

## NX Installation Guide for Linux and Mac OS X

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Release 12.0.2

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## Introduction

This document explains the installation of NX 12.0.2 on Linux workstations.

The following are the minimum revisions of operating systems required by this version of NX.

<b>Linux (64-bit)</b>	SUSE Linux Enterprise Server/Desktop 12 Red Hat Linux Enterprise Server/Desktop 7
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**Note:** Newer operating systems may also be supported; these are the minimum revisions. For the most current information, consult the NX 12.0 System Software Release Notes or the Customer Support (GTAC) Web site: <http://www.siemens.com/gtac>.

## Conventions

All references to “SPLM Licensing” in this manual refer to Siemens PLM Licensing.

All references to “Linux” in this manual refer to SUSE Linux or Red Hat Linux.

The following naming and symbol conventions apply to this manual:

<b>Small 10-Point font</b>	Information that is displayed by <b>ug_install</b> .
<b>BOLD FACE</b>	Commands entered by the user, or system files or directories.
<key>	A specific button or combination of buttons, on the keyboard. For example, the "Ctrl" key and the "c" key, <CTRL>c.
<CR>	Carriage Return or "Enter" key.

The examples in this document that refer to the default installation directory are platform specific:

Linux :           **/usr/ugs120**

In order to simplify this document these will be referred to generically as: **[INSTALLDIR]**

## Basic Apple Techniques

This document may require you to use some basic Apple techniques to perform certain actions. For example, you may need to use “Finder” to browse disks and folders, or open a Terminal app to use the command line.

## Pre-Installation Considerations

### DVD Contents

The release is provided on DVD media. DVD installations execute the installation program from a locally or NFS mounted DVD file system. You may also copy the DVD files to disk and install from a local or NFS mounted disk.

The DVD contains the following items:

<b>README file</b>	Gives a brief description of the contents of the DVD, an official title and version, and any special instructions.
<b>docs</b>	This directory contains the installation guides in PDF format.
<b>nx1202</b>	This directory is the main NX 12.0.2 "BASE & OPTIONS" kit, which contains the installation script, and all optional products.
<b>SPLMLicenseServer_v8.2.4_linux_setup.bin</b>	This is the linux Licensing installation kit used for NX 12.0.2. This is a separate kit which includes a separate installation and its own version numbering. It is <u>only</u> required if installing a license server on your local machine.
<b>SPLMLicenseServer_v8.2.4_macos_setup.app</b>	This is the Mac OS Licensing installation app used for NX 12.0.2. This is a separate app which includes a separate installation and its own version numbering. It is <u>only</u> required if installing a license server on your local machine.

**Note:** NX Documentation is provided on separate media.

### Supported Workstations

The NX 12.0.2 supported workstations are not listed in this installation manual; the information is frequently outdated by new vendor offerings and support certifications. For information on NX 12.0.2 supported workstations, consult the Certification link on the Customer Support (GTAC) Web site:

<http://www.siemens.com/gtac>

### Licensing NX

NX can be licensed in one of two ways:

1. NX can communicate with a license server which has had the SPLM Licensing software installed on it. The license server is installed separately using the **SPLM** Licensing kit; it is not part of the main NX installation. It is only required on license server nodes.
2. NX can acquire licensing information directly from a special node locked license file called a **"Standalone License"**. In this scenario, no license server is needed, but this does require access to a file that is encoded to your machine's hardware. In this case it is not necessary to install SPLM Licensing.

Use the following criteria to help decide if you need to install the SPLM Licensing product on your local machine.

The SPLM Licensing installation is needed for the following configurations:

- The local machine will be a license server on your network. It will provide (serve) licenses to itself or other machines on your network.
- The local machine is a standalone machine (such as a laptop) that cannot receive licenses from another machine on your network and must serve its own licenses.
- 

The SPLM Licensing installation is not needed for the following configurations:

- The local machine receives licenses from another machine on your network (i.e. another machine is the server and the local machine is a license client).
- The local machine will use “Standalone Licensing” in which NX will acquire licenses directly from a special “Standalone License” file. If your system is licensed by a standalone license file, then the NX install will make a copy of the file in `[INSTALLDIR]/ugflexlm/nx_license.lic`

**Caution:** The “Standalone License” file is a special type of license file that is node locked to your machine. It is not the same type of file used by License Servers. A server license file cannot be used for Standalone Licensing.

The license server can be installed with the separate SPLM Licensing installation that is provided on this media. One license server can serve licenses to many workstations running NX. The Standalone License file will only provide licenses to your local machine running NX.

For further information on the licensing installation see the *SPLM\_Licensing\_install* guide provided on this media.

For further information about specific SPLM Licensing configuration options, please consult the *SPLMLicensing\_user\_guide*.

**Note:** On Linux systems, NX 12.0.2 uses the environment variable `SPLM_LICENSE_SERVER` to specify the license server. NX versions 5.0 thru 8.5.0 use the `UGS_LICENSE_SERVER` environment variable and NX 4.0 and earlier use `UGII_LICENSE_FILE`. All three variables may exist on systems running concurrent versions. The default TCP socket for both `SPLM_LICENSE_SERVER` and `UGS_LICENSE_SERVER` is 28000, instead of 27000 as previously used in NX 4.0 and earlier releases.

On Mac OS systems, these environment variables are stored as properties in a preferences “.plist” file: `/Library/Preferences/com.siemens.plm.nx12.plist`

## System and Networking Requirements

The minimum revisions for these operating systems are listed in the introduction of this manual.

