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Introducing CWCS

CiscoWorks Common Services (Common Services) represents a common set of management services including a collection of subsystems, execution environments, engines, and shared code libraries, and serves as a software platform to web-based network management applications.

All CiscoWorks products use and depend on Common Services. Common Services provides a foundation for CiscoWorks applications to share a common model for data storage, login, user role definitions, access privileges, security protocols, as well as navigation. It creates a standard user experience for all management functions. It also provides a common framework for all basic system-level operations such as installation, data management including backup-restore and import-export, event and message handling, and job and process management.

The CWCS SDK is for developers who want to create CWCS-based applications or update existing applications to take advantage of new CWCS features.

The following topics introduce the main concepts of CWCS:

- CWCS Release Model
- Benefits of Using CWCS
- What's New in CWCS
- What's New in This Guide
- Understanding the CWCS Structure
- Using CWCS Components
- How CWCS is Distributed
- Third-Party Tools
- Where to Find the CWCS SDK
- For Further Assistance

CWCS Release Model

Every CWCS release is provided in these forms:

1. CWCS-R Release: This is essentially a replacement for the Common Management Foundation (CMF)-based CD One. This release is a physical CD containing the CWCS-R installable image, plus the latest versions of CiscoView and the Integration Utility (IU, formerly known as NMIM) as optional installs. Developers can modify the installation wrapper to provide options for installing Common Services alone, or Common Services plus either CiscoView or the Integration Utility (or both). This is the standard installable image used by most application teams within NMTG.

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2. CWCS-SRC: The CiscoWorks Common Services source toolkit. This is a downloadable file containing source code and binaries for integration with applications' installable packages. It contains CWCS components designated as "open source", which includes the User Interface Infrastructure (UII), Object Grouping Services (OGS), and the Common Services Transport Mechanism (CSTM). This release is provided for the use of NMTG application teams creating customized "CD-One-like" Common Services CDs.

The CWCS- R release is developed, tested, packaged and managed under the direct control of the CWCS team. Key stakeholders set the requirements for each release, and releases take place on a defined schedule agreed upon among the CWCS team and stakeholders. All fixes, patches, updates and other coding are the responsibility of the CWCS team.

The CWCS-SRC release is developed by individual application teams as well as by dedicated groups within the CWCS team. After delivery, SRC components may be modified by application teams to suit their needs, and must be installed with individual applications on a per-product basis.

While some CWCS components delivered in CWCS-R are also designated as SRC, the instances of SRC components delivered with and installed as part of CWCS-R are for the exclusive use of Common Services. Application teams may not overwrite the shared, common version of the component with a version of their own. For example: The Object Grouping Service (OGS) is an SRC component delivered as part of CWCS-R. Application teams who want to use OGS must create one and install it with their application.

CWCS-R releases follow a release train strategy to allow for phased delivery:

- Major releases mark the beginning of a new release train. These releases contain major architectural changes, are content-driven, and ship about once a year.
- Minor releases continue a release train and may be shipped at other times.
- Patches are provided for critical problems.
- Numbered Service Packs are released when sufficient patches accumulate.

Each CWCS-R release train follows these assumptions:

- One Concept Commit and one Execution Commit for the release.
- One PRD, one program plan, and one system functional specification.
- Detailed functional specifications for each major and minor feature.
- External testing period prior to FCS with applications that use new features.

CWCS-SRC components are provided in at least one working version per CWCS-R release, at the time of the CWCS-R release. Alternative or improved versions of SRC components may or may not be available at other times, and may undergo design changes, fixes, re-coding and other updates without reference to the CWCS-R schedule. Any modified versions of SRC components, and fixes or updates to them, are the sole responsibility of the application teams modifying them; they are, in fact, deliverables of the applications requiring them.

All third-party components are licensed to ship with CWCS-R and CWCS-SRC. Any distribution of these components outside of CWCS may not be covered by the license. Any questions about licensing should be sent to the cmf23-dev alias.

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Benefits of Using CWCS

Application development teams derive the following benefits from using CWCS:

- Use of a common, unified infrastructure for next-generation network management products and solutions allows for better integration across such products. For example, users see a single security model, desktop GUI, and application launch across applications.

- Enhanced flexibility for meeting special requirements by re-using SRC components in an "open source" manner.

