

# 1. Introduction

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The *UNICOS 9.0 Release Overview* is a public document that provides an overview of the Cray Research, Inc. UNICOS operating system 9.0 release.

This release overview describes all features that have been released since the UNICOS 8.0 base release (8.0.2), including all 8.0 revision and update releases and the UNICOS 8.3 restricted release.

## 1.1 Hardware supported by UNICOS 9.0

The UNICOS 9.0 release supports the following series of Cray Research systems:

- CRAY T90 series
- CRAY J90 series
- CRAY C90 series
- CRAY C90D series
- CRAY Y-MP M90 series
- CRAY Y-MP E series
- CRAY EL series

CRAY T90, CRAY C90, CRAY C90D, CRAY Y-MP M90, or CRAY Y-MP E systems running UNICOS 9.0 can be used as the host of a CRAY T3D massively parallel processing (MPP) system.

For a complete list of Cray Research system models supported with the UNICOS 9.0 release, see subsection 1.6, page 1–6.

## 1.2 Emphasis for the UNICOS 9.0 release

The overall emphasis for the UNICOS 9.0 release is Open Supercomputing. In the evolving world of supercomputing,

environments are increasingly more heterogeneous. UNICOS 9.0 provides an environment where Cray Research tools can be integrated in a variety of different ways to effectively cooperate on networks to solve problems.

The UNICOS 9.0 release focuses on the following themes:

- Reliability, availability, and serviceability
- Support for additional peripherals
- Compliance with additional standards

### 1.3 Significant enhancements to UNICOS 9.0

The UNICOS 9.0 release provides several major enhancements and many minor ones. The following are the most significant enhancements in UNICOS 9.0; see the specific feature descriptions for users affected and for Cray Research systems supporting the feature:

- Support for the following new series of Cray Research systems:
  - CRAY T90 systems (subsection 2.1, page 2–1)
  - CRAY J90 systems (subsection 2.2, page 2–8)
- Support for additional peripherals, including the following:
  - ESCON channel for all Cray Research systems except CRAY J90 series and CRAY EL series (subsection 2.3.1, page 2–9)
  - IBM 3495 and 3494 Tape Library Dataservers (subsection 2.3.2, page 2–10)
  - SI-3 Small Computer System Interface (SCSI) tape controller for CRAY J90 series and CRAY EL series (subsection 2.3.3, page 2–11)
  - DD-6S disk drive for CRAY J90 series (subsection 2.3.4, page 2–11)
  - Network Disk Array devices for CRAY J90 series and CRAY EL series (subsection 2.3.5, page 2–12)

- ER90 device for CRAY EL series (subsection 2.3.6, page 2–12)
- DD-302 disk devices and DA-302 disk arrays for all Cray Research systems except CRAY J90 series and CRAY EL series (subsection 2.3.7, page 2–13)
- ND40 network disk devices for all Cray Research systems (subsection 2.3.8, page 2–13)
- IPI-3 attached disk and tape storage devices (subsection 2.3.9, page 2–14)
- Network connectivity and communication enhancements, including the following:
  - Support for the separately licensed NQX 2.0 product (subsection 2.5.1, page 2–19)
  - Kerberos RPC server support (subsection 2.5.4, page 2–21)
  - Distributed File System/Distributed Computing Environment (DFS/DCE) support (subsection 2.5.6, page 2–22)
  - Asynchronous Transfer Mode (ATM) technology support (subsection 2.5.16, page 2–29)
  - Solaris Open Network Computing Plus (ONC+) technology support (subsection 2.5.17, page 2–30)
- Compliance with the XPG4 standard (subsection 2.10, page 2–79)
- X Window System interface to the UNICOS Installation/Configuration Menu System (subsection 2.12.1, page 2–100)
- The UNICOS under UNICOS feature, which lets a site run two copies of the UNICOS operating system concurrently on one machine, allowing the guest system to be used for software testing and system upgrade, but not for production (subsection 2.9.1, page 2–46)
- An X Window System interface through the `xadmin(8)` command to make it easier for administrators to manage user login accounts (subsection 2.9.4, page 2–52)

- The dynamic allocation of file descriptors feature removes the per-process static limit on the number of open files (subsection 2.9.19, page 2–73)
- UNICOS shared file system (SFS) support (subsection 2.9.21, page 2–75)
- Support for an interface based on POSIX 1003.4a threads (Pthreads) (subsection 2.11, page 2–97)

## 1.4 Content of this release overview

This release overview briefly describes the UNICOS operating system 9.0 release and includes the following sections:

- Section 2, Software Enhancements, provides an overview of the new software features and enhancements.
- Section 3, Compatibilities and Differences, describes user and system administration issues that are involved in upgrading from the UNICOS 8.0 release to the UNICOS 9.0 release. This section includes information about commands, products, and libraries that have changed or that are not provided in the UNICOS 9.0 release. Also included is important early information about UNICOS 10.0 features and end of support for specific systems and products.
- Section 4, Multilevel Security, contains information on the UNICOS multilevel security (MLS) features of this release, including compatibility issues involved in upgrading from the UNICOS 8.0 release to the UNICOS 9.0 release. Also included is important early information about MLS system changes planned for future UNICOS releases.
- Section 5, Documentation, describes printed and online documentation supporting this release.
- Section 6, Customer Services, describes the customer services that Cray Research offers to support your software, including training services, problem reporting services, and general service information.