<b>Linux</b>	<p>The operating system must be a complete version of Linux with the optional Korn Shell. If you do not already have Korn shell installed, Korn shell is available on the distribution media or installable via Yast, yum, or using the rpm tool depending on your Linux version.</p> <p>The operating systems must be configured with Local Area Network (LAN) support to support the use of Berkeley "sockets" for Interprocess communications.</p>
<b>Mac OS</b>	<p>The standard Mac OS installation will include Korn Shell.</p> <p>The operating systems must be configured with Local Area Network (LAN) support to support the use of Berkeley "sockets" for Interprocess communications.</p>

## Disk and Swap Space Requirements

<b>Disk Space</b>	<p>The sizes of the NX 12.0.2 "Base &amp; Options" kits are approximately 10 - 15 GB. Use this number for general reference only. The installation script will calculate and display the exact disk space requirements.</p>
<b>Swap Space</b>	<p>In addition to swap space required by the operating system and window manager, the NX 12.0.2 products will require swap space. The appendices list the swap space requirements for each platform.</p> <p>Large parts require additional swap space as they are loaded and used. This swap space will be site dependent. We recommend that at least 500 additional megabytes be allocated for this purpose.</p> <p>The recommended minimums should be sufficient for most NX 12.0.2 applications. If the allocated swap space is insufficient, the application may fail with system error messages.</p>

## Java Runtime Environment

A Java Runtime Environment (JRE) is a system prerequisite that must be downloaded and installed from the Java website: <http://www.java.com> prior to running NX. *{See also Release Notes}*.

**Note:** Mac OS: As of the date of this manual, the default install location of the Oracle supplied JRE is: **/Library/Internet Plug-Ins/JavaAppletPlugin.plugin/Contents/Home**  
The \$UGII\_JAVA\_HOME environment variable is currently set to this location in the **ugii\_env\_ug.dat** file.

## X11 system prerequisites – Mac OS

**X11:** OS X revisions prior to 10.8 (Mountain Lion) included the X11 software however it is not included with 10.8 and later systems and must be installed separately. The X11 server and client libraries can be downloaded from the XQuartz project at: <http://xquartz.org>.

You should use XQuartz version 2.7.7 or later.

For further reference you may review the Apple Knowledge Base article at:  
<http://support.apple.com/kb/HT5293>

**Installing X11 after the NX installation:** X11 may be installed after installing NX, however, we don't recommend it because the install will not be able to place the NX resource files in the X11 app-defaults directory (normally located at: **/usr/X11/share/X11/app-defaults**). If you do install X11 after NX, you will need to manually copy the NX resource files to the app-defaults directory for NX to function correctly. If no X11/app-defaults directory is found during the NX installation, it will place the NX resource files in: **/tmp/ugs\_tmp**

Copy the files:	Ugnx12 Ugmenu10 Xessu6
from:	/tmp/ugs_tmp
to:	/usr/X11/share/X11/app-defaults

## TCP/IP Network Services

NX uses the TCP/IP network protocol to communicate with the license server. Even if the SPLM License Server is running on the same computer, TCP/IP is still used.

You may use the ping utility to check that your TCP/IP connection is operational. On the computer where you will be running NX, open a Terminal window, and type

**ping <hostname>**

where **<hostname>** is the name of the computer you will be using as your License Server. If the network connection is working correctly, several lines of diagnostic output will be displayed, indicating the time required to transmit packets of data.

If the network connection is not working, you will receive an error message. You must be able to ping your License Server (and vice versa) in order to run NX.

## Additional System Requirements

The Operating System may require patches or may have other system specific requirements. This information, if available and appropriate, is provided in the platform-specific appendices.

## ***Installation Instructions***

This section describes how to install NX 12.0.1 on supported Linux systems.

This topic describes:

Installation from Disk or DVD

An Abbreviated Sample Installation Dialog

Advanced Installation Options

The installation of NX 12.0.2 is accomplished using the supplied Korn shell script: **ug\_install**. This script allows the user to install all or a subset of the NX 12.0.2 products and configures the system to run these products.

## **Overview of the Installation Process**

The basic steps for installing NX 12.0.2 are as follows:

1. Log onto your workstation with an Admin (root) account.
2. Perform pre-installation checks of your Linux system.
3. Install SPLM Licensing if necessary. *{Only required on license server(s)}*
4. Install NX 12.0.2.



## DVD Mount Instructions

These instructions may be used to mount the NX 12.0.2 DVD on Linux systems that are not using an auto mount daemon.

This example uses a **default device file name** for each system type and a mount point directory called **/media/dvd**. The mount point name is arbitrary but will be used for reference in this manual. For further information, see **man** pages for your system.

Login as the root user and use the following commands to mount the DVD.

```
mount /dev/hdc /media/dvd
```

If the DVD is on a remote machine, mount the DVD on the NFS file server using the command listed above, and then export the **/media/dvd** directory from the NFS file server with the following commands:

Add the following line to the NFS server's <b>/etc/exports</b> file:	<b>/media/dvd -ro</b>
Export the directory with the following command:	<b>/usr/sbin/exportfs -av</b>

On the NFS client, mount the server's **/media/dvd** directory. These examples use **nfs\_server** as the node name of the NFS server containing the DVD. Use the following command:

<b>mount nfs_server:/media/dvd /dvd</b>	<i>{/dvd is an example. Choose your local dir name}</i>
---	---

## Installing as an Upgrade to a Previous Version

NX 12.0.2 can be installed as an upgrade of NX 12.0 if NX 12.0 has been previously installed on the workstation. If you currently have any version of NX 12.0 installed on your workstation, skip to the *Installing NX 12.0.2 as an Upgrade* section of this document for instructions on upgrading NX 12.0 to NX 12.0.X.

If you do not have NX 12.0 installed on your workstation, you can install NX 12.0.2 as a new installation and follow the normal installation procedure for NX documented in this guide.

## Installation from DVD or Disk

We assume that you have checked the pre-installation considerations and are ready to begin. The instructions in this section pertain to an installation direct from DVD or from disk.

An installation from disk requires that the NX 12.0.2 kits be previously copied to your disk from the media. You may copy the “**nx1202**” kit from the media to your local disk.

Installing from disk is faster than installing from optical media. The dialog and questions are identical except for the pathname to the source directory.

Disk installations will require enough disk space to hold both the source directory and the amount of space required to actually install NX (approximately 15 GB {Linux}).

The installation script provides support for optional command line switches that alter the installation behavior. These switches are designed for advanced installations. See Advanced Installation Options below.

Use the following instructions to begin the installation from DVD or disk.

**Note:** The mount point name “/media/dvd” is used in the following examples, however the operating system may use another name for your device. E.g: /Volumes. Substitute the appropriate mount point name for your system.

