What's New? Network Impact Report

Realize Higher Consistency for Faster Time-to-Revenue

Release 14.0 GA

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1 Introduction

This document provides information about the features in Application Virtual Machine (AVM) and Catalog. It also describes any impacts on the system to the latest versions of AVM and Catalog.

1.1 Purpose and Scope

The purpose of this document is to provide sufficient information at an early stage to help system administrators and application developers plan introducing new products and upgrades to their existing systems.

The scope of this document includes the general impact of the new functionality. See the *General Impact* section for details.

This document is subject to change during the development of a new release. As a result, some information may be either incomplete or unavailable until General Availability of the products.

1.2 Reader’s Guideline

This section describes the version syntax covered in this document and any additional, required information.

The product version follows this four-digit naming convention:

```
<major_version>.<minor_version>.<bug_fix_version>.<build_number><beta number>
```

This document describes enhancements for product version 14.0.0.0.

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2 Notable Enhancements

The following notable enhancements appear in this release:

- Metadata in database
- New implementation for Process Engine to automatically rebalance
- Better performances for Catalog basket, Service Registry, and Orchestration Framework
- Role-based user interface
- Catalog dates
- Improved security modules with a three-layer architecture:
  - UI
  - API
  - Implementation

  This architectural enhancement allows for pluggable and multiple security providers.
- New Order Queuing and Notification modules
- Access to metadata objects in JavaScript
- Improved System Administration and System Configuration applications
- Full support for Data Structure user interface
- New user interface framework for applications
- Support for Execution Environment and Common Interface Layer (CIL) support
- New licensing model using Sentinel

3 AVM

This section describes the enhancements, repairs (changed), repairs (removed), and deprecated functions in the current versions of AVM.

3.1 AVM Enhancements

This section lists AVM enhancements. For more details about these enhancements, refer to the following documentation:

- *Velocity Studio User Guide*
- *System Configuration User Guide*
- *JavaScript Documentation*
- *SUF Installation and Configuration Guide*

3.1.1 Certification Matrix

- The product certification matrix has been updated to include certification for the following operating systems, desktop browsers, and application servers:

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Operating Systems

- Linux SUSE SLES 11 SP1 64-bit
- Red Hat Enterprise Linux (RHEL) 6.4
- Sun Solaris 11

Desktop Browsers

- Internet Explorer 10.x and 11.x
- Chrome 31.x

Application Servers

- JBoss Enterprise Application Platform (EAP) 6.2 (JDK 1.7.0_51+)
- Oracle WebLogic 12.1.2 (JDK 1.7.0_51+)
- IBM WebSphere 8.5.5

Note: The product is certified to be used with JDK 7 (version 1.7.0_51 and higher).

3.1.2 Licensing

- To support licensing models with Sentinel RMS, the following enhancements have been made:
  - New licence handlers (connectors) are implemented in Velocity Studio:
    - Legacy handler
    - Sentinel connector under a Web container
    - Sentinel offline repository handler for Velocity Studio
    - Testing handler for feature developer licence
  - Scriptable class Licence API with the following features:
    - Get active features and check feature status
    - Capacity and usage methods
    - Login and logout by feature for future support of concurrent or floating licences
  - A special *.ini file containing mapping between value pack and feature codes
  - Installation and packaging enhancements

3.1.3 Product Functionality Changes

- The list of known Product Functionality Changes has been added to the readme, What's New - Network Impact Report, and product documentation.

3.1.4 Trade Compliance

- This enhancement addresses a number of issues that are outlined in the Trade Compliance checklist.

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3.1.5 New Metadata-driven Deployment from the Database

- This release contains a number of metadata-driven customizations. This master ticket serves to track all related changes, which are noted in individual tickets.

- The import and export framework has been enhanced, incorporating metadata and event-driven design changes to these features.

3.1.6 JAR files

- This release contains the following additions to the Velocity Studio's <*installation_folder*>\modules folder:
  - cwl_catalog.jar, which will replace catalog.jar in future releases (the latter .jar remains a part of the current Catalog metadata)
  - api_catalog, is a new API library that does not require a licence

- The following mandatory libraries are loaded by default:
  - cwf5
  - api_common
  - ui_common
  - security
  - cwl_security

  If your project metadata does not include these libraries in your metadata header, these libraries are always loaded. If your project metadata contains these JAR files within its own template folder, those JAR files are used. Otherwise, the JAR files in the installation's modules folder are used instead.

- In this release, the following JAR files contain the product system metadata, which are located in the modules folder of your installation:
  - cwf.jar
  - cwf5.jar

- In this release, the cwf5.jar system template is made optional. None of the system templates depend on the template. Instead, cwf5.jar is to be used for backward compatibility with your metadata. New metadata projects need to use the other mandatory and pertinent templates (for example, new UI-common, security, administration, and so on), as required.

- With this enhancement, a deployment JAR file can be created with all libraries added in a project.

- You can build a deployment JAR file that contains project metadata and required library JAR files. You can use the **Runtime** > **Build Deployment JAR** from the menu bar of Velocity Studio or use the buildDeployment.cmd file that can be found in "<installation_folder>\designer\env".

- Validation of metadata can be done in the command line interface. By using the runValidate.cmd command, validation can be done without

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activation or running the metadata project.

When attempting to run metadata that does not use the cwf5 template (for example, cwf_up), the metadata configuration had the **5.x User Profile Document Mode** field set. As a result, attempting to log in to the metadata was unsuccessful, as the cwf_up.UserProfile document cannot be found. This issue has been fixed. When this compatibility field is selected for metadata that does not use the cwf5 template, a check is performed to determine whether the template has been loaded.

3.1.7 Ericsson Rebranding

- All system applications have been changed to reflect Ericsson branding and to comply with user experience requirements.

- The installation wizard has been changed to enhance its usability and to conform to Ericsson product branding.

- Both the documentation and release notes have been enhanced to conform to Ericsson product branding.

- The following modules has been enhanced to conform to Ericsson product branding:
  - Customer Information Management (CIM)
  - Order Negotiations (ON)
  - Order Analytics (OA)
  - Orchestration Framework (OF)
  - Service Registry (SR)
  - Unified Workstation (UWS)

3.1.8 Security

- Security is separated into three distinct sections:
  - Authentication: System may choose to support multiple authentication systems (for example, LDAP, Active Directory, ConceptWave, and so on). This section is responsible for password management and verification.
  - Profile: System may choose to support multiple profile systems (for example, Self-Care, Corporate, Partner, and so on). This section is responsible for managing a user's profile and a user's group arrangement.
  - Authorization: System has only one authorization management. This section is responsible for managing each group in each profile being granted a set of privileges.

- A number of assessments have been made to incorporate risk analysis, node hardening, and vulnerability issues to address Ericsson security compliance.

- The cryptography document was reviewed for the following:

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    - The cryptography description for product codes contains no changes.

- Updates were made to the libraries version that was upgraded.

3.1.8.1 Security APIs

- It is now possible to implement new Security APIs to integrate with multiple authorization providers. See the **Security Configuration Guide** for the required function to be implemented.
- The Security API provides a function to persist user preferences name-value pairs that can control certain aspects of the application.
- The Security API has been enhanced to provide support for setting and getting the current user's preferences.
- The Security API's getUserProfile operation has been added to the list of Web service-enabled operations.
- The Security API's queryOrgChart method has been enhanced to provide a hierarchical organizational chart in the response, based on the search parameter controlling the depth of the response, and whether users should be included in the response.
- The Security queryUser API has been enhanced to search for users with at least one of the privileges specified in the search criteria.
- The Security APIs isActive, isAvailable, isUserInGroup, and userHasPrivilege has been enhanced to support the queries for the current user, where the user is not specified.
- ConceptWave Security implementation has been changed where APIs for the profile provider do not change data maintained by the authorization provider and vice versa.

3.1.9 Processes

- The process revision mechanism has been re-implemented, which includes the following areas:
    - At deployment, process revisions are no longer generated automatically. Instead, the user must generate revisions manually.
    - The subflow revision mechanism has also been changed to decrease the number of generated subflows in multi-level subflows processes. Therefore, the total number of revisions is now expected to be considerably smaller. In addition, the subflow re-implementation allows for subflow references to be detached from subflow activities and store them on a process level.
    - A new Analyze Processes tool has been added to Velocity Studio to facilitate a compatibility check to compare processes in

    deployed metadata versus the metadata from the file system. It is highly recommended that you perform the comparison prior to deploying metadata, especially in production, to ensure metadata compatibility and to avoid runtime process exceptions.
  - If revisions need to be deleted, Velocity Studio now has a Clean Non-Running Revisions tool, which identifies the process revisions that have no running instances or are not used by running instances in the current database schema, and allows you to delete these processes. Deleting process revisions that are not needed allows for the reduction in the metadata size. Please note that this clean-up process is irreversible; the revisions are deleted from the metadata tree and also from database. As such, be careful when deleting processes as this tool might delete processes which don't have running instances in the current database schema but do have running instances in another database schema.

- The following process-related enhancements have been made in Velocity Studio:
  - Open Process property on the **Diagram** tab
  - In some cases, especially when Problems pane is high, when we open Process page it scrolls down and tabs are either hidden or visually cut. By default, scroll bar must be set to the highest position.
  - When we rename a process activity, we should stay on the Process Diagram tab.
  - Process revisions are now read-only. It is possible to edit its label.
  - The following three new options have been added on the Diagram tools panel:
    - tree view: tree panel occupies 100% of the screen and diagram panel 0%
    - diagram view: tree panel is 0% and diagram is 100%
    - standard view: default; same proportion as now

  - Activity icons on the process diagram and activity nodes in the process tree (left panel) both display labels.

  - With this release, a validation warning is thrown if the Choice activity of a Process has two children activities of type Operation with a reference to the same operation.

  - In the Configuration application, changing any process from the PE Processes tab to an empty value at the cluster level, saving the change, and then refreshing the cluster node would return the old value. This enhancement properly shows the saved processes values of changed PE processes after refreshing the node.

- It was noted that the process engine skips a process if the revision is not found without changing its status to Error. This enhancement ensures that this status holds true for the process to be found.

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- Dynamic distribution of the PE load has been introduced, which allows running process engines (PEs) to dynamically distribute the load of dead PEs between themselves, as well as dynamically reduce their load if new PEs are started.

3.1.10 Commands

- This release provides an exit code after you have issued a command, indicating whether running the command was successful. The following exit codes are available:
    - 0, meaning that the command processed successfully.
    - 1, meaning that the wrong command was processed.

- This enhancement allows you to run commands simultaneously from the command line (for example, deploy, upgrade system, and build deployment JAR commands). The logFile parameter is available for most commands, which allows you to specify the log file for a command line. It is an optional parameter. However, when used, it must be the first parameter.

  This enhancement includes a command line interface script change to start the Velocity Studio from the project directory.

3.1.11 Installation

- An enhancement has been made to install or upgrade the Application Virtual Machine (AVM) and applications through Software Upgrade Framework (SUF), to support the Execution Environment, including:
    - Fault management
    - Performance management
    - Logging

- To support the Execution Environment upgrade, the Management Server has been upgraded to 1.0.1.

- The following changes were required:
    - AVM platform package renamed to AVM_Platform.rpm.
    - Application package renamed to AVM_<applicationName>.rpm
    - SUF playlist package renamed to AVM_SUF.tar.gz (OrderCare_SUF.tar.gz).
    - Licence file renamed to <hostname>_avm_license.lic (<hostname>_license.lic)
    - SUF package includes Execution Environment configuration files.
    - SUF package includes Catalog configuration import.

    - The create database user script has been changed to add the CREATE JOB privilege. This privilege is required to create an index with automatic synchronization using EVERY.

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3.1.12 Software Upgrade Framework (SUF)

- This release contains a number of enhancements to the Software Upgrade Framework (SUF), including the following:
  - Remove the customer folder from the AppName folder
  - Change to the config.xml files, as the playlist failed to fetch information using a one-line format
  - Allow the application to run a specific client, such as app.sh, instead of the SQL that is running.

- Support for running the runScript.cmd command when installing AVM SUF has been added.

- The AVM Software Upgrade Framework (SUF) playlist has been enhanced to support the deployment of two applications into one JBoss.

3.1.13 Common Interface Layer (CIL)

- An AVM CIL adapter has been developed to allow AVM applications (metadata scripts) to communicate to CIL. This adapter allows metadata scripts to pass and get Data Objects. The AVM CIL adapter serializes and de-serializes Data Objects using native Java calls to CIL library. The AVM adapter utilizes the CIL client library and uses a CIL JSON based API. Use of the CIL JSON based API allows the support of any object that is supported by CIL without any changes to the AVM adapter. The following functionality is supported:
  - Provides CREATE, READ, UPDATE and DELETE functions.
  - Accepts AVM DataObject and object address as parameters (CIL uses addresses similar to REST to identify objects).
  - Supports array for bulk operations.

- A number of enhancements to the CIL interface include introducing the cilDataSet script object, and making changes to the CIL object's put() and get() functions.

- AVM can be run without Oracle by using other storage sources, such as Common Interface Layer (CIL) interfaces. This instance of AVM has limited functionality and is called Slim AVM.

3.1.14 System Configuration Application

- System Configuration application has been redesigned. The implementation has changed from Java to being metadata-driven.

- The System Configuration application includes the following enhancements:
  - Allows you to define multiple clusters.
  - A Configuration variable that is created at the cluster level can now be deleted from the node level.

  - Fields for entering information related to services have been modified so that it is easier to read the entered information.

- Clicking **Manage** > **Processes** from the System Configuration application's menu bar allows you to change properties for all configuration node processes on one screen. Each configuration node process appears, grouped by process name.

- An enhancement has been made in the Configuration Application to do the SMTP server settings. The SMTP configuration for e-mail can be done from **System** > **SMTP Server** tab.

- This enhancement reduces the amount of data transmitted between the client and server. The System Configuration application contains a new parameter, **Disable Data Minimizing**, in **System** > **System Parameters**. By default, this parameter is unchecked, meaning that only changed data is sent. Otherwise, selecting this checkbox indicates that all data is sent.

- This enhancement allows you to override tab visibility in the System Configuration application for a specified user by creating a new rule set to reduce the existing rule set for each tab component, and then overriding the init script for any isTabXxxxVisible variable.

- A new setting, **5.x Worklist Stored Procedure Mode**, is available in the System Configuration application, under **System** > **Compatibility**. By default, support for 5.x mode is available where worklist behaviours rely on stored procedures in the database. Selecting this checkbox allows you to extend or customize a stored procedure, indicating that the worklist calls the specified stored procedure. Otherwise, when this setting is not selected, the worklist uses the newly implemented JavaScript function. This feature supports backward compatibility.

- Old security providers from 5.x releases can be used when the **5.x User Profile Document Mode** setting under Compatibility tab is selected in the Configuration application.

- The Print Cache Info operation is available in AVM caches, which allows for the exporting of memory queues.
  - Activities Cache
  - CodeTable Cache
  - DynamicParticipants Cache
  - Image Cache
  - InterfaceData Cache
  - Process Cache
  - ProcessData Cache
  - RecentlyChecked Cache
  - RecentlyFinished Cache
  - Resource Cache

  Additionally, the following Catalog caches can have their memory queues exported:
  - CatalogTranslations Cache

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  - ChargeType Cache
  - DynamicRow Cache
  - InfoTable Cache
  - Item Cache
  - ItemParents Cache
  - QueryResult Cache
  - Tax Cache
  - TaxModel Cache

- This enhancement allows you to specify how to display a service or binding metadata node name by clicking the Show Node Label drop-down field on the Services and Binding tabs in the System Configuration application.

  The following options are available:
  By Label, By Name, By Full Name, By Label (Namespace)

  This feature also allows for select sorting by name, and by namespace and name.

3.1.15 System Administration Application

- The System Administration application has been redesigned.

- A number of enhancements have been made to the Event Log, Message Log, and Process Manager sections of the System Administration application, including easier access to information and additional details about activities for troubleshooting purposes.

- Improvements have been made to the script logging error message in the event log. The previous error contained e as the object ID, which was unhelpful. This script logging error has been removed.

- If no active Fulfillment Plan (FPS) with the given name is found, the message is logged in the Event Log as No active FPS version is found (FPS name).

- In the System Administration application, you can search, view, create, and delete an external script in you metadata by clicking **View** > **External Scripts** from the menu bar.

- In the System Administration application, the **View** > **User Action** command allows you to perform user actions.

