

# NightSim

## Version 3.4 Release Notes (PowerMAX)

September 2004

0890480-3.4



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# Contents

1.0 Introduction . . . . .	1
2.0 Documentation . . . . .	2
3.0 Prerequisites . . . . .	3
3.1 Host System . . . . .	3
3.1.1 Software . . . . .	3
3.1.2 Hardware . . . . .	3
3.2 Target System . . . . .	4
3.2.1 Software . . . . .	4
3.2.2 Hardware . . . . .	4
4.0 System Installation . . . . .	5
5.0 Overview of NightSim 3.4 . . . . .	7
5.1 Changes in this Release . . . . .	7
5.2 Known Issues . . . . .	8
5.2.1 Scheduler Window . . . . .	8
5.2.2 Monitor Window . . . . .	8
5.2.3 NightView Integration . . . . .	9
6.0 Cautions . . . . .	10
6.1 SFNOLIM Kernel Tunable . . . . .	10
7.0 Direct Software Support . . . . .	11



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## 1.0. Introduction

NightSim™ provides a graphical user interface (GUI) to the frequency-based scheduler (FBS) and performance monitor real-time facilities.

The frequency-based scheduler is a task synchronization mechanism that allows you to run processes at frequencies that you specify. Frequencies can be based on high-resolution clocks, an external interrupt source, or completion of a cycle. The frequency-based scheduler provides a mechanism for initiating processes at the specified frequency, allowing users to execute portions of their code cyclically, synchronizing the beginning of each cycle with other programs on the scheduler.

The Scheduler window allows you to perform the full range of functions associated with the FBS. Functions include configuring a scheduler, selecting a timing source, scheduling programs, saving and restoring scheduler configurations, running a simulation, and viewing scheduling data.

The performance monitor is a mechanism that enables you to monitor FBS-scheduled processes' utilization of a CPU. The performance monitor provides you with the ability to obtain performance monitor values by process or processor, including the minimum, maximum, and average amounts of real-time used per program per cycle.

The Monitor window provides a comprehensive interface to the performance monitor facilities. Functions include selecting a scheduler, enabling and disabling monitoring for each process, clearing performance values, setting the timing mode, and sending performance data either to the screen or to a text file. Data that is to be sent to the screen can be filtered and sorted in a variety of ways.

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## 2.0. Documentation

Table 2-1 lists the NightSim 3.4 documentation available from Concurrent.

**Table 2-1. NightSim Version 3.4 Documentation**

Manual Name	Pub. Number
<i>NightSim User's Guide</i>	0890480-030
<i>NightSim Version 3.4 Release Notes (PowerMAX)</i>	0890480-3.4

Copies of the Concurrent documentation can be ordered by contacting the Concurrent Software Support Center. The toll-free number for calls within the continental United States is 1-800-245-6453. For calls outside the continental United States, the number is 1-954-283-1822 or 1-305-931-2408.

Additionally, the manuals listed above are available:

- online using the X Window System utility, **nhelp**
- on the Concurrent Computer Corporation web site at [www.ccur.com](http://www.ccur.com)

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## 3.0. Prerequisites

Prerequisites for NightSim Version 3.4 for both the host system and target systems are as follows:

### 3.1. Host System

#### 3.1.1. Software

- PowerMAX OS 4.3 (w/ patch base-002) or later
- X Window System (X11 Version 6.4.2 or later)
- Élan License Manager™ 5.0.2 or later

#### NOTE

There are additional configuration requirements for NightSim to fully function. See the chapter titled “Establishing the NightSim Environment” in the *NightSim User’s Guide* (0890480) for these requirements.

#### 3.1.2. Hardware

- Computer Systems:
  - Power Hawk™ 620 and 640
  - Power Hawk 710, 720 and 740
  - Power Hawk 910 and 920
  - PowerStack™ II and III
  - Night Hawk® Series 6000
  - TurboHawk™
  - PowerMAXION™
- Board-Level Products:
  - Motorola® MVME2604
  - Motorola MVME4604

## 3.2. Target System

### 3.2.1. Software

- PowerMAX OS 4.3 (w/ patch base-002) or later
- X Window System package **x11ipc** (see “System Installation” on page 5)

#### NOTE

There are additional configuration requirements for NightSim to fully function. See the chapter titled “Establishing the NightSim Environment” in the *NightSim User's Guide* (0890480) for these requirements.

### 3.2.2. Hardware

- Computer Systems:
  - Power Hawk™ 620 and 640
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  - PowerMAXION™
- Board-Level Products:
  - Motorola® MVME2604
  - Motorola MVME4604



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## 4.0. System Installation

The NightSim product is installed as two standard PowerMAX software packages and utilizes the standard PowerMAX product installation mechanism, **pkgadd** (see **pkgadd (1)**).

The package names are

<b>nsimserver</b>	the NightSim server - must be installed on each <i>target system</i> (i.e. any system on which processes will be scheduled) and performs system-level actions on behalf of NightSim
<b>nsim</b>	the NightSim graphical user interface - must be installed on the NightSim host

These names are case-sensitive.

### NOTE

The user may wish to only run the NightSim graphical user interface, but not schedule processes, on a particular system. In this case, only the **nsim** package is required. However, if **nsim** is installed before **nsimserver**, the installation procedure issues a warning message. This serves as a reminder that NightSim cannot schedule processes on a system without the **nsimserver** package installed.

Please refer to the “Installing Add-on Software” chapter in the *System Administration Volume I* (0890429) manual and the *PowerMAX OS Release Notes* (0890454) for instructions on software installation.

You should have already installed the **fb**s package before installing NightSim. The **fb**s package contains the kernel module that provides FBS and performance monitor functions.

The **x11ipc** package, an X Window System package containing libraries for interprocess communication, is required on the target system as well.

