webMethods Product Suite 9.12

Release Notes

Software AG's Digital Business Platform powers digital transformation and enables any organization to become a Digital Enterprise. And the webMethods Product Suite, a core component of the Digital Business Platform, helps you achieve this transformation.

webMethods Product Suite includes a broad collection of capabilities including application and partner integration, API management, agile process development, master data management, and operational intelligence.

With webMethods, you have an extensible, scalable and reliable backbone - running either in the cloud, on-premises or in hybrid scenarios – providing seamless integration for cloud, mobile, APIs, and Internet of Things, and streamlining process management and agile application development.

Release 9.12 of the webMethods Product Suite provides significant enhancements in every functional area of the suite.

Release Highlights

Integration

Software AG's webMethods Integration Platform is a proven, pre-integrated software suite that enables enterprises to rapidly integrate systems, services, devices, processes, business partners, and data to provide new business value and improve business performance.
The key features include:

- Integration Server and the Software AG Designer Service Development plug-in now support an enhanced mapping construct that allows a business analyst to map an array of input documents (source) to a target using a single mapping step, simplifying the mapping process.

- Software AG Designer and Integration Server now support the ability to search for individual variables and identify all references to those variables in the code base, improving dependency management tasks.

- Software AG Designer lets you visually compare and merge Integration Server assets such as JMS triggers, adapter services and connections, for improved development and debugging.

- Digital Event Services (DES) is the new mechanism for event-based integration between Software AG and other Software AG components.

- Integration Server now supports out-of-the-box integration with Apama using DES.

- The Unit Test Framework (WmTestSuite) is now available via the Software AG Installer as part of webMethods DevOps Edition and allows developers to run automated unit tests for continuous development and continuous integration.

- Integration Server provides out-of-the-box scripts to create Docker Integration Server images, and is supported on RedHat Linux OS.

- Integration Server now supports an enhanced distributed caching functionality.

- Universal Messaging adds supports for round-robin message publishing using JMS connection factories for horizontal scalability, as well as improved handling of low memory situations to improve reliability.

- webMethods Trading Networks is now tightly integrated with webMethods ActiveTransfer for better management and monitoring of files that traverse these two components. Additionally, Trading Networks can now deliver documents via ActiveTransfer.

- Trading Networks and ActiveTransfer no longer need to run on the same Integration Server in order for ActiveTransfer and Trading Networks to communicate with each other.

- webMethods Application Platform now provides service browser capabilities that provides information of services exposed to Integration Server.

- A new graphical view in the App Platform perspective named Visual Navigator, allows developers to easily see dependencies in their Application Platform projects.

- A generic OData connector is now available with full support for the 2.0 specification, as well as limited support for the 4.0 specification.

- The CloudStreams engine now supports Transport Layer Security (TLS) 1.1 and 1.2 for improved security.

API Management

Software AG's API Management Platform enables companies to unlock the business value of their unique data and services, while also supporting open API, mobile first, improved customer experience, Internet of Things, as well as service governance initiatives.

webMethods 9.12 includes the first release of the unified webMethods API Gateway, which is a solution that combines the mediation and security capabilities from webMethods Enterprise Gateway and webMethods Mediator as a single, easily installable and configurable product.

The key features include:

- webMethods API Gateway provides a first-level threat protection for APIs in the DMZ as well as service mediation, API lifecycle management and API policy definition, while removing the dependency on CentraSite. It also provides a new, dedicated web-based user interface for performing all API management related tasks, including creating APIs, defining policies, and publishing APIs to the API Portal.

- API Portal provides public APIs for use by external solutions, enabling the automation of API Management tasks such as publishing APIs to the portal.

- API Portal provides enhanced support for API monetization, including the definition and management of API plans and packages, enabling users to more easily publish and support API subscription and charge back services.

- API Portal provides public APIs for publishing package and plan information from external sources, enabling automated ways to define packages and plans in addition to the standard API Portal user interface.

- CentraSite now supports the HTTP PATCH verb in native and virtual services.

- Integration between CentraSite and ARIS has been enhanced to support the creation and retrieval of REST services. Also, this release includes several Business UI enhancements.