- The Activity Finder of the Process Manager has been enhanced. Instead of just having an Activities description, it is now expandable and collapsible at each level.

3.1.16 User Profile Management Application

- The User Profile Management has been redesigned and is a separate metadata application in this release.

- The User Profile Management application allows you to create a user privilege, which is a combination of all privileges for which the user is active in a group. A user may be active or inactive in more than one group.

- The Organizational Charts page now has an Import and Export function. In the User Profile Management application, the following configuration information can be exported and imported:
  - Groups
  - Users
  - Privileges
  - Organizational Chart

- The User Profile Management application contains the **Move Users** button, which allows you to select multiple users to be moved from one group to a different group. This menu action is available in the Groups detail, in the Users tab.

- The default number of rows per page can be changed for all the pages of User Profile Management application, from the Preferences hyperlink.

3.1.17 Worklist Management Application

- The Worklist Management application has been enhanced to include improvements to worklist tasks and its behaviour.

- The Worklist Management application displays a user worklist availability icon in the top right corner of the application. By default, the user worklist availability icon is green, indicating that the user is available for task assignment. This icon is grey when the user is unavailable for task assignment. To click this icon and toggle between availability states requires that users have the WSetAvailable privilege set in the User Profile Management application.

- The Bulk Complete action is available in the Worklist Management application. The user can select tasks belonging to different participants and invoke an action with a name that is common to all participants. Actions with common names belonging to different participants must not have a confirmation script. If they do, they are not allowed to be performed in bulk. Actions with a confirmation script can be processed in bulk if and only if they belong to the same participant.

- The Worklist module integrates with existing worklist product functionality and aligns with the standard architecture for all system modules. This module also allows for easier customization.

- cwf_pm.BaseWorklist has been moved to cwl_worklist.DefaultWorklist, which includes enhancements such as creating worklist as a replacement of BaseWorklist and changing the user of BaseWorklist to refer to the new worklist document, including events and maps.

3.1.18 Modules

- This release introduces a revamped user interface, which allows you to hide the banner within a number of applications, such as the User Profile Management and System Configuration applications. To hide this banner, click the **Preferences** hyperlink, select the Hide Banner setting from the Preferences page, and then click the **Save All** button to save your change.

- A number of enhancements have been made to the Service Registry module, including the following:
  - Improve performance for Service Registry queries
  - Enhance module flexibility and extendibility
  - Support the existing CRUD API by developing an adapter module

- The Notification module has the capability to define notification templates with placeholders. When a message is sent using the framework, placeholders are replaced by provided name/value pair parameters. Part of the notification framework has built-in capabilities to integrate with the Customer module to deliver messages according to preferences defined for the recipient customer or account.

- This release introduces the ability to queue orders and synchronize processing according to their priority. Order queuing consists of the following functions:
  - Queue orders
  - Change a queued order's priority
  - Remove an order from the queue

- A new Resource Locking module provides a mechanism to place constraints on orders. The following are some features included in this module:
  - Prevent two orders against the same subscriber, account, or location.
  - Prevent two orders against the same service.
  - Prevent two operators from changing the same order.
  - Prevent two workflows from updating the same order at the same time.

- The number of warning messages that appeared when adding Customer Information Management (CIM) and all required JAR files has been cleaned up.

- To capture defects, channel, and major milestones within the reporting framework, the following Order Analytics reports have been enhanced to match the metrics defined based on GB935 by TM Forum:
  - F-CE-2a: Mean duration to fulfill a project
  - F-CE-2b: Mean time difference between requested delivery date and planned date

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  - F-CE-2c: Percentage (%) of projects delivered by committed date
  - F-OE-1d: Revenue by channel
  - F-OE-2a: Mean time order to activation
  - F-OE-2b: Order to activation time by major process
  - F-OE-3a: Percentage (%) of orders requiring rework by cause type
  - F-OE-3b: Mean time to handle defects or rework from order to customer acceptance
  - F-OE-3c: Percentage (%) of orders requiring rework

- The following Product Analytics reports have been enhanced to provide product-specific reports in either a tabular or a graphical presentation, based on GB935 by TM Forum:
  - G-RM-1: Profitability
  - G-RM-1b: Average revenue per user (ARPU)
  - G-RM-5a: Customers acquired
  - G-RM-5b: Customers lost
  - F-CE-2a: Mean duration to fulfill a project
  - F-CE-2b: Mean time difference between requested delivery date and planned date
  - F-CE-2c: Percentage (%) of projects delivered by committed date

- This enhancement restores past functionality in the Order Negotiations and Order Management modules, which includes the following:
  - Standard subflows:
    - Decompose order
    - Hold for due date
    - Forward exception to children

  - Utility scripts:
    - Set process priority
    - Resume family of processes
    - Send exception to child processes
    - Send exception to entire family
    - Get order from object

3.1.19 JavaScript APIs

- The JavaScript documentation has been enhanced for dynamic documents and reference tables. A dynamic document definition is used as the metadata object for dynamic document. It contains a list of dynamic variables. A reference table definition includes a data object list that contains a list of dynamic documents.

- The JavaScript documentation has been updated for the methods and variables for system.Application and system.Dialog.

- Applications can access certain information defined in user interfaces through scripts using the MetadataUserInterface API.

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- The Global.translateText API has been enhanced to return null if the resource does not exist.

- The cancelTask API definition has been enhanced to return an alert if it is created as a result (based on the metadata definition of the participant) of the cancel operation. Otherwise, the cancelled task is returned.

- A new API, getOverlays, is available in the MetadataUserInterface class, which returns an array. This array contains all metadata overlays (for example, forms) with unique names from both local and base controllers. To get the name of each metadata overlay, the API's name can be used.

- The createWorklistAction() API allows the oper parameter to accept any string description given that the alert flag is set to true.

- The enforceConflictResolution has been added to the API option. If set true, conflict detection, based on cwDocStamp, is enforced. Otherwise, if this option is not set, the default behaviour (that is, enforce conflict detection if from a UI session) applies.

- The Worklist module's getUserParticipants API allows retrieving a list of participants for a specific user. This API receives an optional parameter for the userId and assumes that userId is from the current context, if it is not provided.

- The Worklist module features the queryTaskArchive API to query archived tasks. The query supports the Sender ID (Process ID), Order ID, Order Item ID, Task Created Date [Range], and Task Completed Date [Range].

- The Worklist API returns active and available statuses individually on a user summary.

- This Worklist API uses runtime metadata to access participant, operation, and worklist information instead of using the CWorklist Java APIs.

- Prior to release, the updateRow API only worked on the first row ID passed in. This issue has been fixed and the API now accepts comma-separated IDs.

- A new API, Process.sendSignalToFamily, allows for sending a signal from the current process (the process instance of the call) to list processes determined by the type parameter.

- New Billing APIs, refillAccountBalance and sendPayment, are available, which provide integration points to refill balance and send payment to the billing system, respectively.

  The following new APIs provide integration points to query account activities (for example, invoices, payments, one-time charges, and so on), and call detail records and account balances from the billing system:
  - queryAccountActivity
  - queryAccountBalance

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    - queryBillingProfile
    - queryCallDetailRecord
    - queryPaymentProfile

- The startWork API allows for a list of tasks. The API specification has been changed.

- The queryUser API provides matching results where the userId search criterion matches a portion of or the full userId instead of an exact match.

- A new API, Global.convertToTimeZone, converts the given date to the same absolute time for the given timezone.

- This enhancement provides support for customizing worklist create behaviour that is invoked from either the Web Service or product. The createWorklistAction API has been changed to accept task action (worklist.data.action) instead of task (worklist.data.task), enabling the Web Service-invoked API to provide extra information as part of its data.

- Applications can access certain information defined in participant and participant operations from script. See the MetadataParticipant and MetadataParticipantOperation classes in the JavaScript documentation for details.

- Two JavaScript classes, zipFileReader and zipFileWriter, allow reading and creating Zip files, respectively.

- A new API, CwfScriptGlobalFunctions.checkCTCode(), is available, which checks whether code exists in a code table. Additionally, the CwfScriptGlobalFunctions.checkForCode() method has been changed to support this enhancement.

- New tracing APIs and JMX-based trace configuration APIs for applications are available. A sample JMX client for trace configuration has been added in the help documentation.

- The Audit logging API has been enhanced to record audit messages.

- A category-based logging API has been added to support logging-related functionality for Ericsson Catalog Manager (ECM). New categories can be defined using the category tag in the language resources.

- The validation context has been enhanced to cache the commonly used information in the validation methods. This process speeds up the initial validation of the method as they are not recalculated individually each time.

- It was noted that the selenium.doubleClick method did not work properly when double-clicking an element using FireFox as the Web browser. However, it worked as expected in Internet Explorer. This release supports the selenium.doubleClick method for in tables.

- A copy functionality has been provided for methods in Velocity Studio.

- This enhancement allows you to use a Boolean variable as a permission method.

- This enhancement features the cwLoadValue and cwStoreValue methods of data types, which provide a generic way to load and save variable values of documents similar to document notes. As a result, the implementation of document notes has changed, as system data types have been updated to use the cwLoadValue method (that is, cwf_oe.sysNoteList type to view saved notes) and the cwStoreValue method (that is, cwf_oe.sysNoteField to store new notes).

- The queryUser method conducts a search against the profile provider specified in the input, if provided. If it is not provided, the profile provider in the current context is assumed instead.

- A scriptable method, `cleanLeafChangedFlag`, has been added to CwObject to change a variable's changed status.

- A new system-defined method, `cwOnChangedFromTable()`, has been added for the Document metadata object. This method takes a single integer parameter, `state`. The following is the explanation of this parameter's values:
    - When set to 0, this document instance is changed within a dynamic table.
    - When set to 1, this document instance is added to a dynamic table.
    - When set to 2, this document instance is deleted from a dynamic table.

- A new scriptable method, resetLeafFlags, has been introduced. This method can be used to reset the value of leaf (variable) flags, originally set by setLeafFlag method.

- A new Global.printf function is available, which returns a formatted string instead of sending its output to the console.

- A new function **findIndexById** in DataObjectList has been added. This API returns the index of a row when its ID is passed to it.

- This release allows you to obtain the next docId from the DOC_ID sequence independently from a document-generated ID using the CwObject.getNextDocumentId function.

- A function, stopProcessing, has been added to allow metadata to control the condition to stop the extractAndProcess finder operation.

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3.1.20 Web Browsers

- An issue was found using the Chrome Web browser where Selenium could not select from the Application menu. Instead, Selenium selected the last application and the correct one to use, which threw an exception. A fix has been made where selecting the application manually is no longer required in Chrome to access the application and works as expected.

- When launching the Safari Web browser to start a Selenium test, the session would hang. It was found that the getNewBrowserSession method required changing the *safariproxy parameter and the Block Pop-up setting in Safari's Preference page must be unchecked to resolve the issue.

3.1.21 Velocity Studio Menu Options

- Velocity Studio checks for user-defined upgrades before starting framework.

- In previous product versions, when starting Velocity Studio, messages in the console pane indicate that the AVM is stopping, and that it has stopped. The DesignerProject.stop method is no longer called twice and these AVM stopping messages no longer appear in the console.

- The **Warning/Errors** menu command has been added to the Help menu. to provide the ability to upgrade the warning messages into errors.

- A request was made to have more control over what resources are included in the library JAR file. The **Runtime** > **Build Library JAR** function in Velocity Studio has been enhanced, allowing you to select the metadata resources that you want to include when you generate your library JAR file. By default, all project metadata folders are selected. You can click any folder to deselect it and its sub-folders from being included in the JAR file.

- Clicking **Help** > **Show Log** from the menu bar allows you to view the most recent log file containing output and error information for Velocity Studio.

- The Export Template JAR Folder setting in Velocity Studio's **File** > **Preferences** menu has been enhanced to be project-specific where each project can have a different folder specified for this setting.

- Velocity Studio's Use New JavaScript Editor setting has been removed from **File** > **Preferences** > **Setting**. The new Javascript Editor in version 5.2 is the standard editor in version 14.0.

- Velocity Studio's **File** > **Export** > **Translation** dialog features a **Sort By Key** checkbox. By default, exported resources are sorted by translation value. Selecting this checkbox sorts the exported resources by translation key.

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- A **Generate verbose message in console** option has been added for Setting Preferences under the **File** > **Preferences** menu. This option allows whether you want to generate verbose messages in the Velocity Studio console.

- The ability to have authentication on the request on global level (check box under **System** > **General**) and on port level (checkbox under port page) has been added.

- The appearance of the Login button for the login screen of the System Configuration application has been enhanced.

- Clicking **Help** > **Open Quality Report** from the Velocity Studio menu bar opens the last generated quality report about your metadata using your default Web browser. This option is only available after you have generated a quality report.

- A new right-click menu, **Export**, has been introduced for Search that can be used to export the search results in the form of a .cvs file.

- In past releases, clicking the Calendar icon allowed you to only specify the date from the dialog. This enhancement allows you to also specify the time by clicking the **Hour**, **Minute**, and **Second** drop-down fields.

- The Restart PE operation has been added under **com.conceptwave.AVM** > **CWAVM** > **Operations in Jconsole**

- When creating a new data structure or document, a new checkbox, **Create UI**, allows you to create a user interface by selecting this property. To add or delete a user interface from an existing data structure or document, right-click the data structure or document that you want, and select Create UI or Delete UI, respectively.

- The generateUpgradeSQL.cmd script has been enhanced to generate separate SQL script files for each logical schema. Additionally, a new setting, Generate upgrade SQL in one output file, is available in Velocity Studio's Preferences page. By default, this setting generates one upgrade SQL file when you select **Database** > **Upgrade Script** from the menu bar.

- Previous releases of Velocity Studio only allowed selecting search or result forms using the form list. In this release, the selection of events is now accepted.

3.1.22 Metadata Objects

- MetadataDataStructure class has been exposed to retrieve the metadata element representing the node. For a container node, the metadata element representing the node is null.

- This enhancement allows access to selected metadata elements at runtime, such as Finder, DataType, DatabaseConnection, and more. A number of methods from the following classes have been changed to support this enhancement:

  - MetadataProcess
  - MetadataActivity
  - MetadataFinder
  - MetadataFinderView

- This enhancement allows runtime access to all metadata documents and their logical database connection names. The following JavaScript classes are scriptable:
  - MetadataDatastructure
  - MetadataDocument
  - MetadataLeafNode

- This enhancement shows permissions (for example, Optional, Editable, Visible, and so on) and validation errors on a target field when binding a UI element to a dynamic document variable. Showing these permissions involves overriding one or all of the following methods in the document:
  - cwOnValidateDynamicLeaf(leafName)
  - cwIsDynamicLeafEditable(leafName)
  - cwIsDynamicLeafVisible(leafName)
  - cwIsDynamicLeafOptional(leafName)

- This enhancement implements URL mapping of applications in the metadata header's Application Page tab. In previous releases, this feature appeared in the URL Mapping tab, which has been removed in this release.

- Metadata objects and Methods can be marked as Virtual. Top-level metadata objects can be virtual and can define virtual scripts, but cannot be instanced in runtime. If the Virtual Field is checked, it provides the ability to create methods in template metadata that does not have an implementation, but can be used in a template script and be bound to user interface elements.

- In the Methods tab, methods appear highlighted in Velocity Studio to indicate whether methods can be extended or overridden, are final, and so on, without clicking each method individually.

- The **Metadata header** > **Library** tab features a new **Add** button that allows you to add optional system templates to your project. The SystemTemplateSettings.java file defines the list of optional system templates, which includes those that are not mandatory.

- Library files added on the **Library** tab of Metadata Root can be sorted alphabetically.

- The Select Application by selecting or deselecting the Classic Select Application property, respectively, from the metadata header's Application Page tab. This tab contains additional properties to customize your experience using the Select Application page, such as grouping your

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application icons by heading and more.

- The metadata header features a new Application Page tab, which provides URL mapping capabilities. In this release, changes have been made for the way applications are mapped to URLs.

- Two new buttons, **Expand All** and **Collapse All**, appear on the Search pane. These buttons can be used to expand or collapse the search results, respectively. By default, the search results are expanded.

  An enhancement has been made to define a reference data type in Dynamic Document, and to display the reference field correctly in the Dynamic Table as a drop-down list.