- Existing, proven code has already been debugged and optimized, resulting in improved product stability and performance.

- Existing code can be reused, resulting in faster time-to-market for new applications.

- Unnecessary duplication of effort is avoided, resulting in more efficient use of engineering resources.

- Significant leverage across Cisco and third-party development teams is possible.

What's New in CWCS

This CWCS release provides the following new features and enhancements:

- CiscoWorks Home Page (CWHP): Provides a central, customizable launch point for all installed CWCS-based applications as well as non-Cisco application links with HTML-based login.

- Common Services Home (CS Home): Serves as the dashboard for the Common Services application. and provides launch points for the frequently used functions in Common Services application, status summary of jobs, status of security configurations, backup schedule, Online User information and information on DCA mode and number of devices.

- Device and Credentials Repository (DCR): Provides shared device information and credentials for CWCS-based applications running on multiple servers. It also supports standalone repositories.

- CWCS Licensing Framework: Allows FlexLM-based licensing on a wide variety of models.

- Cisco Management Integration Center (CMIC): Supplies a consolidated service registry that allows applications to find and integrate with other applications and services residing outside the server machine. It also allows customers to set up and launch third-party applications from the CiscoWorks Home Page.

- Online Help: Support for the UE-compatible version 2.0 of the Cisco online help engine.

- LMS Setup Center: Allows you to configure the Security settings, System settings, Data Collection settings, Data Collection Schedule settings, and Data Purge settings of all CiscoWorks applications in a centralized place.

- Software Center: Using the Common Incremental Device Support (CIDS) and Package Support Utility (PSU) components, Software Center allows applications to automatically locate, download and install device-support packages and software updates.

- Device Center: Provides an interface to invoke any application tool on a selected device from a single location. It also provides summary information needed to troubleshoot a selected device.

- Installation Framework: Improved and streamlined, the Installation Framework is compatible with the new Licensing Framework, and now supports workflow customization on Solaris. Support for the little-used Express install and remote upgrade options has been withdrawn, and "Typical" installs now support simpler options.

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- Security System: This important subsystem provides a single application interface for AAA security, secure and encrypted communications between clients and servers and between servers and devices, and libraries that enable encryption of data on a server.

- Object Grouping Services: Now supports shared and common groups.

- Backup and Restore Framework: Includes both Core and CMF-based backup and restore. CMF-based backup-manifest file locations have been changed to support CWCS database enhancements, and permit restore from previous versions of CMF, eliminating the need for Remote Upgrade capabilities.

- Job and Resource Manager (JRM): Now provides separate tracking for instances of a recurring job, updated job control APIs, and publishes its events to ESS and EDS.

- Diagnostic and Support Utilities: The JET, JT and Logrot tools have been added to the diagnostic and support tools suite.

- Third Party Components: Upgrades to most third-party components, including the Java Runtime Environment and JPI, the Sybase database, TibcoRV, the XML parsers and associated tools, and others. For a complete list of these tools and the versions supported in this release, see the .

- Cumulative bug fixes and patches provided for all previous CWCS releases.

- Support for:
  - Internet Explorer 6
  - Netscape 7.x and Mozilla 1.7. 13
  - Solaris 8 and 9.
  - Sybase 9.0.0.
  - Windows 2000 Professional
  - Windows 2000 Server
  - WIndows 2000 Advanced Server
  - Windows Server 2003
  - Windows 2003 R2 Server
  - SNMPv3 authNoPriv.
  - IPv6

- As of this release, CWCS no longer supports:
  - Netscape 4.7x.
  - Solaris 7.

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Caution   Be sure to review the appropriate topics in this document to ensure that your code works with CWCS 3.0. For an inventory of all new and changed components and their related documentation, see the .

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What's New in This Guide

This SDK Developer's Guide contains the following new chapter:

- Chapter 28, "Integrating Applications With Device Selector"

Updates have also been made to topics in other chapters, as well as to code samples included in the SDK downloads.

Please refer to the CWCS SDK portal at https://mco.cisco.com/ubiapps/portal/go.jsp?portal_id=2537 for links to SDK downloads, documentation, and code samples.

This document does *not* include information that is available in:

- The CiscoWorks Common Services 3.0.5 user documentation. To access this documentation set, see:
  - The online help for any installed CWCS-based application. To view the online help, launch the application and select **Help**.
  - The HTML version of the user documentation, published internally at the following URL: http://www.cisco.com/en/US/products/sw/cscowork/ps3996/products_user_guide_book09186a00806feda7.html.