- Mediator now supports the HTTP PATCH verb, enhanced Kerberos support for inbound and outbound transactions, as well as support for the mediation of REST services without the need for the Axis framework.

webMethods Agile Process

Software AG's webMethods Agile Process Platform is a unified offering designed to create business applications that are based on orchestrated, managed and monitored end-to-end business processes or workflows. The offering improves process speed, visibility, consistency and agility, while reducing costs and driving standardization across all critical components of effective business operations.

The key features include:

- Tight integration between Process Engine and AgileApps allows for the invocation of an AgileApps case from a BPM process.

- Users can now do complete monitoring of a webMethods BPM process that includes an AgileApps case and its related activity (case tasks) and workflow (case process) status via the Business Console.

- My webMethods Server now supports a SAMLv2.0 compliant SSO provider to enable seamless data flow between Business Console and AgileApps.

- webMethods AgileApps now supports Terracotta Ehcache as an option for storing object metadata in the cache.

- webMethods AgileApps now supports delegation through proxies, allowing users the flexibility to delegate their access profiles and role access to other users.

- Customers can now monitor performance statistics for Rest services provided by MWS and Business Console.

- The My webMethods Server migration utility now enables you to clone a server node in the same cluster after the first node has been migrated successfully.

- The Rules Management console now allows user to edit decision trees.

- The Mobile Suite has many enhancements including certification with Android 6, preview of the gadget in a browser view, and addition of a new user interface Control TabView.

Operational Intelligence

Based on a consistent event-driven architecture, Operational Intelligence integrates best-of-breed technologies from existing Software AG products for process and data analytics into a single offering with a novel business-user interface.

The key features include:

- The dynamic ant farm process analytics view in Optimize for Process can now be configured to a specific date or time range.

- Optimize for Infrastructure can now monitor named objects, or durable subscribers, for Universal Messaging.

- MashZone NextGen Visual Analytics 9.12 is a new product that provides exploratory, ad hoc analysis of streaming and historical data from multiple sources. The product has a particular focus on Internet of Things (IoT) use cases, also providing the capabilities to support other use cases in retail, financial services – anywhere you have large amounts of data in motion.

- Command Central, the centralized monitoring tool for the webMethods Suite, can now be used to monitor, stop, start, and pause Process Performance Manager (PPM) remotely.

- New expanded search functionality in PPM makes it possible for users to select from all available dimensions and measures in the Analysis UI, independent of process type.

- PPM now provides a simplified process flow visualization that can be used along with the classic process flow capability to reduce complexity.

Suite Enhancements

The webMethods Suite includes enhancements that improve functionality across multiple products.

The key features include:

- Command Central provides a web user interface for product installation for releases 9.8 or later.

- Command Central now allows creating, updating and deleting instances of Integration Server, My webMethods Server, Universal Messaging and Apama, directly from the web user interface.

- The Command Central product and fix repository management web user interface is now streamlined and enhanced to support the browsing and searching of the repositories, making the creation and maintenance of mirror repositories easier and more robust.

- Troubleshooting of template-based provisioning and other operations is now easier with cleaner, more readable and fewer logs on Command Central.

- Command Central can be now be used to monitor shared durables. A single table in the user interface now shows all durable subscribers in Universal Messaging.

- Asset Build Environment and Deployer now allow webMethods AgileApps assets to be built and deployed to AgileApps on-premises servers.

Contents

For more details about the key additions and enhancements for this release, see the product descriptions.

For important updates and a list of enhancements and issues that have been addressed since the previous release of each product, see the webMethods product readme files. You can access these documents, as well as all product documentation, from the webMethods area on the Software AG Documentation website.

Centrasite

HTTP Verbs Support

CentraSite supports HTTP PATCH verb in native and virtual services.

ARIS Integration

In addition to SOAP services, Integration with ARIS supports the creation and retrieval of REST services.

Business UI Enhancements

- Report template owners can assign permissions to allow only the authorized users to execute a report.

- Report template supports JDBC.
- Consumption request initiators can see the list of consumption requests that are pending for approval.
- CentraSite Business UI performance is improved for search functionality and asset details page rendering.

Administration

- CentraSite installation and administration is simplified by removing unused ports.