- Enhancements have been made to allow a reusable mechanism to extend an application. A new metadata object has been introduced with this release as User Interface (UI) Contributor. UI Contributor can be used to add new information to existing user interface forms from multiple sources. A UI Contributor can only contribute to the Menu form and cannot override, extend, or add any of the base elements other than Menu Elements.

- The default login and select application URL (for example, http://localhost:8080/cwf/login), has been mapped with the new user interface of the login and select application pages.

- The restriction to use static enumerations on top-level user interfaces has been removed in this release. You can use data types with static enumerations on forms under a top-level UI without the need of a separate document to hold it.

- The **Enforce** property promotes the reuse of template objects, while keeping the same style that the objects were originally designed and ensuring that they display properly at runtime. By default, this property on the metadata root's General tab is unchecked. Selecting this checkbox indicates that the current metadata is to be used as a template. Other metadata can use the current metadata as a template, allowing you to show objects, such as finders, with proper CSS, unless a different styling on the finder is provided.

- A new field, **Template Group**, appears on the metadata header's **General** tab. When your metadata project is used as a template (.jar) field, it appears under a group folder that you have specified in this field in Velocity Studio's **Library** tab. To define multiple group names in this field, separate each name with a comma.

- Velocity Studio has been enhanced so that it does not write GUIDs for objects where they are not required. For example, the following elements do not have GUIDs after they are saved in Velocity Studio:
  - Activity
  - Data structure
  - Interface
  - Order node

- Participant
- Process
- Process exception
- Process signal

If the **description** field in XML does not require XML escaping, Velocity Studio generates the simplified XML block.

3.1.23 Data Structures

- This release includes new action options:
  - A new action New Permission has been added to the Methods panel.
  - An action **Override..** has been added for data structure methods to select and override the base data structure method.

- The system method **setReferenceData** of the **MasterDetailUserInterface** was changed as follows:
  - When invoking the reference field trigger (method that is specified at the reference field element level of the form), it passes the selected row(s) to the trigger as the first parameter ("selected").

  Note: The selected parameter can be the following:
  - Null, if nothing is selected.
  - A Document or DataStructure object, if one row is selected.
  - An array of Documents or DataStructures, if multi-selection is done.

- Implemented two methods for the data structure array element:
  - removeAt(index)
  - remove(object)

  For example:
  var ds = new DataStructure("namespace.Country");
  where namespace.Country has a child element "cities" which is Array of namespace.City data structure.

  To remove a city from the array:
  ds.cities.removeAt(0); // will remove first element from the array
  ds.cities.remove(city); // remove a certain namespace.City instance from array.

3.1.24 Scripts

- When in runtime or debug mode, you can make changes to your script and then click the **Update** button from the script's General properties page. Clicking this button saves your changes and updates the runtime version of your script.

- You can define a global exception handler and use a default exception handler if one has not been defined in the Exception element's Default Handler field.
- When writing "this." in a script, a list of methods, and local and inherited variables appears. You can then select the method or variable that you want to use in your script from the list.
- You can double-click the script link in the Breakpoints tab to open the script and set the focus to the corresponding object or function.
- With this enhancement, the keyboard input is focused inside the JavaScript editor by default.

3.1.25 External services (interface, port, binding)

- This enhancement exposes the following external service-related metadata:
  - CwfMetadataAlert
  - CwfMetadataPort
  - CwfMetadataExternalService
  - CwfMetadataInterfaceBinding
- One queue manager or port can support multiple operations along with the following enhancements:
  - Port settings for JMS and MQ listeners allow you to choose an operation.
  - New ports can be created in the System Configuration application. The created port can be tied to a specific binding.
  - Ports created in the System Configuration application can share the port and binding settings from another port by using the port reference. You do not have to set the JMS or MQ connectivity, and queue settings multiple times.
  - Ports created for the same JMS or MQ listener binding can use different operations, and can be configured as separate listeners.
- When creating a port in Velocity Studio, the **URL Mapping** field appears when you select the **Listener** field. This field can only be set for HTTP listener ports. The value specified in this field represents a URL path that is to be mapped to the port (listener). This value replaces the current hard-coded interface name in the URL.

  The URL path can contain multiple path items. However, it must begin with /. This path also supports the wildcard character (*), but it must be at the end and is only supported as the full path element.
- The REST service implementation allows for setting custom HTTP status codes in the HTTP response from HTTP listeners, permitting REST communication between client and server. Additionally, support for DELETE, HEAD, and PUT HTTP methods have been added to HTTP listeners, which adds full support for REST HTTP verbs. New functionality

is also available so that HTTP verbs used in client requests can be determined. Finally, to further enhance REST compatibility, support for custom URL paths is available.

- In this release, toJSON ignores elements that have the Exclude property set.

- In Velocity Studio, JSON fields have been added to make it possible to specify JSON settings for data structures, JSON names for data types, and JSON mapping for document mapping.

- An enhancement has been made to the REST URL structure. If no operation is specified in the URL structure, it defaults to the first interface operation.

3.1.25.1 Request-Response

- In past releases, for an XML-over-HTTP call in which the response contained two empty rows before the actual XML content, this response content led to an exception being thrown. In this release, parsing of XML content containing whitespace is supported where the whitespace is removed.

- With this release, messages and requests to and from external services are always logged in the message log, even if there are exceptions.

- The Socket provider has been changed to use the Interface Operation's Type. Its behaviour based on operation type is as follows:
  - One-Way: The Socket provider opens a socket, sends the request data, and then closes the socket. It does not wait for any kind of acknowledgement from the remote socket.
  - Request-Response: The Socket provider opens a socket, sends a request date, reads the response data, and then closes the socket. The provider blocks (with no timeout) after sending a request until the remote socket starts sending data. The provider does NOT send an EOF when done sending data; it is up to the remote server to decide when it has received all data or timeout waiting for more.

  Note: Notification and Solicit responses are not supported.

3.1.26 Finders

- An enhancement allows for showing automatic summaries of data sets that are viewed using a finder.

- The following Operation field values appear in the User-Defined Search Items section of Document and Order finders:
  - is null
  - is not null

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    - == (equal to static value)

  This feature allows you to search for null or static values (for example, variableName is null, variableConstant == 5).

- The finder.search() method contains an optional maxRows parameter. When this parameter is specified, it overrides the maximum rows defined in the Finder metadata.

- New base UI for Finders (ui_common.baseFinder) now has the ability to return the result form dynamically.
    - User metadata should override getResultForm method of the ui_common.baseFinder
    - getResultForm() should return top-level UI (name) that extends ui_coomon.baseResult. For example, cwa_admin.findEventLog: getResultForm() publishes an event to get the result form UI (top-level UI), so that user metadata can provide its own handler and return the extended UI.
    - getResultForm can have any custom logic. For example, it can be used to dynamically choose what result form to display based on the first row from the result list.

    Note: getResultForm() is not invoked every time on Search; it is usually called once when changing Finder views.

- A finder's View tab contains the **Select UI** field, which allows you to select a top-level user interface, finder user interface, or the input document user interface. You have the flexibility of selecting either a local form or a top-level UI form.

- When a finder's result form belongs to another user interface, downloading its result list becomes impossible. This does not normally affect application unless the download functionality of a finder user interface is overwritten. It is also added functionality for when a Download object is created via application script. A Download object now contains two new variables that can be set in script:
    - resultUI
    - resultForm

- This enhancement allows you to extend a finder User Interface and invoke its methods.

- For Finders which generate more than 10K rows, it is possible to perform grouping and sorting on the data during runtime.

- For displaying the results for a Finder, the UI now retains the current user's position in the list when fetching more rows to display.

- The enhancement provides a new attachment finder and attachment detail UI for document and order items.

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- A new implementation of the translation finder user interface is available in this release. A system event, UI_GET_TRANSLATION_FINDER, gets the translation finder user interface.

- The Finder View property panel contains two new fields, **Search UI** and **Result UI**, which allow you to specify the user interface to fetch the search and result from, respectively, for added flexibility.

- When saving the Script or SQL Finder, there was a validation error for the missing Detail Form. With this release, Finders are not necessarily represented in the user interface and could entirely be used for back-end purposes. The restriction for Script or SQL finders to have a Detail Form has been removed.

- The following enhancements have been made to finder customer views:
    - The **Finder View** tab has a new checkbox, **Allow saving search criteria**. By default, this checkbox is selected for backward compatibility, allowing you to save your search criteria.
    - When you add or change a custom view, the following checkboxes are available from the Custom View dialog:
    - Save Search Criteria, which is selected by default, meaning that the finder's search criteria are saved for custom views and favorites.
    - Save Table State, which is selected by default, indicating that you want to save the table layout for your custom view. This field is always visible.

- The finder.extractAndProcess() method allows passing a connection object to be used for the finder search.

3.1.27 Documents

- A new system data type, cwf.cwTimestamp, is available from a document's Variables tab when adding a system variable. This system data type based from com.conceptwave.system.Timestamp.

3.1.28 Mapping

- Advanced mapping functionality is supported, including the following:
    - Data structure-to-data structure mapping
    - An order as either a source or target
    - An order as an input or output to interface operations

- This release includes missing functionality implemented for data structures and changes to mapping:
    - Implemented missing functionality for data structures:
    - If a reference type leaf is bound to a select field, when it gets choices for the dropdown, it runs the reference finder and automatically maps the source data object (document or data structure, the owner of the leaf) to the search object (document or

data structure), so that the finder can return the result depending on the source object values.
- The Select Input data structure of the reference finder should be the same metadata type as the source object

OR have a default conversion map that maps the source data structure to the search data structure.

1) The mapping is done only for select fields. In the case of reference fields with the pop-up finder, the source object is not mapped to the search object, but is set as the finder parent, so it can be reached as "this.parent" in the "cwOnFinderSel" script.

2) To map a data structure to another data structure in a script manually, use the "mapToStructure" method.

For example:

```
var targetDs = new
DataStructure("cwl:participantOperationSearch");
this.mapToStructure(targetDs,
"cwl:participantToOperationForEsc", false);
```

where the second parameter "cwl:participantToOperationForEsc" is the name of the conversion map. It can be null, if "this" is the same metadata type as "targetDs" or there is a default conversion map for "this" and "targetDs".

The reference field is displayed either as a finder or a list box.

- Variables that are mapped to the same database column can be of different types as long as they are compatible with Boolean and Integer types with a length of 1.

3.1.29 Database Maps

- A new metadata object, database map, is available in this release, which allows you to map a data structure to a database schema or tables.

- This enhancement allows for re-arranging column nodes under the same table in the database map's Mapping tab. Database column nodes cannot be moved ahead of column nodes that are inherited from the base mapping. Additionally, the order of database column nodes from the base cannot be changed.

- The following enhancements have been made to database maps:
  - Support for DDL generation through right-clicking a database map in Velocity Studio and selecting Create SQL from the menu.
  - Improvements to the update operation in SQL to include only columns that have been updated to optimize performance.
  - Addition of the Conflict Resolution checkbox on the database map's General tab. When selected, this property enables conflict resolution on the database map.

- Expansion of a data structure that from the Mapping tab in which the data structure has a data structure variable. This feature works even if the data structure is not marked as a container.
- Support for defining keys in a data structure with the Keys field on the data structure's General tab.
- During a save or update operation, the reference key column automatically appears with the data structure object key when the data structure is mapped as a reference key.

3.1.30 Conversion Maps

- Conversion map support for an object map with a foreign key is available through the Conversion Map field.
- This enhancement includes a value change for the map item's name attribute of a Conversion Map object. This name value is based on the following syntax:

  <*map item target local name*> - <hash code of *map item target full name*>

3.1.31 Rule Sets

- Rule Set objects do not use index as this attribute and this item attribute is not available for the Database Map object.
- A Rule Set data object defines a set of rules that can be evaluated against a source data object (Document, Data Structure, or Top Level User Interfaces) and its extensions. Rule Sets are used to replace data object defined initialization, validation, and permission methods.
- Two new properties, **Default** and **Tag**, are available for a Rule Set object from its General tab, which allow you to control whether you want to process initialize rules.
- An error cleanup for Rule Sets is performed automatically within Velocity Studio. To resolve the errors select the rule set and click Save.

3.1.32 User Interface Modelling

- Enhancements include integration of AVM System Configuration Application and Common Business Configuration Application (COBA) graphical user interface (GUI) links to the Administration portal.
- On the application user interface, you can now drag and drop elements from one table to another, from one tree to another, and between tables and trees. To enable drag and drop, the **Can Drag Out** and **Can Accept Drop** properties must be set to true or a permission method. By default, you can only drag and drop elements if they have the same object type. To allow drag and drop between elements which have different object types,

you can override the cwGetDropData and cwGetDropTypes methods.

- A new property **Show Submenu On Hover** has been added for the Menu element. The property can be set for the ROOT menu button. For child menu elements, it is always true and disabled. Second level menus are always shown on hover.

- When the checkbox option is selected, the first column of table contains a checkbox for each row. This checkbox allows you to select a row in the table. Clicking the row itself neither selects the row, nor fires the Selection Changed Method. The Double Click Method is still applicable when this property is set to checkbox.

- Enhanced stylesheet support includes the ability to specify width and height properties within the style used for a given element.

- Prior to release, double-clicking a table row would reset any selections that were in place to the row that has been double-clicked. There are instances where you want your application to allow the user to double-click a row to see its details and then come back to the table with previous selections still intact. To achieve this functionality, select the **Select on View** checkbox.

- This enhancement allows you to select a tiling layout for table data. The following table element properties are available to support this feature:
    - **Is Tile Grid**
    - **Tile Size**
    - **Tile Count**
    - **Tile Style**

- A new element, **Advanced Reference Field**, is available in this release. This element type contains three icon buttons:
    - Detail
    - Finder
    - Clear

- The Grid Layout allows you to define an error style and to show the error inline. Two new properties, **Show Error Style** and **Show Error Icon**, support this functionality.

- The Button element features a new **Show Down** property, which allows a button to change style when you hold your mouse down on it.

- The **Dynamic Style** property of the Menu element can be set to a method that returns the style based on whether the menu action has been called or not.

- An enhancement has been made to the Enabled permission property, which is applicable for menu items of second and upper levels, including menu items under iterators.

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- An **Alias** tab is available for both documents and data structures. This tab allows you to provide an alias for a renamed variable so that dependent metadata that references the original variable will reference the new variable instead.

- Both the Reference Field and Select Field elements have a new **Enumeration Reference** property, which allows you to specify a separate data type to use for the list or finder to show during runtime. The variable set on the fields can be primitive strictly for storing values.

- The logic for the reference icon click and setting of data on the field is fully transparent in the system metadata script.

- In many project applications, a form frame element is wrapped with a layout only, to set the dynamic style on the layout. To improve performance, the form frame element contains the Dynamic Style property, which allows you to set dynamic styles under a form frame, to avoid multiple layers of layouts.

- The Tree element's Auto Fit Data property has been enhanced. A new Horizontal Scroll option is available, which expands column widths to fit cell values, but without expanding the element width. The horizontal scrollbar appears, if needed. The vertical scrollbar appears by default.

- This enhancement contains a new cwCreateDialog method of the user interface that creates the dialog object for user actions. This method allows customizing the dialog for an action, user interface, or application.

- An enhancement has been made to show validation errors on tables when the validation errors exist under the user interface that uses the table element.

- The following properties have been added to the Gantt chart element, which allow you to adjust the size of the displayed contents:
  - Pane Duration
  - Pane Duration Unit

  Additionally, the following properties have been added to the Gantt chart, Chart, and Nodal chart elements, which allow you to dynamically set the height and width of the chart:
  - Dynamic Height
  - Dynamic Width

- A **Multi-select** field for dynamic table columns is provided. You can select one or more items in this field.

- A new Boolean parameter, hideDeleteAndAdd, has been added to the constructor of the Dynamic Table scriptable object. This parameter provides the control to enable or disable the **Delete** button.

- The ability to add clickable image buttons to a tile grid cell includes the following enhancements:

  - Add one layout under the tile grid (table element) either horizontally or vertically.
  - Use the layout's **snapTo** property to define the group of image's position (for example, top left or bottom right).
  - Add image buttons under the layout.
  - Ensure that image buttons support dynamic and static images, dynamic and static styles, and the click action.

- The enhancement includes a standard Web breadcrumb navigation control that accumulates navigation history in a delimited set of links. This functionality allows for easy navigation to previously visited pages.

- This enhancement allows vertical, horizontal, and grid layouts to receive dropped objects from a table, tree, or tile grid.