- The User Interface Infrastructure SDK. To access this SDK, see the UE/UII web site at the URL http://picasso, or download a copy from EDCS at http://wwwin-eng.cisco.com/Eng/ENM/UE_UII/.

Understanding the CWCS Structure

CWCS is designed as a multi-component framework, as shown in Figure 1-1.

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Figure 1-1   CWCS Structural Overview
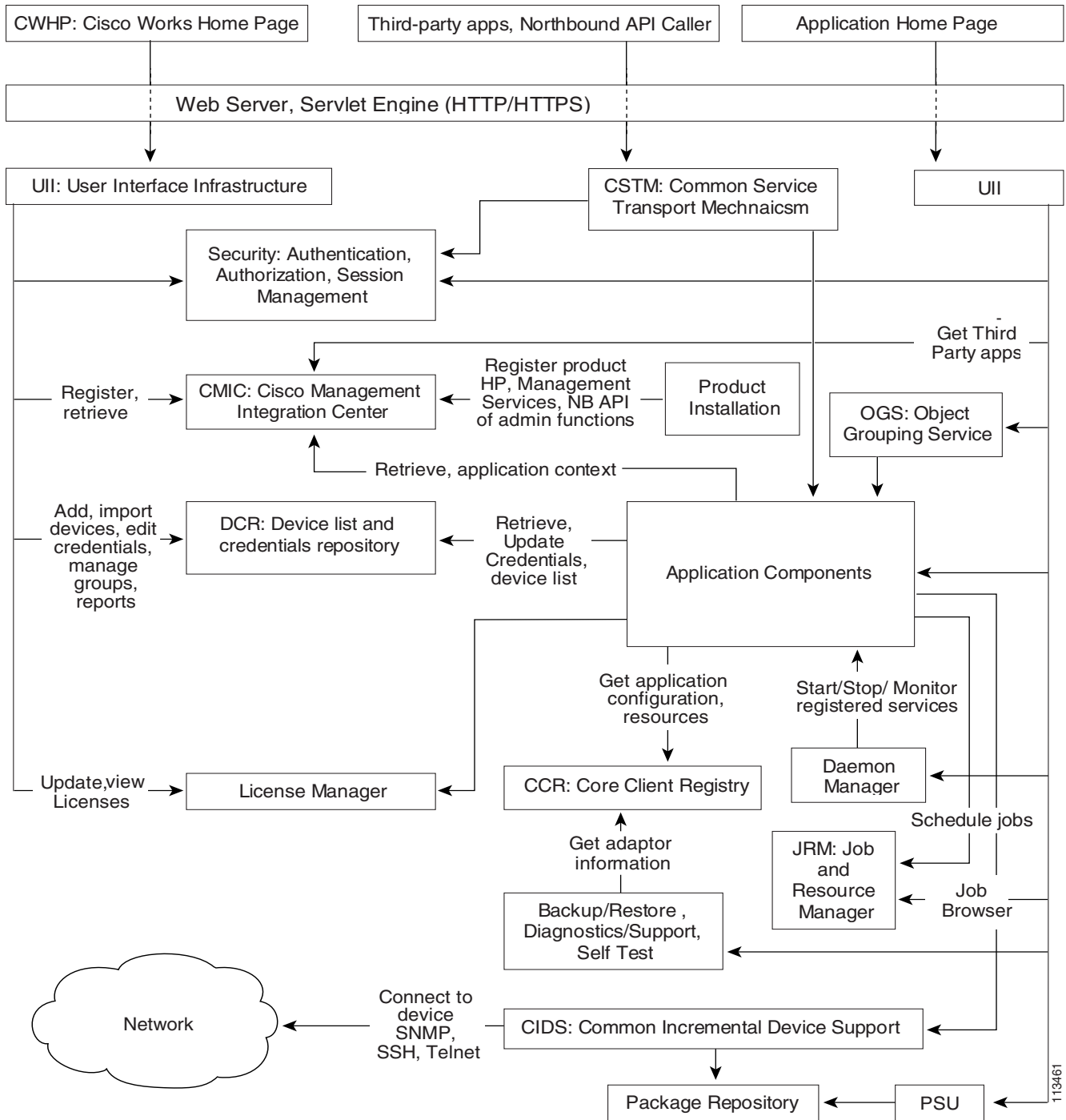
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Using CWCS Components

CWCS provides the components shown in Table 1-1. Components that are new in this release of CWCS appear at the beginning of the table and are highlighted in **bold**. Items present in CWCS, but not documented in this Guide, are highlighted in *italics*.