The instructions below apply to running the installation from a command line terminal window. Mac OS users may open a terminal window or they may run the installation by double-clicking in Finder. Running from Finder does not support optional switches.

1. Log in as the root user.
2. If installing from DVD, mount the DVD device. Please refer to the **DVD Mount Instructions** section of this document for directions
3. The installation may be executed using a full path such as /media/dvd/nx120/ug\_install (recommended) or it may be executed with a relative path such as ./ug\_install. The installation kit may also be copied to a disk directory. The disk directory may be an NFS mounted directory, but the installation script must be executed on the target system.
4. As a troubleshooting aid or for historical reference it is suggested that you create an installation log. If you do not wish to create a log, proceed to the next step
  - 4.1. You may create a log by entering the following command
 

```
script /tmp/ug_install.log {choose any name for the logfile}
```

 This script command will log any information that appears on your screen including your entries
5. Begin the NX 12.0.1 installation by typing
 

```
/media/dvd/nx1201/ug_install -v
```

 {Using the verbose switch. Dialog without -v is very abbreviated.}

For every user prompt, a default is offered between the square brackets [ ]. You may enter <CR> to accept the default or enter the appropriate response to the question followed by <CR>. You may also enter **q**<CR> to interrupt the installation, **h** for help, **!** to spawn a subshell, or **p** for a previous menu

Questions are indicated by an asterisk in the first column. Errors and warning messages are also indicated in the first column.

Aborting the installation may leave your NX 12.0.2 environment in an undetermined state. The NX 12.0.2 processes will not start unless the installation completes normally.

**Note:** On Mac OS, the install will create .apps in: /Applications/Siemens/NX12.0\_Apps. This is the standard location, and is not tied to the destination selection. It may be moved after the installation completes.

### Sample Installation Dialog

Below is a sample dialog for a DVD installation. It only shows the main interactive screens and some supplemental information pertaining to the questions. Comments and instructions are indicated by *italics*.

**BEGIN INTERACTIVE DIALOGUE - New Install (from Disk/DVD)**

This example **ONLY** shows main interactive portions of the installation dialog, and some supplemental information pertaining to the prompts of the interactive screens.

```

NX 12.0.2 Installation {your system date and time}
Main Menu. 'n/a' indicates item is not applicable
Enter '?' for help, 'q' to quit, '!' for shell. - at any prompt
1. NX Installation type. _____ [load+configure]
2. SOURCE directory. _____ [/media/dvd/nx1201]
3. BASE directory. _____ [INSTALLDIR]
4. O.K. to MODIFY local system files. _____ [yes]
5. License server (s) or a file name. _____ [28000@ServerNode]
* Enter item(s) to query or change: [continue]

```

**Note:** The NX 12.0.2 installation does not install license server(s). Use “SPLMLicenseServer” to install a license server.

This first screen offers the opportunity to change how NX 12.0.2 will be installed on the system. To change one of the installation parameters, enter the number. An additional prompt will appear for the new value. The following table gives a brief description of each item.

<b>Installation Type</b>	There are three (3) options of <code>ug_install</code> . The first fully installs files and configures the system. The second loads the files only and does not configure the system. The third configures (or reconfigures) the system only, and does not load files. This option can only be used on a previously installed system.
<b>Source Directory</b>	The directory path or source of the NX 12.0.2 files that are to be installed, (i.e., where you want to get the files from).
<b>Base Directory</b>	The directory path or destination of the top level of the NX 12.0.2 directory structure, (i.e., where you want to put the files).
<b>OK to Modify</b>	This question seeks permission to modify some of the local system files, such as the profile or login files contained in the <code>/etc</code> directory. These modifications will be necessary to run NX on the system.
<b>Server Name(s) or License file</b>	Server(s) names are the hostname(s) on your network that supply licenses for NX 12.0.2. This name or list of names may or may not include this local node. File name is a full path to a ‘Standalone’ license file.

This next screen prompts for selection or de-selection of the optional NX 12.0.2 product filesets. Each product has a free disk space requirement. You may **add** or **delete** products via the option numbers given on the menu. This example shows all products selected.

The screen will default to a “configure-only” type of install if using the “-c” option of `ug_install`.

The DIRECTORY column in this display indicates the subdirectories under the base directory that will contain the named product. This can be changed (option 95) by the installer to distribute the file space load across multiple file systems, but it is preferable to leave the directory tree intact on one file system.

The following example shows an install where only four of the kits are selected for installation.

NX 12.0.2 Installation {System Date & Time}

Product Selection Menu. '-->' = selected, '\*\*' = required.

# Name Kbytes Directory

--> 1 UGFLEXLM 9999 [INSTALLDIR]/ugflexlm

--> 2 UGII\*\* 9999 [INSTALLDIR]/ugii

--> 3 ADMIN 9999 [INSTALLDIR]/admin

→ 4 NXPLOT 9999 [INSTALLDIR]/nxplot

{Remaining optional kits will be listed here}

Total Disk space: 999 Mb.

95) Change directories. 96) Select required. 97) All 98) None 99) Load

\* Enter kit or option number(s): [load]

Processing selection: 99...

Checking disk space, selections require 1000 Mb ...

Checking for open files ...

LOADING FILES

No further user input required ...

Copying INSTALL files to [INSTALLDIR] /install ...

{In verbose mode, the individual files will be listed for each selected kit}

The remaining portion of the installation configures the required environment variables, creates appropriate symbolic links, and modifies the files that set the NX 12.0.2 environment

ug\_install COMPLETED {system date & time}

**END INTERACTIVE DIALOGUE – New Install**

On Linux, after script completion, **log out/in** of your system to assure the environment is set correctly for running NX 12.0.2. This is not necessary on Mac OS because it uses preferences files.

At the conclusion of the installation on Linux, NX 12.0.2 will be ready to run from ugmenu. See the platform specific section below titled: Executing NX 12.0.2 on Linux.

At the conclusion of the installation on Mac OS, NX 12.0.2 will be ready to run from the “**NX12.0\_Apps**” folder using Finder. See the platform specific section below titled: Executing NX 12.0.2 on Mac OS.