Security

- Security libraries that CentraSite uses are updated to recent versions.

Infrastructure

Obsolete libraries are removed to make the CentraSite architecture simple.

MashZone NextGen Business Analytics

Data Sources

Starting 9.12, MashZone NextGen introduces new data sources including Excel and webMethods Process Performance Manager (PPM). These datasources can be leveraged to build dashboards based on *.xlsx* files and PPM (URL based) respectively.

Visualizations and Filtering Enhancements

This release introduces new visualizations and filtering enhancements. These include new bubble chart, ability to have threshold colors/values in charts, filtering columns, and multi-tab filtering.

Graphical Feed Editor

A new graphical feed editor that can be used to create and edit feed definitions without any programming knowledge is introduced in 9.12.

Migration Toolkit

MashZone NextGen 9.12 includes a newly designed workflow to migrate data feeds from (legacy) MashZone to MashZone NextGen. The workflow includes documentation and tools to be able to export (legacy) MashZone feeds and then import them into MashZone NextGen. Once these feeds are imported, they can be used they can be used like any other data source to build dashboards using Dashboard Editor.

MashZone NextGen Visual Analytics

MashZone NextGen Visual Analytics 9.12 is a new product that provides exploratory, ad hoc analysis of streaming and historical data from multiple sources. The product has a particular focus on Internet of Things (IoT) use cases, also providing the capabilities to support other use cases in retail, financial services – anywhere you have large amounts of data in motion. Visual Analytics allows operations analysts, maintenance specialists, researchers, developers, and data scientists to perform their job more effectively.

Following are the capabilities:

- Explore, visualize, and analyze real-time data streams

- Explore, visualize, and analyze historic data

- Auto-discover and deploy new data sets

  - Timestamps

  - Dimensions

  - Measures

- Quickly discover new data insights through automatic statistical profiles

  - Dimensions

    - Number of unique values

    - Distribution of values

  - Measures

    - Number of instances

    - Distribution

    - Sum

    - Mean/min/max

    - Standard deviation

- Explore real-time and historic data sets using interactive visualizations

  - Line

  - Bar

  - Area

  - Scatter

  - Bubble

  - Contour

  - Stacked/grouped

  - Split

  - Groups

- Filter data as you explore

  - Dimensions

- Include
- Exclude
  - Measures
    - Thresholds
    - Min/max
    - Mean
    - Statistical range (mean +/- standard deviation)
    - Custom ranges
- Capture, save, and share data explorations
  - Individual analyses
  - Multi-analysis projects
- Highlight and color measure visualizations using dimensions and other measures

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My webMethods Server

My webMethods Server offers the following new features:

Support for Universally Unique Identifier (UUID) Mechanism

Support for Active Directory alternative UUID mechanism. By default, My webMethods Server uses distinguished names (DNs) to identify users and groups. In this case, if a user moves from one division of an organization to another division, the user's DN changes, and My webMethods Server is unable to recognize users with changed DNs. To enable identification when a user is moved between divisions in an organization, the server now provides an option to use unique user identification operational attributes, such as GUID or entryUUID, depending on the user directory. If the DN does not match, the server checks the UUID to locate the user.

Other Supported Features

- Compliance with 508 accessibility standards. Images now have alternative text, and input fields have titles or labels.
- Support for Microsoft Edge browser.
- Connectivity with external directory services through services instead of direct access by JDBC.
- Functionality in migration utility to clone a server node in the same cluster after the first node is migrated successfully.
- Support for fix uninstallation.
- Command Central plugin to create and delete server instances.

Software AG Command Central

Product Installation Web User Interface

Command Central provides web user interface for product installation for releases 9.8 or later. Language pack installation is also supported for 9.12 installations only.

Instance Creation Web User Interface

Command Central now allows creating, updating, and deleting instances of Integration Server, My webMethods Server, Universal Messaging and Apama for installations of release 9.12, directly from the web user interface.

Repository Management Web User Interface

Product and fix repository management web user interface is streamlined and enhanced to support browsing and searching the repositories. Creating and maintaining mirror repositories is easier and more robust.

Readable Logs in Command Central

Troubleshooting of template based provisioning and other operations is now easier with cleaner, more readable and fewer logs on Command Central.