The CWCS directory structure is described in Chapter 3, "Understanding the CWCS Directory Structure". Basic development information for all components is provided in Chapter 6, "Using Shared Services" and in Chapter 29, "Using Per-Product Services". Details on individual components are documented in specific chapters listed within the Description in Table 1-1.

Table 1-1   CiscoWorks Common Services Components

Component	Description
Cisco Management Integration Center (CMIC)	CMIC is a repository that allows CWCS-based and third-party applications to register the services they provide and look up the services provided by other applications. It allows better integration among applications and services residing anywhere in the network. See Chapter 9, "Integrating Applications with CMIC".
CiscoWorks Home Page (CWHP)	CWHP provides your customers with a single, user-customizable web page they can use log in and launch your application, consolidate launch points for other applications, and add links to sites they use frequently. See Chapter 7, "Using the CiscoWorks Home Page".
Common Incremental Device Support (CIDS)	CIDS provides applications with "drop in" support for new device types, eliminating the need for your customers to re-install the entire application. See Chapter 33, "Using Common Incremental Device Support".
Device and Credentials Repository (DCR)	DCR provides a secure, sharable repository of critical device ID and credentials information. See Chapter 14, "Using the Device Credentials Repository".
Device Center	Device Center gives your customers a "device-centric" view of their installed application suite by letting them run registered tasks from any application against a selected device. Instead of needing to know in advance which application performs which task, customers can select tasks arranged around the device in which they are interested. See Chapter 26, "Using Device Center".
Licensing Framework	The licensing framework lets your application install, update and retrieve information about customer licenses . The framework includes APIs and FLEXlm utilities that you can use to implement a wide variety of licensing models. See Chapter 34, "Using the Licensing APIs".
Package Support Updater (PSU)	PSU lets your application check for software and device support updates, download them to the CWCS server, and install them. See Chapter 32, "Using Package Support Updater".
Backup and Restore Framework	This framework provides separate database backup and restore frameworks for Management Center (MC) applications and for all other applications. See Chapter 12, "Using Backup and Restore".
Common Services Transport Mechanism (CSTM)	CSTM (formerly CTM) provides a consistent, simple, and platform-agnostic method for handling all types of application-to-application communications. It follows non-proprietary standards, and does not impose protocol, object model, or encoding restrictions on either communicating application. See Chapter 31, "Using the Common Services Transport Mechanism".
CORBA Infrastructure	The CORBA infrastructure allows for object-oriented client/server communication.
Daemon Manager	Provides reliable, ordered execution services for server processes, desktop administrative interfaces, and command-line interfaces (for debugging). See Chapter 17, "Using the Daemon Manager".

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Table 1-1   CiscoWorks Common Services Components (continued)