## Advanced Installation Options

The installation script provides several optional methods of execution using command line switches. This section documents the switches and their usage.

**Note:** Mac OS users will have to start a Terminal app to use these switches.

## ug\_install Optional Switch Usage

**Note:** These features are not recommended for installers who are unfamiliar with the installation script.

First time installers should only use **ug\_install -v**.

<b>[-c]</b>	<b>Configure</b> only, do not load files.
<b>[-d]</b>	Uses <b>defaults</b> built into the script. Cannot be used with <b>-f</b> .
<b>[-f [filename]]</b>	Takes answers from the environment or from a supplied filename or <b>ug_install.ans</b> if no filename is given. <b>Note:</b> Answers set in the environment override answers set in the file.
<b>[-l [filename]]</b>	<b>Logs</b> (save) answers into a supplied filename or use <b>ug_install.ans</b> if no filename is given.
<b>[-v]</b>	<b>Verbose</b> output messages (overrides quiet).

### Detailed Explanations

<b>[-c] configure only</b>	This option will cause the installation to skip any steps pertaining to loading new files and perform only the configuration steps that are necessary for running NX 12.0.2. This can <u>only</u> be used to configure a previous load of the NX files.
<b>[-d] uses defaults</b>	This script will use the built-in default answers. The answer used will be displayed. Answers that cause a loop or that encounter an error will cause the script to resort to an interactive prompt. Certain questions cannot use default answers because a logical default is indeterminate or because the default could be destructive. For example, if the destination directory is out of space, the script cannot presume to overflow the file system. This option is mutually exclusive with the <b>-f</b> option.
<b>[-f] uses filename</b>	This script will look for answers to questions in the environment or read them from a file. This filename can be specified on the command line (e.g., <b>install -f myfile</b> ). If no filename is supplied, the script will look for a default called <b>ug_install.ans</b> . Answers found in the environment will supersede answers in a file. Answers that cause a loop or that encounter an error will cause the script to resort to an interactive prompt. Certain questions cannot use default answers because a logical default is indeterminate or because the default could be destructive. For example, if the destination directory is out of space, the script cannot presume to overflow the file system. This option is mutually exclusive with the <b>-d</b> option. See the discussion of <b>answer file</b> below.
<b>[-l] Log answers to filename</b>	This switch causes the script to log or save the answers used for installation questions to a log file. This can be specified on the command line (e.g., <b>ug_install -l myfile</b> ). If no filename is supplied, the script will attempt to create a default filename called <b>ug_install.ans</b> . If the current directory is not writeable, it will be created in <b>/tmp</b> . See the discussion of <b>answer file</b> below.
<b>[-v] Verbose</b>	Do the installation with verbose messages. By default, this script will only output question prompts and very few informational messages.

## Answer File

The **answer file** used with the **-f** and **-l** options contains individual Bourne shell environment variable definitions which are unique to each question asked by the installation. The **-l** switch will create an answer file in the correct format for each question that is asked. The **-f** switch will read this file, looking for the unique variable corresponding to each question.

Installers can create or customize answer files to suit their sites.

Answers can be appended to existing answer files and answers for multiple products can be included in the same file. The following is an example answer file:

```
# This is a default sample, edit before use.
#
# ug_install.ans created by ug_install
# Data in this file can be used to provide
# answers to the installation script.
# Answer rules:
# 1. Bourne shell environment variable format only.
# 2. answers must begin in the first column.
# 3. commented answers are ignored.
# 4. in line comments are allowed.
# 5. answers can be in any order.
# 6. duplicates are allowed.
# 7. ONLY the last answer is used.
```

UGII_INSTALL_TYPE=1	# Installation type
UGII_SOURCE=`pwd`	# Source dir for NX files
UGII_BASE_DIR_ANSWER=/usr/ugs120	# NX base directory answer {Linux example}
MODIFY_SYSTEM_FILES_OK=yes	# O.K. to modify system files (y/n)
FLEX_LIC_SERVERS=28000@`uname -n`	# FLEX License servers(s).
UGII_SELECTIONS=99	# Optional Product selections.

## System Files Altered or Created During Installation

This section lists the system files that are altered or created during a NX 12.0.2 installation and a brief explanation of each. For this discussion, system files are those files that normally exist outside of the NX 12.0.2 base directory structure. These files are also saved in the **/tmp/ugs\_tmp** directory.

### X Windows Files

Three files are copied to the X Windows resource directory:

<b>/usr/lib/X11/app-defaults</b>	{ SUSE Linux}
<b>/usr/share/X11/app-defaults</b>	{ Red Hat Linux}
<b>/usr/X11/share/X11/app-defaults</b>	{Mac OS}

**Ugnx12** This file defines the X windows resource specifications for the NX 12.0.2 executable image. This determines X windows characteristics during a NX 12.0.2 session.

**Ugmenu10** This file defines the X windows resource specifications for the ugmenu image (**ugmenux**). This is a Linux only file.

**Xessu6** This file defines the X windows resource specifications for the Xess spreadsheet image.

## Miscellaneous

### **/ugs/installed\_programs.dat**

This file is required for the interoperability between NX, and other Siemens PLM Software products. It is created or updated as necessary by the NX installation to provide a simulated Windows Registry file, which contains the path to the latest installed NX.

## User Login Files

Linux and Mac OS use different methods to provide global environment variables for NX. See the platform specific sections below.

## Environment Files

NX specific environment variables are stored in the **ugii\_env\_ug.dat** file. This file should not be modified but values in it may be overridden by the customer modifiable file: **[INSTALLDIR]/ugii/ugii\_env.dat**

These files are supplied by the installation and placed in the **\$UGII\_BASE\_DIR/ugii** directory by **ug\_install**, with no write access. The **ugii\_env.dat** file should only be changed by the system administrator with root access. The **ugii\_env\_ug.dat** is not intended to be customized as it may be updated by NX Maintenance Releases. NX will load both the **ugii\_env.dat** file and the **ugii\_env\_ug.dat** file. The **ugii\_env.dat** file is released as an empty file, as it is designed to contain user customizations.

