/dytranexe/dytran.exe.
user_rout=my_file.f	The Fortran file with name my_file.f in which user routines are stored, will be compiled and linked with the dytran library. The executable produced will be used to perform the calculation. When the input file is a JobId.dat file, the USERCODE statement is looked for in this file and user_rout is set accordingly. Specifying user_rout on the command line will overrule the USERCODE statement.
ask_rem=yes/no	Parameter with which you can specify that you want be asked to remove all files beginning with the generic name derived from the JobId. Ask_rem=yes means that you will be asked to remove these files or restart with a different JobId. Default is yes.

Command Line Arguments	Purpose
print=my_file	Command line argument that can be used in case of interactive runs, that forces the output to be written to a file instead of the terminal screen. Example: with print=my_file the output will be written to a file named JID_MY_FILE.OUT.
output=prefix	Specifies the prefix to be used for all output files. Default is the JobId.

- Notes:
1. Jid must be specified.
 2. Keywords are separated by a blank.
 3. Keywords may appear in any order.
 4. Dytran output file will be named JobId.OUT.
 5. Archive files will have the extension .ARC.
 6. Time history files will have the extension .THS.
 7. Restart output files will have the extension .RST.
 8. All output files will be prefixed with the JobId.
 9. All output filenames will be in uppercase letters.
 10. ATB output files will have the extension .AOU.
 11. Only CTRIA3 and GRID are valid entries in an IMM-file.

4.3 Stopping MSC.Dytran

There are several methods of stopping an MSC.Dytran job after it is running. The method used depends on how the job is running (batch or interactive), and whether the contents of the output files is important.

When Output Files are Unimportant

If the program is running interactively, a <control-c> command may be typed at the terminal. If the program is running in batch, then the following command may be issued:

```
%kill -9 pid
```

where <pid> is the process ID of the MSC.Dytran job. The process ID can be obtained using the UNIX command “ps”.

When Output Files are Important

To provide a systematic, forced shutdown, MSC.Dytran will trap the UNIX signal SIGUSR1. When this signal is caught, the program writes its restart files, and terminates when the current time step is complete. To terminate the program, enter the following command:

```
%kill -USR1 <pid>
```

where <pid> is the process ID of the MSC.Dytran job. If the job is running interactively, you will have to do this from another terminal.

4.4 Advanced Techniques

4.4.1 Estimating Resources

MSC.Dytran executes almost entirely in core. During the input phase, the input file is read and the data is stored in arrays within the program.

The default executable size of MSC.Dytran is preset to 40 megabytes of memory. This size is appropriately set for smaller types of analysis problems. However, the default MSC.Dytran executable may not be large enough to solve medium- or large-size problems. Besides the default executable size, MSC.Dytran is delivered with two larger size executables, that can be used to run medium- and large-size problems.

If you can not run your problem using the default executable size, you can increase the size of the memory by choosing one of the other modules. (See also the “size” argument in Section 4.2, [Running MSC.Dytran Using the dytran Command](#)). To use an executable size which will run medium- or large-size problems, use one of the following commands:

```
%dytran jid=mydata size=medium
%dytran jid=mydata size=large
```

The executable for medium size problems uses 90 MB of memory, and for large size problems 160 MB will be used.

If you can not run your problem using the maximum supplied executable size, you can increase the size of the memory of the executable by using a user-defined subroutine, see Section 4.4.2, [Memory Management Using a User-Defined Subroutine](#).

Warning: If you increase the amount of memory too much, and your system does not have enough swap space, you will not be able to run MSC.Dytran and will receive one of the following messages, depending on your system:

```
Not enough swap space.  
No memory.  
Killed.
```

You must either decrease the size of the parameters in the user defined subroutine, or increase the physical memory or swap space on your system.

4.4.2 Memory Management Using a User-Defined Subroutine

The memory definition using the “size” option, will satisfy the needs of most users. If you need to increase the amount of memory beyond the large size, you can customize MSC.Dytran with help of a subroutine called `memory_large.f`. The memory allocation routine `memory_large.f` resides in the `<installation_directory>/dytran47/dytranexe` directory and must be copied to the current working directory.