Component	Description
Database APIs	Sybase Adaptive Server Anywhere (ASA) is bundled with CWCS. ASA functions as an embedded relational database, and requires very little administration. A single CWCS installation has the capability to support multiple databases for multiple applications. Database access is provided by JDBC in Java, ODBC in C and C++, and DBI in Perl. See Chapter 11, "Using the Database APIs".
Diagnostic and Support Utilities	This utility suite helps you and TAC staff diagnose and solve customer problems quickly. Included are the Collect Server Info, MDC Support, SNMP Set and Walk, Packet Capture, and logrot. See Chapter 23, "Using the Diagnostic and Support Utilities".
Event Services Software (ESS)	Handles all event messaging using a separate server bus (TibCo Rendezvous), a separate client bus (LWMS), and a gateway that transfers messages between the two automatically. See Chapter 19, "Using Event Services Software". **Note** *The EDS event messaging system is deprecated.* For reference purposes only, EDS documentation has been retained in Chapter 17, "Using the Event Distribution System".
Hidden Tools (dbreader and log file viewer)	• dbreader: http://*server-name*/dbreader/dbreader.html"eudora="cautourl"http://*server-name*/dbreader/dbreader.html • log file browser: http://*server_name*:*port*/cgi-bin/searchLog.pl"eudora="autourl"http://*server_name*:*port*/cgi-bin/searchLog.pl
Installation Framework	Allows you to install, uninstall, and patch your application. See Chapter 21, "Using the Installation Framework".
Java Plug-in (JPI)	Allows you to deploy Java 2-based applets on your CiscoWorks web pages on Windows- and Solaris- based browsers. See Chapter 22, "Using the Java Plug-in"
Java Runtime Environment (JRE)	CWCS provides both Java 1 and 2 Runtime Environments.
Java SNMP Engine	The Java interface for the Simple Network Management Protocol (SNMP) is supported.
Job and Resource Manager	Provides services for scheduling jobs to run in the background and also locking functionality for network devices. See Chapter 18, "Using the Job and Resource Manager".
NT Services	These services provide support for Windows versions of the communication functions commonly available on Solaris, including TFTP, RCP and Syslog. See Chapter 25, "Using NT Services"
Object Grouping Services (OGS)	OGS provides a generic means for creating, managing and sharing groups of objects of any type. See Chapter 30, "Using Object Grouping Services".
Online Help System	Provides a customized help engine infrastructure, allowing applications to use a common mechanism to provide online help to customers. See Chapter 16, "Adding Online Help".
Perl Interpreter	An interpreter for the Perl scripting language used in Web applications.
Security System	This system allows you to protect data. applications and server-to-device communications from inadvertent or malicious access. User-level security includes allocation of roles based on defined task-execution privileges. See Chapter 10, "Using the Security System".
SNMP Services	These services provide access to SNMPv3's enhanced security features, as well as supporting the existing SNMPv1 and SNMPv2c functions. See Chapter 24, "Using SNMP Services".

Table 1-1   CiscoWorks Common Services Components (continued)

Component	Description
User Interface Infrastructure (UII)	UII provides the servlets and APIs needed to implement the CiscoWorks Home Page and all other CWCS user interface elements. See the *SDK Developer's Guide to UI Infrastructure,* accessible from the UE/UII web site at http://picasso, or http://wwwin-eng.cisco.com/Eng/ENM/UE_UII/.
Web Server and Servlet Engine	The CWCS web server and servlet engine use the Apache Web server on both UNIX and Windows platforms to provide the infrastructure for client/server communication. The Web server services HTTP requests from the client, and is also used to invoke CGI scripts/programs, applets, and servlets. A common servlet engine, Tomcat, runs Java servlet programs. See Chapter 8, "Using Web Servers and Servlet Engines".

How CWCS is Distributed

You can distribute CWCS with your application using the "CD-One" CD bundled with your application. In this case, you are delivering the CWCS-R+ distribution described in the "CWCS Release Model" section on page 1-1. This is the standard method of delivering CWCS, used by nearly all NMTG application teams.

This is the only supported option. If you need to discuss this option, contact the cmf23-dev alias.

Installation Interface Options

The CD One installation interface under the Custom install option presents the following choices:

- CiscoWorks Common Services
- CiscoView
- Integration Utility
- Typical Installation (all components)

For additional information on which packages are being installed, refer to the"Installing CWCS" section on page 5-3.

CD Image Structure

The Windows and Solaris CD image structures are different. Generally, the CD contains one or more installable units, suites, and the installer. Each installable unit publishes its properties, including names, versions, dependencies, and so on. Some properties are provided by the build or appended while the CD image is created. The installer is a separate application with its own release train.

For details about the Windows and Solaris CD structures, see the following topics:

- CD Image Structure for Windows
- CD Image Structure for Solaris

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CD Image Structure for Windows

The following components are part of the Windows CD:

- Windows CD autorun configuration and executable
- InstallShield runtime
- Installer—Compiled installation scripts with the tool set that actually implements the functionality specified in this document.
- Table of contents—ASCII file that describes the contents of the CD, enumerates components available on this CD, as well as defaults for installation. It also provides release-specific information (for example, release name).
- Each suite, installable unit and package contains:
  - Properties
  - Optional Install scripts (compiled versions of component hooks)
  - Package/installable unit specific tools required at installation time.
- Compressed runtime tree (data1.cab file) for all packages.

