

WAY4™ Application Server Functional Specification

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Introduction

This document describes WAY4 Application Server functionality.

Warnings and information messages are marked as follows:

 There is an increased danger of making errors.

 Information about important features, additional facilities, or the optimal use of certain functions of the system.

Chapter 1. Purpose

WAY4 Application Server is the software platform for managing WAY4 applications: Web applications (J2EE applications) and server (Back-end) applications.

WAY4 Application Server was developed to ensure the highly available operation of WAY4 applications, as well as to monitor and troubleshoot them.

WAY4 Application Server is a cross-platform application that can work under Unix (Red Hat Enterprise Linux, CentOS, OEL (Oracle Enterprise Linux), IBM AIX and Oracle Solaris) and Microsoft Windows.

Chapter 2. Architecture

WAY4 Application Server is a software platform used to manage WAY4 applications.

WAY4 Application Server architecture is shown in Fig. 1.

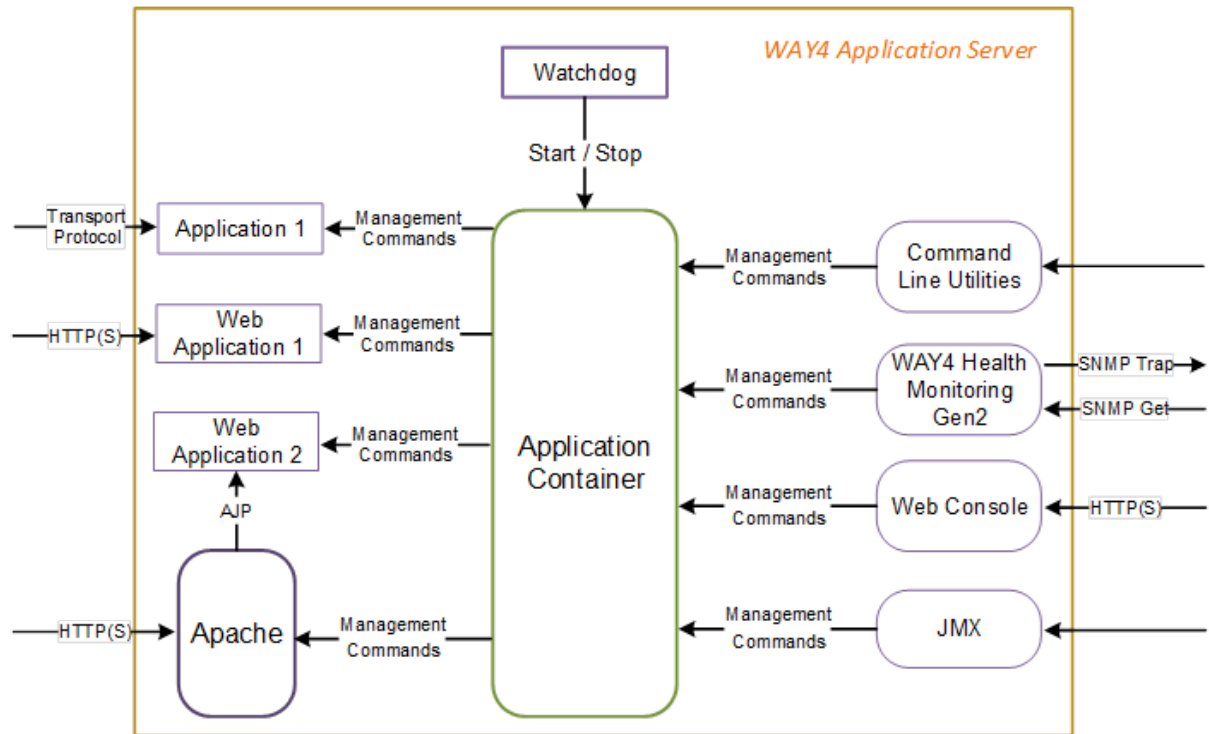


Fig. 1. WAY4 Application Server architecture

WAY4 Application Server includes:


- Application Container – the main process delivering management commands to applications; in addition, this process monitors application availability and in the event of a failure, restarts the application.
- Watchdog – service process that ensures the availability of the main process.

i For MS Windows, the system service "WAY4 Application Server" is used instead of "Watchdog".

- Apache – Web server component.
- Apache Tomcat – servlet container.
- JDK – Java Developer Kit.
- Command Line Utilities – console utilities used by the administrator to send management commands for applications and the main process.
- WAY4 Health Monitoring Gen2 – system application for gathering and processing information about the functioning of WAY4 applications and components, and for sending this information to external monitoring systems.