Inside the FORTRAN subroutine `memory_large.f` are four parameter statements defining the size of the arrays used in the program. The current definitions are:

```
LIMI = 12 000 000   Storage space for integers.  
LIMX = 11 000 000   Storage space for real variables.  
LIMC = 1 500 000    Storage space for character variables.  
LIML = 750 000      Storage space for logical variables.
```

To create an executable with a larger memory definition, you must increase the values of the four parameters in the `memory_large.f` subroutine. To compile `memory_large.f` and link the new MSC.Dytran executable, you must include a `USERCODE` statement, which references the file containing the FORTRAN coding of `memory_large.f`, in the FMS section of the input data file.

```
USERCODE=memory_large.f
```

The `dytran` command procedure then automatically performs the following steps as part of the batch or interactive run:

1. Compile `memory_large.f`.
2. Link the `memory_large.o` routine with the MSC/DYTRAN library to create a modified executable.
3. Run the analysis.

Note that the modified version of MSC/DYTRAN is compiled and linked again each time you run an analysis with user code. If you want to use the same modified executable many times without compiling and linking each time, it is more efficient to use the `exe` option to run with the modified executable:

```
%dytran jid=run12 exe=my_executable.exe
```

Memory Management Using XDYTRAN

The easiest way to modify the memory usage of MSC.Dytran and to create a new executable of MSC.Dytran, is to use the graphical user interface program XDYTRAN. Using the “Customizing Memory” option, you can allocate new sizes for the memory usage by MSC.Dytran. When one or more of the sizes have been changed, XDYTRAN will write out a new version of memory.f in the same directory where the customized executable will be generated. It will automatically be linked in by XDYTRAN.

Note: You can use the modified executable many times by choosing the newly created customized executable in the “Processes” subwindow in XDYTRAN, when you create a process to run the job. For more information on how to use XDYTRAN, see Appendix A, “Using XDYTRAN,” of the *MSC.Dytran User’s Manual*.

4.4.3 Using MSC.Dytran with MADYMO-3D

The procedure to run MADYMO and MSC.Dytran in a coupled analysis is extensively explained in the Appendix E, “Using MSC.Dytran with MADYMO,” of the *MSC.Dytran User’s Manual*.

4.4.4 User-Modifiable MSC.Dytran

MSC.Dytran allows you to add your own subroutines to the program. The FORTRAN coding for the subroutines should be stored in one file that is in the same directory as the MSC.Dytran data file.

User-Modifiable MSC.Dytran Using XDYTRAN

To create a new executable of MSC.Dytran that includes user subroutines, the “Select File” option must be used. When the file with user subroutines is selected, XDYTRAN automatically links in the user subroutines to create a new version of MSC.Dytran.

Note: You can use the modified executable many times by choosing the newly created customized executable in the “Processes” subwindow in XDYTRAN, when you created a new process to run the job. For more information on how to use XDYTRAN, see Appendix A, “Using XDYTRAN,” of the *MSC.Dytran User’s Manual*.

User-Modifiable MSC.Dytran Using the dytran Command Procedure

To create a new executable of MSC.Dytran that includes user subroutines, a USERCODE statement which references the file containing the FORTRAN coding must be included in the FMS section of the input data file.

```
USERCODE=user.f
```

If, at the same time, you want to change the memory usage by MSC.Dytran, you must place a new version of memory.f on the working directory. The memory.f subroutine should not be included in the file that contains the user subroutines. Section 4.4.1, [Estimating Resources](#) explains where the default memory.f routine resides on your system, and how it should be changed.

The MSC.Dytran command procedure then automatically performs the following steps as part of the batch or interactive run:

1. Compile user.f (and memory.f when present).
2. Link the routines with MSC.Dytran to create a modified executable.
3. Run the analysis.

Note that the modified version of MSC.Dytran is compiled and linked again each time you run an analysis with user code. If you want to use the same modified executable many times without compiling and linking each time, it is more efficient to use the “exe” option of the dytran command procedure to run with the modified executable:

```
% dytran jid=run12 exe=dytran.exe
```

4.5 MSC.Dytran Utility Programs

The MSC.Dytran system contains several utility programs that help in running MSC.Dytran and processing the results from analyses. Note that the X applications are not available on batch machines and Sun Solaris workstations.

4.5.1 XDYTRAN

XDYTRAN is an X11/Motif graphical user interface to MSC.Dytran. It simplifies the process of choosing input files and output directories, customizing MSC.Dytran for various purposes, etc. See Appendix A, “Using XDYTRAN,” in the *MSC.Dytran User’s Manual* for complete information on how to use XDYTRAN.

4.5.2 XDEXTR

XDEXTR is an X11/Motif program that allows you to translate the results from MSC.Dytran calculations into formats that can be read by a variety of pre- and postprocessing programs such as MSC.Patran and MSC/XL. See Appendix B, “Using XDEXTR,” in the *MSC.Dytran User’s Manual* for complete information on how to use XDEXTR.

