ONE Runtime

v15.4

Agenda

ONE Runtime

1. Introduction to the ONE Runtime Server
2. Starting and Stopping the Server
3. Runtime Configuration
4. Server Components
5. Authentication and Authorization
6. Workflow
7. Scheduler
8. Advanced Topics (Optional)

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ONE runtime server

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Architecture Overview

ONE Runtime Server: This is the core engine, but it's more than just MDM. It executes various data quality processes, including:

- **Workflow Engine:** Orchestrates and automates data quality tasks, including those for MDM.
- **Scheduler:** Schedules and executes jobs (workflows, scripts, etc.).
- **API Services:** Provides APIs for integration with other systems.
- **Data Quality Engine:** Handles data profiling, cleansing, standardization, matching, and merging (this includes MDM functionality but is not limited to it).
- **Connectors:** Connects to diverse data sources (databases, files, applications).

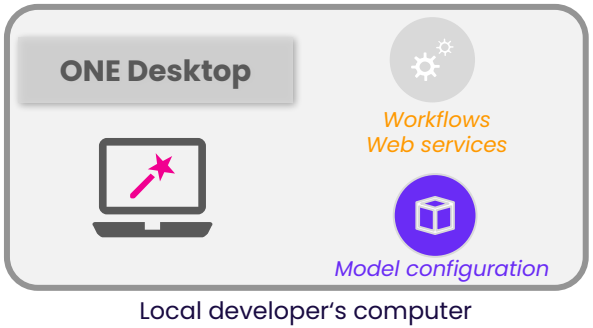
ONE Web Applications: Ataccama ONE has multiple web applications, each with a specific purpose:

- **ONE Data Quality Center:** For designing, managing, and monitoring data quality rules and workflows.
- **ONE MDM Hub:** Specifically for managing master data, hierarchies, and relationships.
- **ONE Data Governance Center:** For data governance tasks like data discovery, lineage, and policy management.

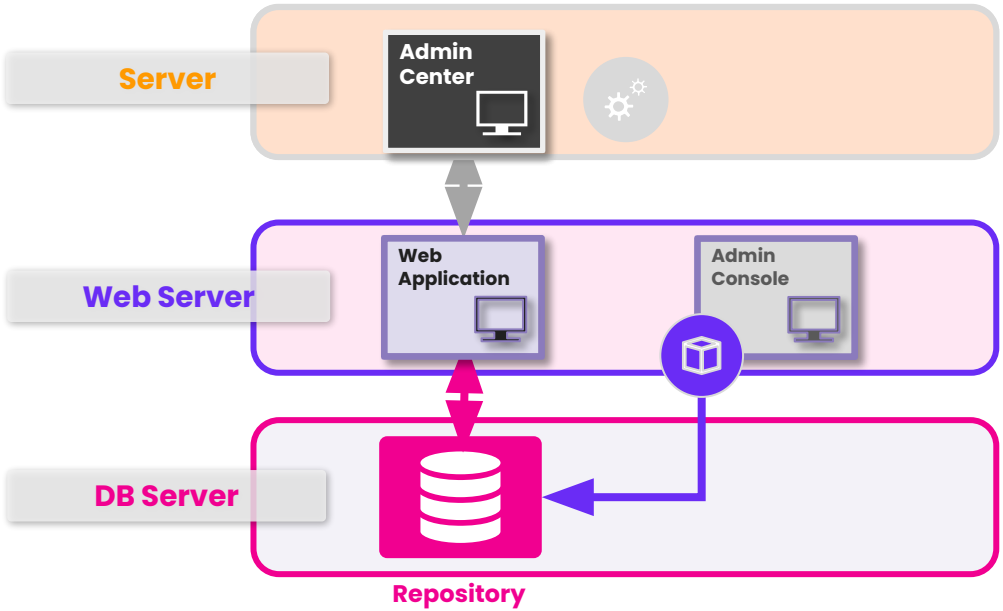
Storage: A relational database stores metadata, configurations, and operational data. It typically uses PostgreSQL or Aurora PostgreSQL.

Keycloak: This is the identity and access management (IAM) solution for secure authentication and authorization across all ONE components.

Architecture Diagram



Local developer's computer



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ONE Runtime Server

The Ataccama ONE Runtime Server is a powerful platform for executing and managing data quality processes. It provides a centralized environment for running workflows, scheduling tasks, and monitoring server activity.

Key functionalities

- Execute workflows (manually or on a schedule)
- Run online services
- Start a bundled database
- Log activity
- Monitor server activity, health status, and perform solution-specific operations

There is typically one Admin Centre installed per environment: e.g. one in Dev, Test, and Prod.

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ONE Runtime Server

The Ataccama ONE Runtime Server is a powerful platform for executing and managing data quality processes. It provides a centralized environment for running workflows, scheduling tasks, and monitoring server activity.

Key benefits

- Centralized management of data quality processes
- Automation of tasks for increased efficiency
- Improved collaboration and version control
- Enhanced system security
- Continuous availability and minimal downtime

ONE Runtime Server

The Ataccama ONE Runtime Server is a powerful platform for executing and managing data quality processes. It provides a centralized environment for running workflows, scheduling tasks, and monitoring server activity.

Key components

- **RuntimeConfig:** Defines shared resources like database connections and folder shortcuts.
- **ServerConfig:** Determines which components the Admin Center should start up.
- **HTTP Dispatcher:** Routes incoming HTTP requests and enforces access control.
- **Workflow Server Component:** Enables workflow execution through various methods.
- **Online Services Component:** Initializes and deploys online services for requests.
- **Scheduler Server Component:** Facilitates scheduling and executing generic jobs.
- **Versioned File System Component:** Monitors configuration file changes, enabling reloading without server restarts.
- **Notification Handler Server Component:** Schedules scripts or workflows based on Metadata Management Module changes.

Topic highlights

- The Ataccama ONE Runtime Server is a Java application with a rich set of features for Ataccama solutions.
- The available features depend on the components defined in the Server Configuration file.
- The serverConfig file is where users specify which components the Admin Center should start up.
- The RuntimeConfig file houses connections between the Admin Center and other services.

Memory Refresher #1
ONE runtime server

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What is the purpose of the Ataccama ONE Runtime Server?

1. To create and edit data quality rules
2. To store and manage user data
3. To provide a user interface for data visualization
4. To execute and manage data quality processes

What are examples of main components of the Ataccama ONE Runtime Server?

1. RuntimeConfig, ServerConfig, HTTP Dispatcher, Workflow Server Component
2. Data Quality Console, Data Visualization Engine, Reporting Tool
3. GitLab Server, Apache Tomcat, Eclipse IDE
4. Keycloak Server, Docker Container, Jenkins Pipeline

How do you start and stop the Ataccama ONE Runtime Server?

1. By using the OnlineCtl command-line tool or the start.[bat|sh] and stop.[bat|sh] scripts.
2. By logging in to the Ataccama ONE Desktop and clicking the "Start Server" or "Stop Server" button.
3. By restarting the computer on which the Ataccama ONE Runtime Server is installed.
4. By using the Task Manager to end the Ataccama ONE Runtime Server process.

What is the purpose of the RuntimeConfig file?

1. To store the server's log files.
2. To define the user interface elements of the Ataccama ONE Runtime Server Admin application.
3. To configure the security settings for the Ataccama ONE Runtime Server.
4. To define shared resources like database connections and folder shortcuts.

What is the purpose of the serverConfig file?

1. To store the user's preferences for the Ataccama ONE Runtime Server Admin application.
2. To define the components that should be included in the Ataccama ONE Runtime Server installation.
3. To determine which components the Admin Center should start up.
4. To configure the network settings for the Ataccama ONE Runtime Server.

Starting and stopping the ONE runtime server

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Starting the Ataccama ONE Runtime Server

The Ataccama ONE Runtime Server can be started and stopped using the OnlineCtl command-line tool or the start.[bat|sh] and stop.[bat|sh] scripts.

Starting the server

- To start the server with the default configuration, use the following command:

```
<Build folder>/server/start.[bat|sh]
```

- To start the server with a custom configuration, use the following command:

```
onlinectl.[bat|sh] -config ..\server\etc\default.serverConfig start
```

Starting the Ataccama ONE Runtime Server

Stopping the server

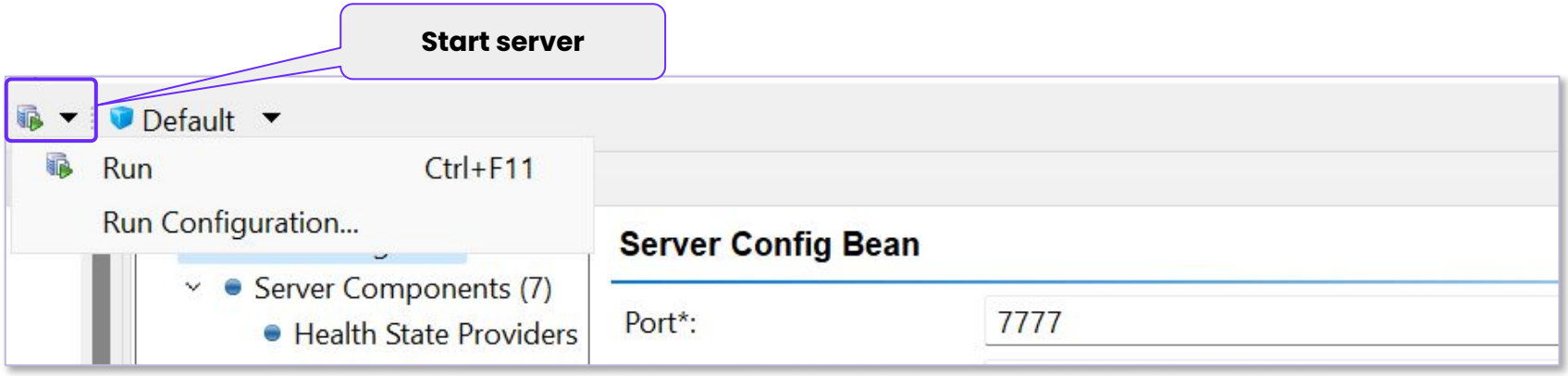
- To stop the server with the default configuration, use the following command:

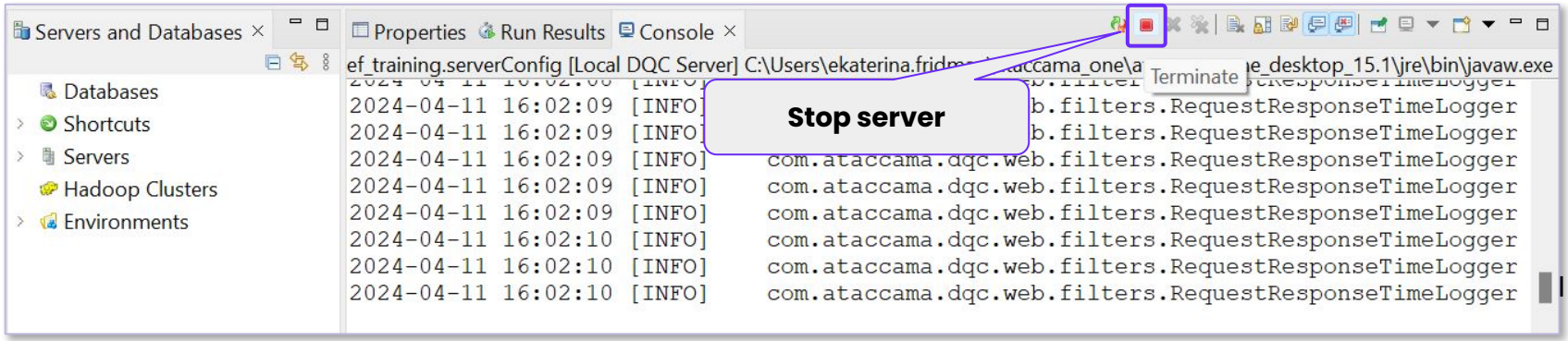
```
<Build folder>/server/stop.[bat|sh]
```

- To stop the server with a custom configuration, use the following command:

```
onlinectl.[bat|sh] -config ..\server\etc\default.serverConfig stop
```

Start and stop from ONE Desktop





Topic highlights

- The **OnlineCtl** tool is a command-line utility for managing the Ataccama ONE Runtime Server.
- The **start** command starts the server with the specified configuration.
- The **stop** command stops the server.
- You can start or stop the server from the ONE Desktop environment.

Memory Refresher #2
Starting and stopping the ONE runtime server

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Which command-line tool is used to manage the Ataccama ONE Runtime Server?

1. onlinectl.exe
2. onlinectl.py
3. onlinectl.[bat|sh]
4. onlinectl.java

What is the command to start the server with the default configuration?

1. onlinectl.[bat|sh] start
2. <Build folder>/server/start.[bat|sh]
3. <Build folder>/bin/onlinectl.[bat|sh] start
4. <Build folder>/server/onlinectl.[bat|sh] start

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What is the command to stop the server with a custom configuration?

1. <Build folder>/server/stop.[bat|sh]
2. onlinectl.[bat|sh] -stop ..\server\etc\custom.serverConfig
3. <Build folder>/bin/onlinectl.[bat|sh] -config ..\server\etc\custom.serverConfig stop
4. onlinectl.[bat|sh] -config ..\server\etc\custom.serverConfig stop

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Where can you find the OnlineCtl tool?

1. <Build folder>/server/
2. <Build folder>/bin/
3. <Build folder>/etc/
4. <Build folder>/lib/

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Can you start and stop the server from the ONE Desktop environment?

1. Yes
2. No

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Runtime configuration

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Runtime Configuration

The Ataccama ONE Runtime server relies on two main configuration files:

ServerConfig: Contains the server components, their configurations, and references to other necessary files.

RuntimeConfig: Contains the connections between the Admin Centre and other services, such as databases and folder shortcuts.

Runtime Configuration

Key takeaways

ServerConfig:

- Is where the HTTP Dispatcher component is defined.
- Is where the Workflow Server component is defined.

RuntimeConfig:

- Is referenced in the ServerConfig file.
- Is where database connections are defined.

ONE Runtime Server – Configuration

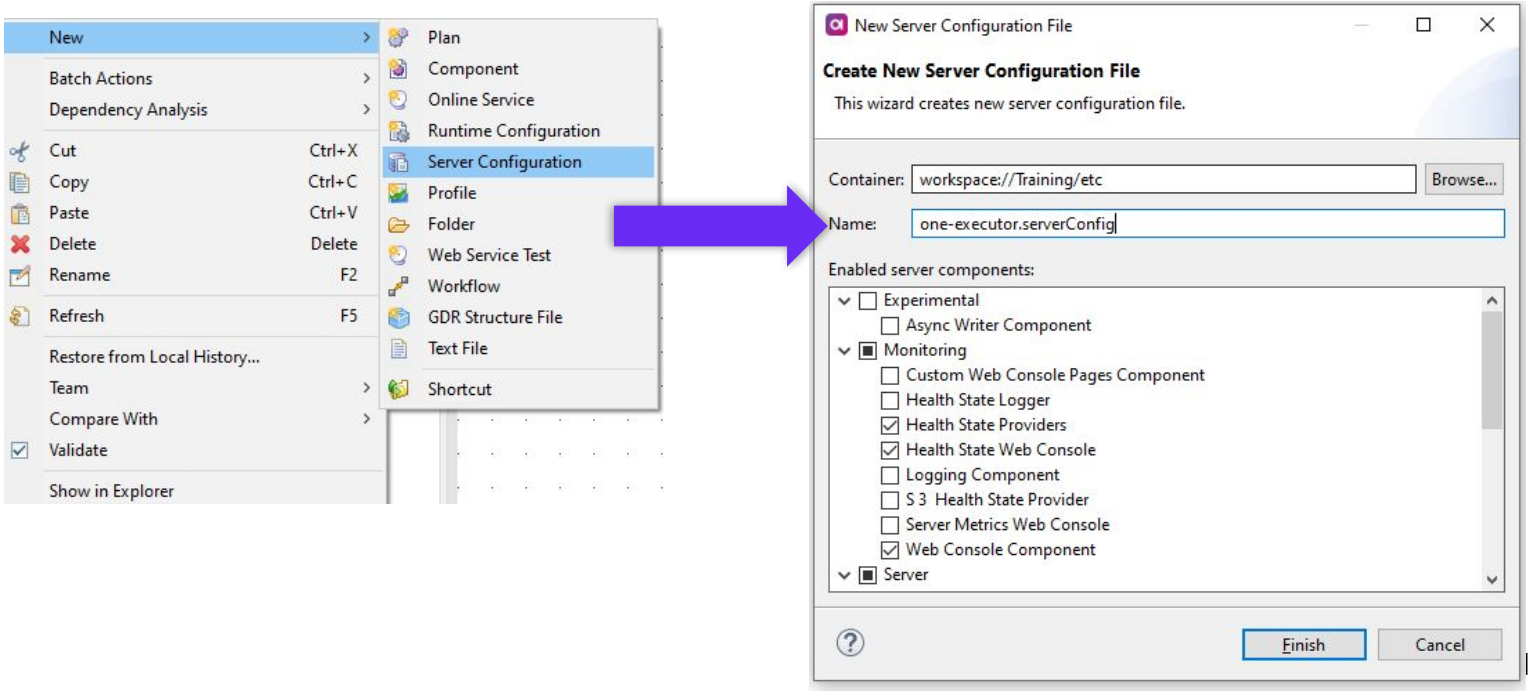
From the One Desktop Advanced course

The server configuration file is stored in the .ServerConfig xml file which can be edited manually.

ONE Runtime Server – Configuration (1/2)

From the One Desktop Advanced course

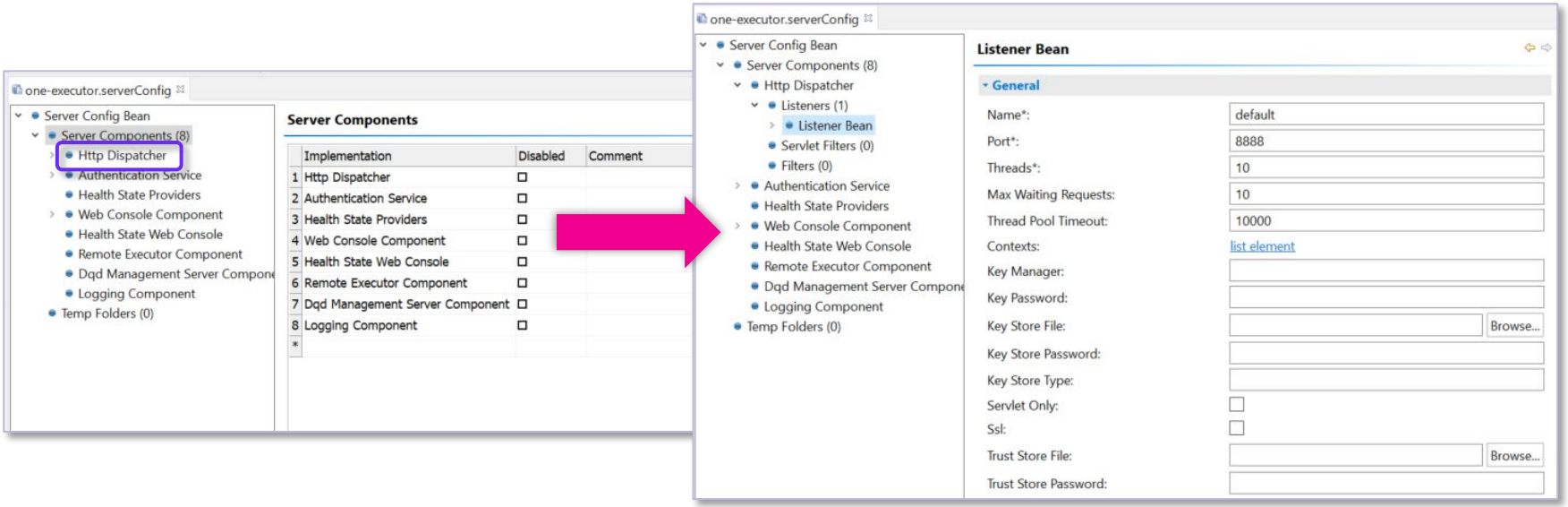
The server configuration can also be created and modified directly in the ONE Desktop environment.