Bootstrap Installer is Now Available for HP-UX and AIX

The Command Central bootstrap installer is now available for HP-UX and AIX, which provides support for all supported operating systems. The bootstrap installer is the main option for installing Command Central, Platform Manager or the command line tools on any operating system.

Cross-Site-Request-Forgery Prevention

The Command Central web user interface is now protected against cross-site-request-forgery attacks.

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Easier to Use Online Help and Web User Interface Instructions

Command Central online help is now reorganized and streamlined, and much of information is moved to the Command Central web user interface where it appears in the form of instructions and tooltips. Product-specific information is moved from the Command Central help into the appropriate product documentation. With this change, all information for each product is in one all-inclusive location, and the Command Central online help is now product neutral.

New Comprehensive Feature Support Matrix

A comprehensive feature support matrix for Command Central is now available as a separate document titled Software AG Command Central Feature Support Matrix, available on the Empower website. The matrix lists the products you can manage using Command Central and the features that are supported for each release of those products.

Software AG Designer

Software AG Designer supports Eclipse version 4.5.2.

Software AG Digital Event Services

Software AG Digital Event Services (DES) is a new mechanism for event-based integration between Software AG components. The 9.12 release provides out-of-the box integration between Integration Server and Apama. As part of this integration, you can send events from Integration Server as digital events by switching the native messaging transport for the Integration Server document type to the new DES transport. Apama can then listen to these digital events as native Apama events and can take actions based on business logic and rules.

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webMethods API Gateway

This release (9.12) is the first release of webMethods API Gateway. It is a solution that combines current webMethods Enterprise Gateway and webMethods Mediator capabilities in a single product. API Gateway offers the same capabilities within a simplified architecture and removes the dependency on CentraSite for policy definition. Also, for all the functions, API Gateway provides a new, dedicated, web-based user interface to perform API-related tasks, from creating an API, defining a policy, to publishing the API to API Portal.

Simplified Architecture

There is no dependency on CentraSite to manage APIs and policies and does not require a dedicated Enterprise Gateway to protect the APIs.

Two Editions

webMethods API Gateway combines the current webMethods Enterprise Gateway and webMethods Mediator capabilities in a single product. API Gateway provides a first level threat protection for APIs in DMZ (Standard Edition) and another instance of API Gateway in green zone manages the rest.

Modern Web Interface

webMethods API Gateway has a dedicated simplified web application to manage APIs, policies, consumer applications, and administrative activities.

Informative Dashboards

webMethods API Gateway comes with rich dashboarding capabilities for API Analytics.

Developers Engagement

APIs can be published to API Portal from API Gateway for developers to discover them. Organizations can group APIs and define policy enforcements on them as a single unit, which can then be subscribed by the developers.

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webMethods AgileApps

Ehcache as an Option to Memcached

AgileApps now supports Terracotta Ehcache as an option to Memcached for storing object metadata in the cache. This option is available when the user chooses to install AgileApps on an on-premise environment.

Delegation through Proxies

When a user is unavailable, the user has the flexibility to delegate the access profile and role to another user.

AgileApps Migration Utility

On-premise users are now provided with an upgrade utility to migrate from 10.5 to 10.6 and upwards in a side-by-side setup.

MySQL5.7 Certification

AgileApps is now certified with MySQL v5.7 Community Edition.

RHEL7 Certification

AgileApps is now certified on RHEL7 environment.

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webMethods Agile Process

Universal Messaging as a Communication Mechanism

Universal Messaging (UM) as a communication mechanism between Process Engine (PE) and AgileApps enables invocation of an AgileApps Case from a BPM process. Any terminal status changes on the Case are relayed back to PE through UM and are reflected on Process Monitor as well.

Monitoring AgileApps Cases on Business Console

A user now has the complete view of a webMethods BPM process that includes an AgileApps Case and its related Activity (Case Tasks), and Workflow (Case Process) status through the Business Console.

webMethods Deployer for AgileApps

webMethods Deployer can now be used to deploy the application packages of AgileApps from one environment to the other.

MWS as an SSO Provider

My webMethods Server now supports a SAMLv2.0 compliant SSO provider to enable seamless data flow between Business Console and AgileApps, thereby preventing the user to be authenticated again by the AgileApps platform if the user is already logged into MWS.