CD Image Structure for Solaris

The following subdirectories are part of the Solaris CD:

- info—package properties, installation descriptions, and package hooks
- packages—Solaris packages

Solaris uses SVR4.

Third-Party Tools

Table 1-2 lists the third-party tools available with CWCS.

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Caution   Tools marked "obsolete and deprecated" are included for backward compatibility only. Do not use these tools for future development.

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Table 1-2   CWCS Third-Party Tools

Name	Vendor	Package	Description
3Magic Coffee Table 2.1.3	3Magic http://www.3magic.com/products/coffeetable/docs/index.html	CSCOgrid	Small, speedy, cross-platform and multi-VM Java components for display of columnar data. Compatible with and optimized for JDK 1.1 and 1.2. Includes Grid classes for Java.
Alfred XML parser 1.2a	Open Text Corporation http://www.jpackage.org/rpm.php?id=540	CSCOxrts	A small, fast, DTD-aware Java-based XML parser, especially suitable for use in Java applets. You can add XML support to your applets and applications without doubling their size. Aelfred consists of only two core class files, with a total size of about 26K, and requires very little memory to run. There is also a complete SAX (Simple API for XML) driver available in this distribution for inter-operability.
Apache Web Server 1.3.31	Apache http://www.apache.org/httpd.html	apache	Apache is a popular Web Server on the Internet. It is based on open source that is publicly maintained by the Apache HTTP Server project. Apacheweek is a useful reference for information about Apache. CWCS provides this Web Server on Solaris and Windows.
Apache Axis 1.1	Apache http://ws.apache.org/axis/	CSCOweb	Apache Axis is a SOAP engine framework used to implement Java Web Services. It is Jakarta-based and works as a Tomcat plug-in.
Blatmail for NT 2.1	Open Source http://sourceforge.net/projects/blat	CSCOxrts	Blat is a Win32 command line utility that sends eMail using the SMTP or NNTP protocols.
DynAPI/ LGPL 2.5.6	Open Source http://sourceforge.net/projects/dynapi/	CSCOxrts	DynAPI is a cross-browser Javascript library used to create Dynamic HTML components on web pages.
FLEXLM 9.2	Macrovision http://www.macrovision.com/products/legacy_products/flexlm/index.shtml	CSCOcore	Software license management system and utilities used to manage licenses available on a machine
IPC lib from ACE 5.3	Open Source http://www.cs.wustl.edu/~schmidt/ACE.html	CSCOxrts	Adaptive Communication Environment (ACE) is an object-oriented C++ framework for developing multithreaded applications that include network and inter-process communications.
IPSecPol 1.22	Microsoft http://www.microsoft.com/windows2000/techinfo/reskit/tools/existing/ipsecpol-o.asp	ipsec	A CLI tool for creating large or complex Internet Protocol Security (IPSec) policies in a local or remote registry. Can be run in batch mode.

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Table 1-2   CWCS Third-Party Tools (continued)

Name	Vendor	Package	Description
Java 2 Runtime Environment 13.1_06 and 1.4.2_04	Sun http://www.sun.com/solaris/jre/download.html	sunjre, CSCOjre14	The Java™ Runtime Environment (also known as the Java Runtime or JRE) consists of the Java virtual machine, the Java platform core classes, and supporting files. It is the runtime part of the Java Development Kit that has no compiler, no debugger, and no tools. The JRE is the smallest set of executables and files that constitute the standard Java platform.
Java Desktop Suite 0.16.3	Sun http://java.sun.com/	TBD	TBD
Java Extension 1.3	Sun http://java.sun.com/	TBD	TBD
Java Plug-In 1.4.2_10	Sun http://java.sun.com/products/plugin/	CSCOplug	Permits applets to be run within a desktop browser. Part of the Java 2 Runtime Environment.
JavaMail for Solaris 1.2	Sun http://java.sun.com/products/javamail/	CSCOjre14	Provides a platform- and protocol-independent framework for building mail and messaging applications.
JClass Chart 4.0.0.J	Quest Software http://www.quest.com/jclass_desktopviews/chart.asp	CSCOjchart	Part of Quest's JClass DesktopViews, JClass Chart provides Java tools for business and scientific charts, rich text format for customizing labels or mixing images and URLs with text.
jConnect for JDBC 5.5	Sybase http://www.sybase.com/products/middleware/jconnectforjdbc	CSCOdb	The jConnect for JDBC product provides high performance native access to all Sybase products including Adaptive Server Anywhere. It integrates with most popular Java RAD tools.
JDOM 1.0.8b	JDOM Project http://www.jdom.org	jdom	JDOM is a Java-based "document object model" for XML files. JDOM serves the same purpose as DOM, but is easier to use. It provides a complete, Java-based solution for accessing, manipulating, and outputting XML data from Java code.
JFC Swing classes 1.1, 1.2c	Sun http://java.sun.com/j2se/1.4.2/docs/guide/swing/index.html	CSCOswng2	The Swing classes are a set of class libraries provided as part of the Java 2 Platform to support building graphic user interfaces (GUIs) and graphics functionality for client applications.
JGL 3.1	Open Source http://www.recursionsw.com/jgl.htm	CSCOjgl	JGL is a generic collection library for Java, consisting of eleven optimized Java collections and more than 50 general purpose data algorithms. JGL-equivalent functionality is available in Java 2 (aka JDK 1.2) today.
JMS 1.02b	Sun http://java.sun.com/products/jms/	sunjre	The Java Message Service (JMS) API is a messaging standard that allows application components based on the Java 2 Platform to create, send, receive, and read messages. It enables distributed communication that is loosely coupled, reliable, and asynchronous.