ONE Runtime Server – Configuration (2/2)

From the One Desktop Advanced course

The server configuration can also be created and modified directly in the ONE Desktop environment:



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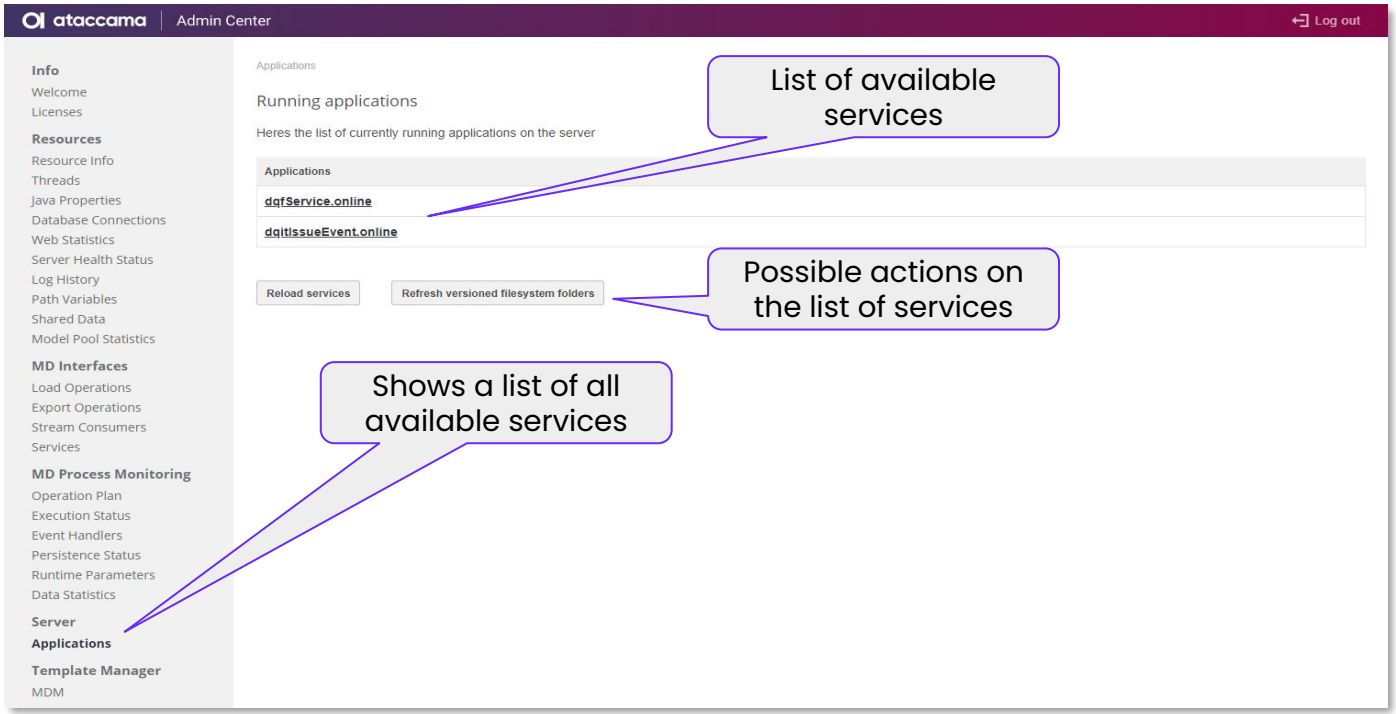
Using the ONE Runtime Server

From the One Desktop Advanced course



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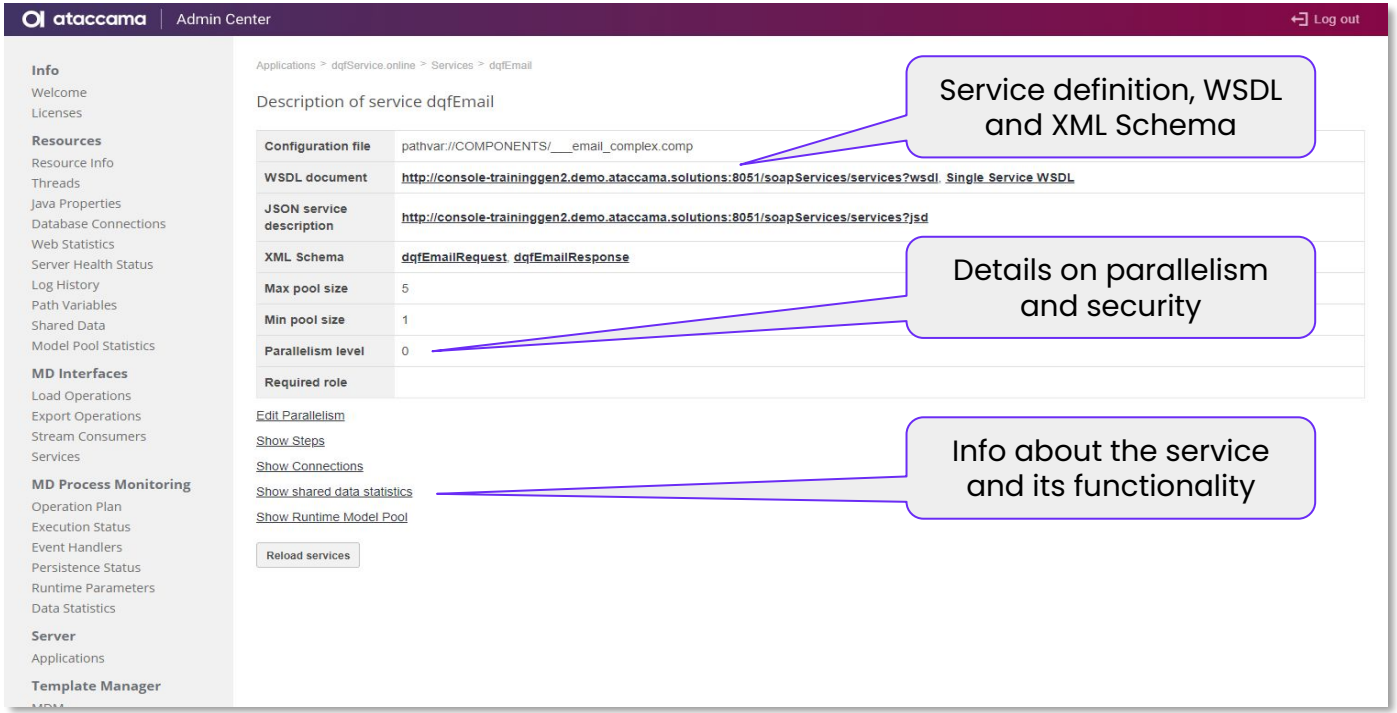
Using the ONE Runtime Server

From the One Desktop Advanced course



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Topic highlights

- The Ataccama Admin Center relies on the serverConfig and runtimeConfig XML files for its startup process.
- The server configuration is primarily stored in one XML file, encompassing server operation and loaded modules (e.g., HTTP dispatcher, online services, workflows, schedulers).
- RuntimeConfig functionality defines shared resources like database connections and folder shortcuts.
- RuntimeConfig establishes connections between the Admin Centre and other services.
- Alternatively, configuration creation and modification are possible directly within the ONE Desktop environment.
- Sources and related content

Memory Refresher #3 Runtime configuration

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Which of the following is NOT a key takeaway regarding runtime configuration?

1. The RuntimeConfig file is referenced in the ServerConfig file.

2. The RuntimeConfig file is where database connections are defined.

3. The RuntimeConfig file is where the HTTP Dispatcher component is defined.

4. The serverConfig file is where the Workflow Server component is defined.

Which file contains the server components and their configurations?

1. ServerConfig
2. RuntimeConfig
3. onlineConfig
4. componentConfig

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Which file contains the connections between the Admin Center and other services?

1. ServerConfig
2. RuntimeConfig
3. serviceConfig
4. connectionConfig

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Where are database connections defined?

1. serverConfig
2. RuntimeConfig
3. databaseConfig
4. dataSourcesConfig

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Can you create and modify configurations directly within the ONE Desktop environment?

1. Yes
2. No

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Workshop #1
Generic Server Configuration

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Server components

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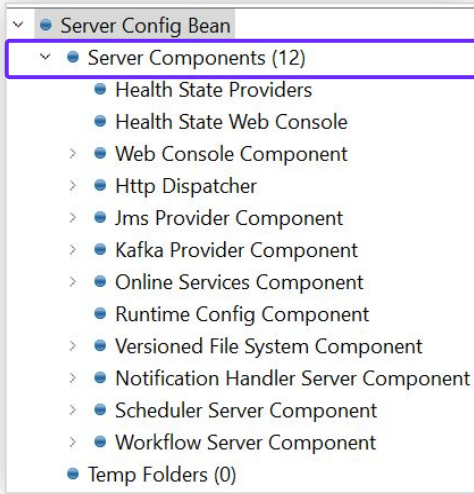
Server components

The Ataccama ONE Runtime server has several components that can be enabled and configured.

