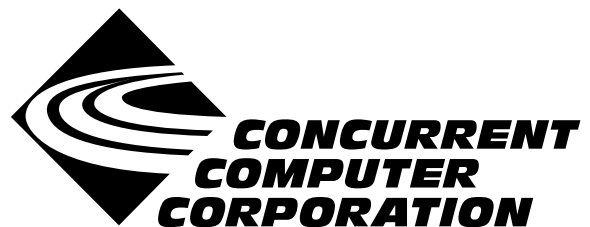


NightView

Version 5.5 Release Notes (Linux)

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0898395-5.5



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1.0. Introduction

NightView™ is a general-purpose, graphical source-level debugging and monitoring tool specifically designed for real-time applications written in C, C++, and Fortran. NightView can monitor, debug, and patch multiple real-time processes running on multiple processors on the local system or on different targets with minimal intrusion. In addition to standard debugging capabilities, NightView supports application-speed eventpoint conditions, hot patches, synchronized data monitoring, exception handling and loadable modules.

NightView 5.5 has these new features:

- NightView can debug on an iHawk™ system running RedHawk™ Linux®, or cross-debug from Red Hat® Linux.
- You can switch between viewing source files and viewing disassembled instructions with the View menu in the Debug Window.

2.0. Documentation

Table 2-1 lists the NightView 5.5 documentation available from Concurrent.

Table 2-1. NightView Version 5.5 Documentation

Manual Name	Pub. Number
<i>NightView User's Guide</i>	0890395-240
<i>NightView Version 5.5 Release Notes (Linux)</i>	0898395-5.5
<i>NightView Pocket Reference</i>	0890475-060

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 *NightView User's Guide* and *NightView Version 5.5 Release Notes (Linux)* are available:

- online using the **nhelp** utility
- in PDF format in the **documentation** directory of the installation CD
- on the Concurrent Computer Corporation web site at www.ccur.com

3.0. Prerequisites

Prerequisites for NightView Version 5.5 for both the host system and target systems are as follows:

3.1. Host System

3.1.1. Software

- RedHawk™ Linux *or* Red Hat® Linux *
- Required capabilities **

NOTE

The following capabilities are normally installed by the installation script on the CD containing the NightStar tools or by the standard installation of the Red Hat or RedHawk Linux operating system. The user will be notified if required capabilities do not exist on the Linux system.

- NightStar™ Tools

Capabilities	RPMs providing these capabilities
<code>ccur-HyperHelp</code> <code>ccur-HyperHelp-scripts</code> <code>ccur-elanlm</code>	<code>ccur-HyperHelp-scripts-6.4.2-002</code> <code>ccur-elanlm-5.0-5</code> <code>ccur-x11progs-6.4.2-004</code>

- RedHawk Linux *or* Red Hat Linux

Capabilities	RPMs providing these capabilities
<code>/bin/sh</code> <code>ld-linux.so.2</code> <code>libc.so.6 (GLIBC_2.0)</code> <code>libc.so.6 (GLIBS_2.1.3)</code> <code>libm.so.6</code>	<i>RedHawk 1.1:</i> <code>bash-2.05b-3</code> <code>glibc-2.2.90-24</code> <code>glibc-debug-2.2.90-24</code> <i>Red Hat 7.3:</i> <code>bash-2.05a-13</code> <code>compat-glibc-6.2-2.1.3.2</code> <code>glibc-2.2.5-39</code> <code>glibc-debug-2.2.5-39</code>

* This product has been extensively tested on RedHawk Linux 1.1 and Red Hat Linux 7.1, 7.2, and 7.3. However, this product has not been tested with versions of Linux supplied by other vendors.

** The "Capabilities" listed may be found in those versions of the RPMs listed under "RPMs providing these capabilities" or in later versions.

3.1.2. Hardware

- an Intel®-based PC - 300Mhz or higher (recommended minimum configuration)
- 64MB physical memory (recommended minimum configuration)

3.2. Target Systems

3.2.1. RedHawk Systems

3.2.1.1. Software

- RedHawk Linux 1.1 or later
- Required RedHawk Linux RPMs (see “RedHawk Target Installation” on page 8 for more information)

3.2.1.2. Hardware

- any iHawk Series 860 system

3.2.2. PowerMAX Systems

3.2.2.1. Software

- PowerMAX OS 4.3 or later

To use watchpoints, you must have PowerMAX OS 4.3 patch-level 6 (base-006) or PowerMAX OS 5.1 or later. NightView disables the use of watchpoints if it doesn't detect the corresponding support in the kernel.

- Required PowerMAX OS packages (see “PowerMAX Target Installation” on page 8 for more information)

3.2.2.2. Hardware

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

4.0. System Installation

Installation of the host portion of NightView is normally done as part of the general installation of either the RedHawk NightStar Tools or the PowerWorks Linux Development Environment. A single command installs (or uninstalls) all required software components. See the *RedHawk NightStar Tools Release Notes* (0898008) or *PowerWorks Linux Development Environment Release Notes* (0898000) for more information.

