Specification

Scheduler Functional Specification

1.2.88

12.01.2021

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Contents

This document is an introduction to Scheduler functionality.

When working with this document, it is recommended to use the following resources from the OpenWay documentation series:

- Scheduler Technical Requirements
- Health Monitoring Gen2 Functional Specification

Warnings and information messages are indicated as follows:

Warnings about potentially hazardous situations or actions.

Information about important features, additional options, or the best use of certain system functions.

1 Overview

Scheduler makes it possible to execute jobs according to rules described in a configuration file.

High Availability mode allows a fault tolerance mechanism for Scheduler to be set up.

> Note that High Availability mode is a licensed option. For additional information, contact OpenWay.

Scheduler has the following capabilities:

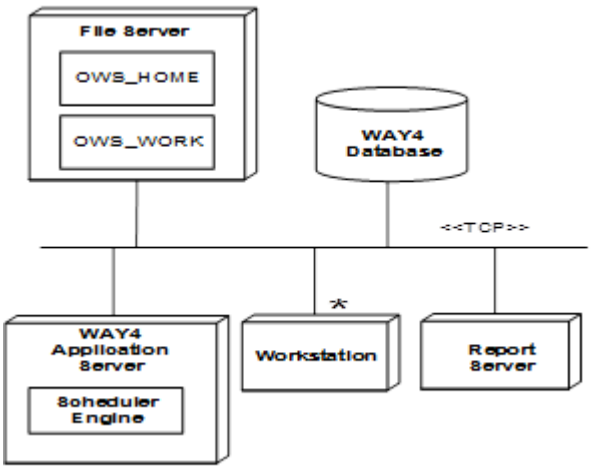
- Execution of computationally intensive processes, usually on dedicated Scheduler servers (see the document "Scheduler Technical Requirements").
- Provision of additional capabilities to ensure the security of various jobs by executing them using a Scheduler instance running on a separate workstation excluded from general use and on behalf of a user with appropriate privileges.
- Execution of routine or other lengthy operations according to a schedule, with control based on results and execution logs.
- Processing the commands of external applications that manage the start of Way4 jobs. Scheduler web services are used to do this.

Scheduler jobs are Way4 Manager menu items.

> For more information on the use of Scheduler with DB Manager, contact OpenWay.
>
> For AIX, Linux and Solaris platforms, starting operating system processes is supported, as well as the the operation of certain java pipes. For additional information, contact OpenWay.

2 Architecture

Scheduler architecture includes the following three components:



Architecture of a solution with Scheduler

- A Scheduler instance is an application installed on Application Server. Its functions include:
  - Analyzing the list of jobs in the database to determine their readiness for execution, and starting jobs for execution.
  - Tracking the results of job execution and registering them in the appropriate system logs.
  - Sending messages by email about changes in the state of a Scheduler instance or in the statuses of Scheduler jobs.

  These tasks are resolved using data from the application's configuration file.
- Database tables and procedures. The basic tasks of this component are:
  - Storing job data.
  - Providing access to data and verifying data input from various workstations.
- Way4 Manager user menu items and forms. This component is responsible for:
  - Registering users with the privilege to run Scheduler.
  - Editing and creating jobs.
  - Managing jobs.
  - Monitoring Scheduler operation.

3 Description of functionality

Scheduler functionality:

- Registering users with the privilege to run Scheduler.
- Creating, editing, and grouping jobs.
- Supporting parallel data export-import.
- Supporting jobs with handling of business logic errors.
- Managing jobs.
- Monitoring operation.
- Sending automatic messages.
- Storing job data.

Web services can be used for the following:

- Executing jobs.
- Checking job status.
- Getting the job log.
- Stopping jobs.

Health Monitoring can be used to monitor Scheduler (see the document "Health Monitoring Gen2 Functional Specification").

3.1 Registering users with run privileges

Users who can run Scheduler must have certain privileges to access DB tables and user menu items. A special group of users with privileges to run Scheduler jobs must be created.

3.2 Creating, editing, and grouping jobs

Jobs are created and edited in the Way4 Manager interface.

Each job is created in a certain Scheduler instance.

For each job, the way it will be executed is specified – according to a schedule or by a command sent by a web service. If a job is scheduled, dates and time define the interval during which the schedule is effective, and the frequency with which the job will be executed, taking holidays, weekends and working days into account.

Jobs can be grouped in batches and the order for executing them within the batch can be specified.

3.3 Supporting parallel data export-import

Scheduler supports execution of certain pipes in parallel mode, i.e. when several copies of a pipe are run simultaneously.

3.4 Support of nonlinear and synchronous job algorithms

It is possible to change the sequence in which actions are executed depending on the results of items executed earlier. This is made possible by BPM service functionality for business logic exception handling.

Process synchronisation is supported – demarcation of access (in time) to a resource or wait for the execution of an Event.

During execution of a job, Scheduler allows the use of SQL queries to check conditions, and the further logical branching of menu items depending on the results of executing a stored procedure or function.

3.5 Managing jobs

Users can start job execution, prohibit/allow job execution, and assign the error status to a job.

3.6 Automatic message sending

Messages about changes in the state of a Scheduler instance or Scheduler job status can automatically be sent by email.

3.7 Storing job information

All information about scheduled jobs and jobs that have been executed is stored in database structures and job logs. Web services are used to access job logs.

4 Use cases

The following are examples of the most common Scheduler jobs:

- Executing daily procedures.
- Periodic generation of reports.
- Periodic import of external files, such as banking system files.
- Start (scheduled) of configuration and management scripts on servers with Way4 applications running on Application Server.
- Execution of processes requiring a large number of calculations, on dedicated workstations.

5 Interaction with other products

The following products are required for Scheduler:

- Application Server
- Way4 Manager

Health Monitoring can be used to monitor Scheduler.