- The following properties have been added to the Gantt chart element:
  - **Dynamic Suppress Dependencies**
  - **Dynamic Pane Duration Unit**
  - **Gantt Width Percent**

  Additionally, these enhancements have been made:
  - Includes the ability to scroll and scaling. If adjusting a row's height, the font size is also scaled.
  - Provides the ability to suppress display of dependencies (fixed value in metadata and scriptable), and allow you to change the selection from UI.
  - Includes the ability to scroll horizontally across the time window.
  - Allows specifying the time window with start or end dates.
  - Allows specifying the time scale in days, weeks, months, and years (fixed value in metadata and scriptable).

- A new script constant, PROPAGATE, has been introduced, that is used as an event type mode when invoking the publishEvent() API. This mode passes the result of the previous event handler as the first parameter for the next event handler.

- The Select Field element was useable only if its Variable property was set to a data object's variable as an enumeration type or reference. With this enhancement, Select Field element can be used in top level user interface with its Variable property set to the user interface's variable of type enumeration (static only).

- SmartClient version 9 includes CSS3 and some fixes for Internet Explorer version 9+ compatibility, but it also introduces some backward incompatibility. This issue has been resolved.

- SmartClient has been upgraded so that the header wrapping works properly.

- When creating a menu that uses a dynamic style, the menu icon is sized properly.

- Support for multiple profile providers is available. You can set up multiple profile sources (for example, one profile for each individual partner). A user in the profile provider instance with the Local Profile Administrator (LPAdmin) privilege can only create, change, delete, and update users within the profile provider. A user with this privilege can also only grant privileges to groups within the profile provider and may grant equal privileges to other groups within the same profile provider.

- The download element is available under the Page form when the user interface parent is based on "com.conceptwave.system.Application". If an application default Page is overridden and the download element on the Page is deleted, the download element is automatically inserted as part of the Page.

- With this enhancement, the **Extend** right-click menu action can be used to change the variable property of an extended element.

3.1.32.1 New Properties

- New properties for the Rich Text Editor element are available, which allow you to customize the width and prompt text of both the font and font size selector fields.

- A new property, **Filtering - Show Filter**, is available for dynamic tables that allows you to filter dynamic table columns. By default, the property is unchecked.

- A new property, **Connector Color Method**, has been added under the nodal chart element. This property accepts an action with return type set to String. The first parameter of the action represents the data document. The return string must be a hex color code.

- The Grid Layout element contains a new property, **Label Align**, which takes one of the following alignment options:
  - Left
  - Centre
  - Right

  This property can be overridden by the Label Align property of the Grid Layout element (for example, text field, radio button, and so on).

- A new property, **Show Validation**, is available for Chart, Nodal Chart, and Gantt Chart elements. By default, the property is unchecked, meaning that validation errors do not appear at runtime. Otherwise, select this property to display validation errors under the chart at runtime.

- A new property, **Selection Appearance**, appears under the table element and contains two options:
  - simple
  - checkbox

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- With this release, a new property, **Show Errors Inline**, has been introduced that can be used to show the validation error message below the field element.

- A new property, **Selection Type**, is available for the Table element, which allows the table element's selection type to be configured at a form level.

- A new property, **Click Method**, is available for Gantt, Nodal, and Chart elements. When you specify this property, chart elements are clickable. Clicking these elements invokes the method. The method receives two parameters:
    - The data object that the chart node represents
    - The variable, if applicable, that the chart node represents

- A new property, **Reference Data Type**, has been added under Reference Element. It shows a list of all reference finders in the metadata.

- A new Table element property, **Autosave on Data Change**, allows you to use mapped documents in an editable table without automatically saving the documents each time a record is edited. By default, this property is set to true, meaning that documents are automatically saved each time a record is edited. The default setting makes this feature fully backward-compatible. When this property is unchecked, editing rows in editable table are not saved automatically when exiting edit mode. Instead, table records must be saved by explicitly invoking the save method.

3.1.33 Avro Schema

- In Velocity Studio, an Export Avro Schema option has been added to the context menu of a namespace. This option allows you to export the Avro schema for the namespace.

- This enhancement supports a data structure with an array of an extended data object for Apache Avro schema generation.

- The Avro schema and CIL AVM have been enhanced, allowing you to select elements to hide.

3.1.34 Worklist

- This enhancement removes references to the base worklist finder user interface from the initialization of controllers. Additionally, calculations for the worklist timer duration (that is, cwf_pm.BaseWorklistFinder.dynamicTimerDuration() and cwa_worklist.UserWorklistFinder.dynamicTimerDuration()) has moved from the product into the metadata.

- Support for customizing worklist behaviours is invoked from WebService / Product.

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- This enhancement supports backward-compatibility of worklists. The following default event handlers have been created to call cwf_pm rules and scripts:
  - WORKLIST_IMP_TASK_ASSOCIATED_SEARCH
  - WORKLIST_IMP_TASK_START_ACTION
  - WORKLIST_IMP_TASK_ASSIGN_ACTION

3.1.35 Data Types

- The following data structures and data types have been refactored for LDAP:
  - ldapAttribute
  - ldapDeleteRequest
  - ldapEntry
  - ldapEntryArray
  - ldapModificationItem
  - ldapModificationItemArray
  - ldapModifyRdnRequest
  - ldapSearchCriteria
  - ldapModifyAttribute
  - ldapSearchScope

- Warnings are displayed for all data types if you shrink the lengths via ConversionMap; previously these warnings were only available for the String type. Since it does not make sense to truncate a Number type, an SQL exception will happen at runtime if you ignore the warning and do the conversion from a bigger length to a smaller length for the Number type.

- A new **Event** property on a reference data type appears on the General tab. The Event field acts as a substitute for the Finder field. Events in which the handler returns either the full name of the finder or an instance of the finder object itself to be used as reference must be specified for this field.
  Note: A data type must have either the Finder or the Event field specified, but not both fields.

- The Data Types General tab features the **Reference** property that allows the reference data type to extend a string, number, or decimal data type, or any types extended from these base types.

  Both cwf_up.createdByRef and cwf_up.updatedByRef reference system types have been changed to extend cwf.cwCreatedBy and cwf.updatedBy, respectively.

- A new system data type, Timezone, inherits a String data type. In the Data Type General property tab in Velocity Studio, when the base data type is DateTime, the **Absolute Time** property becomes available. By default, the property is unchecked, meaning that the DateTime uses timezone conversion. Otherwise, selecting this property indicates that the timezone conversion is disabled.

- Both static enumeration data types and data types with reference finders can be used for enumeration reference.

- The following system defined data types have been introduced:
  - cwf.appName - Data definition for application name.
  - cwf.cwAppName - System automatically populate with current application name.
  - cwf.cwMultiApp - System list of application names deployed on current database.

- When a data object does not have a UserInterface created, an exception occurs. This release contains an enhancement to the exception message, which provides more meaningful information to explicitly state that the UserInterface is missing.

- An automatic conversion (to DataObjectList type) was implemented for the case when a script finder returns a substructure (leaf of a data structure) with the Array flag.

- This enhancement allows you to use a trigger on reference fields for data structures. The Run Trigger property of the Reference element can be bound to any method of the UserInterface data structure.

- This enhancement allows you to track changes to mapped data structures in a database map. Additionally, for event handling, you must create a new event handler for the SYSTEM_AUDIT_TRAIL event.

- A new system enumeration data type, cwf.interOper, is available as an option in the Enumeration Reference field for drop-down elements.

  An enhancement allows for overriding variables with a data type user interface, as long as the data type is the same or extends the original variable's data type.

3.1.36 Workflows

- While performing workflow modeling, you can now right-click on an empty diagram view and add an activity.

- A workflow with a notification operation in a choice should not have a before script. This validation is performed at design time now rather than when attempting to start AVM.

3.1.37 Namespace

- Improvements have been implemented to the **Import** dialog to guess the namespace from the XSD URL in the following ways:
  - Automatically replace "-" with "_"
  - "http://a.b.c/" previously resulted in null; now we get "a.b.c"

  - "urn:abc" previously resulted in null; now we get "abc"

- If a label for your namespace is not specified, the name of the namespace appears in the Configuration application, under the **Services** > **Services** tab.

- If the **XSD Namespace** field is not defined and you generate a WSDL, the namespace name is used as the target namespace URL instead.

3.1.38 Quality Reports

- A new Quality Centre command is now available, which allows you to generate and review reports about the quality of your metadata. The reports created with this command display information about the metadata elements, scripts, global processes, and user processes, as well as inform you about potential problems with your metadata, such as the use of deprecated APIs and older templates.

- When sharing or relocating generated quality reports, the reports are unreadable. A fix has been made where the index.html file with a relative path to the report is generated inside the report folder. As a result, when you relocate your reports to other folder locations, you can still access the report without performing any changes to the report.

3.1.39 Documentation

- A Dimensioning Guide is available in the help documentation that explains the hardware sizing guidelines for Ericsson Order Care (EOC) and Ericsson Catalog Manager (ECM).

- The help documentation available from Velocity Studio includes a new Modules Documentation section, which contains documentation for modules such as Catalog Management, Customer Information Management, and so on.

- The AVM contains system limits that are documented in the Velocity Studio User Guide under Introduction to Metadata.

3.2 AVM Repairs (changed)

This section lists changed features in AVM.

3.2.1 Metadata Deployment from the Database

- In this release, metadata is deployed to the database instead of the file system. The following options have been added under the Velocity Studio Runtime menu:

- **Select Application** - Allows you to select the application name, version, and the node.
- **Delete Application** - Allows you to delete the deployed application from database.
- **Diff DB APP** - Compares the current and deployed application, and creates an HTML file.
- **Open DB Application** - Opens the application from the database.

Additionally, no metadata activation is required; the runActivate.cmd file has been removed. In System Configuration application, new nodes can be defined at multiple levels and a node can inherit configuration from multiple parent nodes.

- With metadata in the database feature in 14.0, there is a need to identify how to install the product for the Windows machine (that runs Velocity Studio) and the Unix machines that runs the application servers.

3.2.2 Ericsson Rebranding

- The Installer license agreement terms, installation wizard screens and Installer User Guide (under **Standard Install** > **Installation Wizard**) have been changed to reflect Ericsson rebranding.

- In this release, the user interface of Address Management has been enhanced to conform to Ericsson product branding.

3.2.3 Processes

- Migration of process revisions from product version 5.2 to 14.0 was deleting processes, not revision objects. This was resulting in validation errors after migration, mostly related to missing process elements. The issue has been fixed so that during process migration, we always extract and delete revision objects only (not processes with same revision number).

- When 10,000 or more processes were created, some of them remain in the not started status until Velocity Studio was restarted. A couple of processes remain in an error or stale state even after the restart. This issue has been resolved by creating one database (DB) calendar for each connection instead of creating and using the global DB calendar in all connections.

- The autoStartWork flag was broken, which was causing problems in starting tasks. This has been fixed.

- If a process has an activity for an external interface, renaming the external interface, including namespace change, does not trigger the save on process to update activity to reference the new external interface by name. This problem caused an invalid process to occur when reloading metadata. This issue has been resolved.

- Occasionally, the CWVMINFO table contains two records with the same application name and node, but for different IP addresses. Only one of these IP addresses currently runs the application, meaning that the previous IP address record was not cleaned from the table. As a result, processes do not start, possibly because they are distributed to run on the no-longer-running IP address PE. This issue has been resolved.

3.2.4 Commands

- It is now possible to set up AVM configuration from the command line so that the system can be completely installed from the command line and started successfully in RUN mode without the need to log into the UI and manually configure the system. Additionally, the import/export command has been modified to work with 14.0 configuration in XML.

- When using the configImport.cmd command, a number of error messages appeared in the log file. Although the import command successfully completed, these exception messages were misleading. The following changes have been made:
  - Database mapping for documents and database maps does not perform validation in configuration mode.
  - Configuration mode does not throw errors during schema checking, as it is handled in runtime. As a result, the error log level has been changed to the debug log level.

- You can import or export code tables without running Catalog. A new command line option runScript.cmd has been added that can be found in the <installation_folder>\designer\env. The doImportCmd global script parameter imports the code table either in .zip or .xml format. The doExportCmd parameter exports the code table in zip format.

- Although buildLibrary.jar script created a number of errors and returns an exit code of 0, the command still created the library file. To correct this script's behaviour, one more argument, S, has been added to command line as follows:

  ```
  <-buildlibrary> [-help] [-logFile log file] <metadata dir> [library
  name] [S stop with error]
  ```

  If you specify this argument, the JAR file creation process stops when an error occurs.

- Deploying an application using the deploy command line in the database results in exception errors. This issue has been fixed.

- The runScript.sh file generates a null pointer exception, and failed to import entity data while installing COBA using SUF. This issue has been fixed.

- When using the configImport.cmd command, a number of error messages appeared in the log file. Although the import command successfully completed, these exception messages were misleading. The following changes have been made:
    - Database mapping for documents and database maps does not perform validation in configuration mode.
    - Configuration mode does not throw errors during schema checking, as it is handled in runtime. As a result, the error log level has been changed to the debug log level.

- When the rule instance is updated during the ruleInstancesImport command, an Oracle internal exception occurs. This issue has been resolved.

3.2.5 Installation

- When installing the product using the default target directory, the product cannot open any metadata project. However, installing the product in another directory works fine. The default installation directory folder has been changed to C:\Users\<*username*>\Ericsson to resolve this issue.

- When installing or updating the AVM with the SlimInstallation.xml playlist, the firewall configuration contained many similar lines. The issue has been resolved. To avoid duplicate entries, the firewall rule is added only if it does not exist.

- After installing Velocity Studio with an installation path that contains a space, the application does not start. However, if the installation path does not contain any spaces, the application launches properly. This issue has been fixed.

- If the proper JDK version is not installed on the machine, the error message has been changed to indicate the following:

  ```
  Failed to read the license file. Possible causes: wrong JDK
  version or invalid license file.
  ```

- When re-installing version 14.0 into the same directory, and selecting the licence file from the original installation in the installer, the licence file appears to be overwritten with a 0 byte licence file. This issue has been fixed.

- JBoss was taking approximately five minutes to start with the jboss_start.xml playlist. The JBoss start check was waiting for an existing JBoss for 120 seconds. To resolve the issue, the counter has been changed from {1..12} to {1..30}.

- The database schema created with CW.sql was incomplete. The schema was missing some tables and other data that resulted in an application start failure. This issue has been resolved.

- No access to ECM occurred when using `upadmin` as login credentials. A fix has been made to the SUF installer, which was not setting the permissions properly.

3.2.6 Migration

- End-to-end testing on the software packaging and licensing before the 14.0 GA release is required. The following tasks need to be tested:
  - Fresh installation of version 14.0 on one specific product with the licence only for that product.
  - Check that there is only one application for that product.
  - Check that all the underlying sub-modules are present (for example, address management and customer management are properly installed under CIM)
  - Check that the configuration variables work properly to show the 5.x or 14.0 version of the products.
  - Repeat this activity for all products included in Ericsson Catalog Manager and Ericsson Order Care.

- An exception occurred when migrating from version 5.2.x to 14.0.0.0, and then performing a system update using the Upgrade System command in Velocity Studio. This issue has been fixed.

- Velocity Studio hangs when working on services to migrate metadata. This issue has been fixed.

- Unusually high database activity was noted by a customer after migrating from product version 5.2.0.0 to 5.2.2.0. There were a high number of unexplained inserts into and deletes from the CWT_OBJECTINDEX table. To fix this issue, Order.save() has been optimized so that an instance is saved only once per call. As a result, cwOnDocStore is fired only once.

3.2.7 System Configuration Application

- In the System Configuration application, all fields that contain password-like information are treated as passwords for security.

- In the System Configuration application, the **Number of processes** can be changed to 0 for processes with status 'Executing' and under a PE Process. After the configuration is changed, AVM needs to be restarted to reflect the changes. When AVM restarts, it gets a new AVM Id and those global processes running on the old AVM will be marked as Status = 'Aborted' with AVM Id = Null. This is reflected on the *System Administration* application.

- When logging into the Configuration application, making changes to the CIL physical database, and then saving and restarting it, logging back into the application is unsuccessful. This issue has been fixed. Due to the CIL client library caching previously used URLs, any new URL is not available until after you restart Velocity Studio to make the configuration active.