4.5.3 XMPLAY

XMPLAY is a freely available X11 program that allows you to view MPEG animation files such as the ones contained in the <installation_dir>/dytran47/Demo directory.

4.5.4 EXTRACTSTEPS

EXTRACTSTEPS is a command line based utility that will extract user-defined time steps out of a large archive file and store them in a new smaller archive file. The command to activate EXTRACTSTEPS is:

```
%extractsteps original.ARC short.ARC nbegin nend
```

where nbegin and nend are the first and last time steps you want to extract from the original archive file `original.ARC` and store into the new archive file `short.ARC`.

4.5.5 Floating Point Conversion

For CRAY systems, the programs `bin2i3e` and `i3e2bin` are included in the release. These programs convert the floating point numbers in MSC.Dytran results files to and from IEEE floating point format respectively.

4.5.6 SWABY

For Digital systems, the program `SWABY` is included in the release. It converts MSC.Dytran results files to Digital Alpha format to the byte ordering used by other machines and vice versa.

Problems and Resolutions

5.1 MSC.Dytran Problems and Resolutions

This section lists some of the problems you may encounter, and provides instructions on resolving them.

Problem 1: **When I attempt to start up MSC.Dytran Version 4.7 or one of the utility programs, I see the message:**

```
Command not found
```

Resolution 1: Be sure that the directory and path links have been created during the installation, see Section 3.2.7, [Configuring Installed Products](#), or be sure the directory <installation_dir>/bin, is part of your command search path.

Problem 2: **When I run MSC.Dytran Version 4.7, I get an error message:**

```
write failed: file system full
```

Resolution 2: This means the disk space is too small for analysis model import or export of results files. Either increase the disk space allocated for your working directory or for /tmp. If /tmp is too small, you can use the environment variable **TMP** to redirect MSC.Dytran **IO** to another larger scratch directory location.

Problem 3: When I try to run XDYTRAN, XDEXTR or XMPLAY on an SGI Irix 5.x or 6.x machine and display to another platform (e.g., Sun, HP, etc.), the utility does not start up and gives the error message:

```
Cannot open DISPLAY
```

Resolution 3: Set the DISPLAY environment variable to the TCP/IP address of the display terminal, not to its hostname. For example:

```
%setenv DISPLAY 192.67.0.1:0.0
```

5.2 FLEXlm and Licensing Problems

Most licensing problems manifest themselves with a security error in MSC.Dytran. MSC.Dytran provides a log with licensing information at the bottom of the printed output file. In case you experience licensing problems with FLEXlm, you can obtain more licensing information in the printed output file by inserting the `PARAM,AUTHINFO,9` option in the input file. In case of licensing problems, check the following:

1. Check if the license file with name `license.dat` is located in the directory `<installation_dir>/flexlm/licenses`.
2. Check if the `MSC_LICENSE_FILE` environment variable used by the MSC.Dytran wrapper points at the correct location for the license file.

The current definition of the `MSC_LICENSE_FILE` environment variable can be obtained using the `dytran` command procedure:

```
%dytran -shEnv
```

If the `MSC_LICENSE_FILE` environment variable does not correctly point at the license file location you can set the pathname of the location of the license file in the MSC.Dytran setup file, called `dy_setup` located on the `<installation_dir>/dytran47` directory:

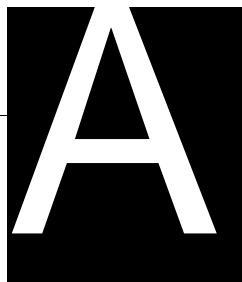
```
setenv MSC_LICENSE_FILE /users/license_files/license.dat
```

The `lmdiag` Utility

FLEXlm also provides a diagnostic utility that may indicate why licenses cannot be checked out.

```
%<installation_dir>/bin/lmdiag -c <license_file_path>
```

Where `<license_file_path>` is the full path (including filename) to the `license.dat` file. If the `-c` option is not used, `lmdiag` will operate on a `license.dat` file in the current directory.



Installing FLEXIm

A.1 Overview

The following steps are a simple summary of the FLEXIm installation as it pertains to MSC.Dytran. When MSC.Dytran executes, it locates the license file, `license.dat`, which tells it the name of the license server node and the port number over which to communicate with the license manager daemon, `lmgrd`.

The `lmgrd` daemon determines what node and port are associated with the vendor daemon, `msc`, and returns that information to MSC.Dytran. The application then contacts the vendor daemon which grants licenses if they are available.