- **HTTP Dispatcher:** Routes incoming HTTP requests to designated services and oversees access control.
- **JMS Provider:** Manages active connections within the JMS configuration pool and configures JMS loggers.
- **Kafka Provider:** Enables the utilization of Kafka as both a source and target for online service components.
- **Online Services:** Initializes and deploys services for online requests.
- **Runtime Config:** Enables dynamic modifications to the RuntimeConfig file.
- **Versioned File System:** Monitors configuration file changes, enabling reloading without server restarts.
- **Notification Handler Server:** Schedules scripts or workflows based on Metadata Management Module changes.
- **Scheduler Server:** Facilitates scheduling and executing generic jobs within the online server.
- **Workflow Server:** Enables workflow execution on the server through various methods.



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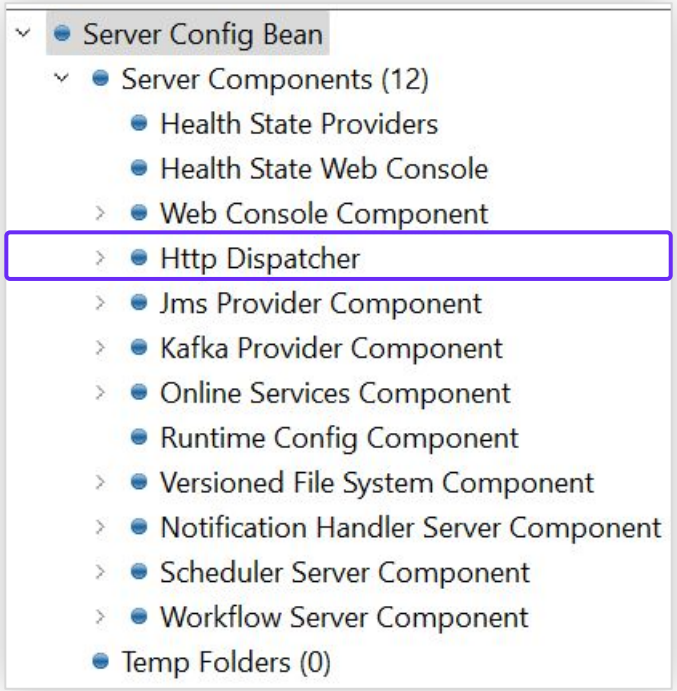
HTTP Dispatcher

- **HTTP Dispatcher:**
  - Routes incoming HTTP requests to designated services.
  - Oversees access control by verifying user permissions.
  - Restricts access to directory listings for enhanced system security.
- **Configuration:**
  - Involves setting up listeners to capture incoming requests.
  - Utilizes filters to enforce additional security measures or perform auxiliary tasks like logging.



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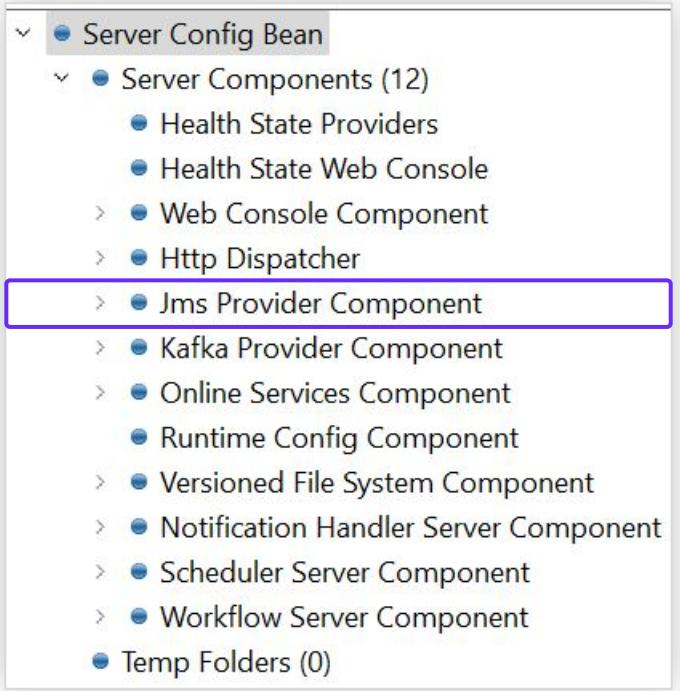
JMS Provider Component

- **The JMS Provider Component:**
  - Manages active connections within the JMS configuration pool
  - Configures JMS loggers
  - References specific JMS connections defined in the Runtime Configuration file, limiting access to these connections for the ONE Runtime Server
- **Adjustable Connection Pool Size:**
  - Allows for the adjustment of connection pool size to control concurrency
  - Default and maximum values are set for optimal performance
- **Filters:**
  - Define logging behavior within the component
  - Specify mapping options for connections and destinations
  - Ensure selective logging based on configuration



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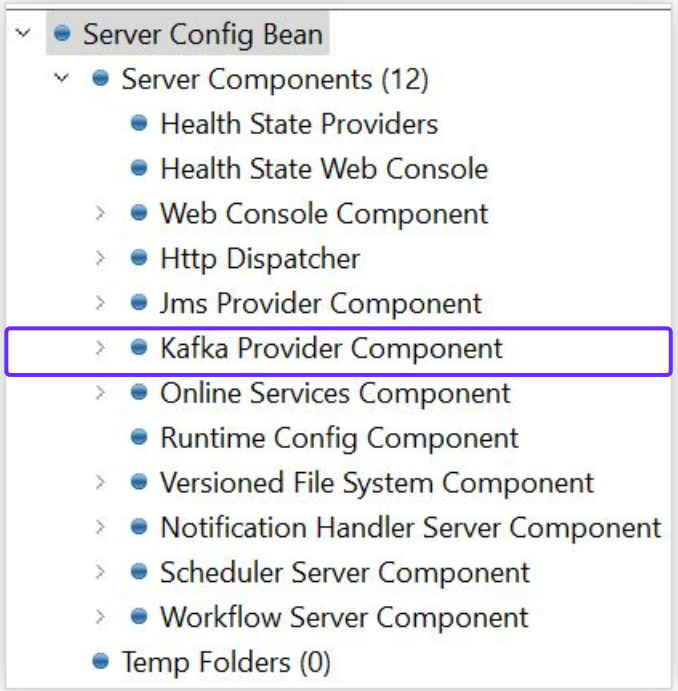
Kafka Provider Component

- **The Kafka Provider Component:**
  - Enables the utilization of Kafka as both a source and target for online service components.
  - Integration into the Online Server:
  - Involves adding a configuration definition specifying Kafka server resources.
- **Component Configuration:**
  - Includes referencing defined Kafka server connections.
  - Allows for the utilization of Kafka functionalities within the online service environment.



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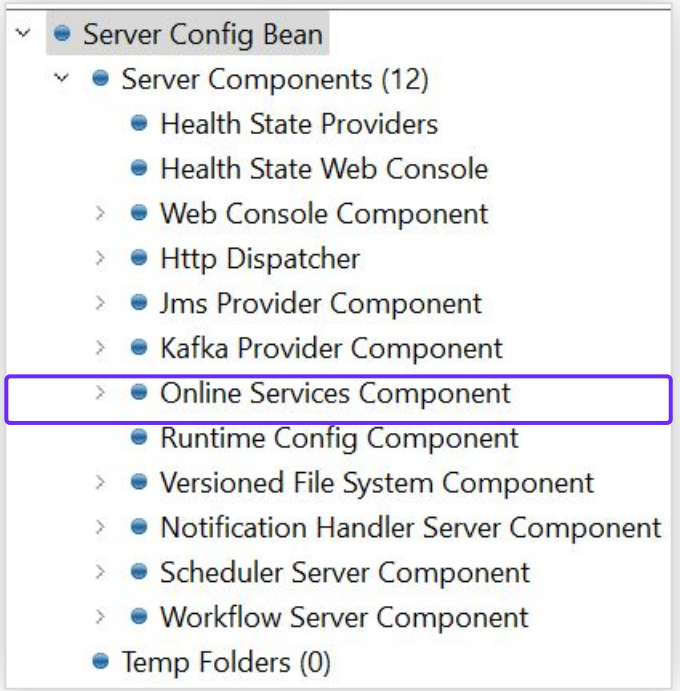
Online Services Component

- **The Online Services Component:**
  - Initializes and deploys services for online requests
  - Requires a specified folder path for configuration files
- **Activation:**
  - Add the component definition to the server configuration
  - Configuration Details:
  - Specify service lookup folders, containing necessary *.online files for defining services
- **Additional Options:**
  - Specify listeners to determine where service handlers are registered



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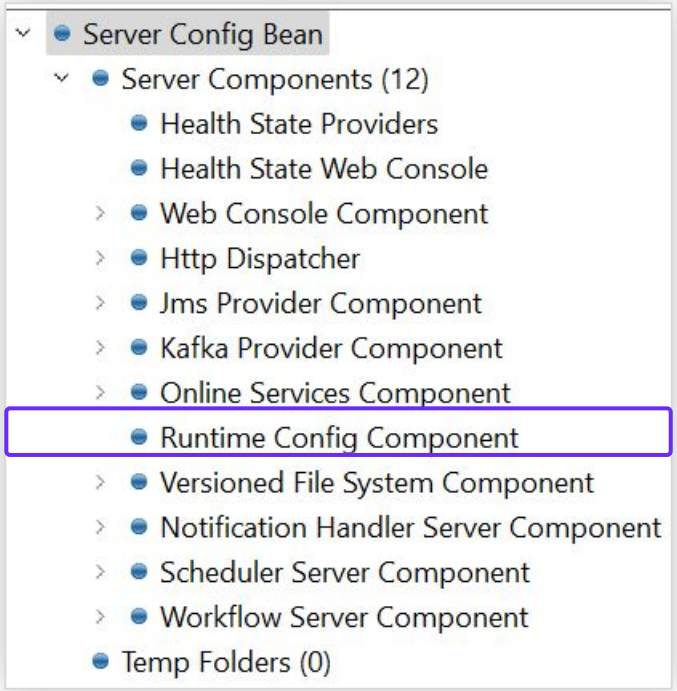
Runtime Config Component

- **The Runtime Config Component:**
  - Enables dynamic modifications to the runtime configuration file (*.runtimeConfig)
- **Activation and Interface:**
  - When enabled, it adds a "Runtime Configuration" item to the Resources section in the Admin Center.
- **User Interaction:**
  - Users can add Data Sources, Database Drivers, or Path Variables to the runtime configuration file by clicking "Add New".
  - Similarly, existing items can be deleted from the runtime configuration file using the same interface.