 WAY4 Health Monitoring Gen2 is supplied according to a separate agreement with the WAY4 vendor.

- Web Console – Web console for managing WAY4 applications.
- JMX (Java Management Extensions) – technology for managing WAY4 applications.

 Note that WAY4 applications are not included in WAY4 Application Server architecture. They are shown in Fig. 1 for demonstration purposes only.

 It is strictly forbidden to use third-party applications under the management of WAY4 Application Server without the WAY4 vendor's prior approval.

Chapter 3. Functionality

WAY4 Application Server main functionality:

- Configuring and Managing WAY4 Applications.
- Configuring and Managing WAY4 Application Server.
- Monitoring WAY4 Applications and WAY4 Application Server.

Configuring and Managing WAY4 Applications

WAY4 Application Server provides the following functionality for configuring and managing WAY4 applications:

- Set common parameters for applications (for example, automatically starting an application when WAY4 Application Server is started, RAM for the Java machine, application availability through the Apache Web server, etc.)
- Create, upgrade, and delete a WAY4 application instance.
- Start, restart, stop WAY4 applications.
- Get a list of stopped applications and statistic information about their operation (memory used, start time, port number, etc.).
- Save the configuration and snapshots of WAY4 applications.
- Save the configuration and information on the operation of the operating system on which WAY4 Server is installed with WAY4 applications. This information is used to troubleshoot WAY4 Application Server and fix errors.
- Register WAY4 application versions in the WAY4 Cards database.
- Manage secure access to Web applications:
 - Generate Certification Authority (CA) certificates and Web application keys and certificates.
 - Import keys to the Web application storage.
 - Work with the names and passwords of users with access to a Web application.
- Change the appearance of HTTP error pages generated by the Web server component for Web applications.
- Restore an application from a snapshot made earlier.
- Management using the WAY4 console:
 - Start, restart and stop WAY4 applications.
 - View and edit WAY4 application configuration files.
 - View and analyse information shown in WAY4 application log files.

Configuring and Managing WAY4 Application Server

The following possibilities are available for configuring WAY4 Application Server:

- Main parameters of the WAY4 Application Server:
 - Logging level, maximum number of files in the log and their size.
 - Possibility to automatically start the Web server component when WAY4 Application Server starts.
 - Commands or scripts that must be executed before starting or after stopping WAY4 Application Server.
 - Number of applications simultaneously started when WAY4 Application Server starts.
 - Dump parameters.
- The web server component is configured by editing the values of standard Apache Web server parameters, for example:
 - Logging level, maximum number of files in the log and their size.
 - Settings for the secure connection under HTTPS (SSL).
 - Settings for support and maintenance of several domain names.
 - Configuration of additional modules (for example, FastCGI, GeoIP, etc.).
 - Basic settings for the web server transport layer, etc.
- Configuring the Web server component in Proxy server mode.
- Specifying parameters for interaction with the JMX interface.

WAY Application Server is managed using the console utility, allowing the following:


- Start, stop and restart WAY4 Application Server.
- Get a list of stopped applications and statistic information about the operation of applications and WAY4 Application Server.
- Create and delete a system service.
- Get a list of the current versions of installed WAY4 Application Server components and applications.
- The Web server is managed using console utilities and components can be started, stopped and restarted. Moreover, standard ports can be assigned for HTTP and HTTPS, and certificates for Web server components obtained and used.

Monitoring WAY4 Applications and WAY4 Application Server

WAY4 Application Server offers the following monitoring functionality:

- Audit Log. A set of CSV files (Comma-Separated Values) containing information about actions by users and internal processes with WAY4 Application Server and WAY4 applications.
- WAY4 Application Server log files, Web server and WAY4 applications log files.
- WAY4 Health Monitoring Gen2 system application, making it possible to do the following:

- Gather and process information about the functioning of WAY4 applications and system components:
 - Metrics, for example, the number of transactions per second, average time to process a transaction, etc.
 - Statuses of components and processes.
 - System messages, for example; transaction processing errors, etc.
- Analyze obtained information.
- In real time, generate messages about the operation of WAY4 components and send them to external monitoring systems via SNMP version v1 or v2c.
- Register WAY4 application versions in the WAY4 Cards database.
- Save the history of metrics, statuses and messages in an archive relational database with the ability to analyze data later using SQL.

 The WAY4 Health Monitoring Gen2 solution is supplied according to a separate agreement with the WAY4 vendor.

Chapter 4. Interaction with other Products and Systems

A connection with the WAY4 Cards database is required to monitor WAY4 applications and register their versions using WAY4 Health Monitoring Gen2.