- After successfully deploying a simple application to Weblogic, the following errors occur when accessing the Configuration application:
  - In Chrome, the Web page has a redirect loop.
  - In Internet Explorer (IE), the browser cannot display the Web page.
  - In Firefox, the browser detects that the server is redirecting a request for this address, but the request never completes.

- When changing configuration variables such as PSCM_CILSERVER_HOST or PSCM_CILSERVER_PORT in the System Configuration application, JBoss needs to be restarted to activate the changed values.

- The **System** > **Config Variables** page features an **Encrypt** button, allowing you to select a configuration variable from the table, and then click the button to encrypt its data. The encrypted configuration variable then appears in the Encrypted Variables section of the page. Alternatively, you can select the configuration variable that you want and drag it to the Encrypted Variables section.

- When there are multiple logical connections associated with a physical connection, if a database rollback was triggered for one of the logical connections (for example, ORDER, CUSTOMER), the database updates for the other logical connections associated with the same physical connection were also rolled back. This issue has been fixed.

- An issue was found with sub-code table recursion, which has been fixed. When a new code table refers to the same code table, an error message appears. An existing code table with its own code table as a sub-code table does not appear on the user interface to avoid infinite recursion.

- When first set, password values or encrypted variables are saved in the database in encrypted form. However, if the configuration is saved afterwords, the values are not saved, nor encrypted.

3.2.8 System Administration Application

- In the System Administration application, the Event Log and AVM History pages were displaying the same query results in the last and second last pages. This issue has been fixed.

- The event log was not displaying the AVM names correctly. The format of AVM details has been updated to provide enhanced names, including the hostname, AVM ID, and application name. A new menu option, **AVMs History**, has been added under the **Manage** menu of the System Administration application. This menu provides a list of archived and currently running AVMs.

- The event log was not displaying the AVM names correctly. The format of AVM details has been updated to provide enhanced names, including the hostname, AVM ID, and application name. A new menu option, **AVMs History**, has been added under the **Manage** menu of the System Administration application. This menu provides a list of archived and currently running AVMs.

- The UI was not showing **PE Mode** and **Status** properly in the AVM finder. The following fixes have been made:
    - For **PE Mode**, another enumeration record has been added for the `peMode` data type. If the node runs PE (that is, PE, PE_UI), the value is set to running. Otherwise, it is set to non-running.

- The event log was not displaying the AVM names correctly. The format of AVM details has been updated to provide enhanced names, including the hostname, AVM ID, and application name. A new menu option, **AVMs History**, has been added under the **Manage** menu of the System Administration application. This menu provides a list of archived and currently running AVMs.

- When configuring the resource lock queue and changing N of threads (from the Listeners tab), the Message Handler field is cleared, which prevents the queue from processing the messages. This issue has been fixed.

3.2.9 User Profile Management Application

- It is possible to delete a group with multiple users in the User Profile Management application.

- A more user friendly message is displayed when the user attempts to create a duplicate user in the User Profile Management application.

- An exception error occurred when creating and deleting a user group from the User Profile Management application. This issue has been fixed.

- In the User Profile Administrator application, when adding privileges to a group, a finder appears with the available privileges to be added and permits multi-selection. However, there is no visible option to add multiple selected privileges.

- When creating a user in the User Profile administration area without running the proper system grants on the underlying database schema, a rollback SQL error occurs. Although the underlying error is correct, no rollback is performed since the user is saved in the system and cannot be recreated in the database for authentication.

- The Organizational Charts page now has an Import and Export function. In the User Profile Manager, the following configuration information can be exported and imported:
    - Groups
    - Users
    - Privileges

  - Organizational Chart

3.2.10 Modules

- Corrections have been made to ensure that all templates do not use deprecated methods.

- The AVM_SUF playlist failed at the Stop JBoss step. It was found that the $EEBIN variable was not defined in the ngee_jboss_stop.sh script. To solve the issue, the $EEBIN variable has been hard-coded in this script.

- The parallel installation of ECM and CPM through SUF could not be performed due to the network name being hard-coded in the network.xml playlist. This issue has been resolved. You can specify the network name while setting up a job in SUF.

- During SUF deployment, the step that generates the upgrade SQL needs to pick up the user SQLs defined in the resource file. For example, cwl_pscm library has the resource/cwl_pscmSQLUpgrade.txt. When running the generateUpdatesSQL command on a deployment JAR, it must be read from the SQL upgrade files, which are embedded in a library JAR inside the deployment JAR. The deployment code needs to use the new resource manager to find the SQL upgrade files. This issue has been fixed.

- The version number for applications in Unified Workstation (UWS) has been removed from both the application list on the Application Selection page and in the application titles.

- When Customer Partner Management (CPM) is deployed and started with a Velocity Studio version that is older than the version that it was compiled in, error messages are thrown. A fix has been made to the resource file to have the proper placeholder value.

- A user without any privileges granted has access to the Base Common Application and Orchestration Framework applications. This issue has been fixed so that the privilege must be assigned to each application menu.

- The following changes were made to the SUF Installation:
  - Ensure that the libxslt package is installed on the SUF machine.
  - Ports 8080 and 9999 are enabled on the application server for firewall support. You can add more ports, depending on your requirements.

- When AVM SUF was used to install Ericsson Catalog Manager (ECM) on Linux, the installation was completed successfully. However, when launching the application, the server ended up hanging. A Java out-of-memory error occurred in the server log file. To resolve this issue, the

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following two new options have been added to standalone.conf file when JBoss starts:

  - `JAVA_OPTS="$JAVA_OPTS -Xms1024m -Xmx5120m -XX:MaxPermSize=1024m -Djava.net.preferIPv4Stack=true"`
  - `JAVA_OPTS="$JAVA_OPTS -Dorg.jboss.resolver.warning=true -Dsun.rmi.dgc.client.gcInterval=3600000 -Dsun.rmi.dgc.server.gcInterval=3600000"`

- For all major modules, such as Order Managment, Order Negotiations, Order Analytics, Catalog, and so on, you must run DDLs and import code tables for all library templates.

- Tasks that belong to a participant with the Everyone privilege are not being distributed by the system to the upadmin user, because upadmin does not have the Everyone privilege. Although this issue was reported on the reimplemented worklist module, this issue affects the security module. The security module did not miss the handling of the Everyone privilege. This privilege is special in the way that it is not specifically stored in database, but it is an assumed privilege that is given to all groups. This fix affects the security implementation (for example, cwl_security.getPrivilegeGroups) where if the privilege = 'Everyone', all groups are retrieved.

3.2.11 JavaScript APIs

- When calling composeKey() with an integer array as its second parameter caused an invalid argument error. This issue has been resolved.

- Service Registry was not updating the updateService API to create a new version of entities. This issue has been fixed.
  Javascript APIs

- The documentation for the two startSubProcess API methods has been fixed.

- The DataStructure.toXML() was generating an incorrect result while processing a parent data structure that contains an array child whose type was same as the parent. With this fix, the DataStructure.toXML() returns the correct output when it contains an array child of the same type.

- Document.setRuleSetTag() and DataStructure.setRuleSetTag() API documentation was clarified.

- The Dynamic Document’s JavaScript documentation had an incorrect reference to dynamic metadata documents being introduced in version 5.1. This statement has been removed.

- The api_common.createFault’s last parameter, dbNameRollback, provides a placeholder for the name of a logical RDBMS connection when creating a fault in AVM. Such a connection is unavailable when using CIL and there was no rollback. A request was made to provide a way to create a fault without a rollback. The JavaScript documentation has been updated to clearly note that the dbNameRollback is an optional parameter, and that the rollback logic in implementing the API script_createFault.xml tries to roll back only if this parameter is not null.

- Some inconsistencies related to timestamp, log trace, and log fatal were reported in the Logging API. It was suggested to use Log.logTrace instead of Global.logTrace, as Log.logFatal is not supported. The timestamp format has been fixed. Another issue was found where no message was logged when a category is not configured. This issue has also been fixed. When a category is provided in the resource file and no configuration is provided in configuration log, the com.conceptwave.javascript log level logs the message.

- When using the addPrintCategories method to print debug information to a log specified in the JMX verbose file, new categories could not be added. This issue has been fixed.

- The method, fromAbsTimeToString(), which converts the date time (integer) to a string, was returning inconsistent string results for the same time. This issue has been fixed.

- The toJson method was parsing a DATE data type using either the default YYYY-MM-DD format or a user-defined format. With this fix, if the date format is not as expected, it is treated as a string in toJson, and it does not throw an error.

- A fix has been made so that ReferenceTable.getTable(name) does not return deleted records.

3.2.12 Metadata Objects

- AVM generates WSDL files for SOAP-based APIs in the metadata. However, if the metadata is deployed from a JAR file, generating the WSDL file fails.

  The following fixes have been made:
  - The deployment JAR file is expected to be included in all required WSDL files.
  - When using the deploy command to deploy JAR files, it should not pass true for the generated WSDL file (that is, last parameter).
  - If the generated WSDL parameter is set to true for JAR deployment, the script cannot add new WSDL files in the JAR file and not throw an error. Instead, it adds a log message as a warning level for missing WSDL files.

- Extended metadata objects were not being parsed and sent correctly in a SOAP request. This has been fixed.

- Metadata object selector did not display red text for invalid values. It displayed the values in red in the drop-down, but the selected values

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stayed black. This has been fixed.

- When doing a metadata comparison and changing an object, the metadata shows extra metadata objects as changed for the same variable path. This issue has been fixed.

- In version 5.x, a Web session timeout shows a timeout warning dialog before the actual timeout and you can extend the session by clicking the Continue button on the warning dialog. However, in version 14.x, a warning message is not shown. The session directly expires and the session cannot be extended unless the page is refreshed. This issue has been fixed.

- Prior to this release, the application requested was always created twice, which also resulted in the multiple calls to appSelected. This should no longer be an issue.

- Translated text in the Help section did not display in the proper language at runtime. This has been fixed.

- For **Status**, if the records are in CWVMINFO table, PE status is running. Otherwise, records are removed from CWVMINFO table.

- After generating a JAR file in Velocity Studio without any errors, using this file in other projects caused a SAX error. It was found that loading language resources are broken by either GIT or non-language resources inside the *.\language* folder. To fix this problem while loading the resources, the non-xml files are skipped from the *.\language* folder and log the warning. The GIT-broken XML files are also skipped from the *.\language* folder and the error is logged. All warning messages appear under the Velocity Studio's **Problems** pane.

- When assigning a number value from a document variable to a data structure variable, the fraction digits are not properly converted. This issue has been fixed.

3.2.13 External services (interface, port, binding)

- When using an HTTP listener, and specifying the encodingStyle field for both Input and Output, the Content Type returned in the response relied on the Input. This issue has been fixed where the Content Type in the listener response depends on the encoding set for the Output.

- An issue has been resolved where the CIL HTTP interface from Velocity Studio was not working in a JBoss environment.

- The error message shown was not complete as it does not give the root cause of the problem as expected by the AVM REST framework.

- The SLIM AVM with HttpCilInterface was not working properly due to an issue found in the CIL 0.6.0 library. The issue has been resolved by upgrading the CIL library to version 0.7.0. As a result, a change has been made to CIL.setInterface(String interface_name, String[] params), where params is a list of HttpCilinterface lookup service’s URL. For example, any code in 0.6.0 as: `CIL.setInterface("HttpCilInterface",["localhost","8184","/rest/"]` must be changed to `CIL.setInterface("HttpCilInterface",["http://localhost:8184/rest/"])`.

- The CIL HTTP deployment in AVM 14.0 beta release 6 was slow compared to the Oracle deployment in AVM 14.0 beta release 4. This issue has been resolved.

- The CIL library has been upgraded to version 0.8.1. As a result, the following AVM CIL changes appear in this release:
    - Use integration provided by CIL to replace getKeyList()
    - Replace sequence-generating implementation with CIL's
    - Provide schema register and unregister functions in CIL storage
    - Use CIL schema storage when using put and get functions

- The HTTP response received is a simple acknowledgement (code 200) with no payload as the content body. In this case, the received properties of the message cannot be displayed in the message log. This issue has been fixed.

- HTTP headers are not strictly alphanumeric characters. The method is exposed to the metadata through UserProfile.setInterfaceHeaders using a data structure with variables corresponding to the HTTP header that wants to be set. However, due to data structure variables enforcing alphanumeric characters, not all HTTP headers can be controlled by the application (for example, Content-Type in the HTTP header).

  To fix this issue, the following changes were made:
    - The cwf.httpHeader property was added to the system template.
    - Another way to set up the http header is also provided.

  Sample code:
  ```
  UserProfile.setInterfaceHeaders(["header-1","value1","header-
  2","value2"]);
  ```

  The header or value can be parsed using a string array. The total number of array elements must be even.

- The need to return data and array of data consistently without including the defined response data structure (ResponseProductSpecification.results) in the REST response was noted. This issue has been resolved.

- A fix has been made so that the HTTP response code and data are logged in the message log if a non-200 error code is returned. This logging does not depend on whether the operation is a request or response.

HTTP headers are always available in the script context and does not depend on whether the operation is a request or response.

- During the deployment of CPM metadata into a Common Information Layer (CIL) database, error messages appear. This error has been fixed by changing the code to use getKeyList().

- Starting AVM with a CIL HTTP connection threw an exception. A fix has been made to resolve this issue.

- When an entity having an element in its structure for the array type (that is, array that is not initialized, so it is null), is to be serialized, the CIL.put adapter throws a NullPointerException error.

- The recursive call has been fixed and now the fromJson method can be called from the cwFromJson script.

- When creating a message body, if the binding is in JSON format, the interface uses JSON settings on the root data object. The following changes have been made to the Data Structures General Properties page:
  - The **Json Name** field has been renamed as **Json Settings**.
  - For a parent or root data structure, the following options have been added for the **Json Settings** field:
    - **Include Name Tag** that contains the root data structure name tag in the output.
    - **Exclude Name Tag** that excludes the root data structure name tag in the output.

  - For any child data structure, the following options are available for the Json Settings field:
    - **Include**, which includes this field if the value is not null.
    - **Exclude**, which excludes this field.
    - **Include Always**, which includes this field despite whether the value is null or not.

  Additionally, the following API scripts have been changed:
  - toJson(boolean)
  - toJson()
  - toJson(false)
  - toJson(true)

- An exception occurred when using CIL.put() for a data structure that has a parent. This issue occurred when a top node is not saved and has been fixed in this release.

- When the target interface returns an array of objects in JSON format, a class cast exception occurred. Additionally, when the value for a field was split into two lines, the JSON parser threw another exception. These issues have been resolved. It is suggested to replace the line break with \n since JSON does not support the line breaks.

- A fix has been made for error handling that occurs in the DateTime attribute from the JSON conversion so that Velocity Studio throws an exception instead of ignoring or defaulting to null values that it cannot parse.

- You can exclude the header from a JSON string by using the fromJson method's excludeHeader parameter, which takes a Boolean value. This method uses the metadata setting if this parameter is missing. The method first matches the XML name for backward compatibility, then the JSON name, and then the local name. This method throws an error when the JSON header is expected, but the given string does not contain a header.

3.2.14 Orders

- Orders were not being released in the cache when using external ID. With this release, an internal hash map has been implemented that keeps objects by internal ID and metadata type. This makes it possible to find and unlock orders by their ID only. Now, orders are released properly in the cache with both internal ID and external ID.

3.2.15 Finders

- An issue occurred when creating a simple document finder with the output document mapped to the database containing a cwf_oe.orderId reference variable. The source database table has the correct orderId values. However, when displaying the finder, the orderId is populated with the Order Instance string instead of orderId number. As a result, when clicking the reference icon, it displays the finder of orders instead of order details because it cannot find order details for an order with id = "Order Instance".

  When making changes to the Java code to fix this issue, it was found that although the correct value in the finder is displayed, the underlying value is still Order Instance. As a result, the reference click still was not working properly. If the finder is set as Auto Save, then Order Instance overrides the original OrderId in the database. This issue has been fixed.

- An empty error message occurred when a Document finder’s fields were not mapped to database table columns. To resolve the issue, validation has been added that shows the error message with variable names when the document finder uses unmapped variables.

- A fix has been made for calculating the total number of rows in finders. The sum and average is calculating correctly for decimals by rounding properly.

- This fix allows a custom row style for tree nodes and provides collapsible functionality for finder results.

- When performing a linguistic search in a Web browser, the feature became disabled, either by clicking a column or defining a custom view containing this sort. A fix has been made in this release. When sorting a table column, the linguistic sort follows the role of Nls_Comp and Nls_Sort if these properties are defined.