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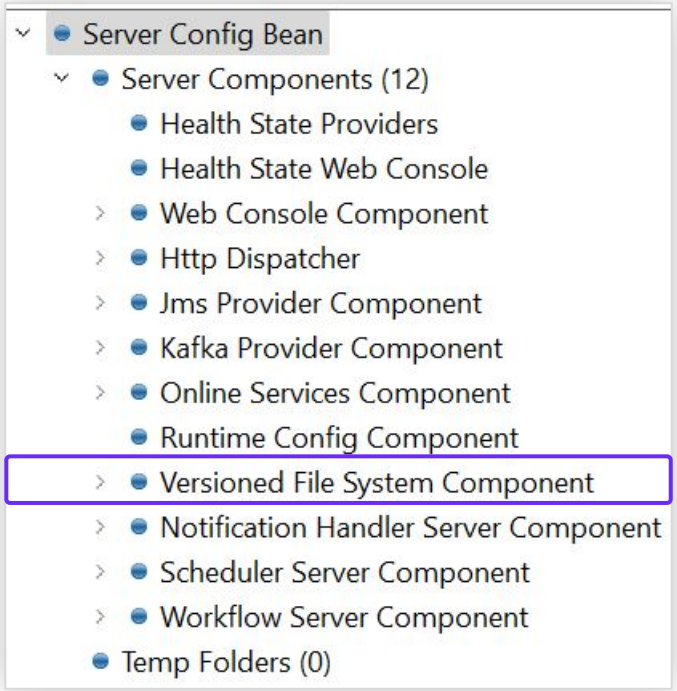
Versioned File System Component

The Versioned File System Component:

- Monitors configuration file changes, enabling reloading without server restarts.
- Requires specifying versioned folders.



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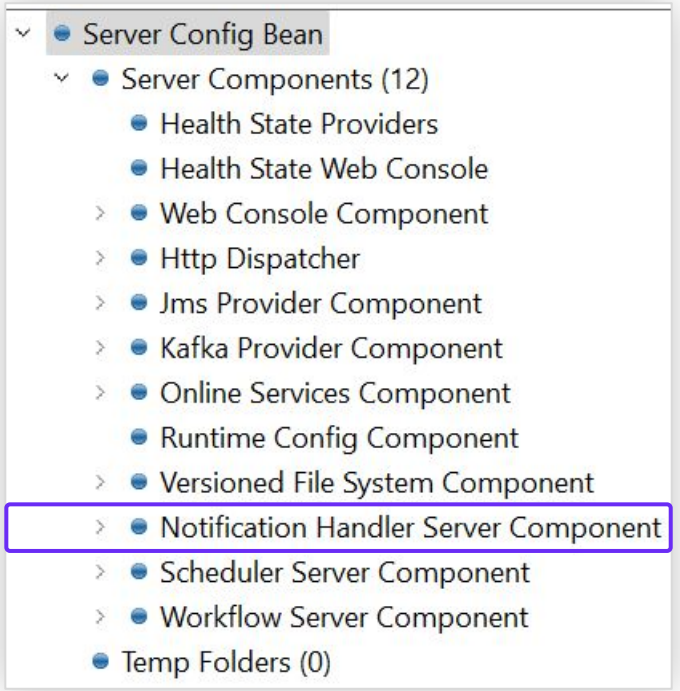
Notification Handler Server Component

The Notification Handler Server Component:

- Schedules scripts or workflows based on Metadata Management Module changes.
- Requires defining sources for notification handlers, specifying paths, and selecting storage backends.
- Options include filesystem or database persistence, with settings for dialect file, data source, and prefix.
- Requires the Web Console and Workflow Server Components.



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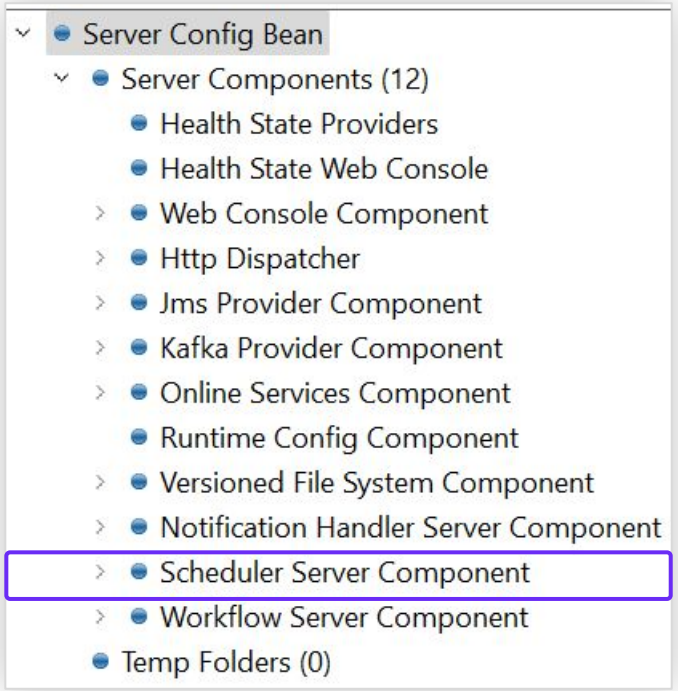
Scheduler Server Component

The Scheduler Server Component:

- Facilitates scheduling and executing generic jobs within the online server.
- Scans specified folders for schedules (files with the *.sch extension).
- Supports customization of storage backends for job execution states, including file system persister and database persister.
- Necessitates the presence of the Web Console Component and Workflow Server Component within the server environment.



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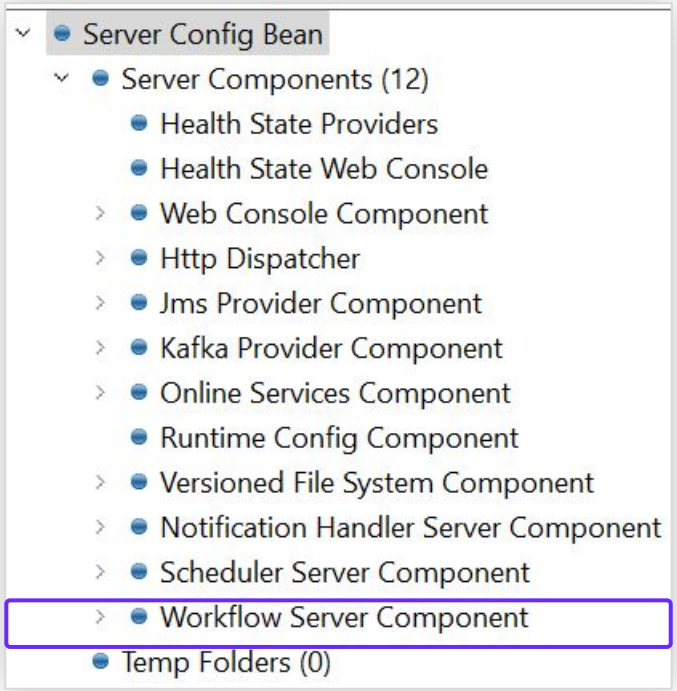
Workflow Server Component

The Workflow Server Component:

- Enables workflow execution on the server through various methods such as Admin Center, HTTP Request, and OnlineCtl.
- Supports logging customization and facilitates storage of workflow-related files and resources.
- Offers flexibility in choosing between filesystem and database storage for workflow execution states.
- Supports various database versions including Microsoft SQL Server, Oracle, PostgreSQL, and Apache Derby.



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Topic highlights

- The HTTP Dispatcher component routes HTTP requests and enforces access control.
- The Workflow Server component enables workflow execution through various methods.
- The Online Services component initializes and deploys online services for requests.
- The Notification Handler Server component schedules scripts or workflows based on Metadata Management Module changes.
- The Runtime Config component allows dynamic modifications to the runtime configuration file.
- The Scheduler Server component facilitates scheduling and executing generic jobs within the server.
- The Versioned File System component monitors configuration file changes, enabling reloading without server restarts.

Memory Refresher #4 Server components

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Which component routes incoming HTTP requests and enforces access control?

1. HTTP Dispatcher
2. JMS Provider
3. Kafka Provider
4. Online Services

Which component manages active connections within the JMS configuration pool?

1. HTTP Dispatcher
2. JMS Provider
3. Kafka Provider
4. Online Services

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Which component enables the utilization of Kafka as a source and target?

1. HTTP Dispatcher
2. JMS Provider
3. Kafka Provider
4. Online Services

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Which component allows dynamic modifications to the RuntimeConfig file?

1. Online Services
2. Versioned File System
3. Notification Handler Server
4. Runtime Config

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Which component monitors configuration file changes?

1. Online Services
2. Versioned File System
3. Notification Handler Server
4. Runtime Config

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Authentication and Authorization

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Authentication and Authorization

The Ataccama ONE Runtime server can be secured using different methods, including:

- A password file
- LDAP-based authentication
- Custom methods

Authentication and Authorization

Authentication methods

- Trust server method: No authentication.
- Secret server method: Simple authentication based on a passphrase.
- Password server method: Standard username and password authentication.