Common Asset Registry or Repository for Case, Process, Tasks and Analytics

The user now has a GIT-based registry/repository to allow designers to choose assets shared by other developers to design processes and case workflows.

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webMethods API-Portal

API Monetization Support

API Portal provides enhanced support for API monetization. This is in the form of API Packages being displayed next to the API Gallery with API Plans defined for those packages. User can view the details of the package, such as included APIs and associated plans. Plans provide information about pricing and quality of service terms defined within them. Consumers can subscribe to any plan available under the package, based on their business needs. This initiates the subscription token process and an access token is delivered to the consumer. This subscription token can be utilized to access the list of APIs available under the package.

API Packages and Plans are normally defined in API Gateway and published to API Portal. However, API Portal also provides public APIs for publishing packages and plans information from other sources.

Extension Points

API Portal provides public APIs as extension points for use by external solutions. Enhancements in this release include:

- An API for publishing APIs to API Portal and un-publishing them from API Portal. It supports both REST and SOAP APIs.

- APIs for API provider and access token management:

  - Provider registration API that can be used by the API providers to register themselves as providers for a particular API. They can also register a URL, which API Portal connects to in case someone requests an access to the API.

- o An API for API providers to query API Portal for any pending API access requests.

- o An API for API providers to send information about access tokens being approved, denied, renewed, or revoked.

- o An API provider can update some of the basic information of an API, such as name, description, categorization, and icon of an API.

HTTP Verbs Support

API Portal supports HTTP PATCH verb.

Advanced Dashboards

API Portal dashboard is enhanced with the API trends dashboard. Administrator can now view the trending of APIs by success, failure, and response.

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webMethods Application Platform

Service Browser

Provides the following information about services, deployed in Application Platform:

- services exposed to Integration Server

- common services

- system services

You can filter the services by name and attributes.

Application Platform Graphical Viewer

A new view is now supported in the Application Platform perspective, named Visual Navigator. In Designer, Developers can use this view to improve comprehension of the dependencies in their Application Platform projects.

Application Platform Bundle Manager Enhancement

The Bundle Manager view is enhanced to support Bnd templates and provide customers with more flexibility when creating bundles out of native jar files.

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webMethods ApplinX

Start and Stop Connection Pools from Designer

In Software AG Designer, you can now start and stop connection pools from the context menu of the selected pool.

Replacement for Print Applet

An alternative for host printing is provided using Java Web Start technology as the Applet technology will soon be deprecated and will not be supported in new browser versions.

Usability

The new list of entities displays the created and last modified date and time of the entity. You can filter by entity name, and use the timestamp to sort the content.

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webMethods BPMS

Task Engine

Communication between Task Engine and Process Engine: The wmTaskClient package uses Universal Messaging as transportation. The architecture change enhances the wmTaskClient performance.

Business Console

Business Console gadgets were introduced in Version 9.10. The current version adds the following enhancements:

- Preview the gadgets on a browser view in the Designer user interface Development perspective.

- Renamed Dashboard to AppSpace in Business Console.

- Grouping and sharing of AppSpaces in Business Console.

- Creating custom layouts for AppSpaces in Business Console.

- Adding gadgets to each container in an AppSpace.

- Expanding or collapsing all gadgets in an AppSpace while editing the AppSpace. This action enables you to view all gadgets in an AppSpace without having to scroll down to the end of the page.

- Viewing an AppSpace using a URL in a web browser outside of Business Console.

- Configuring the maximum number of gadgets allowed in an AppSpace.

- Accessing AppSpaces and gadgets directly through a URL displays the My webMethods Server login page if a user is not logged on.

- Generating to-do lists sequentially.

- Searching for gadgets in the Add New Gadget dialog box.

- Newly deployed gadgets appear in the Add New Gadget dialog box without having to refresh your web browser or clearing cache.

- New framework to resolve potential conflicts between similarly named JavaScript functions.

- Auto-generation of gadget code using drag-and-drop RESTful services.

- Enhanced these built-in gadgets: Task Calendar, Instance List Management, Work Stream, and Task Charts.