3.2.16 Documents

- When attempting to use all four variables in a document as the document key, it was unsuccessful. Selecting the variable type as the first key, and then selecting the other three variables resulted in all being a part of the document key. It was determined that there were two documents mapped to the same database table in which each one had a different key list. Removing the second document's mapping resolved this issue.

- When a document is added to an order, the tree node is created before the document is initialized, causing an issue with the data object ID. This issue has been resolved by notifying the UI after the document has been initialized and fixing the getDataObjectId() method to never return null if the variable is empty.

- When creating a document or an order, and adding mandatory attributes, the `UserInterface.isValid` variable is not updating properly when clicking the **Save** button. This issue has been fixed.

3.2.17 Mapping

- When creating a document, mapping it to a database, setting up a connection, and then running the upgrade, an exception occurred. This issue has been fixed.

- A fix has been made to correct the following mapping issues:
  - Velocity Studio is not performing validation for a set of errors with the conversion mapping once the data structure has changed.
  - Conversion map editor is not removing the invalid mappings when editing the conversion map.

- The mapping was not being saved in a conversion map when same attribute names were used in different elements. The hashcode was equal for the same parent type that caused the same name issue. It is recommended to use the CwfMapPath hashCode instead of type-full-name.

- An unsupported operation error occurred when starting Velocity Studio, which was not meaningful when attempting to troubleshoot. The error is related to a previous conversion map compilation issue, which has been fixed. Logging has been enhanced to indicate that an internal error has occurred compiling a path element for a mapped path.

3.2.18 Conversion Maps

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- In a Velocity Studio project, the conversion map was created successfully with source set to data structure and target set to XSD schema. However, reopening the same project was throwing some validation errors. The issue has been resolved by fixing the relative path and the XSDElement methods to use member map when XSElementDeclaration not available.

- When converting XSD elements into a data structure, their names were case-insensitive. This issue has been fixed. Automatically renaming schema type names and element names has been enabled. All renamed elements appear in a message dialog, and the references of renamed elements are also updated when they are automatically renamed.

3.2.19 Velocity Studio Menu Options

- There were styles issues in Internet Explorer 10 and 11 and as a result tabs, buttons, dialogs and tree nodes were not positioned properly. Corrections have been made to resolve this issue.

- When starting and stopping runtime in Velocity Studio, an error message occurred, indicating that a database upgrade is needed. However, restarting runtime does not show this error message. This problem has been fixed.

- An exception occurred when changing the database connection in Velocity Studio. This issue has been fixed.

- This fix resolves the issue where a *Database Upgrade Required* message appeared in Velocity Studio's Console pane rather than a popup message dialog.

- In Velocity Studio, when clicking **Runtime** > **Clean Non-Used Revisions**, process revisions are displayed in a linear list of checkbox nodes.

  Instead of displaying the list of revisions as a linear list, a new checkbox tree structure function has been implemented for revisions, where each revision appears under its process. If there are multiple revisions belonging to the same process, all such revisions are gathered under a single process node.

- An error occurred while generating the quality report for a Velocity Studio project in which the **Label** field contained an ampersand (&) symbol. A fix has been made for this issue.

- The quality report failed when the output filename was changed from the default. This issue has been resolved.

- This fix resolves the issue where a *Database Upgrade Required* message appeared in Velocity Studio's Console pane rather than a popup message dialog.

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- The product now specifies file names in the error message for files that cannot be parsed or where an exception has happened due to conflicts in files.

- When metadata contained errors, you could still successfully have the AVM in runtime mode. This issue has been fixed.

- An issue was found when trying to stop runtime from Velocity Studio where background threads were still running (for example, heartbeat, validation thread, global processes thread, and so on). This issue has been resolved.

- The Dynamic Data Link (DDL) was updated to reflect metadata changes so that when running the product that is supplied with a DDL, no additional tables, fields, and so on need to be applied using the upgrade system process.

- A fix has been made to the title under the breadcrumb to match the last entry in the breadcrumb if the page is a details screen that is accessed by double-clicking something.

- A date selected by clicking the Calendar icon was displayed properly in a field, but was changed when that field lost focus. The issue has been fixed.

- When creating a node under a navigation tree, the Extends property was highlighted in red although it was not mandatory. A fix has been implemented so that properties that are not mandatory are not highlighted in red.

- When using a user interface contributor containing a menu item on a UI contributor form, renaming this menu item was unavailable. Additionally, cutting and pasting existing menu items was also unavailable. These issues have been fixed.

- The cursor and underscore issues in text and date fields have been fixed in this release.

- When creating a user interface with one form, adding a layout element, and clicking Rename by right-clicking the layout, nothing happens. A fix has been made so that you can type a new name for the layout in the dialog that appears.

- Warnings are not shown when creating a health report. This issue has been fixed. All warnings appear in a tree format when you select the Warning option to create a health report.

- When the database configuration requests that the parameter is a database timezone, no timezone validation is provided on entry. At runtime, an error is silently thrown to the event log and the default is used. This issue has been resolved.

- When clicking the **Extract Metadata** button and creating a library, there is no metadata exported and an exception is not thrown. These issues have been fixed.

3.2.20 Worklist

- When you create a manual participant and associate it with an interface, the two notification operations (that is, the actions that can be performed on the worklist task) are displayed, but are not compiled into the participant's operation. As a result, performing an action of the worklist task doesn't invoke the operation. This has been fixed.

- A worklist task data structure created and mapped to a worklist document was throwing an exception when saved to database. This issue has been fixed.

3.2.21 Data Types

- With this release, the validation for primitive data types Date, DateTime, Timestamp, Decimal, and Integer has been enhanced. The validation is done on format, length, minimum, and maximum values. With Documents and Data Structures, the CwObject.validate() can be used in a script which returns a list of validation errors related to data types.

- When Timestamp datatype is mapped along with CWJSON system data type, the data object was not properly populating the Timestamp data type when generated from JSON serialized string. This has been fixed.

- A client wanted the application UI to display the same time stamp regardless of the time zone. The display time zone logic has been fixed for absolute and non-absolute DayTime types. Additionally, Global.getClientTimeZoneOffset() has been fixed to always return correct client offset.

3.2.22 Data Structures

- An issue was found with sub-code table recursion, which has been fixed. When a new code table refers to the same code table, an error message appears. An existing code table with its own code table as a sub-code table does not appear on the user interface to avoid infinite recursion.

- When mapping two data structures where one was set to null, the mapTo() method ignored the null value and the data structure retained its original value. This method has been fixed, as this method skips assigning the null field only when it contains the **IgnoreNull** parameter.

- To detect whether a data structure has been changed after a fromJson(call), use the isLeafSet("name") method. Additionally, you can use the cleanLeafSetFlag("name") and cleanLeavesSetFlag() methods to clean the SET flag on a variable and on all variables, respectively.

- A fix has been made so that a data structure containing an array of another data structure does not output an empty array when the toJson() method is called.

- Updating a data structure using a database map, with the audit trail specified on either an XML or JSON mapping, raised an exception. Auditing takes place on individual variables when mapped to either XML or JSON. In this case, the data structure variable was mapped as JSON or XML, and its child variable was also mapped. As a result, auditing received the same variable twice. A fix has been made to clean the change flag on the first audit recording. A new method, cleanLeafChangedFlag (), has been added to clean a single variable change flag using the variable position number.

3.2.23 Namespace

- Some libraries have namespaces without the corresponding metadata file which causes a problem when these libraries are used in another metadata. These namespaces get automatically created by the loaders, but they appear in the main metadata tab. This issue has been resolved by fixing the template/metadata.

3.2.24 User Interface Modelling

- To provide support for the Common Business Configuration (COBA), Velocity Studio supports editable and visible control on the dynamic table with the dynamic document.

- When clicking a form element property with an ellipsis button, such as the Editable, Variable, or Visible properties, it was found that the list of values was not sorted properly. This issue has been fixed. Additionally, you can quickly narrow down the value that you want by entering its first few letters in the dialog and then selecting the value from the shorter list that appears.

- The product now shows labels for newly created leafs and elements in the preview mode.

- An exception occurred when creating a data structure with the **Extends** field set to any CwfData type. This issue has been fixed.

- An exception occurred when creating and saving a new data structure with a generated key. This issue has been fixed.

- When running a project in JBoss 7.2, an error message, *DE0994: Duplicated dynamic leaf name "{0}" in dynamic document "{1}"*, occurs that does not provide much information, as the error message's {0} and {1} parameters were missing. This issue has been resolved by replacing the placeholders with the actual name of the duplicated dynamic variable and

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dynamic document, respectively.

- Previously, validation logic was added to validate any date values being passed in XSD format. The dynamic table does not use XSD format, like regular tables. It only saves the date's long value. Therefore, when you add a date, the UI throws an exception and the date value fails to display the selected date. This issue has been resolved.

- When a table is flagged as a tile grid (that is, the Is Tile Grid property is set to true), the drag and drop functionality becomes unavailable. This issue has been resolved.

- A fix has been made to set the current stylesheet of the element being rendered to derive from the local metadata header only if the element style cannot be found from the Page stylesheet, or the system (cwf.css) stylesheet.

- When creating two tables with drag and drop enabled, and types configured properly, the cwOnDrop event does not get triggered when dragging from one table to another. This issue also applies to trees. The drag and drop functionality for tree and tables has been fixed.

- Whenever a newly created element with the Form variable is set to some form, and then copied and pasted, the Form reference (that is, overlayReference) becomes null in the pasted element for the Form variable. The workaround to this issue is to create a String variable in the user interface and initialize it with the Form name. Use this variable as the reference instead of the actual Form. This issue has been fixed.

- In previous releases, when a user interface inherits a form from its base user interface, you could mark an element as being deleted if you do not want it to appear during runtime for the specified user interface. It was found that this feature was missing. In this release, this functionality has been restored.

- A fix has been made to include the skin directory when building a JAR file.

3.2.25 Hashing

- An ArrayIndexOutOfBoundsException occurred in CwfDataObjectHash. It was found that a writelock was missing in CwfInterfaceDataCache.put. This problem has been resolved.

- A null pointer exception occurred in CwfDataObjectHash, which has been fixed by adding the writelock() method into the Clear() method.

- When creating or deleting documents or user interfaces, starting and stopping runtime, or opening different metadata projects and starting runtime, interval validation errors occurred intermittently. A fix has been made to slavemap to internally have a ConcurrentHashMap, which avoids concurrency errors when more than one thread in Velocity Studio works with the metadata and does not cause any performance issues to runtime.

3.2.26 Scripts

- An issue occurred when creating an editable table and adding a trigger to one of the fields with a breakpoint in the trigger script. During runtime, when editing the field's value with the trigger and clicking into another row, the trigger breakpoint does not result.

3.2.27 Avro Schema

- When defining the Java namespace in Velocity Studio, which can then be used in the exported Avro schema files, calling CIL.put() caused an error to occurred due to different namespaces being used. This issue has been resolved.

- For Java namespace CIL serialization, the Avro schema filename conforms to these rules:
    - If the Java namespace is specified in the data structure, the avsc file is named as [java_namespace].avsc.
      Note: You must re-export avsc and restart Velocity Studio to have CIL working.
    - If the Java namespace is not specified, the file is named [fullpath].avsc.

- An exception occurred when generating an Avro schema with a data structure that extends another data structure with neither any attributes, nor structures inside. This issue has been fixed. Additionally, when using an existing data structure containing a variable with no type defined, generating the Avro schema occurs with the type being anyType and an error occurs in CIL. To fix this issue, the anyType type in the metadata needs to be updated to a concrete data type before it can be used for CIL.

- A fix allows you to use the command line interface to generate Avro schemas from a script.

- An issue with the export mechanism for Avro schemas with arrays has been resolved.

- A fix has been made to generate Avro schemas by selecting specific data structures for inclusion.

- When opening a data structure after migration in Velocity Studio, the data structure is marked as changed and is saved together with other changes such as <avroMap type="amap"/>. To prevent this issue from happening, the empty avroMap is checked and is not saved back into the data structure.

- The Common Business Configuration (COBA)-generated Avro Schema (that is, based on the dynamic document definition) needs to remove null when a dynamic variable is set to mandatoryForXSD=true. This issue has been fixed.

3.2.28 Tracing

- After deploying the cwf.war file in JBoss, it is not possible to enable the tracing using class com.conceptwave.config.CwTraceJMXClient. The class cannot connect to JMX. This issue has been fixed by making changes to the logback-container-template.xml file.

- When switching on tracing with MSISDN as the trace type and using any value, calling trace.setTraceContext() without specifying MSISDN as the filter criterion results in a null pointer exception. This issue has been resolved.

- The list of trace jobs for ListTraceJob displays, but the information indicating the job that is responsible for which criterion is missing. This issue has been fixed.

- The trace file entries contain the contract ID and the updated contract information, but do not specify which trace job traces this update. It is expected that the trace file entries contain the corresponding trace ID (for example, T00001) of the trace job, which triggers this log.

  To fix this issue, the following changes were made:
  - Trace job ID needs to be local. Instead of using T00001, the ID becomes TL00001.
  - The trace output file has AVMTraceJob-<trace ID>.log as its name (for example, AVMTraceJob-TL00001.log, where TL00001 is the trace job ID.

  As a result, there is no trace job information in the trace file, but the filename contains the job ID.

- For each REST service, a new trace file is generated. However, after restarting JBoss, trace files that already exist are enhanced starting with the first log file and using the next when processing the next traced action, although the traced contents could be totally different. To avoid this conflict, a fix has been made to take the trace ID from the current timestamp.

- In the case where the tagValues parameter in the Trace.trace() method contains multiple strings, only the first string is visible in the related trace message. It is advised that since Velocity Studio cannot edit the tags and category for the resource file directly, you must edit the resource file manually.

- Instead of updating a trace job that was generated for the same criterion, a new trace job is generated. To fix this issue, UpdateTraceJob has been added. If Velocity Studio cannot find the trace job by trace ID, nothing happens. If the trace job is found, an update occurs. However, the corresponding trace objects belong to this trace job are removed.

3.2.29 Documentation

- Documentation for cache values descriptions have been updated in the System Configuration user guide:
  - Automatic Reload (**System Config** > **Configure** > **System** > **Performance** > **AVM Cache**)
  - Interval (Hours) (**System Config** > **Configure** > **System** > **Performance** > **Catalog Cache**)

- The table of contents links for Orchestration Framework PDF guides were not working in the standalone help. This issue has been fixed.

- Documentation on release packaging has been updated to indicate the required JAR files and JAR file dependencies for each application.

- Launching the help documentation from Velocity Studio is slow as a result of the embedded Jetty Web server that is installed with the Microsoft Windows Professional version on Ericsson laptops since the Jetty Web server tries to scan all JAR files.

- The UpdateTraceJob operation and method have been added to the Deployment and Operations Guide, under **Tracing** > **Tracing Configuration** and affect the following pages:
  - Tracing configuration command-line interface
  - Tracing configuration JMX API

3.3 AVM Repairs (removed)

This section lists removed features in AVM:

- Support for the ConceptWave licence file has been removed.

- The metadata timestamp is neither stored in the header_ConceptWaveMetadata.xml metadata header file, nor in the header_AVMMetadata.xml file. To avoid merging conflicts, the last updated metadata timestamp is no longer required.

- Instances of ConceptWave have been replaced with Ericsson, including icons, in the product.

- If the command line option 'Djava.net.preferIPv4Stack' to start Velocity Studio is set to true, then note the following:

  If AVM is installed on JBoss on Windows operating system, this parameter being set to true in standalone.conf.bat file results in a No valid licence error if the licence is based on the MAC address and the MAC address is disconnected from the LAN. To avoid the error, this parameter should be removed from the standalone.conf.bat file on Windows.

- The CWLISTENER table is no longer being used in the product. You can drop this table from your environment, if desired. This information appears in the release notes readme file.

- To align with application licensing, the cwa_admin template no longer has a dependency on the cwl_worklist template in this release.

- The updated timestamp has been removed from the header metadata. When existing metadata is saved using a new build, it removes the <updated> tag from header_ConceptWaveMetadata.xml.

- cwf_pm.parent is no longer used and has been removed from the product.

- For third-party programs in this release, a review has been made to update and retire redundant items, such as unnecessary JAR files and libraries. For more information on third-party programs used in the product, consult the ConceptWave3rdPartyPrograms.xls file that comes with your installation.