Authorization

- Roles are assigned to users to control access to resources.
- Role mapping providers can be used to assign roles based on authentication method and IP address.

The Authentication Service component is used to protect the server and services.

Only the HTTP BASIC algorithm is used for authentication.

The Authentication Service component assigns roles to each request and compares them with the roles required to invoke the service.

Topic highlights

- The Authentication Service component is used to protect invoking of services by using a username and password.
- The component assigns some roles to each request and then compares the list of assigned roles with the role required in order to be allowed to invoke the service.
- Since version 12, Authentication Service component is used only to secure OnlineCtl commands sent to the server via the internal server communication port.
- Using the component for other purposes is not supported.

Memory Refresher #5 Authentication and Authorization

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Which of the following is NOT a supported authentication method on the Ataccama ONE Runtime server?

1. Password file
2. LDAP
3. Kerberos
4. Custom methods

Which authentication method provides no authentication at all?

1. Trust server method
2. Secret server method
3. Password server method
4. No security method

Which authentication method uses a passphrase?

1. Trust server method
2. Secret server method
3. Password server method
4. Passphrase method

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Which authentication method is the most secure and recommended?

1. Trust server method
2. Secret server method
3. Password server method
4. Passphrase method

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What is the purpose of role mapping providers?

1. To map users to groups.
2. To assign roles based on authentication method and IP address.
3. To provide a mapping of roles to resources.
4. To map roles to permissions.

Workflow

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Workflow

Ataccama Technical Workflow is an out-of-the-box orchestration tool.

Workflows are used to orchestrate and automate data quality processes.

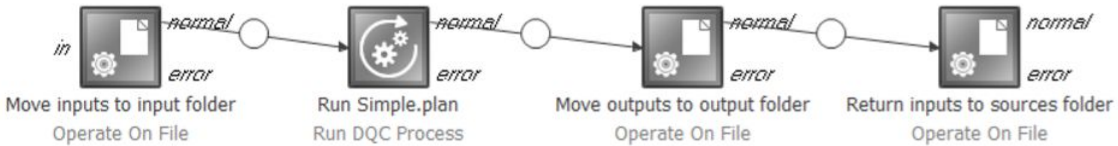
They consist of tasks and links, which define the order in which the tasks should be executed.

Workflows can be executed manually or on a schedule.

They can be monitored and managed from the ONE Runtime Server Admin.

Workflows are created in an open XML format (.ewf files).

Workflows support two types of variables: input variables and derived variables.



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Workflow

Ataccama Technical Workflow: Streamlining Data Management

Predefined Tasks for Automation: Ataccama Technical Workflow is a ready-to-use tool that simplifies the automation of data management tasks. It offers a range of predefined tasks designed to handle various scenarios, making complex processes more efficient.

External Operations: Beyond core Ataccama functions, the workflow can execute tasks outside the platform. This includes operations involving databases, file systems, and running system-level scripts.

Customizable Tasks: Each task within the workflow comes with its own configuration options. This flexibility allows you to tailor the workflow to match your specific requirements.

Smart Linking and Routing: Tasks within the workflow can be linked together. These links include conditional routing based on the success or failure of preceding tasks, enabling intelligent workflow behavior.

Workflow

Ataccama Technical Workflow: Streamlining Data Management

Variable Support:

Input Variables: These act as parameters that can be passed to the workflow, providing dynamic control over its execution.

Derived Variables: These variables are calculated based on the results of DQC expressions, allowing the workflow to adapt based on data quality insights.

Persistence and Resilience: Workflows are designed to be persistent. If a workflow is interrupted or encounters an error, it can be resumed from the point of failure, ensuring reliable operation.

Workflow

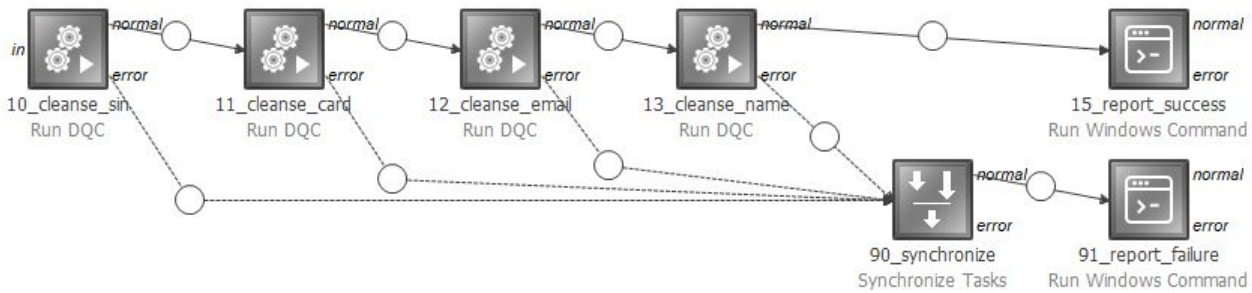
Example Use Case:

A common application of Ataccama Technical Workflow is automating a data processing pipeline. The workflow can seamlessly download data from a source, process it using Ataccama's data quality capabilities, and then upload the results back to the server. This entire process is managed within a single workflow, providing a streamlined and auditable solution. The workflow also provides comprehensive reporting on the status of each operation.

Workflows – Overview

From the One Desktop Advanced course

- Workflows are constructed in an **open XML format** and displayed in the ONE Desktop UI just like other ONE Desktop-generated file types.
- Three major elements are stored within each .ewf file:
  - **Variables**
  - **Tasks**
  - **Links**



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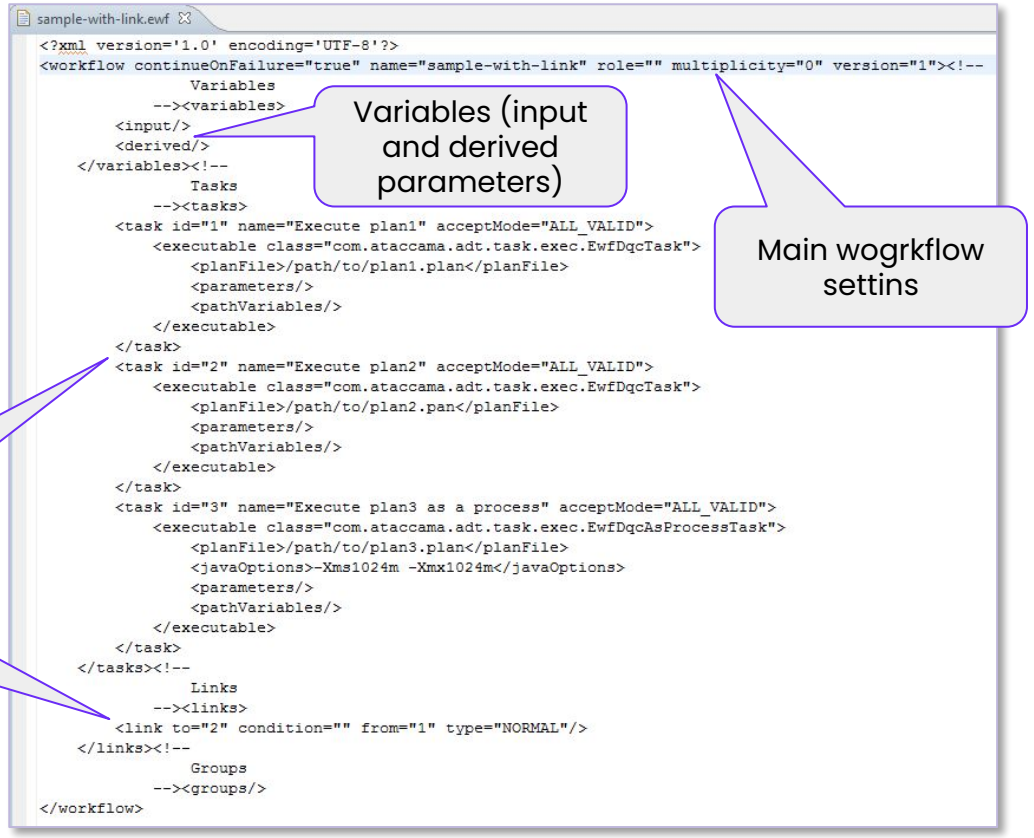
Workflows – Overview

From the One Desktop Advanced course

- Workflows are created as **.ewf files (XML)**.
- The ONE Desktop interprets the .ewf files and executes the tasks within.



Workflows – Tasks

From the One Desktop Advanced course

- Workflows support two basic kinds of tasks:

  DQC tasks: These will execute ONE Desktop's operations, e.g., running plans.

  Non-DQC tasks: Tasks that operate outside the boundaries of the toolset,

  e.g. DB operations or execution of system calls.

- Each task has a different layout and elements with an independent configuration.
- There is no limit to the number of tasks in one workflow.
- The ONE Desktop can execute tasks in parallel mode.
- By linking tasks together, it is possible to set up dependencies in the execution.
- Some of the tasks require that the Ataccama Server is running. This is indicated by the yellow icon in the upper left corner of the task.

Workflows – DQC Tasks

From the One Desktop Advanced course

Only three tasks are strictly related to the DQC tasks category:

- Execution of monolithic jobs (plans), and workflow execution

Task name	Description
DQC	Executes a ONE Desktop's job (plan) using the resources allocated for the DQC Online Server.
DQC as a Process	Executes a ONE Desktop's job (plan) using dedicated resources (as an independent process).
Trigger Workflow	Launches an already existing workflow. Allows you to pass parameters as ONE Desktop's expressions.