**Note:** Documentation of each individual variable is not covered in this guide. It is documented within the **\$UGII\_BASE\_DIR/ugii/ugii\_env\_ug.dat** file itself.

The remaining discussion in this section pertains to those system administrators who wish to customize their NX 12.0.2 environment.

The values in the **ugii\_env.dat** override the values released by Siemens in the **ugii\_env\_ug.dat** file. In addition the values can be overridden by setting and exporting the corresponding environment variables. This gives the user an easy way to change default values. The **ugii\_env.dat** file may also be copied to the user's home directory for individual customizations. This file will supersede the **ugii\_env.dat** file in the **\$UGII\_BASE\_DIR/ugii** directory.

```
cp $UGII_BASE_DIR/ugii/ugii_env.dat $HOME
```

The **ugii\_env.dat** file is searched for, in the following order of precedence. The first file found will be the one used.



1. The explicit file specified by: **\$UGII\_ENV\_FILE**
2. The current working directory
3. The user's Home directory
4. The directory defined by **\$UGII\_BASE\_DIR/ugii**

Most sites will require only one version of the environment variable file, and it should be placed in the **\$UGII\_BASE\_DIR/ugii** directory. This is handled automatically by **ug\_install**. If multiple copies are required for flexibility, then they can be segregated on a per user basis by placing them into each user's home directory, or they can be segregated on a group level by placing different groups into different local directories and putting a version of the variable file into those local directories. Each environment variable file must contain definitions for all variables the user needs. If multiple variable files exist, only the first file found is used to translate variables.

The format of the **ugii\_env.dat** file is as follows:

1. Lines starting with a pound sign (**#**) are ignored and assumed to be comments. The file **cannot** contain inline comments.
2. Variables to be set **must** start in column one, and must be followed by an equal sign (**=**) and the value (no spaces).
3. The following construct is valid:

**VARIABLE\_NAME=value**

The following is an example of part of a **ugii\_env.dat** file that sets the variable **UGII\_08\_FILE**:

```
# specify where the 08.ugf grip meta language is
UGII_08_FILE=/usr/ugs120/ugopen/08.ugf
```

The **ugii\_env.ug.dat** file includes comments documenting the NX 12.0.2 environment variables. Use the Linux commands **more** or **pg** or **vi -r** to view this file.

The **ugii\_env.dat** file supports the following constructs:

```
#include <file name> {This will include the specified file at the current location.}

#if FILE <file>

#else

#endif {This allows users to define variables based on the existence of a file.}

#if lnx64

#else

#endif {This allows users to define variables based on the workstation platform.}

#if macosx

#else

#endif
```

```
#if ${variable} = "value"
```

```
#else
```

```
#endif
```

```
#if ${variable} != "value"
```

```
#else
```

```
#endif
```

## Changes for NX 12.0

This topic provides information on significant changes in installation or system administration for this release.

### Kit Changes

#### Obsoleted Kits

- None

#### New Kits

- TRANSLATORS
- DIAGRAMMING
- FIXTURE\_PLANNER
- SIMULATION

#### Renamed Kits

- NXDIAGRAM to DIAGRAMCORE

## NXBIN directory

In NX 11, the \$UGII\_ROOT\_DIR environment variable was retired. A central runtime directory called NXBIN is now used to find executables and libraries.

The NXBIN runtime directory, is created on all platforms at the **\$UGII\_BASE\_DIR/nxbn** location during the NX installation. Depending on what installation kits were selected, libraries and executables from selected kits are consolidated into the NXBIN directory during the install.

Configuration and script files that used to be found under \$UGII\_ROOT\_DIR will now be in \$UGII\_BASE\_DIR/ugii. Executables, libraries and jar files that used to be found under \$UGII\_ROOT\_DIR will now be in \$UGII\_BASE\_DIR/nxbn. The \$UGII\_ROOT\_DIR environment variable has been retired.

While the NX install no longer sets UGII\_ROOT\_DIR, the definition on the system will remain to support earlier releases. If your code or scripts rely on UGII\_ROOT\_DIR, modify them to ensure they work in NX 12.

## Installing NX 12.0.X as an Upgrade

### Upgrade Installation

To install NX 12.0.X as an upgrade to a previous NX 12 version follow these steps:

1. Log in as the root user.
2. If installing from DVD, mount the DVD device. Please refer to the **DVD Mount Instructions** section of this document for directions
3. The installation may be executed using a full path such as `/media/dvd/nx1202/ugs_update` (recommended) or it may be executed with a relative path such as `./ugs_update`. The installation kit may also be copied to a disk directory. The disk directory may be an NFS mounted directory, but the installation script must be executed on the target system.
4. As a troubleshooting aid or for historical reference it is suggested that you create an installation log. If you do not wish to create a log, proceed to the next step
  - 4.1. You may create a log by entering the following command  
**script /tmp/ugs\_update.log** *{choose any name for the logfile}*  
This script command will log any information that appears on your screen including your entries
5. Begin the NX 12.0.1 installation by typing  
**/media/dvd/nx1202/ugs\_update -v**  
{Using the verbose switch. Dialog without -v is very abbreviated.}

For every user prompt, a default is offered between the square brackets [ ]. You may enter <CR> to accept the default or enter the appropriate response to the question followed by <CR>. You may also enter **q**<CR> to interrupt the installation, **h** for help, **!** to spawn a subshell, or **p** for a previous menu

Questions are indicated by an asterisk in the first column. Errors and warning messages are also indicated in the first column.

Aborting the installation may leave your NX 12.0.2 environment in an undetermined state. The NX 12.0.2 processes will not start unless the installation completes normally.

## Platform Specific Information

The following sections provide information that is unique to Linux.

### Linux

#### Executing NX 12.0.2

After completing the installation, there are several methods by which you may run NX 12.0.2.

<b>Method 1</b>	Uses <b>ugmenu</b> .
<b>Method 2</b>	Uses the <b>ugii</b> script file.
<b>Method 3</b>	Adds the directory containing NX 12.0.2 to your \$PATH environment variable.
<b>Method 4</b>	Executes individual NX 12.0.2 programs directly from the command line.

#### Method 1

The first method uses **ugmenu**. This is a user menu with an available Motif interface that allows you to select the NX 12.0.2 product that you wish to run.