Process Engine

- Queue an AgileApps Case instance from Process Designer and eventually return control back to Process Engine.

- View a running case instance from Process Monitor.

- Migration: Removed the dependency of the ISCoreAudit db component during ProcessAudit db migration.

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webMethods Broker

webMethods Broker 9.6 is tested and supported with webMethods 9.12.

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webMethods Business Rules

Edit Decision Trees in Rules Management Console

Decision trees can now be locked, unlocked, edited, and hot deployed in the Rules Management Console.

Change Order of Decision Tree Elements in Designer

The order of decision tree elements can now easily be modified in Software AG Designer to change the evaluation order.

Dynamic Data Providers in Decision Tables

For every column of a decision table, a particular REST service can be specified in Software AG Designer that provides a list of valid values for this column in the Rules Management Console. Only the provided values can be selected in all cells of this column; free entry is prevented.

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webMethods CloudStreams

Generic OData Connector

A generic OData connector is now available with support for 2.0 specification and limited support for 4.0 specification. All CRUD operations and BATCH operation services for a single entity with OData 4.0 can be created on webMethods CloudStreams version 9.10 and later.

New and Updated Connectors

- New connector for Avalara AvaTax, version 15.4, is now available for download on Software AG TECHcommunity.

- ServiceNow connector is updated with support for Geneva version.

TLS 1.1 and TLS 1.2

CloudStreams engine now supports Transport Layer Security (TLS) version 1.1 and version 1.2 for higher security.

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webMethods Content Service Platform

New set of Integration Server Content Adapters

A new set of Integration Server Content Adapters is released to easily access the content from several Enterprise Content Management repositories, including:

- webMethods Adapter 9.12 for Documentum

- webMethods Adapter 9.12 for FileNet

- webMethods Adapter 9.12 for SharePoint

- webMethods Adapter 9.12 for Alfresco

- webMethods Adapter 9.12 for Content Management Interoperability Services (CMIS)

Note: You can use the webMethods Adapter 9.12 for CMIS to access all the repositories that support the CMIS standard content management protocol.

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webMethods Deployer

Support for Deployment of AgileApps Assets

Asset Build Environment and Deployer now allow webMethods AgileApps assets to be built and deployed to AgileApps on-premises servers.

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webMethods EntireX

Enhanced Flexibility with Your COBOL Endpoints

If you use Multiple Possible Output (MPO), you now have maximum flexibility to place the selector of the MPO case within your COBOL code: before, within, or after the MPO group.

Also, you can now compile the EntireX-generated COBOL assets with version 4.2 or 5.1 COBOL compilers on z/OS.

Manage Your EntireX Assets with Command Central

Create and delete EntireX brokers using the Command Central graphical user interface. Additionally, display and stop services and server instances that are attached to the EntireX broker now.

Internationalize your Integration Scenarios

Safely extract your Natural source comments also when using Arabic shaping and/or multibyte character sets. Define your favorite custom conversion now on z/OS as was previously possible on other platforms.

Profit from Enhanced Usability

Description of feature or enhancement:

- Work with user-defined date and time formats in the EntireX Adapter for IS

- Use mixed-case passwords for CICS® ECI

- Find a date field when generating a .CSV file with the EntireX Trace Utility

- Get clear error messages when starting your EntireX broker in case of an inconsistent attribute file

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webMethods Integration Server

Mapping Enhancements

Integration Server, in conjunction with Designer, provides an enhanced mapping construct that allows a business analyst to map an array of input documents (source) to the target using a single mapping step.

Additionally, the mapping enhancement (Data Mapper) allows the developer or mapping analyst to test the map step without executing the entire flow service.

Event-Based Integration between Integration Server and APAMA

Digital Event Services (DES) is the new mechanism for event-based integration between Software AG components. The 9.12 release provides out-of-the box integration between Integration Server and APAMA. As part of this integration, you send the events to digital event services by switching the native messaging transport to the new DES transport. APAMA can listen to these events and can take actions based on business logic and rules within APAMA.

Search and Refactor Support

In conjunction with Designer, Integration Server supports the ability to search for a particular variable and identify all references to that variable in other assets, such as flow services, document types, specifications, and triggers. Users can selectively or globally replace a particular variable with another variable. This kind of global search and refactor increases developer productivity and enables easier maintenance of the code base thereby reducing costs.