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Table 1-2   *CWCS Third-Party Tools (continued)*

Name	Vendor	Package	Description
JOnAS 3.3.5	ObjectWeb Consortium http://jonas.objectweb.org	CSCOxrts	The Java Open Application Server (JOnAS) is a pure Java open-source implementation of the EJB (Enterprise JavaBeans) specification, supporting Java Web Services.
JScape Widgets 1.5.1	http://www.jscape.com	CSCOjawt	A library of sophisticated, pre-built components for assembling commercial-quality Java applications. The product is written entirely in Java and the look, feel and behavior is the same on all Java enabled environments.
JScape Powersearch 1.5.1	http://www.jscape.com	CSCOjpwr	A pattern matching and search engine written entirely in Java. Provides full support for the PERL 5 regular expression syntax.
JSRS 1.0	Open Source http://www.ashleyit.com/rs/main.htm	CSCOxrts	JavaScript Remote Scripting (JSRS) permits data transfers and exchanges between a web application and a backend server without embedding a Java applet in the web page or refreshing the JSP.
log4cpp 0.2.5	Open Source (LGPL) http://log4cpp.sourceforge.net	CSCOxrts	Log For C++ (log4cpp) is a library of C++ classes for flexible logging to files, syslog, IDSA and other destinations. It is modeled after the Log4j Java library and follows its API closely.
log4j 1.1.3, 1.2.8	Apache http://jakarta.apache.org/log4j/	log4j	Log For Java (log4j) permits runtime logging from Java applications without modifying binary. Log statements remain in shipped code without incurring a heavy performance cost. Logging behavior is controlled using a configuration file.
LotusXSL 0.16.3	Lotus http://www.alphaworks.ibm.com/tech/LotusXSL	CSCOxsl	XSLT processor for transforming XML documents into HTML, text, or other XML document types. Predecessor of the Xalan XSLT processors.
Macromedia Jrun 2.3.3	Macromedia	TBD	TBD
Microsoft IPSecPol 1.22	Microsoft	TBD	TBD
mod_ssh 2.8.17	Apache http://www.modssl.org/	CSCOxrts	Provides strong cryptography for the Apache Web server. Follows the Secure Sockets Layer (SSL v2/v3) and Transport Layer Security (TLS v1) protocols, and uses the Open Source SSL/TLS toolkit OpenSSL.
OpenSSL 0.9.7a	Open SSL Project http://www.openssl.org/	CSCOxrts	Open Source toolkit for implementing the Secure Sockets Layer (SSL v2/v3) and Transport Layer Security (TLS v1) protocols. Includes a full-strength general purpose cryptography library. Basis of mod_ssl.
Oromatcher 1.0	Oro Inc. http://www.savarese.org/oro/	CSCOxrts	A set of regular expression pattern matching and utility classes for Java.