To disable the Motif version of **ugmenu** (called **ugmenux**) and run the ASCII version, you may pass a **-nw** switch to **ugmenu** or uncomment the line that reads **#MWMWINDOWS=false** in the beginning of the **\$UGII\_BASE\_DIR/ugii/ugmenu** script.

**Note:** The **ugmenu** script and **ugmenux** program utilize a customizable data file called **ugmenu.dat** to initialize the available menu selections, and to control the functionality of the selections. Please read the comment section of the **ugmenu.dat** file for instructions on customizing this file.

The **ugmenu** script passes optional NX 12.0.2 command line switches. See the *NX 12.0 Fundamentals Help*.

To execute **ugmenu**, enter the following command:

```
$UGII_BASE_DIR/ugii/ugmenu
```

#### Method 2

The second method is to use the **ugii** script file located in the **\$UGII\_BASE\_DIR/ugii** directory. This script sets the required environment variables, and runs NX 12.0.2.

The **ugii** script accepts optional command line switches. See the *NX 12.0 Fundamentals Help*.

To execute **ugii**, enter the following command:

```
$UGII_BASE_DIR/ugii/ugii
```

#### Method 3

NX12 utilizes the “nxbin” directory which contains most libraries and executable however startup scripts still exist in the “ugii” directory. Consequently, it is necessary to add both directories to your path

The third method is to simply add the directories containing NX 12.0.2 to your \$PATH environment variable. To do this, enter either of the following commands at the command line prompt:

```
PATH=$PATH:$UGII_BASE_DIR/ugii:$UGII_BASE_DIR/nxbin; export PATH {Bourne or Korn shell}
```

or

```
setenv PATH $PATH:$UGII_BASE_DIR/ugii:$UGII_BASE_DIR/nxbin {C shell }
```

This allows you to omit the `$UGII_BASE_DIR/ugii/` when typing in NX 12.0.2 commands. For example, instead of typing `$UGII_BASE_DIR/ugii/ugmenu`, you could just type `ugmenu`.

You can add `$UGII_BASE_DIR/ugii` and `$UGII_BASE_DIR/nxbin` to your \$PATH permanently by using one of the following commands:

```
echo "PATH=\$PATH:\$UGII_BASE_DIR/ugii:\$UGII_BASE_DIR/nxbin ; export PATH" >>  
$HOME/.profile {Bourne or Korn shell}
```

or

```
echo "setenv PATH \$PATH:\$UGII_BASE_DIR/ugii:\$UGII_BASE_DIR/nxbin >> " $HOME/.login {C shell }
```

#### Method 4

As in Method 3 above, it is necessary to add both “nxbin” and “ugii” to your path.

Advanced users may want to execute individual programs directly from the command line. To do this, add `$UGII_BASE_DIR/ugii` and `$UGII_BASE_DIR/nxbin` to your \$PATH as above and set the shared library path variable that is appropriate to your system.

#### Login Environment:

##### `/etc/profile.d/nx_profile.sh`

The `/etc/profile` script reads the `/etc/profile.d` directory and executes any files with a “.sh” extension. The NX install will create and/or modify a file called `nx_profile.sh` to set the NX environment variables.

##### `/etc/profile.d/nx_login.csh`

The `/etc/profile` script reads the `/etc/profile.d` directory and executes any files with a “.csh” extension. The NX install will create and/or modify a file called `nx_login.csh` to set the NX environment variables.

#### Disk Space: Approximate Total: 15.2 GB

The installation script will display the size requirements for each product, before consuming any disk space.

**Note:** Most of the kits are compressed. If it is necessary to ascertain the actual disk requirements of individual products before running the installation, view the contents of the file `ug_install.dat`.

#### Swap Space: Recommend minimum: 2 GB

#### Mandatory Patch Requirements

The mandatory Patch Requirements are not listed in this installation manual. Listed patch information is frequently outdated by superseding vendor patches and operating system changes.

**Note:** For the current Patch information consult the NX 12.0.2 System Software Release Notes.

## Running Multiple Versions of NX on Linux

This section only applies to Linux systems that will be running multiple versions of NX. If you will be running only one version, skip this section. These instructions for running multiple versions assume that you have installed a previous version of NX on your system.

To establish a concurrent NX environment:

### 1. Run `ug_install`

Please follow the installation procedures detailed in this manual. When you choose the directory for NX 12.0.2 use a different directory other than the one used for the previous version. In the remainder of these steps we assume that you loaded this release into the directory `/usr/ugs120` if you choose a different directory, replace all instances of `/usr/ugs120` in the following procedure with the directory that you chose.

### 2. Run the script `concurrent_ug`

To configure a system to run this version and earlier versions concurrently, enter the following command as root (UID 0): `/usr/ugs120/install/concurrent_ug`

This script will configure your system to run multiple versions of NX.

### 3. Use `concurrent_menu` to switch between NX versions.

The `concurrent_ug` script will create a menu script called `concurrent_menu` in the `/tmp` directory. This can be used to easily switch between versions of NX.

**Note:** The `concurrent_menu` is placed in the `/tmp` directory only because of guaranteed write access. It should be moved to a local directory by the system administrator before use.

## Mac OS X.

### Executing NX 12.0

The NX 12.0 installation program creates a `/Applications/Siemens/NX12.0_Apps` folder. Navigate with “Finder” to this folder to double-click the application to run. The `NX12.0_Apps` folder may be relocated or may be placed on the “Dock”.

If any application fails to start, consult the “Console” Application (`/Applications/Utilities/Console`), for error messages.

### Environment:

Mac OS does not use the shell environment. On Mac OS systems environment variables are stored as properties in a preferences “.plist” file. Also, each .app created by the NX installation will contain a `Contents/Info.plist` file. The install will create the “.apps” and modify the “Launch Services” environment variables in each “Info.plist” file.

e.g: /Applications/Siemens/NX12.0\_Apps/\*.app/Contents/Info.plist

e.g: /Library/Preferences/com.siemens.plm.nx12.plist

The .plist files are read by the application at startup time.