Docker Scripts for Integration Server

Integration Server provides out of the box scripts to create Docker Integration Server images. While tested on the Red Hat Linux operating system, the feature can be used on a non-Windows operating system on which Integration Server is supported and Docker has native support.

Publish REST API Descriptor to API Portal

Using the Designer tool, developers can publish the Swagger document for a particular REST API descriptor to the API portal.

Kerberos Delegation Support

Integration Server provides out of the box support for Kerberos delegation at transport level for HTTP/REST protocols.

Distributed Caching Enhancements for Integration Server

Integration Server provides enhanced service results caching functionality. This includes the ability to:

- Use a distributed cache for service results caching.

- Pre-fetch and fill data into the service results cache at startup time.

- Return a list of all cached values from service results cache.

- Delete an entry for the distributed service results cache.

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webMethods Mediator

HTTP Verbs Support

Mediator supports the HTTP PATCH verb:

API Protection and Security

- Mediator supports Kerberos over transport in inbound and outbound (including delegation) scenarios.

- SAML feature is enhanced to provide support for the following:

    o   Holder Of Key Symmetric binding in Inbound

    o   Holder Of Key Symmetric and Asymmetric binding in Outbound

    o   Bearer Token in Outbound

    o   ActAs delegation in Outbound

Architecture

Mediation of REST services is supported with or without the Axis framework. This is controlled by a CentraSite configuration parameter. Once this parameter is set to not use Axis for REST services, all newly deployed services do not use it. Existing services continue using Axis until it is manually changed by publishing and republishing the service.

webMethods Mobile Suite

New User Interface Control TabView

A TabView provides a high level navigation pattern, where a user can switch between different Views using a swipe gesture. A Tab provides content grouped in a View. A label or icon describes the content of the Tab. To support this pattern with Mobile Suite, nUITabView is introduced. nUITabView is a nUIViewDisplay and can be used in the same way as a regular nUIViewDisplay. Together with tabs, you can add other user interface elements to nUITabView to be displayed between view header and tab elements (not supported for Windows phone).

The AML Outline Editor also supports modeling of nUITabViews. An element named TabView is now available to be added to the Views node within the Outline Editor.

Styles

The AML Outline Editor now allows customers to group their user interface properties in reusable elements, named Styles. Each user interface element can be linked to a Style and so every user interface property related to this element will be taken from the Style. Also, Styles can build an inheritance relation.

The ApplicationStyle now offers a capability to define Styles and Themes for Android projects. According to Android, a Style is a collection of properties that specify the look and format for a View. In the AML Outline Editor, the ApplicationStyle node provides a child called Android Theme.

New Wizard to Import Sample Projects

A new wizard is added to import example projects in Mobile Designer.

ARIS Picture-to-Model App as Sample Project

The ARIS Picture-to-Model app is now added as a sample project with full source code. This can be used as a basis for the development of similar apps using the same technology.

CredentialStore and IsolatedKeyValueStore Classes Added

Storing sensitive data such as usernames, passwords, and settings, require more data security than the record store may be able to provide on a given platform. To overcome this, Mobile Designer 9.12 provides a com.softwareag.mobile.md.io package with CredentialStore and IsolatedKeyValueStore classes. These classes make a best-effort attempt to isolate the data from other applications and casual snooping.

Mobile operating systems differ in how this isolation occurs, but Mobile Designer attempts to use features such as the Keychain Services (iOS), and/or mark files as private/protected, and excluded from backups.

A sample application, _NativeUICredentialStore_, is shipped with Mobile Designer to demonstrate the use of both classes.

Definition of Colors/Sizes/Font Sizes

The AML Outline Editor offers the capability to define colors, sizes, and font sizes within the UserInterface - Values section. Each of these is identified by a name and can be chosen as value for correspondent properties.

New User Interface Templates in the Editor Palette

Following new templates are added to the Palette view in the Templates->List Items category:

- Avatar with Text and Icon

- Two-line item
  These templates are frequently used user interface patterns and can now easily be dragged into the Templates section of the application model.