- Section 7, Release Package, contains the following information about the UNICOS 9.0 release package: a summary of hardware and software requirements including the supported upgrade paths, licensing information, and a list and description of the contents of the release package.

## 1.5 Electronic access to this release overview

You can access this release overview electronically; ASCII, PostScript, and Docview files are available on the Cray Research CRInform system, which is an online information and problem-reporting system for Cray Research customers and Cray Research personnel. If you do not have access to the CRInform system but would like a copy of the files, contact your Cray Research representative. For more information on CRInform, see subsection 6.3, page 6–2.

For more information on the Docview program, see subsection 5.3.2, page 5–13.

## 1.6 Definitions of margin note terms used in this release overview

The margin note on each feature subsection lists the types of users most affected by the described feature. The following definitions are used in these margin notes:

<u>Audience</u>	<u>Definition</u>
End user	Those who use the UNICOS operating system, products, applications, or network software
Programmer	Those who write or modify system or application code for the purpose of solving computer system, scientific, or engineering problems
Administrator	Those who perform system administration tasks such as installation, configuration, and basic troubleshooting
System analyst	Those who perform advanced troubleshooting, tuning, and customization
Operator	Those who perform operational functions or administer the Cray Research system through an operator workstation

The margin note on each feature subsection lists the type of hardware that operates with the feature. The following terms are used in these margin notes.

<u>Term</u>	<u>Definition</u>
All Cray Research systems	All systems supported by UNICOS 9.0. These are systems in the CRAY T90 series, CRAY C90 series, CRAY C90D series, CRAY Y-MP M90 series, CRAY Y-MP E series, CRAY J90 series, and CRAY EL series.
All systems with an IOS-E	All systems listed in “All Cray Research systems” excluding the CRAY J90 series and CRAY EL series.
CRAY T90 series	All models in the CRAY T90 series including CRAY T94, CRAY T916, and CRAY T932 systems.
CRAY C90 series	All models in the CRAY C90 series including CRAY C916, CRAY C92A, CRAY C94, CRAY C94A, and CRAY C98 systems.

CRAY C90D series	All models in the CRAY C90D series including CRAY C92AD, CRAY C94D, and CRAY C98D systems.
CRAY Y-MP M90 series	All models in the CRAY Y-MP M90 series including CRAY Y-MP M92, CRAY Y-MP M94, and CRAY Y-MP M98 systems.
CRAY Y-MP E series	All models in the CRAY Y-MP E series including CRAY Y-MP 2E, CRAY Y-MP 4E, CRAY Y-MP 8E, and CRAY Y-MP 8I systems.
CRAY J90 series	All models in the CRAY J90 series including CRAY J916 and CRAY J932 systems.
CRAY EL series	All models in the CRAY EL series including CRAY Y-MP EL, CRAY EL92, CRAY EL94, and CRAY EL98 systems.
CRAY T3D systems or Cray MPP systems	All models of the CRAY T3D series including CRAY T3D MC, CRAY T3D MCA, and CRAY T3D SC systems.

## 1.7 Reader comments

If you have comments about the technical accuracy, content, or organization of this document, please tell us. You can contact us in any of the following ways:

- Send us electronic mail from a UNICOS or UNIX system, using the following UUCP address:

`uunet!cray!publications`

- Send us electronic mail from any system connected to the Internet, using the following Internet addresses:

`pubs5000@timbuk.cray.com` (comments on this document)

`publications@timbuk.cray.com` (general comments)

- Contact your Cray Research representative and ask that a Software Problem Report (SPR) be filed. Use `PUBLICATIONS` for the group name, `PUBS` for the command, and `NO-LICENSE` for the release name.
- Call our Software Publications Group in Eagan, Minnesota, through the Technical Support Center, using either of the following numbers:

1-800-950-2729 (toll free from the United States and Canada)

+1-612-683-5600

- Send a facsimile of your comments to the attention of “Software Publications Group” in Eagan, Minnesota, at fax number +1-612-683-5599.
- Use the postage-paid Reader’s Comment Form at the back of this document.

We value your comments and will respond to them promptly.