The following section describes how to install (or uninstall) NightView independently for those rare cases when this is necessary.

NOTE

NightView requires that certain packages are installed on the target systems. See “Target Installation” on page 8 for more information.

4.1. Separate Host Installation

At times, it may be necessary to install (or uninstall) NightView independent of the installation of the software suite in which it is normally distributed. This may be done using the standard Linux product installation mechanism, **rpm** (see **rpm(8)**).

The RPM name associated with NightView 5.5 is:

```
ccur-NightView
```

and the file associated with this RPM is:

```
ccur-NightView-5.5-000.i386.rpm
```

which can be found in the **RPM** directory on the installation CD.

NOTE

The user must be root in order to use the **rpm** product installation mechanism on the Linux system.

To install the NightView RPM, issue the following commands on your Linux system:

1. Insert the installation CD in the CD-ROM drive
2. Mount the CD-ROM drive (assuming the standard mount entry for the CD-ROM device exists in **/etc/fstab**)

```
mount /mnt/cdrom
```

3. Change the current working directory to the directory containing the NightView RPM

```
cd /mnt/cdrom/RPM
```

4. Install the RPM

```
rpm -ivh ccur-NightView-5.5-000.i386.rpm
```

By default, the product is installed in **/usr/opt**.

5. Change the current working directory outside the **/mnt/cdrom** hierarchy

```
cd /
```

6. Unmount the CD-ROM drive (otherwise, you will be unable to remove the installation CD from the CD-ROM drive)

```
umount /mnt/cdrom
```

To uninstall the NightView RPM, use the following command:

```
rpm -e ccur-NightView
```

4.2. Target Installation

4.2.1. RedHawk Target Installation

When targeting a RedHawk Linux system, NightView requires that the following RPMs are installed on that target system:

NightStar Tool	RPM
NightView server	<code>ccur-Nviewp-5.5-000.i386.rpm</code>
Élan License Manager	<code>ccur-elanlm-5.0-5.i386.rpm</code>

These RPMs may be installed on the target system by installing the RedHawk NightStar Tools on that system. However, the individual RPMs can be found in the **RPM** subdirectory on the installation CD and may be installed separately. See “Separate Host Installation” on page 6 for the procedure to install an individual RPM.

4.2.2. PowerMAX Target Installation

When targeting a PowerMAX system, NightView requires that the following software package is installed on that target system:

NightStar Tool	Package	Version
NightView	<code>Nviewp</code>	5.5

This package is normally installed during the installation of NightView on the PowerMAX OS system. However, this package is also included on the PowerWorks Linux Development Environment Installation CD and may be installed by following the procedures below if the package listed above has not been installed on the target system, or if the version installed on the target system is not the same as that specified above.

NOTE

The version of the required software package installed on the PowerMAX OS target systems must be the same as that listed above. If this is not the case, follow the procedures below.

If your PowerMAX OS system has a CD-ROM device:

```
mkdir /mnt/tmp
mount -F cdfs /dev/dev_name /mnt/tmp
cd /mnt/tmp/powermax-ppc604
```

If your PowerMAX OS system does not have a CD-ROM device:

On the Linux system, insert the PowerWorks Linux Development Environment Installation CD in the CD-ROM drive, mount the CD-ROM drive, and use NFS to export it to the PowerMAX OS system:

```
mount /mnt/cdrom
exportfs powermax_os_system:/mnt/cdrom
```

On the PowerMAX OS system, mount the CD-ROM as an NFS filesystem:

```
mkdir /tmp/cdrom
mount -F nfs linux_system:/mnt/cdrom /tmp/cdrom
cd /tmp/cdrom/powermax-ppc604
```

On the PowerMAX OS system, install the target portions of the NightStar tools via the following commands:

```
cp ./nightstar.Z /tmp/nightstar.Z
zcat /tmp/nightstar.Z | pkgadd -d -
```

If your PowerMAX OS system has a CD-ROM device:

```
cd /
umount /mnt/tmp
```

If your PowerMAX OS system does not have a CD-ROM device:

On the PowerMAX OS system, unmount the NFS filesystem:

```
cd /
umount /tmp/cdrom
```

On the Linux system, unexport the NFS filesystem, and then unmount the CD-ROM:

```
cd /
exportfs -u powermax_os_system:/mnt/cdrom
umount /mnt/cdrom
```

5.0. Overview of NightView 5.5

5.1. Enhancements

5.1.1. RedHawk Debugging

NightView can debug on an iHawk system running RedHawk Linux, or cross-debug from Red Hat Linux. See the section titled “Remote Dialogues” in Chapter 3 of the *NightView User’s Guide* (0890395).