Workflows – Non-DQC Tasks

From the One Desktop Advanced course

Tasks which perform operations outside of the ONE Desktop application environment:

- DB and File system operations, System calls, etc

Task name	Description
Shell Script	Executes a Unix shell script. It allows for two modes: waiting for shell script termination or parallel processing.
Windows command	Executes a Windows batch process.
Read SQL Result/SQL	Reads/Executes any arbitrary SQL query/call.
Wait for File	Waits for a file to appear/disappear in a given folder (hot folder). Polling time can be configured.
Wait for SQL Row	Waits for an SQL row to be present and then pulls data from it. Timeout and polling configurable.
Wait for SQL Value	Waits for a specific value given by an SQL query. Timeout and polling interval configurable.

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Workflows – Links

From the One Desktop Advanced course

Links connect individual tasks together and create dependencies between them.

Tasks can be linked in two ways:

- **Normal link:** Executes the second task after the successful execution of the first task.
- **Error link:** Alternative route for when the first task fails.

Links support conditions

- Conditions for each link need to be predicate expressions (must evaluate to Boolean).
- Conditions can operate over input variables.
- Syntax is the same as in expressions used in ONE Desktop.

Workflows – Variables

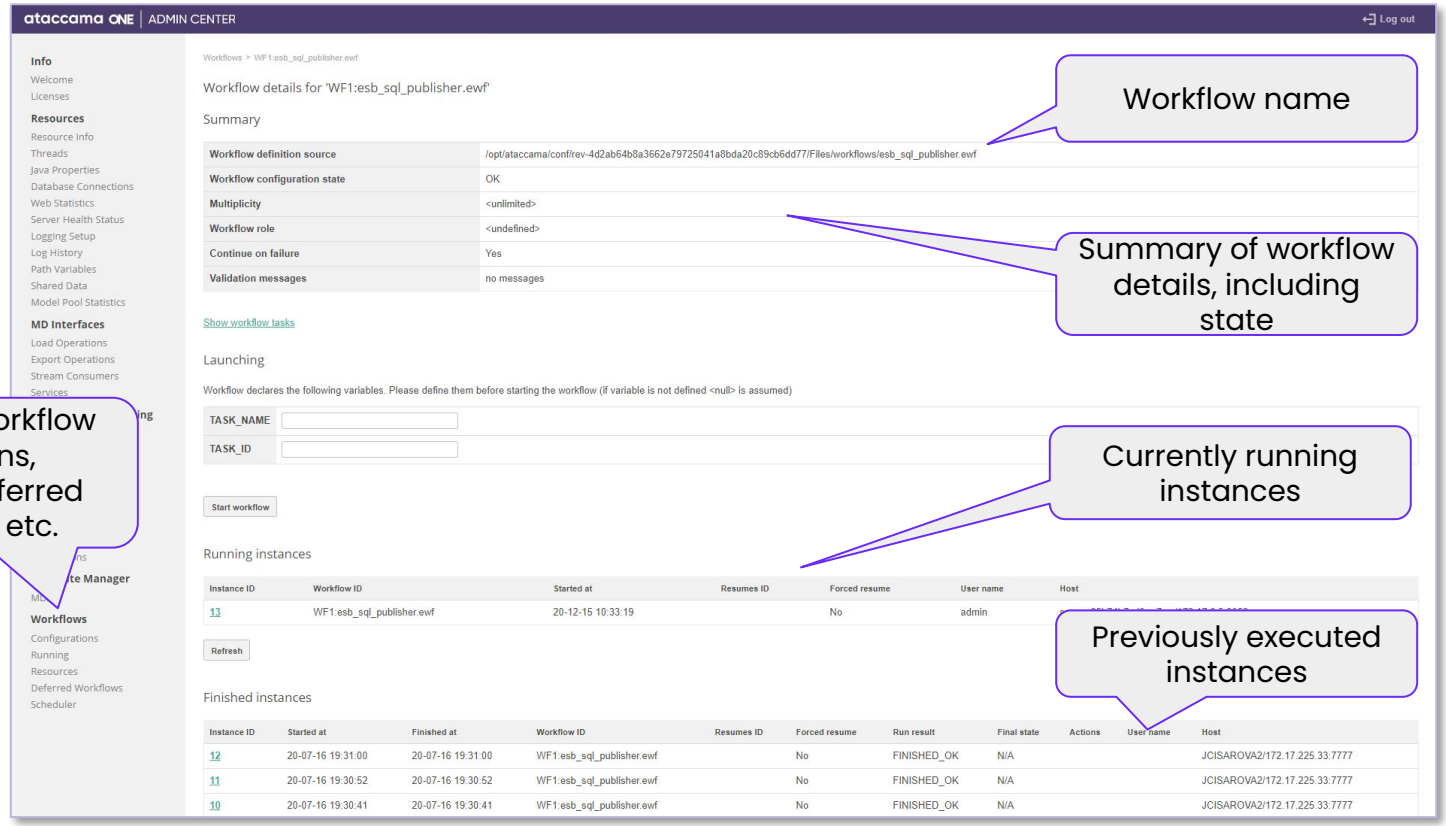
From the One Desktop Advanced course

Workflows accept two different types of variables:

- **Input variables**
  - Input variables are parameters of the workflow, which can be passed as values to the executed plans.
  - Input variables are passed as strings, and can be cast to any type (integer, double).
  - The built-in GetParameterValue function is used for passing parameters to plans.
- **Derived variables**
  - Variables that are dependent on environmental facts.
  - They support ONE Desktop expressions, including built-in functions.
  - Example - current time or date which will be processed as metadata.

Workflows Online

From the One Desktop Advanced course

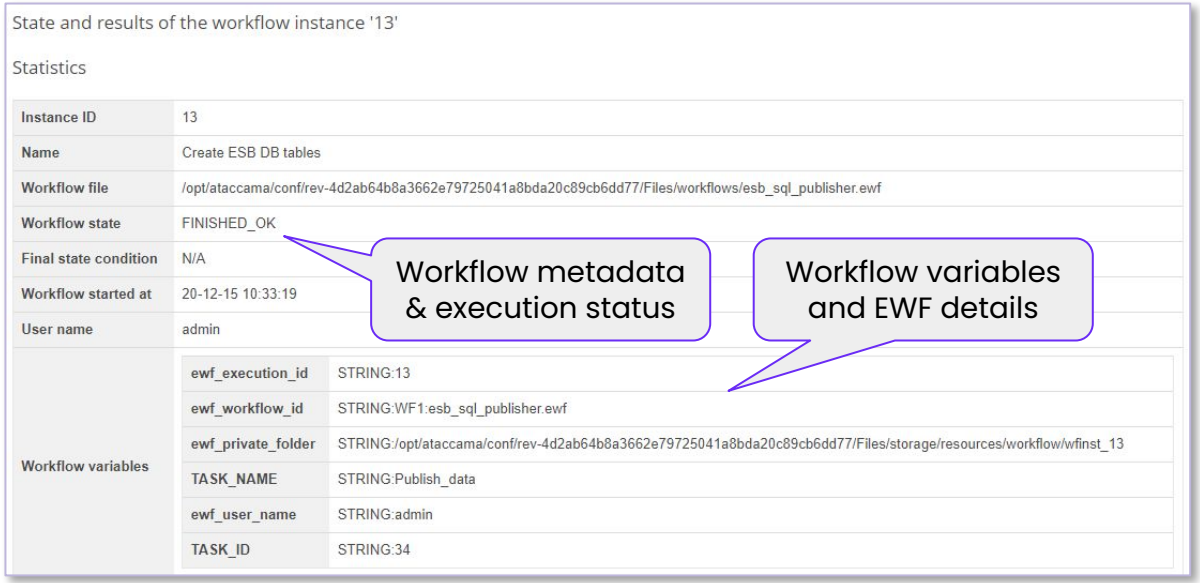


Monitoring Tasks and Execution

From the One Desktop Advanced course

The web interface allows you to monitor workflows, including:

- Statistics on the workflow instance execution
- Metadata related to the instance execution
- Real-time updates of the number of records processed by each task



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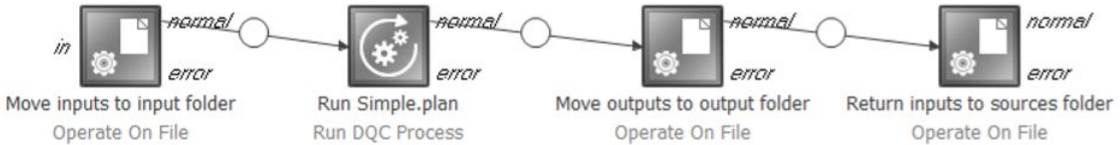
Topic Highlights

From the One Desktop Advanced course

Workflows:

- Orchestrate DQ processes.
- Enable additional external operations, e.g running system scripts, and send emails.
- Tasks can be linked together using normal and failure nodes.
- Tasks can be dependent on other tasks.
- Variables can be added as parameters or derived from expressions.



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Memory Refresher #6 Workflow

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What file extension is used for Ataccama workflows?

1. .plan
2. .xml
3. .ewf
4. .flow

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What are the two types of variables supported in Ataccama workflows?

1. Input and derived
2. Global and local
3. Constant and dynamic
4. System and user-defined

What is the minimum interval for scheduling tasks in Ataccama workflows?

1. 1 hour
2. 1 second
3. 1 millisecond
4. 1 minute

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Which of the following is NOT a valid task type in Ataccama workflows?

1. DQC
2. Shell Script
3. Data Visualization
4. SQL

What is the purpose of the "Continue on Failure" global parameter in Ataccama workflows?

1. To automatically retry failed tasks.
2. To ignore all errors in the workflow.
3. To allow tasks to fail without stopping the entire workflow.
4. To continue the workflow execution even if critical tasks fail.

Scheduler

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Scheduler

The scheduler is used to schedule the execution of workflows and other tasks.

It uses a cron-like syntax to define the schedule.