A.2 Installing Using a Server

A.2.1 Obtaining an MSC.Dytran License File for Your Server

To obtain a license file from MSC.Software, you need to determine the hostid of the machine that will function as your license server. The `mscsetup` utility obtains this information for you (see Section 3.2, [Installing MSC.Dytran with mscsetup](#)), or you can run the `lmhostid` utility if you have FLEXIm installed on your system:

```
# <installation_dir>/bin/lmhostid
```

Use the `mscsetup` utility to create an Authorization Request form. See Section 3.2.8, [Authorization Request Form](#). Send this form to your MSC sales representative to obtain your permanent license.

Note: On the CDROM for each platform there is a utility called `lmutil` on the directory `/CDROM/tools/arch`. Before you have performed an installation or before you use `mscsetup`, you can obtain the hostid of your machine using the command:

```
%/CDROM/tools/arch/lmutil lmhostid
```

A.2.2 Placing the License File on the Server

The `mscsetup` utility automatically installs the `license.dat` file if you provide it during installation.

If you have other existing FLEXlm products you need to integrate the new MSC.Dytran license.

The license file may be located anywhere on your license server. MSC.Software recommends locating it in `<installation_dir>/flexlm/licenses/license.dat`.

A.2.3 Checking Paths and Server Names in the license.dat File

Be sure that the `license.dat` file for your installation contains the correct server and port settings:

```
SERVER server XXXXXXXX port
DAEMON msc <installation_dir>/flexlm/<platform>/msc
```

Where `server` is the hostname of the license server (the machine running `lmgrd`), `port` is the address on which `lmgrd` will communicate (i.e. 1700), and `<installation_dir>` is the path to the MSC.Dytran installation. “XXXXXXX” is the hostid of the system as obtained by `lmhostid`.

A.2.4 Starting the Manager Daemons

On the license server, start the license manager daemon with the `flexlm` script. Do not execute this as root, since it may create a security risk on your network.

```
%<installation_dir>/bin/flexlm lmgrd
```

If the `license.dat` file is located in `<installation_dir>/flexlm/licenses`, this script will start the following daemons:

- `lmgrd` – the server daemon
- `msc` – the vendor daemon

A.2.5 Setting the lmgrd Daemon to Execute on Reboot

Modify the appropriate reboot script for your server (`/etc/rc.boot`, `/etc/rc.local`, etc.) to include the following line if the user’s login shell is `csh` (remember do not run `lmgrd` as root):

```
su username -c `umask 022; <installation_dir>/bin/lmgrd -c
license_path >& log_file&`
```

or, if the username’s login shell is `sh`:

```
su username -c `umask 022; <installation_dir>/bin/lmgrd -c
license_path > log_file 2>&1 &`
```

Where `license_path` is the location of the `license.dat` file (i.e., `/msc/license.dat`), and `log_file` is the file to which the daemon will write messages.

A.2.6 Setting up Clients to Access the Floating License

You have two options for setting the file location on clients:

Make the `license.dat` file available on each client. The default location for the license file is `/msc/flexlm/licenses/license.dat`

Set the pathname of the location of the license file in the `MSC.Dytran` setup file, called `dy_setup` located on the `<installation_dir>/dytran47` directory to "port@hostname".

```
setenv MSC_LICENSE_FILE 1700@my_machine
```

A.3 Installing Using a Nodelock File

A FLEXlm nodelock license file differs from a network file with the addition of a hostid at the end of each FEATURE line.

If you have a temporary or demonstration license, it may be supplied as a nodelock `license.dat` file. To use this file, place it in the directory `<installation_dir>/flexlm/licenses` or set the pathname of the location of the license file in the `MSC.Dytran` setup file, called `dy_setup` located on the `<installation_dir>/dytran47` directory:

```
setenv MSC_LICENSE_FILE /users/license_files/license.dat
```

A.4 Additional Documentation

For additional information concerning FLEXlm, consult vendor documentation. `MSC.Software` provides a FAQ and End Users Guide in HTML format on the CD ROM. To view these documents you need an HTML compatible World Wide Web browser such as Netscape Navigator, or Mosaic.

The documents are stored in `<installation_dir>/flexlm/htmlman/index.htm`. Note that `MSC.Software` only provides the End User Guide and FAQ.

To obtain additional information, and information on auxiliary products such as FlexAdmin, visit the Globetrotter Web Page. If you have Internet access, set your browser to:

```
http://www.globetrotter.com/
```