5.1.2. Disassembly Mode

You can switch between viewing source files and viewing disassembled instructions with the View menu in the Debug Window. See the section titled “Debug Source Display” in Chapter 9 of the *NightView User’s Guide* (0890395).

5.1.3. set-disassembly Command

You can change the style of disassembly to `att` or `intel` for viewing instructions on an iHawk. See the section titled “set-disassembly” in Chapter 7 of the *NightView User’s Guide* (0890395).

5.1.4. Resources

There are some new resources to help you customize your debug session. See the section titled “NightView Resources” in Appendix D of the *NightView User’s Guide* (0890395).

`initialGlobalWindow`

If this resource is `True`, NightView displays the Global Window when it starts. The default value of this resource is `False`.

`initialPrincipalDebugWindow`

If this resource is `True`, NightView displays the Principal Debug Window when it starts. The default value of this resource is `False`.

`autoDisassemblyMode`

If this resource is `True`, NightView automatically switches to disassembly mode when showing you a region that has no source file associated with it. The default value of this resource is `False`.

5.2. Changes in this Release

5.2.1. enable Command

You can enable all the eventpoints in your process by giving an enable command with no arguments. See the section titled “enable” in Chapter 7 of the *NightView User’s Guide* (0890395).

5.2.2. Memory Dump Command

The **x** command now has a **t** (triple-word) size letter. Triple-words can be printed in hexadecimal or octal. See the section titled “enable” in Chapter 7 of the *NightView User’s Guide* (0890395).

5.2.3. info threads Command

If you use the `/verbose` option on **info threads**, NightView shows the currently selected thread by placing `<=` next to it. See the section titled “info threads” in Chapter 7 of the *NightView User’s Guide* (0890395).

6.0. Cautions

Special consideration should be given to the following areas:

6.0.1. PowerMAX OS/RedHawk Differences

There are some differences in features when debugging on PowerMAX OS and RedHawk Linux OS.

- The environment variable `NIGHTVIEW_ENV` is not set when logging in with a remote dialogue to a RedHawk target. See the section titled “Remote Dialogues” in Chapter 3 of the *NightView User’s Guide* (0890395).
- RedHawk targets do not support `$was` in watchpoint conditions. See the section titled “Watchpoints” in Chapter 3 of the *NightView User’s Guide* (0890395).
- Up to 4 watchpoints may be enabled at once on a RedHawk target. Only 1 watchpoint may be enabled on a PowerMAX OS target.
- Watchpoints cannot be read-only on RedHawk.

6.0.2. Breakpoint Command Streams

The current implementation of breakpoint command streams does not include protection against concurrent access of data structures internal to the debugger. Avoid referencing other processes within breakpoint command streams. In practice, this is rarely a problem.

6.0.3. Fortran 77 Arrays

There is currently a problem with Fortran 77 arrays passed as formal arguments on PowerMAX OS systems. The compiler generates a temporary variable to optimize references to the array. This temporary variable is then used in place of the original array argument. If the original array argument is not used later in the routine, then the lifetime of the argument is very short and its value is discarded. If you try to use the debugger to reference the argument later in the routine, the results are undefined. You can do two things to avoid running into this problem:

- Use the array later in the routine. For example, pass the array as an argument to another routine. This extends the lifetime of the original argument.
- Use the debugger to look at the array at the first executable line of the routine. The value of the original argument probably still exists at this point.

6.0.4. Scroll Bars

Some users have had a problem using the scroll bars in the graphical user interface. When the up-arrow button on a scroll bar is clicked, the window scrolls the length of the entire window contents, rather than just one line. This problem is caused by an inappropriate X resource, which has apparently been copied from one user to another in much the same way as `$HOME/.profile` files are often copied:

```
*XmScrollBar*translations: <Btn1Down>: Select()
```

You should remove this resource from your `$HOME/.Xdefaults` or whatever other means you use for setting X resources. This resource affects any Motif application, not just NightView.

6.0.5. Accessing Variables While in Prologue of Subprogram

Because the compilers generate line-number information for code that comprises the prologue of a subprogram, you may inadvertently set an eventpoint or stop your program at such a location. The prologue is the code that the compiler generates to set up the execution environment for a subprogram; until that code completes execution, the environment is incomplete. Attempts to access variables while in the context of the prologue may result in errors from NightView or may result in erroneous values.

If you suspect such a problem, you can determine whether you are in the prologue by doing the following:

- Stop the program at the point where the referencing problem occurs.
- Enter the command **info frame**.
- If the output from this command says something like "Could not obtain frame description information", then you are probably stopped in the prologue.

To try and avoid this problem, do not set an eventpoint on the lines containing a subprogram heading. If you want to set the eventpoint at the beginning of the subprogram, use the *unit_name* (for Ada) or *function_name* form of location specifier, rather than a *file_name* and *line_number*. See the section titled "Location Specifiers" in Chapter 7 of the *NightView User's Guide* (0890395).

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.