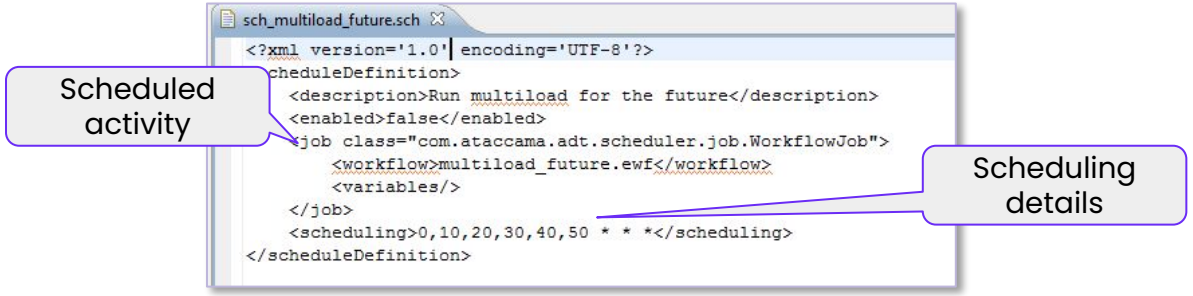
The scheduler can be managed from the ONE Runtime Server Admin.

Schedules are represented by .sch files, which support Ataccama workflows and system scripts.

Scheduler – XML Schedule files

Schedulers:

- Can run multiple jobs at once
- Have syntax similar to Unix Cron
- Can be granular down to minutes
- Allow for complex definitions



Schedules are represented by **.sch** files.

Support Ataccama workflows and system scripts.

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Scheduler – Schedules on the ONE Runtime Server

Ataccama scheduler only works with the ONE Runtime Server.

The ONE Runtime server maintains all scheduled jobs:

- Configured in the Server configuration as a hot folder for schedules
- Metadata and schedule processing are stored in the persistent mode in a selected folder (usually the hot folder).
    - **Persistence can be maintained in various storage methods, including a file or a DB repository.**
- Automatic generation & deployment to the folder from the project metadata is possible.

Online component named **SchedulerServerComponent.**

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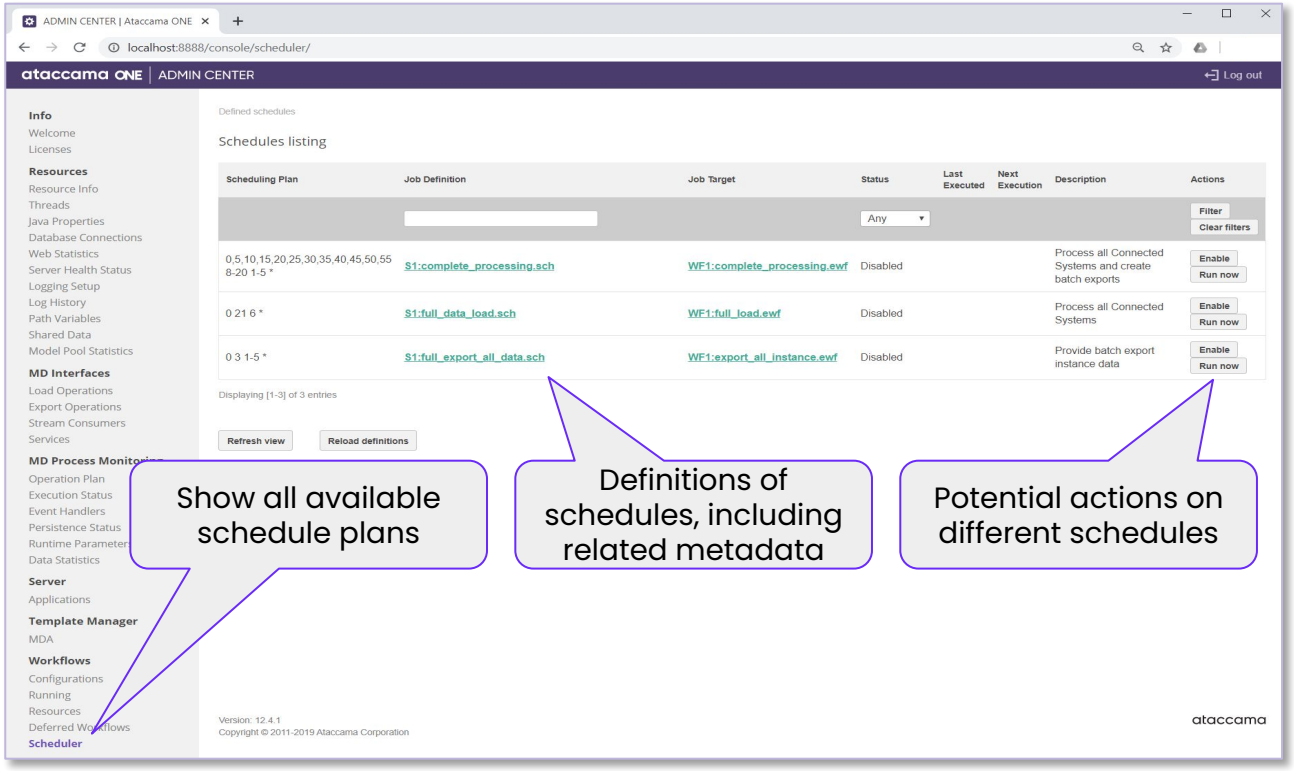
Scheduler – Options in the Admin Console



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Scheduler – contents of the .SCH file

```
<scheduleDefinition>
  <description>First Example of the Workflow Scheduler</description>
  <enabled>true</enabled>
  <job class="com.ataccama.adt.scheduler.job.WorkflowJob">
  <workflow>MyWorkflow_1.ewf</workflow></job>
  <scheduling>33 10 4 * </scheduling>
</scheduleDefinition>
```

Job type definition:
Workflow
(e.g. Shell Script, Windows Command)

Execution Interval:
Every Thursday at 10.33
(minutes | hours | day_of_week | day_of_month)

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Topic Highlights

- Schedules are stored in **.sch files** in xml format.
- The scheduling syntax is similar to **Unix Cron.**
- Scheduling can be set down to the minute.
- Multiple jobs can run at once using schedulers.
- The DQC Online server maintains all scheduled jobs.
- Ataccama workflows and system scripts can be scheduled using schedulers.

Memory Refresher #7 Scheduler

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What is the file extension for Ataccama scheduler files?

1. .sched
2. .xml
3. .sch
4. .task

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Which of the following is NOT a feature of the Ataccama scheduler?

1. Can run multiple jobs at once
2. Has syntax similar to Unix Cron
3. Can be granular down to seconds
4. Allows for complex definitions

Where are Ataccama scheduler jobs configured?

1. In the Server Configuration as a hot folder for schedules
2. In the Runtime Configuration as a scheduled task
3. In the ONE Desktop as a scheduled job
4. In the Admin Center as a cron job

What types of jobs can be scheduled in Ataccama?

1. Only Ataccama workflows
2. Only system scripts
3. Both Ataccama workflows and system scripts
4. Neither Ataccama workflows nor system scripts

Where can you monitor and manage Ataccama scheduler jobs?

1. ONE Desktop
2. Ataccama Console
3. ONE Runtime Server Admin
4. GitLab

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Advanced Topic (Optional)

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Troubleshooting ONE Runtime Server Issues

Problem: Server fails to start due to incorrect configuration or missing dependencies.

Solution:

- Carefully review the server log files for error messages and stack traces. Pay close attention to the timestamps to identify the sequence of events leading to the error.
- Verify the Server Configuration and Runtime Configuration files for any syntax errors or incorrect paths. Ensure all required components are correctly defined and enabled.
- Check that all required database drivers and third-party libraries are present in the <ATACCAMA_HOME>/lib directory. If not, download and install the necessary components.
- If using a custom configuration, compare it with the default configuration files (default.serverConfig, default.runtimeConfig) to identify any deviations that might be causing the issue.

Example:

```
2024-03-11 10:00:00 [ERROR] Failed to start server: Could not initialize class
com.ataccama.dqc.streaming.kafka.KafkaClient
```

This error indicates a missing Kafka library. The solution would be to download and install the required Kafka libraries in the `<ATACCAMA_HOME>/lib` directory.

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Troubleshooting ONE Runtime Server Issues

Problem: Server fails to connect to external services, such as databases or the Keycloak server, due to network connectivity issues.

Solution:

- Verify network connectivity by pinging the external service host. If ping fails, troubleshoot network connectivity issues.
- Check the host and port configurations in the Runtime Configuration file for the external service. Ensure the host is correctly resolvable and the port is accessible.
- If connecting through a firewall, ensure the necessary ports are open for communication between the server and the external service.
- If using SSL/TLS for the connection, ensure the server has the correct certificates installed and the certificate chain is valid.

Example:

```
2024-03-11 10:00:00 [ERROR] Failed to connect to database: Connection refused: connect
```

This error indicates a connection failure to the database. The solution would be to check the database host and port configuration and network connectivity.

Troubleshooting ONE Runtime Server Issues

Problem: Workflows fail to execute due to errors in tasks or invalid configurations.

Solution:

- Review the workflow execution logs in the wfinst folder for error messages and stack traces. Identify the specific task that failed and the cause of the error.
- Verify the task configuration in the workflow definition file (.ewf). Ensure all required parameters are correctly set and any expressions or scripts are valid.
- If the task involves external services, such as databases or scripts, check their availability and connectivity.
- If using input variables, ensure they are correctly passed to the workflow and have the expected values.

Example:

```
2024-03-11 10:00:00 [ERROR] Task execution failed: Script execution returned non-zero exit code:
```

This error indicates that a script task failed. The solution would be to review the script for errors and ensure it has the correct permissions and dependencies.

ONE Runtime

v15.4