- The following third-party products were removed in this release:
  - SOAP by Apache
  - Spring Core by Apache
  - Sprint JDBC by Apache
  - Spring Transaction Management by Apache
  - Wingtec by Wingsoft

- The search functionality for standalone help has been removed.

- The URL Mapping tab has been removed in this release.

- Application icons for which a user does not have permissions has been removed from the Application Selection page.

- The CWMAXUSERS document and table are removed, as they were not used.

3.4 AVM Deprecated Functions

This section describes items that are supported in this release, but will cease to be supported in future releases:

- 14.0.0.0 Product Certification Changes

  The following third-party products are no longer supported in this release of Velocity Studio:

  Operating Systems

  - Windows XP Pro SP3
  - Windows XP (as part of Velocity Studio requirements)
  - Linux SUSE SLES 11 SP1 64-bit
  - Linux Red Hat 6.1
  - Sun Solaris 10

  Desktop Browsers

  - Internet Explorer 6.x. 7.x, and 8.x
  - Chrome 21.x
  - Safari 5.x

  Application Servers

  - JBoss Community Edition 7.1.1 (JBoss JDK 1.6.0_34+ or JDK 1.7.0_21+)
  - Oracle WebLogic 10.3.6 (Sun JDK 1.6.0_34 + or JDK 1.7.0_21+)
  - IBM WebSphere 7.0.0.23

  For the latest updates to the list of supported products in this release, see the Product Certification table in the 14.0.0.0 Release Notes.

- With the re-implementation of the process revision mechanism, at deployment, revisions are no longer automatically generated by the product and must be user-generated manually.

- Metadata is deployed to the database instead of the file system. Since no metadata activation is required, the runActivate.cmd file has been removed as a step when deploying applications. In the System Configuration application, new nodes can be defined at multiple levels and a node can inherit configuration from multiple parent nodes.

- Buy-Flow Manager and CSG Adapter applications are not a part of this release. Documentation for these modules has been removed.

- The following implementation guides no longer appear as separate guides. Instead, the content from these guides appears in the CIM Configuration Guide:
  - Customer
  - Location
  - Site
  - Address

- The Global.getMetadataTimestamp script method is deprecated and returns the current timestamp for backward compatibility.

- A newer version of icons is found in the *cwf\resources\cwt\images* folder. To continue using the old icons, you must extract it from the build (under old_resources, cwt.jar) onto their resources folder under *resources\cwt\images*.

- Velocity Studio’s old JavaScript editor is deprecated.

4 Catalog

This section describes the enhancements, repairs (changed), repairs (removed), and deprecated functions in the current versions of Catalog.

4.1 Catalog Enhancements

This section describes enhancements to Catalog.

For more details about these enhancements, refer to the following documentation:

- *Catalog User Guide*
- *JavaScript documentation*
- *Product Lifecycle Designer (PLD) User Guide*

4.1.1 Import and Export

- Enhancements to the Catalog import and export functions allows importing and exporting using a .zip file, either through Ericsson Catalog Manager or the command line.

- An enhancement to the import and export framework for Catalog includes support for:
  - Multiple parent IDs
  - Extensions in filename, including making a version object unique name
  - New event to resolve an exception if a parent is not found during an import
  - Multiple threading

4.1.2 System Configuration Application

- Catalog client server communication is secured using the Secure Shell (SSH) protocol. The catalog client server communication is an internal operation and uses a proprietary protocol.

4.1.3 Orchestration Framework (OF)

- This release includes the productization of Orchestration Framework (OF). It does not cover enhancements in the process engine. OF contains the following enhancements:
  - New Technical Action Specification (TAS) types Script and Poll have been introduced.
  - The Service Level Agreements (SLAs) has been introduced for TAS.
  - The Gantt chart presentation has been enhanced.

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    - The functionality within TASs including conditional execution, alerts, and escalations has been enhanced.
    - The versioning on Fulfillment Plans (FPs) has been introduced.

  See the *OF User Guide* for information on metadata migration from previous releases.

- When creating a plan with two technical action specifications (TASs), opening the second one, and deleting the second one, the user interface did not refresh properly, continuing to display the deleted one. A change has been made where when you remove one or more TASs from a plan and one of the selected TAS details displays, the details are hidden. However, when you remove TASs and another TAS appears, this TAS remains displayed.

4.1.4 Product Lifecycle Designer (PLD)

- An enhancement includes a name change from Product Lifecycle Manager (PLM) to Product Lifecycle Designer (PLD) in the Catalog application.

See the *PLD User Guide* for information on Product Lifecycle Designer.

4.1.5 Catalog User Interface

- The following drag and drop enhancements have been added to this release:
    - The ability to drag a project assignment from one project to another has been added in this release.
    - The ability to drag item associations into the item details and into each item association using the tool palette.

4.1.6 JavaScript APIs

- The following enhancements have been made for the Catalog Maintenance API:
    - The Catalog Maintenance Import API imports the spreadsheet that contains all the necessary data for the definition of catalog entities, including specific code tables. The enhancement allows to define new code tables (if any), and addition of new elements for existing and new code tables.
    - The Catalog Maintenance Export API exports only the code tables of the product catalog.

- The price API is enhanced to filter charges by using the currency.

- New Catalog APIs, CatalogItem.evaluateAllConditionByType and CatalogItemItem.evaluateAllConditionByType, have been introduced. These API's can be used to evaluate certain types of rules (for example, eligibility, availability, validation, or any custom types).

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A new parameter has been added in basket.createCopy() API. This API can be used to create a copy of basket with different basket IDs and different basket items ID's (copy), or to create a copy of basket with same basket ID and same basket items ID's (clone).

- An enhancement includes an extension to the basket charge model to extend pricing logic.

  Two new APIs have been added:
  - CwcBasketCharge addNewCharge
  - removeCharge

  A new pre-defined parameter, TheBasketCharge, has been added for the Catalog Rule Language.

- Catalog provides an API to access the basket item charge document instance, which the pricing API generates. This API does the following:
  - Manually overrides the charge price
  - Manually sets discount value or percentage for each charge
  - Sets values for extended fields (asItemCode, asProductCode, Description_En, Description_Fr) related to each charge, which are used by an external system, such as billing AS400, when looking up values in an info table.

- A new maintenance API, getItemVersions (itemCode, rangeFrom, rangeTo, status), has been added that allows you to get all available item versions with a given time range and status.

- The Catalog APIs have been enhanced to support:
  - A list of available items that exclude the ones that are not available for the supplied date.
  - An inquiry of a specific item that supports the following:
    - For an item with a START DATE, provide the item details.
    - For an item with an END DATE in the past, provide the latest version with the warning messages indicating that the item is under an END OF SERVICE, or indicating that no active version is available and that the latest version has been supplied.
    - On a request where a specific effective date is supplied, the inquiry provides the correct version. If no items are active for this date, provide the latest version with a warning message indicating that no active version is available and that the latest version has been supplied.

4.1.7 Code Tables

- The Code Tables feature of Catalog has been re-designed. The GUI has been improved, and the maintenance of code tables and codes is more user-friendly. Other enhancements include the following:

- The **Catalog Designer** > **Version Code Tables** menu has been removed, with the functionality to create and maintain versioned code tables and versioned codes appear in the Code Tables feature.
- There are more output formats for exporting codes tables.
- The ability to import and export codes has been added.
- The ability to view the Change History of codes has been added.
- A new Show Usage feature has been added for code tables and codes.

4.1.8 Info Tables

- An enhancement has been made for Info Tables. New info table rows can be deleted using the Delete button in front of each row, before saving the info model associated with the info table.

- In a Catalog Info Table, if a column is of code table type, the user interface now displays the drop-down list for that column. Catalog info tables are implemented as a Dynamic Table in the metadata and so the Dynamic Table handles the user interface for different type of attributes. Also, there was an enhancement on the Dynamic Table to allow specification of edit controls based on data types. These data types are now supported: Boolean, Date (MM/dd/yyyy), DateTime (MM/dd/yyyy HH:mm), String, Integer, Double, Enumeration are now supported.The Info Table's column size has been enhanced such that the Delete icon column is of a reasonable size.

4.1.9 Info Models

- An enhancement has been made for the interval field of Info Models. This field is active only if the **Is Dynamic field** for the info models is selected.

4.1.10 Classification Types

- Multi-selectable Classification Types have been added for Catalog Item, Item Attribute, Item Image, and Item Description to support multiple types in different environments. API methods getClassificationTypes and hasClassificationType has been added to check types for the item in scripts.

4.1.11 Item Associations

- Catalog provides a new item association object, Actions, which contains some rules or events. You can define actions for an item to do several operations, such as add, remove, upgrade, and downgrade. An item can have different behaviour for different operations. Actions can be executed by an event, workflow, or rule.

- When attempting to delete an item that was used as a base item, by other objects or items in a project, only a message used to appear as "Item is in use. Cannot be deleted." With this enhancement, the details of those child objects or items are also displayed in the popup dialog by which the base item is used.

4.1.12 Catalog Hierarchy

- The background of the Catalog Hierarchy is now white. The colour blue is used for item related lines and text and the colour orange is used for items containing line and text.

4.1.13 Attributes

- The enhanced finder can show all the attributes of a certain type of catalog item. Each attribute is a column. If the user adds more attributes to the item, when the application is running, these additional columns are reflected.

4.1.14 Catalog Dates

- Enhancements to the Catalog date include:
  - Support for new dates:
    - Start date - The date that the item is published in the catalog.
    - Start selling date - The earliest date that an item may be sold.
    - Start fulfillment date - The earliest due date or installation date for an item.
    - Start service date - The earliest date for which order may be released into fulfillment.
    - End of sale date - The last date for which orders will be taken.
    - End of service date - The last date for which service will be provided using the item.
  - Extending availability of rules to define two subsets, at the channels and market level
  - Grandfathering of old clients on their offer's terms and conditions
  - Providing a mechanism to define the targeted replacement offer upon end of service through a new relationship type option, on end of service, migrate to.
  - Enhancements to Catalog APIs to support:
    - Browsing of available items to exclude items that are not available on the supplied date
    - Inquiring of specific items:
      - For items with a start date: provide the item details
      - For items with an end date in the past by providing the latest version with warning messages that indicate:
        - Item has an end of service
        - No active version is available and that the latest version was supplied

    - On a request with a specific effective date supplied, provide the correct version or if no active version is available then, provide the latest version with a warning message indicating that no active version was available and that the latest version was supplied.

- This feature allows you to set a Catalog date offset for basket items that are active and have a future start date.

- The unique index on association tables that considers the start date have been changed to be non-unique, to prevent the start date from being duplicated.

4.1.15 Catalog Basket

- A new implementation of the Catalog basket is available, which results in improved performance for tasks related to the Catalog basket.

- Search functionality is implemented in the new persistent model of the Catalog basket. Extensibility is added to provide extension columns in the new BasketItem table or an extension table for basket items. Additionally, events are provided to support extension table mapping.

- This enhancement allows for an item action to be saved with the basket item. The action variable field is available in the basket item document.

- An issue occurred with conflicting request times between two items, F2 and P1, in a basket. This issue has been rectified by creating a basket item relation. You can add F2 as a root item in the basket, and then create a basket item relation between P2 and F2.

4.1.16 Role-based User Interface

- This enhancement introduces new Catalog user roles, and defines user interface components.

4.2 Catalog Repairs (changed)

This section lists changed repairs in Catalog:

4.2.1 Ericsson Rebranding

- A fix has been made to change icons and font styles for the following Catalog objects, to meet Ericsson rebranding requirements:
    - Catalog Rules
    - Charge Types
    - Taxes
    - Tax Models
    - Pricing

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- Info Models

4.2.2 Commands

- When importing catalog from the command line, the operation sometimes would fail or cause a deadlock. This has now been fixed.

4.2.3 Installation

- The installation process failed while deploying ECM in a JBoss environment. An issue was found in the standalone.conf file where the JAVA_OPTS variable value was replaced manually instead of appending to this value. To resolve this problem, a change has been made to append com.conceptwave-related configuration at the end.

- Catalog DDL on a clean installation results in errors on the new business date and UI preferences tables, as well as type mismatches on the Catalog permission table. This issue has been fixed.

4.2.4 Import and Export

- The Import and Export features in Catalog have been consolidated so that all import menu options appear in one dialog.

- When selecting an info model and trying to import an Info table in Catalog that includes only one active project, the Info table cannot be loaded under the active project. This issue has been fixed.

- A problem occurred when overwriting an attribute, exporting the XML from one environment, and then importing the XML to a different environment. To resolve this issue, a report in Excel spreadsheet format has been provided on deleting objects when importing Catalog data through the Catalog import option where data needs to be deleted.

- The Import error message, `CatalogHierarchy FileName: hierarchy21764_6$s-11$i-hierarchy21764_6.xml`, occurred and resulted in an exception.

  Although this error causes the Catalog import from a .zip file to fail, it was found that this issue was framework-related and has been resolved.

4.2.5 System Configuration Application

- A new property, **Fetch Version Code Table from Server**, appears in the System Configuration application, under **Catalog** > **Catalog External Server**, to support catalog client and server modes. By default, this field's checkbox is selected, meaning that the catalog client always reads the versioned code table from the server. Otherwise, the versioned code table defined in the catalog client overrides the versioned code table in the catalog server.

- The queue works when creating a database queue in the Configuration tool, under **Services** > **Queues**, and there is a message handler event in the metadata. When exporting the configuration file and then importing it again, the database queue is filled with all attributes as well as the queue listener thread, but the event handler does not run as the queue is not recognized. The workaround is to delete and create the same queue after importing the configuration file. This issue has been fixed.

4.2.6 Orchestration Framework (OF)

- In Orchestration Framework (OF), the Help button at the right has been fixed to show or hide content.

4.2.7 Product Lifecycle Designer (PLD)

- Product Lifecycle Designer (PLD) has been enhanced to publish an event with project data connected to Product Analytics (PA) whenever a change request is created or updated.

- In the Product Lifecycle Designer (PLD), there was an inquiry about **Setup**, **Intermediate**, and **TearDown** microflow types:
    - **Setup microflow** is processed at the beginning of the stage and is responsible for setting the request status to represent the beginning of the stage. Choose one of the following options:
        - **Custom microflow** changes the PLD order initial state according to the statuses defined in the objectLifeCycleModified order lifecycle. It should follow the logic defined in the set up of microflows.
        - **Default microflow** uses the default as a place holder when specific microflows are not available. Default microflow does not update the initial PLD order state.
    - **Intermediate microflow** is processed in-between tasks within a stage. Use the Intermediate microflow metadata if any logic needs to be run in-between tasks. Choose one of the following options:
        - **Custom microflow** prepares the internal PLD state for the next task. resetFlags Microflow should be chosen in 99.9% of the cases.
        - **Default microflow** uses the default as a place holder when specific microflows are not available. Default microflow does not prepare the internal PLD state for the next task.
    - **TearDown microflow** is processed at the end of the stage when the last task is completed. It changes the state of the request to represent the completion of the stage. Choose one of the following options:
        - **Custom microflow** changes the PLD order final state according to the statuses defined in the

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objectLifeCycleModified order lifecycle. It should follow the logic defined in tear down microflows.

  - **Default microflow** uses the default as a place holder when specific microflows are not available. Default TearDown microflow does not update the PLD order final state.

- In the Product Lifecycle Designer (PLD), there was an inquiry as to the purpose of the **Convert to TAS** button on the Configure microflows feature. The TAS consists of a microflow, along with any parameters, conditions, and compensating actions. The TAS is a reference to the microflow that is required to be invoked for each component that requires fulfillment.

- In the Product Lifecycle Designer (PLD), there was an inquiry as to the purpose of the **Non-standard task** checkbox in the Workgroup and Operation Information section of the Product Lifecycle Designer (PLD). The Non-standard task checkbox is an old feature that indicates that the task to be allocated to the user does not exist in the metadata and is supplied as part of the definition.

- A fix has been made to the **Details** tab when you double-click an old project in Product Lifecycle Designer (PLD) from the finder. These changes occur:
  - The new user interface shows detail information that is relevant to old PLD projects.
  - Only detail and workflow tabs are shown. Other tabs are hidden.

- An error occurs when associating a Product Lifecycle Designer (PLD) template to a change request.

4.2.8 JavaScript API

- The documentation related to Catalog Maintenance API has been updated in this release.