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Table 1-2   CWCS Third-Party Tools (continued)

Name	Vendor	Package	Description
Perl 5.005_02	O'Reilly http://www.perl.com/pub	CSCOperl	Perl is a high-level programming language derived from the C programming language and to a lesser extent from sed, awk, the UNIX shell, and at least a dozen other tools and languages. Perl's process, file, and text manipulation facilities make it well-suited for tasks involving quick prototyping, system utilities, software tools, system management tasks, database access, graphical programming, networking, and worldwide web programming.
PowerSearch 1.5.1	TBD	TBD	TBD
SNMP V3 Library	TBD	TBD	TBD
Struts Framework 1.0	Apache http://jakarta.apache.org/struts/	CSCOxrts	Provides an open-source MVD framework for building Java web applications. Basis of the Cisco User Interface Infrastructure (UII) used in CWCS.
Sybase ASA 9.0.0	Sybase http://www.sybase.com/products/anywhere/index.html	CSCOdb	Sybase Adaptive Server Anywhere (ASA) is the CWCS embedded SQL database engine. It provides access from Java via JDBC, C/C++ via ODBC, and Perl via DBI. CWCS also provides enhancements for monitoring the database connection, integration with the Daemon Manager, and backup and restore.
Tibco Rendezvous 7.1.28	Tibco http://www.tibco.com/software/enterprise_backbone/rendezvous.jsp	CSCOess	Supports the CWCS Event Services Software server-message bus. Highly efficient, scalable, with APIs for load balancing and fault tolerance.
Tomcat 4.1.33	Apache http://jakarta.apache.org/tomcat/	tomcat	Tomcat is the CWCS servlet container, used to implement the Java Servlet and JavaServer Pages technologies used throughout CWCS.
UCS-SNMP 4.2.2, NETPLUS 1.x.960.925	The NET-SNMP Project http://www.net-snmp.org/	CSCOxrts	A package of SNMP tools, including: An extensible agent and a notification receiver; an SNMP library; tools to request or set information from SNMP agents; tools to generate and handle SNMP traps; SNMP- related perl modules; versions of the UNIX netstat and df commands using SNMP; a Tk/perl mib browser.
Visibroker for Java 4.5.1; Visibroker for C++ 4.11	Borland http://www.borland.com/visibroker/	CSCOvorb	VisiBroker for Java and C++ provides essential software for developing, deploying, and managing robust, dynamic, and scalable distributed object applications. It is an implementation of the Common Object Request Broker Architecture (CORBA) from Object Management Group (OMG).
Xalan C++ 1.3	Apache http://xml.apache.org/xalan-c/index.html	xalan	An XSLT processor for transforming XML documents into HTML, text, or other XML document types. Written in C++. It works with the Xerces-C++ XML parser.

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Table 1-2   *CWCS Third-Party Tools (continued)*

Name	Vendor	Package	Description
Xalan Java 2.4.1.0	Apache http://xml.apache.org/xalan-j/	xalan	An XSLT processor for transforming XML documents into HTML, text, or other XML document types. It works with the the Xerces Java XML parser.
Xerces C++ 1.5.1	Apache http://xml.apache.org/ xerces-c/index.html	xerces	A validating XML parser written in a portable subset of C++. Parses, generates, manipulates, and validates XML documents. It works with the Xalan C++ XSLT processor.
Xerces Java 1.4.4	Apache http://xml.apache.org/ xerces-j/index.html	xerces	A validating XML parser written in Java. Parses, generates, manipulates, and validates XML documents. It works with the Xalan Java XSLT processor.
XML4J 2.0.11	IBM (http://www.alphaworks.ibm. com/formula/XML)	CSCOxml4j	A validating XML parser written in 100% pure Java.

Where to Find the CWCS SDK

The CWCS Software Development Kits, along with links to all SDK-related documentation and code , are available via links on the CWCS 3.0 SDK Web Portal hosted by Cisco Engineering & Manufacturing Connection Online (EMCO; the URL is http://mco.cisco.com/ubiapps/portal/go.jsp?portal_id=2537).

The CWCS 3.0.5 SDK Web Portal is accessible to all Cisco staff working within Cisco networks. If you have never accessed an EMCO web portal before, you will be asked to register online for an account. There may be a short access delay while your registration is processed.

For Further Assistance

For assistance with running the software, reporting problems, or questions about the software, contact: cs-ch-leads@cisco.com.

> **Note**   You can log bugs in the DDTS system, using CSC.embu; product=CWCS; component=sdk

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