**/Applications/Siemens/NX12.0/ugii/ugii\_env\_ug.dat**

NX 12.0 uses this file at runtime to establish NX variables that are not already set in the user's environment.

**/Library/Preferences/com.siemens.nx12.plist**

This global preferences file is currently used to set the SPLM\_LICENSE\_SERVER property. NX will read this file at startup time to obtain properties. This property may be changed at any time by the Administrator by editing the file. Any preferences in this file will be override environment variables in the ugii\_env.dat or ugii\_env\_ug.dat file. This can be used by the system manager to provide customizations for all users of the workstation.

**/Library/Preferences/com.siemens.plm.licensing.plist**

This file is used by the Licensing Tool to read SPLM\_LICENSE\_SERVER. This is hard linked by the install to the com.siemens.nx12.plist file.

The following system files are also modified by the install to set NX environment variables but are only used by legacy terminal applications such as Telnet: **/etc/profile** & **/etc/csh.login**

### **Disk Space: Approximate Total: 9.1 GB**

The installation script will display the size requirements for each product, before consuming any disk space.

**Note:** Most of the kits are compressed. If it is necessary to ascertain the actual disk requirements of individual products before running the installation, view the contents of the file **ug\_install.dat**.

### **Swap Space: Recommend minimum: 2 GB** **Mandatory Patch Requirements**

The mandatory Patch Requirements are not listed in this installation manual. Listed patch information is frequently outdated by superseding vendor patches and operating system changes.

**Note:** For the current Patch information consult the NX 12.0 System Software Release Notes.

### **Updating NX properties**

Advanced administrators wishing to make post installation changes to NX “Launch Services” properties established by the install may use the **update\_nx12\_apps** script located in the “install” subdirectory. This script will edit all the Info.plist files located in the NX12.0\_Apps folder and the “com.siemens.nx12.plist” preference file.

To change a property, open a Terminal window and run the script passing 2 arguments; (1) the Key Name to change and (2) the New Key value.

e.g.:

```
cd /Applications/Siemens/NX12.0/install {default location}
update_nx12_apps SPLM_LICENSE_SERVER 28000@NewServerName
```

**Note:** This script can only be used to update existing properties.

## Running Multiple Versions of NX on Mac OS

This section applies to Mac OS systems that will be running multiple versions of NX. If you will be running only one version, skip this section.

The NX installation on Mac OS creates a separate version specific “\_Apps” folder containing the startup apps. E.g: /Applications/Siemens/NX12.0\_Apps

There is no special concurrent installation to perform, simply use a different destination for each version of NX installed. A separate version specific “\_Apps” folder will be created in “/Applications/Siemens”.

## Uninstalling NX 12.0.X

There is no special uninstall program or .app on Mac OS, simply remove the installed folders.

To remove the NX 12.0.X product:

1. Log onto your workstation with an Admin account.
2. Open a Terminal window, and then use a standard “rm” command to remove the NX 12.0,X installation and .app directories. These steps may also be performed with equivalent actions in Finder.

e.g.:

```
rm -r /Applications/Siemens/NX12.0 {default example}.
rm -r /Applications/Siemens/NX12.0_Apps
```

It is not necessary to reboot after uninstalling NX.

The Licensing Server daemons supplied by the installation of the SPLM Licensing kit will not be removed by uninstalling NX.

## Mac OS Gatekeeper

This section does not apply to installing from the Siemens DVD media. It only applies to Internet downloaded installation packages.

Gatekeeper is anti-malware software supplied on Mac OS X systems. Depending on preference settings, it may restrict access to install packages that are downloaded from the GTAC download site such as NX or SPLM Licensing.

To open and run an NX or SPLM Licensing downloaded package simply control-click (or right-click) the downloaded app, and on the context menu, choose ‘Open.’ This will temporarily bypass Gatekeeper settings and allow the install to run normally. This will also exempt the file from Gatekeeper, so it may be re-run if needed, by double-clicking. This is the recommended method.

Once NX or SPLM Licensing is installed it will run normally.

Gatekeeper settings are located in: **System Preferences > Security & Privacy > General** and they may be changed to: **Allow applications loaded from: Anywhere** however, this will change the setting for all downloaded applications, system wide and is not recommended. We recommend the one-time “control-click” method.



## Mac OS X System Console

Mac OS X provides a “console” application that will display error messages and log files. If this is not currently available on your “Dock”, double click on **/Applications/Utilities/Console.app** in Finder.

## Troubleshooting

### Can't Connect to License Server

Check that the SPLM license server is available. Change to the [INSTALLDIR]/ugflexlm directory and enter the command:

```
lmutil lmstat -c 28000@<hostname>
```

*{where 28000 is the port number and <hostname> is the hostname of the SPLM license server}*

Diagnostic messages will appear telling you some possible sources of your problem.

### No Gateway Licenses Available

All licenses for module "gateway" are already in use or you have not set UGS\_LICENSE\_BUNDLE to the correct package. Your license file may contain Suite Packages, otherwise known as Bundles and Portfolio Bundles. To use a bundle, you must preset the client's UGS\_LICENSE\_BUNDLE property with the package name(s). If UGS\_LICENSE\_BUNDLE is set, the application will attempt to check out a bundled feature before trying to check out the floating feature.

On Linux use [INSTALLDIR]/ugflexlm/LicensingTool

### Using the NX Licensing Tool to Select Bundles

NX Licensing Tool is an interactive user interface to aid in setting of the **UGS\_LICENSE\_BUNDLE** property.

On Linux run [INSTALLDIR]/ugflexlm/LicensingTool

#### Caution:

Customers using NX Bundle/Portfolio licenses must set the 'UGS\_LICENSE\_BUNDLE' property before attempting to run NX. Consult the *SPLM Licensing User Guide* for further information regarding Bundles, crossover licensing, automatic bundle consolidation and automating the selection of NX Bundle(s)/Portfolio(s).

### Checking the License Server daemons {on the server}

Check that the SPLM License Server (ugslmd) daemon is running. Enter the following command: **ps -ef | grep ugslmd**

You should see a processor status such as “ugslmd -T /Path/To/LicenseFile”.