- When defining hierarchies in Catalog, theCatalog.getCatalogTopHierarchyNodes() API returns null at runtime. This issue has been fixed.

- The getMemorySize method implementation as added for basket, dynamicDocumentBase, basketItem, and dynamicDocument items that were used during the cache size calculation has been fixed.

4.2.9 Catalog User Interface

- Changes have been made to versioning to coincide with user interface updates in the Catalog application.

- The Catalog user interface has been enhanced to include conditions, hierarchies, business dates, and MSDimensions.

- The palette in Catalog has been redesigned to meet the current drag and drop feature requirements.

- Relations and rules have been added to the Ericsson Catalog Manager user interface with drag and drop capabilities.

- An issue has been fixed where the Catalog user interface stopped working, instead of throwing an exception, while importing an info table from a non-compatible CSV file. In this case, an exception occurs and a message displays if the data in the CSV file is not compatible.

- A fix has been made to add a **Copy** button to the new Catalog user interface as it appears in the classic Catalog user interface.

- The date hint (yyyy/MM/dd) field colour has been changed to #b3b3b3.

- Earlier, codes in Catalog could be entered or imported with trailing spaces. With this release, trailing spaces entered in code are trimmed while being saved.

4.2.10 Projects

- When accessing a project table from the **Switch** menu and selecting a Catalog project to export, an exception is thrown after exporting the project. This issue has been fixed by updating the catalogExport() method in the projectFinder user interface.

- When trying to move catalog hierarchy between two projects, only the project command is changed. However, item relations are still related to the old project. This issue has been fixed.

4.2.11 Catalog Hierarchy

- Sometimes, the availability tree does not load in the item hierarchy tab and it displays only after pressing the F5 key to refresh the screen. Additionally, expanding the tree overlaps with the header and is not readable.

- A fix has been made so that item relation records are not duplicated when importing Catalog hierarchies.

- The itemHierarchy data structure has been fixed to contain the name field for attributes.

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4.2.12 Relations

- A fix has been implemented to ensure that an internal error does not occur after adding and saving a new relation, and then clicking the Details tab.

4.2.13 Worklist

- When opening a task from a list of selected tasks from the home page, clicking the **Open** icon produced an exception in the Catalog application. Since the worklist task is a data structure, and not a document, you cannot set the detail to a data structure object. Instead, it is recommended that you explicitly generate a user interface for this task object.

4.2.14 Data Structures

The issue where the toJson() data structure is not writing empty values properly has been fixed.

4.2.15 Attributes

- Creating an item attribute (for example, a PO item), and clicking the General Info tab results in an internal server error. This issue has been fixed. It is recommended to set the same visible permission for the attributesFrame form frame to avoid unnecessary creation of items and significantly improve the page refreshing time.

- An exception occurred due to sid_common.ManagedEntityKey missing type for the attribute. This issue has been fixed.

- An issue was found where an item attribute can be saved without specifying the type, even though the type is mandatory in the itemAttribute data structure. When the attribute is read from Catalog, and then validated, validation errors show that the type cannot be null. This issue has been fixed.

4.2.16 Market Segments

- A fix has been made so that the request market segment does not allow changes on start and end dates. These fields are not to be visible in the request market segment.

4.2.17 Finders

- The Project finder in Catalog has been redesigned using the UI common in the ECM metadata.

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4.2.18 Code Tables

- Support for versioning a code table in your project is provided, which allows you to define both start and end dates for each code within a code table.

- When viewing the Change History table after updating a code or a code table, it appears as an Add, and not an Update, in the Operation Type column. This problem occurs when changing the translated field of a code table or code, which does not update the Change History table. This issue has been fixed. Translation fields are audited. The old and new values in the CWFIELDAUDITTRAIL table indicate the language of the change, and takes the format <language code>|<translation text> (for example, en-xx|HELLO). Translation calls document.setTranslation for auditing.

- Deleting an active code in an active code table using the `DeleteVersionCodeTableCode` operation in the `cwt_pcmaintapi:VersionCodeTableMaintenance` interface raises an internal exception in the following statement, which is in the `cwt_pcmaintapi.canDoAction API`:

  ```
  response = cwt_pcmaintapi.createCatalogFault(null,
  "OBJECT_ACTIVE","CWTPC0270",[doc.objType(),
  doc.getCode()],null);
  ```

  The exception occurred because the getCode member function does not exist for the cwl_ct.codeTable document.

- It was found that a catalog object's codes from a versioned code table are not saved to the database. This issue has been resolved.

4.2.19 Catalog Rule Language

- When writing a Catalog rule, the user interface skips a character instead of displaying characters sequential. This issue has been fixed.

- The Catalog application was not parsing the *In* clause properly for a query expression. For example, when running the `Select` from `nodeA` in `nodeB, nodeC where attribute = A` query expression, the items from nodeB and nodeC were not filtered. This issue has been fixed.

4.2.20 Login

- After successfully logging in to the Ericsson Catalog Manager application using `http://localhost:8080/cwf/ecm` as the direct URL, an exception occurred and the application’s user interface stopped working. The issue has been resolved with some changes to the ui_common breadcrumb logic. A couple of methods, getHomePage () and onHomeAction(), have been changed in the application metadata.

4.2.21 Info Models

- Translation is missing for info model attributes and tax model conditions. The following issues have been fixed:
  - Info model attributes were not returned as a part of InfoModel when calling the infoModelRead API.
  - Tax model conditions did not exist as a part of the taxModelVersion data structure and must be read as a part of taxModel by the taxModelRead API.

4.2.22 Info Tables

- A fix has been made for the Info Table user interface that was not displaying a newly added row.

4.2.23 Auditing

- Entries in the CWAUDITFIELD had incorrect data. As an example, performing the Add operation resulted in having an OLDVALUE. In other cases, regardless of the operation, there were rows where the OLDVALUE equaled the NEWVALUE. These issues have been fixed to document and data structure objects where the Add operation always has a blank OLDVALUE. Additionally, when NEWVALUE and OLDVALUE are the same, no auditing occurs.

4.2.24 Business Dates

- An issue occurs for items pertaining to the cwt_itemFinderList in the BusinessDates tab. When creating the first record and clicking the **Refresh** button to refresh the result table (that is, the dynamic table), the finder shows the count number as 1, but the result table is not shown.

- A fix has been made to the naming of the CWPC_BUSINESSDATESDEFINITION table so that it maps to the correct table in the metadata, and an exception does not occur.

4.2.25 Modules

- To meet requirements in Unified Workstation (UWS), Order Negotiations (ON), and Customer Information Management (CIM), item types, categories, and functions in Catalog must be configurable, to support the new catalog model and existing deployments.

- The **catalog code** field has been made editable in Product Analytics (PA), so that selections can be chosen from the drop-down or by entering the code.

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4.2.26 Documentation

- In this release, the documentation has been updated to reflect changes to install the Catalog application.
- There was an inquiry about how to do certain tasks related to Catalog Domains. It was realized that while documentation on Catalog Domains existed, it was not easy to find. As a result, changes were made to the Catalog documentation table of contents to make it easier to find the Catalog Domains documentation.
- Information on handling new dynamic item types in the Ericsson Catalog Manager home page was added to the Catalog documentation.
- In this release, the documentation has been updated to reflect changes to install the Catalog application.
- The Catalog User Guide was updated to include a section on PLD Predefined microflow codes on the Configure Microflows page.
- It was noted that the example for non-programmers on the Rule Comparisons page was not compiling successfully. The Catalog documentation has been updated to include a variable declaration, and then to use this variable for each conditional block.

4.3 Catalog Repairs (removed)

This section lists repairs that have been removed in Catalog:

- Core deprecated calls in the Catalog library have been removed.
- The **Catalog Designer** > **Version Code Tables** in the Catalog menu has been removed. The functionality to create and maintain versioned code tables and versioned codes appear in the Code Tables feature.
- As a result of integrating OF into Catalog, the following overrides have been removed:
  - OF overrides (that is, TAS, TASFinder, TASSearch, startFPIRequest). Aliases for TAS, TASFinder, and TASSearch have been added to assure backward compatibility.
  - cwf.allCalendars override. Only the extension remains.
  - cwt_pcdd.projectState override. Only the extension remains.

4.4 Catalog Deprecated Functions

This section describes items that are supported in this release, but will cease to be supported in future releases in Catalog:

- The Catalog.invokeDatabaseExport() and invokeDatabaseImport() APIs have been deprecated. Additionally, their respective menu items have been removed from the Configuration menu.

5 Product Functionality Changes

Product version 14.0.0.0 contains the following functionality changes:

- The following changes have been made to deploying applications:
  - The **Package** command is not mandatory. Use the package command in multi-tenancy deployments only.
  - The **Activate** step has been removed.
  - The **Deploy Application** step has been added. To run your metadata from an application server, the metadata must be in the database.
  - For the **Deploy WAR File** step, the descriptions related to ACTIVATED_IVERSION and ACTIVATED VERSION columns have been removed.

  For an overview of the deployment process, see **Deployment and Operations Guide** > **Deploying Application**.

- The following additional JAR files are required:
  - api_common.jar
  - cwl_security.jar
  - security.jar
  - ui_common.jar

- To enable TLS for the SMTP session, you must set the **mail.smtp.starttls.enable** JVM option to true.

- To start the framework, ensure the following:
  - As these JAR files are loaded from the *system/JARs* directory automatically, remove the following templates from the */templates* directory:
    - cwl_security.jar
    - security.jar
    - ui_common.jar
    - api_common.jar
    - SIDCommon.jar
    - notification.jar
    - cwl_notification.jar
  - Replace the following JAR files with version 14.0.0.0 templates:
    - catalog.jar
    - catalogClient.jar
  - Since the new version of the Orchestration Framework uses new versions of the party, address, customer and report templates that are not compatible with old metadata, keep the older version of the following JAR files:
    - serviceOrchestrationFramework.jar

    - other metadata templates:
        - cwt_inv.jar
        - cwt_party.jar
        - cwtaddress.jar
        - cwtcustomer.jar
        - cwtdisctionary.jar
        - cwtorder.jar

- Upgrading the database to version 14.x results in an exception when two fields of different types are mapped to the same database column.

  For example, an exception occurs if the om.worklistarchive.disable flag has an integer1 type mapped to the database and the cwl_worklist.worklistArchive.disable is mapped to the same table, but the field has a boolean type. Version 5.x did not have these fields mapped but when mapping in version 14.x was added, the type, Boolean, was chosen because cwf_pm.BaseWorklist originally used it. It is not an issue if you are only using an old worklist.

- Since this version has more administrative options, such as configuration, users with administrative privileges only are presented with the **Select Application** tool.

- To align with the document as a model behaviour, code tables that have the model as a data structure display the description and not the code.

- In CareUI.orderTypeDoc, the orderType variable points to CareUI.orderTypeRef instead of the enumeration CareUI.orderType. The cwOnDocVisualKey should return the description instead of this.orderType.

- The section stack visibility mode, mutex, is not working in version 5.2 when at least one of the sections has a visible permission. Mutex is meant to show only one section as expanded per section stack. This version contains a fix to the section visibility and now renders the visibility mode properly.

- In version 5.2, the application URL mapping is not mandatory. In this version, all applications that are opened or created require a URL mapping. Until 14.x, the onAppLoading method on an application is called only when the application has a URL mapping. All onAppLoading methods that may not have been called in version 5.2 because of the absence of a URL mapping is called in this version.

- In version 5.2, DataObjectList.updateRow selects the row automatically. In this version, this selection no longer happens unless the metadata script calls DataObjectList.setSelected.

- In this version, the validation error message for the mandatory variables of data structures is changed to use the variable's label instead of the variable data path. For example, in version 5.2, the message appears as, *No value in mandatory field "addressDS/street"*. In this version, the

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message appears as, *No value in mandatory field "Street"*.

- In version 14.x, data structure data type variables are initialized with the Default value property defined in the data type of the variable. In 5.x the Default value property is ignored for data structures and applied to documents only.

- The mandatory style for fields mapped to data structure variables has been fixed to have the bold text style and an asterisk (*) at the end.

  As a result, in version 5.x, labels that have special logic in the metadata to display a mandatory style may now have a double asterisk (**). To fix the problem, remove the extra asterisk (*) from the label in the metadata.

- In statistics monitoring, only the benchmark counter may be increased. A call with an argument (N <= 0) adds a 1 to the existing counter value.

- It is not recommended to call the bmc.endHistogram() and bmc.getHistogram() methods. In this case, (after "endHistogram"), a call to getHistogram returns a null value.

- The application skin defined at the Page form was not applied if the application does not have a URL mapping. Since the URL mapping is mandatory in this version, the skin always gets applied which may result in some template applications looking different.

- Entering an extra backslash (/) at the end of the URL in */cwf/config/* does not provide access to the configuration application. Entering a backslash at the end to access the configuration component works in version 5.x because configuration is not an application and Velocity Studio has a special servlet mapping to handle it.

- In this version, the validation for number data types (Integer and Decimal) and dates (Date, Datetime, and Timestamp) is not complete. Data type validation only happens for min and max on numbers, and for length on dates.

  With the implementation of full validation for those data types, validation occurs for content as well. Invalid content generates errors, which are part of the error list that is returned when invoking validation on documents and data structures containing variables with the aforementioned data types.

  Examples:

  - A data structure with a variable named start_date with a Date data type representing the order start date. If the start_date is assigned with content such as "Hello," invoking validate results in no errors. After the changes in the validation logic are implemented, validating the data structure results in an error indicating that the content for the start_date is invalid.

  - A document containing a variable named *days* with the Integer data type is used to store the number of days for order fulfillment. If

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the content "ABCD" is assigned to the variable days, the validate logic returns no errors as the content is not validated. After the changes in the validation logic, an error message indicates that the "ABCD" is not valid content for the variable days.

- Records under the Organization Chart in the User Profile Manager tree are sorted by name.

- Service Registry contains a number of commonly stored attributes as static variables that can be used by other applications, such as Order Negotiations. Some of these static variables include Catalog Code, Catalog Type, Account ID, and Order Date.

- In Orga metadata, for the createSRRequestForItem and on_createSRResponse scripts, when creating a service registry request, the variable value that has a date time type is converted to a string in ISO format.

  However, in the createSRResponse script, line 321, when mapping an item variable value from a service registry to a basket item, it is not correct to create a date by string in ISO format. The script should call the ISOToDate API to convert the string to a date object.

  When creating a service registry request, all values are saved as a string, so the date value should be converted to a string value. It is recommended to use the dateToISO API to format the date to a string in ISO 8601 format. When getting a response from service registry, if the date value is in ISO 8601 format, you need to call the ISOToDate API to parse the string in ISO format and return the date.

6 Known Issues

Product version 14.0.0.0 contains the following known issues:

- If the cwDBCodeTablesPK index was not created as part of the primary key CONSTRAINT, you have to manually drop it before running the upgrade script in Velocity Studio.

- Depending on the Web browser that you are using, you may experience inconsistent behaviour with checkbox images in the navigation tree when the browser zoom level is set to levels greater than 100%. Due to a SmartClient issue, customized zoom levels vary by browser, and may result in rendering and various sizing issues. Browser zooms set to levels other than 100% are not supported by SmartClient.

7 Acronyms

ARPU – Average Revenue Per User

AVM – Application Virtual Machine

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CIL – Common Interface Layer

CIM – Customer Information Model

COBA – Common Business Configuration Application

CPM – Customer Partner Management

DDL – Data Definition Language

EOC – Ericsson Order Care

ECM – Ericsson Catalog Manager

FP – Fulfillment Plans

JSON – JavaScript Object Notation

OF – Orchestration Framework

ON – Order Negotiations

PE – Process Engine

PLD – Product Lifecycle Designer

PLM – Product Lifecycle Manager

REST – Representational State Transfer

RHEL – Red Hat Enterprise Linux

SAX – Simple API for XML

SLA – Service Level Agreements

SOAP – Simple Object Access Protocol

SSH – Secure Shell

SUF – Software Upgrade Framework

TAS – Technical Action Specification

UI – User Interface

UWS – Unified Workstation

8 Reference List

The following is a list of documentation for reference:

- *Velocity Studio User Guide*
- *JavaScript Documentation*
- *SUF Installation and Configuration Guide*
- *Catalog User Guide*
- *User Profile Manager User Guide*
- *System Configuration User Guide*
- *OF User Guide*
- *Product Lifecycle Designer User Guide*

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