### NOTE

Both the **fb**s package and the **x11ipc** package *must* be installed on each target system.

NightSim may be installed in either the root directory or elsewhere. When you run **pkgadd (1M)** to install NightSim, you are prompted to enter the name of the directory for installation. If you want to install in the root directory, just press the <return> key at the prompt. Otherwise, enter the name of the directory where you want NightSim installed. If this directory does not exist, the installation procedures attempt to create it for you.

NightSim requires the Élan License Manager. Follow the steps in the "Obtaining Licenses" section of the *Élan License Manager Release Notes* (0891055); the *feature alias* is NightSim. If you are not already running the Élan License Manager, if you do not have a copy of the *Élan License Manager Release Notes*, or if you need a license key, contact Concurrent Software Distribution at 1-800-666-5405 (or 1-954-283-1836 outside the continental United States).

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## 5.0. Overview of NightSim 3.4

### 5.1. Changes in this Release

- NightSim supports up to 16 CPUs.
- NightSim supports configuring and monitoring more processes on a single scheduler. This product has been tested with up to 250 processes on a single scheduler.
- Communication errors in the interface between the NightSim GUI and server have been fixed.
- The shell scripts created using the Scheduler menu's “**Save as shell script...**” now properly create the scheduler even when there are no processes scheduled.
- The items in the **Tools** menu have been updated to be consistent with other NightStar tools. Also, a **Tools** menu has been added to the Monitor window.
- NightSim no longer manipulates the value of the `DISPLAY` variable or ignores the value passed to `nsim` via the X11 `-display` option. NightSim will pass the value of the `DISPLAY` variable (or the value passed by the `-display` option on the `nsim` command line) to the NightSim server. The configured X11 display must be visible to the target system in order to successfully initialize the communications subsystem.
- NightSim no longer gives preference to non-loopback IP devices. NightSim will obtain the IP address of your host given the configured hostname. The configured hostname must have an entry in `/etc/hosts` or else available via an NIS server. This IP address will be passed to the NightSim server on the target system (which may also be the NightSim host). The NightSim client must be reachable from the target system using the configured IP address.

#### NOTE

If you hostname is configured to be `localhost` or `localhost.localdomain`, you will be unable to use NightSim to schedule programs on a remote target system because the configured IP address will be the loopback device, `127.0.0.1`.

## 5.2. Known Issues

The following sections describe NightSim issues which may be addressed in future patches and releases.

### 5.2.1. Scheduler Window

The following issues apply to the NightSim Scheduler window:

- Statistics on the Scheduler window may not be totally up-to-date once the scheduler stops.
- NightSim is unable to determine some of the information associated with scheduled processes when attaching to an existing scheduler. The following information associated with each process will be unavailable:
  - Input File/Output File information associated with the process
  - Whether or not the process is scheduled in an **xterm(1)** window
  - Whether or not the process is scheduled under the NightView debugger
  - PowerMAX OS privileges associated with the process
- NightSim may misinterpret the priority of a scheduled process when attaching to an existing scheduler or refreshing a running scheduler, even to the extent of calculating a value outside the valid range for the process' scheduling class.
- On PowerMAX OS systems, NightSim may report syntax errors in a configuration file if **admin-user** on the target system reports an error. NightSim presumes that the user's roles and privileges are properly configured.
- When running NightSim under some third party X server software, NightSim may refuse to allow input in text fields. If the window is moved slightly when this occurs, the fields are restored and can be edited.
- To schedule processes on a PowerMAX OS target using a script created on a Linux NightSim client via the **Save as a script** feature, change the first line of the script to use **/bin/ksh** instead of **/bin/sh**. The PowerMAX OS version of **/bin/sh** is unable to process the syntax of a script generated on a Linux host, but **/bin/ksh** works fine.
- The width of the Scheduler window may exceed 1024 pixels. This may cause it to be too wide on some smaller monitors.
- The documentation for the redesigned **Edit Process** window is not yet complete.
- Changing the units associated with the **Clock period** on the Scheduler window modifies the value of the clock period. It has been noted that this is unexpected by some users, and this behavior may change in a future release of NightSim.

### 5.2.2. Monitor Window

The following issues apply to the NightSim Monitor window:

- NightSim may fail to update the screen one last time after the scheduler stops. Pressing **Query Now** after the scheduler stops will provide the most up-to-date data.
- If a scheduler is stopped and then subsequently resumed, the operating system returns obviously incorrect values to NightSim for **/idle** processor usage. On PowerMAX OS targets, this is also a problem for the **/spare** process.

### 5.2.3. NightView Integration

If multiple Scheduler windows schedule multiple processes under NightView on the same target system by the same user from a common `DISPLAY`, then some of the target processes will not be scheduled initially. They will wait for other target processes to exit before they are scheduled. This behavior only exists for multiple scheduler windows when at least one of the scheduler windows schedules a single process on the common target under NightView.

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## 6.0. Cautions

### 6.1. SFNOLIM Kernel Tunable

The `SFNOLIM` kernel tunable should not be set above 1024; doing so may cause NightSim to fail during initialization or when communicating with other tools.

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## 7.0. Direct Software Support

Software support is available from a central source. If you need assistance or information about your system, please contact the Concurrent Software Support Center at 1-800-245-6453. Our customers outside the continental United States can contact us directly at 1-954-283-1822 or 1-305-931-2408. The Software Support Center operates Monday through Friday from 8 a.m. to 7 p.m., Eastern Standard time.

Calling the Software Support Center gives you immediate access to a broad range of skilled personnel and guarantees you a prompt response from the person most qualified to assist you. If you have a question requiring on-site assistance or consultation, the Software Support Center staff will arrange for a field analyst to return your call and schedule a visit.







