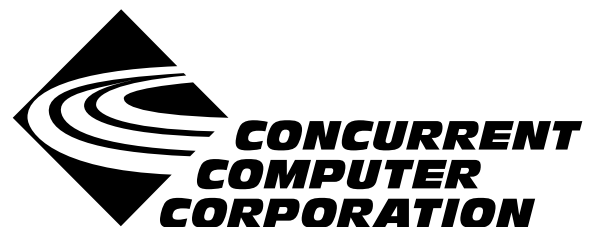


NightView

Version 5.6 Release Notes (Linux)

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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.

2.0. Documentation

Table 2-1 lists the NightView 5.6 documentation available from Concurrent.

Table 2-1. NightView Version 5.6 Documentation

Manual Name	Pub. Number
<i>NightView User's Guide</i>	0890395-250
<i>NightView Version 5.6 Release Notes (Linux)</i>	0898395-5.6
<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 5.6 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 5.6 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-5.0-7</code> <code>ccur-x11progs-6.4.2-006</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 1.3:</i> <code>bash-2.05b-5</code> <code>glibc-2.3.2-4.80.6</code> <i>Red Hat 8.0:</i> <code>bash-2.05a-13</code> <code>glibc-2.2.5-40</code>

3.1.2. Hardware

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

* This product has been extensively tested on RedHawk Linux 1.2 and 1.3 and Red Hat Linux 7.3 and 8.0. 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.

3.2. Target Systems

3.2.1. RedHawk Systems

3.2.1.1. Software

- RedHawk Linux 1.2 or later
- Required RedHawk Linux RPMs (see “RedHawk Target Installation” on page 7 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 7 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 7 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 5.6 is:

```
ccur-NightView
```

and the file associated with this RPM is:

```
ccur-NightView-5.6-000.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-5.6-000.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	ccur-Nviewp-5.6-000.i386.rpm
Élan License Manager	ccur-elanlm-5.0-7.i386.rpm

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 5 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	Nviewp	5.6

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 5.6

5.1. Enhancements

5.1.1. Disassembly Mode

NightView lets you select one of four modes for viewing source or disassembly:

- Source Only, which never displays disassembly.
- Source Preferred, which displays source if it is available, otherwise disassembly.
- Mixed Preferred, which displays mixed source and disassembly, if possible.
- Disassembly Preferred, which displays only disassembly, if possible.

See the section titled “Debug View Menu” in Chapter 9 of the *NightView User’s Guide* (0890395).

The X resource `defaultSourceDisplayMode` determines the initial mode. See the section titled “NightView Resources” in Appendix D of the *NightView User’s Guide* (0890395).

The X resource `autoDisassemblyMode` is now ignored.

Previously, the disassembly would show the symbol that begins the region, plus an offset, with the address of each instruction in the region, and also for any local branches. The disassembly now leaves out that symbol to make the display more compact. Other symbols are still displayed. See the section titled “set-disassembly” in Chapter 7 of the *NightView User’s Guide* (0890395).

5.1.2. Tools Menu

The menu bars of the major windows now include a **TOOLS** menu. The **TOOLS** menu is a convenient way of invoking the other NightStar tools. The tools are invoked on the same X display that NightView is running on. See the section titled “Debug Tools Menu” in Chapter 9 of the *NightView User’s Guide* (0890395).

5.1.3. Data Window

You can save a snapshot of the contents of the Data Window to a file. See the section titled “Data File Menu” in Chapter 9 of the *NightView User’s Guide* (0890395).

There are now mnemonics in the action menu that pops up when you click mouse button 3 on the action button of a data item. See the section titled “Data Item Popup Menu” in Chapter 9 of the *NightView User’s Guide* (0890395).

The Data Window Options menu can control the default call stack size and the default number of elements for a pointer treated as an array. See the section titled “Data Options Menu” in Chapter 9 of the *NightView User’s Guide* (0890395). The initial values for these are determined by X resources. See the section titled “NightView Resources” in Appendix D of the *NightView User’s Guide* (0890395).

5.1.4. Stop Button

The **Stop** button interrupts any pending commands for the processes it stops. See the section titled “Debug Command Buttons” in Chapter 9 of the *NightView User’s Guide* (0890395).

5.2. Changes in this Release

5.2.1. Nodebug List

The default **nodebug** list has more entries to avoid accidentally debugging system programs. See the section titled “debug” in Chapter 7 of the *NightView User's Guide* (0890395).

5.2.2. info line

info line prints more detailed information, including which function each line range is in. See the section titled “info line” in Chapter 7 of the *NightView User's Guide* (0890395).

5.2.3. Disassembly

This release fixes some problems with how NightView selects the address range to disassemble for a given address.

The performance of disassembly is improved.

5.2.4. Fortran Character Strings

The Data Window can now display Fortran character strings.

5.2.5. Fortran Arrays

The debugger now correctly handles Fortran arrays with multiple dimensions.

5.2.6. Core Files

NightView now works with core files, with these limitations:

- Floating-point registers are not available from the core file, so some floating-point variables may not be available.
- Core files from threaded programs are not supported.

See the section titled “Core Files” in Chapter 3 of the *NightView User's Guide* (0890395).

5.2.7. Interrupt Character

The interrupt character (e.g. Ctrl+C) now works correctly in the command-line interface and the simple full-screen interface. See the section titled “Interrupting the Debugger” in Chapter 3 of the *NightView User's Guide* (0890395).

5.2.8. G++ Support

NightView now supports pointers to member types and run-time type information with **g++** 3.2 or later.

NightView now works with structs that contain references.

5.2.9. Floating-Point Registers

This release fixes a problem with eventpoints modifying floating-point registers.

5.2.10. Other Fixes

This release fixes problems in these areas:

- structs passed in registers
- bit fields

6.0. Cautions

Special consideration should be given to the following areas:

6.1. Next over Fork

If you **next** over a routine that creates a child process and waits for it to finish (e.g., `system()`), the **next** command will not complete because the debugger has the child process stopped. You cannot switch to the child process to resume it because you cannot switch away from the parent process while it is doing the **next** command. In this case, you need to interrupt the **next** operation with the **Interrupt** button. Then you can switch to the child process and control it.

This does not happen if the debugger does not stop the child process. See the section titled “nodebug” in Chapter 7 of the *NightView User’s Guide* (0890395). See the section titled “set-children” in Chapter 7 of the *NightView User’s Guide* (0890395).

6.2. 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.

6.3. 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.

6.4. Accessing Variables While in Subprogram Prologue

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.