For more information on starting or stopping the license daemon on the server, see the guide *SPLM Licensing*.

### NX Initialization error

This error may occur due to several reasons:

- Check that the real hostname of the license server is on the SERVER line of the license file. The license file is electronically provided by Siemens PLM Software with 'YourHostname' or 'this\_host' on the SERVER line as a placeholder for the real hostname of the license server. The SPLM Licensing installation will edit the license file to automatically change "YourHostname" or

"this\_host" keyword to the actual hostname of the license server. However, this field must be edited manually for any subsequent updates of the license file and for redundant server configurations (i.e. license files containing 3 SERVER lines).

- Check that SPLM\_LICENSE\_SERVER is set to a valid Standalone License file or '<port>@<hostname>', where the port and hostname come from the SERVER line in the license file.

On Linux check the environment files. **nx\_profile.sh** or **nx\_login.csh**

Check the syslog file in your TMP directory for other possible errors.

## Syslog files diagnostic information

The **syslog** is an operating system file that contains diagnostic and journaling information from a single NX session. Its primary use is as a debugging tool for developers. The **syslog** contains basic information about the user's operating environment: date and time the session started, user name, workstation node name, machine type, operating system version, NX version and environment variable settings. The beginning of the **syslog** looks something like:

```
*** system log created by username on 'date'

Node Name           :- NodeName

Machine type        :- 9000/735

OS                  :- OS Name

NX XX.YY.ZZ ( date )
```

The last line of the **syslog** contains the date and time when NX was exited:

```
@@@ End of session 'date'
```

As the NX session progresses, a log of all user commands is written to the **syslog**, such as menu choices, dialog data entries, and screen selections. This information is similar in format to the contents of an NX macro file. The following are two user commands as they would appear in the **syslog**:

```
&MACRO MENU, 0, BM_FILE_OPEN UGmenuBar

&MACRO DIALOG BEGIN ! FEATURE CREATION
```

The **syslog** also contains informative notes useful to NX developers in understanding what happened during the session. Do not try to infer anything from the wording of these notes. For example, the following two notes are not error messages despite their wording:

```
ERROR: setting tracebacks on

*** RE-RAISE EXCEPTION code 895767 in line 219 of clink.c
```

Finally, the **syslog** records detailed data for each serious error, usually including a traceback, which is a list of names followed by a string of numbers. The following is an example of a serious error and its associated traceback:

```
*** ERROR code 690001 in line 256 of ps_undo_mech.c

+++ rolsmk failed

local_unwind_stack      40003090 000003e8 68fa8000 400a94f0 00000012 68fb04e4

ERROR_trace_back        40006a6c 4009a4dc 68fa8000 400a94f0 0000000d 4009a4dc

trace_back              68fb042c 6f2dd1c0 00000100 4009a4dc 0000000e 000a8751

raise_exception         00000002 6f2dd1c0 00000100 000a8751 6f2dd1d0 68fb0358

ERROR_vraise            6f2dd1c0 00000100 000a8751 6f2dd1d0 68fb0358 400e42b0
```

```

ERROR_raise          6f2dd1c0 00000100 000a8751 6f2dd1d0 6f304548 403dfb88

ps_undo_set_mark     407a98b0 407a98ac 4067bff0 6dfef048 00fb023e 6f30bcb4

um_set_mark          407a98b0 407a98ac 4067bff0 6dfef048 68fafef0 4009cf28

req_global_mark      407a98b0 407a98ac 4067bff0 6dfef048 00000000 4009cf28

Cmmark               407a98b0 407a98ac 4067bff0 6dff32dc 6e08c170 68fafef0

```

Remember that the intended audience for this information (actually the entire **syslog**) is an NX developer, so don't try too hard to interpret its contents. For example, the presence of a traceback does not necessarily indicate that a serious error occurred. The **syslog** file is named by combining the user name and process id. For example:

```
UserName17650.syslog
```

The **syslog** is created in the directory defined by the environment variable **UGII\_TMP\_DIR**. If **UGII\_TMP\_DIR** is undefined, the **syslog** will be created in the **/tmp** directory on Linux.

The **syslog** file is actually created and updated during the NX 12.0.2 session so that its contents can be inspected while NX is running. To find the **syslog** for your session, look for the latest **syslog** with your user name in the **syslog** directory. To get a list of your **syslogs** in reverse chronological order, use the **-lt** switch with the **ls** command. For example:

```
$ls -lt /tmp/UserName*.syslog
```

```

-rw-rw-r--      1 UserName assem      23374 Jun  7 16:46 /tmp/UserName18179.syslog
-rw-rw-r--      1 UserName assem      23374 May 21 14:22 /tmp/UserName18179.syslog
-rw-rw-r--      1 UserName assem      25048 May 19 12:26 /tmp/UserName13426.syslog

```

Normally, the **syslog** file will be deleted when you exit NX in order to conserve disk space. If there were any serious errors during the session, however, the **syslog** file is saved so that it can be submitted as part of a Problem Report (PR). If you encountered any serious errors during your session, you will see the following sort of message in the NX window at the end of the session:

```

=====

There were 0 notes and 1 error during this run

Please see log file in /tmp/UserName17650.syslog

=====

```

If you want the **syslog** file saved even if there are no serious errors, define the environment variable **UGII\_KEEP\_SYSTEM\_LOG** by uncommenting it in the **ugii\_env.dat** file (i.e. **UGII\_KEEP\_SYSTEM\_LOG=yes**).

By default, this variable is not defined, so the **syslog** will only be saved if there are serious errors. If the NX 12.0.2 process is killed for some reason, the **syslog** will be saved if either a) there were serious errors, or b) **UGII\_KEEP\_SYSTEM\_LOG** is defined.

When submitting a Problem Report, always include the **syslog** along with the description of the problem and any other associated files (parts, macros, etc.). The **syslog** contains invaluable information that may determine whether the problem can be corrected. If the **syslog** file cannot be created for some reason when you start NX, the session will terminate with the following error message:

---

```
Failed to open the log file: UserName17662.syslog
```

```
This could be because the access rights on the current directory  
will not allow files to be created by you or the file already  
exists and is not owned by you
```

---

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