New APIs and AML Outline Editor Properties

Following user interface APIs and corresponding properties are now supported in AML Outline Editor:

- nUITabView

- nUIWebviewElement#bgColor

- nUIWebviewElement#scaleToFitEnabled

- nUIWebviewElement#overscrollingEnabled

- nUIDateEntry#halign

- nUIDateEntry#fallbackText

- nUIDateEntry#fontColor

- nUITextfieldElement#clipType

- nUIDropdownListEntry#halign

- nUIDisplayObject#tag

- nUIDisplayObject#backgroundDrawable

Support for new union type *dp* in AML

The AML Outline Editor now supports density independent pixels for dimensional properties, like "x,", "y", "innerX", and "innerY". A dp represents a virtual pixel unit to express dimensions or position in a density-independent way. In addition to specifying dp values in the AML Editor, users can programmatically set dimensions or position. Therefore, the API method *com.softwareag.mobile.runtime.toolkit.util.AppUtility.convertDpToPixel(int)* is added to calculate a pixel value based from the passed dp value.

New property Tag to nUIObjects

For nUIObjects a new property tag is added. Tags contain some context information about the nUIObject instance that can be used in callbacks and delegates.

Custom Resources in Android Project

The Android platform build is extended to take custom resource folders into account, as this is a common source for native code injections. Specified resources are copied to the <project>/res directory and thus, must follow Android resources guidelines.

EML Support for Operations

EML is extended to allow method definitions. Those are generated as an abstract method and must be implemented in the entity implementation.

EML Support for Defining Opposite References

Sometimes, data models declare a bi-directional relationship between entities, which have to be maintained manually by writing code. EML will now take care of bi-directional synchronization and maintains such relations automatically.

Configuration of ANT Target Executed After Code Generation

Previously, the code generation was always followed by the ANT target Re-Activate-Handset. Now it is possible to select the ANT target, which is executed after code generation. Possible candidates can be selected within the Mobile Development preferences page.

Cancel Button in iOS Keyboard Removed

In iOS, the **Cancel** button that appeared at the top-left corner when you open the keyboard or any of the pickers is removed.

New Events in Date/Time Picker

You can now click **Done** button to trigger a nUIConstants.EVT_PICKER_OK event and click **Cancel** button to trigger a nUIConstants.EVT_PICKER_CANCEL event.

Native Code Injection Support for Phoney

Using native code injection in Phoney allows using J2SE feature set for Phoney platform. This can be useful by testing native libraries such as Tesseract, direct in simulator.

Android Header Implementation Refactored to Use Toolbar

In Android, view header is replaced by Android's native Toolbar class. Together with improved native look and feel, it is now possible to customize view header as well.

Introducing setTag/getTag Methods in nUIObject

In some cases, it is very useful to store some data in UI objects. The methods are defined in the nUIObject, the top most parent in user interface hierarchy.

New onRemoved() method in UI Hierarchy

When you subclass a UI class, you can now overwrite the onRemoved() method to clean up references that are stored in the class, to avoid cyclic references on iOS platform.

urlDecode Added

A new method urlDecode is now added to HttpConnectionHandler. The method decodes bytes into UTF-8 string.

Improved urlEncode Performance and Support for UTF-8

HttpConnectionHandler.urlEncode now supports UTF-8 strings. Performance is improved by using lookup table for checking for valid characters.

mageScaler Class To Use Native Methods for Scaling Images

To improve quality of scaled images, an ImageScaler is now introduced. It uses native platform methods to scale images. The class is used internally in ImageHandler as well, so that old projects can automatically benefit from new functionality after the new Multi-Build with MD 9.12

syncUI Method Added

A new blocking method syncUI is introduced to force UI flushing. Since the method is CPU-intensive, this method should be used with care.

New API to Request Permissions at Runtime

Mobile Designer now supports a new API to request permissions at runtime. This is a mandatory requirement of Android 6. For certain features, it used in iOS 8 and later versions.

New Background Concept: IBackgroundDrawable

WIn previous versions of Mobile Designer, it was only possible to set background colours and Images on very few NativeUI Objects. Now, all NativeUI Objects inheriting from nUIDisplayObject have a common method to set or get their background.

- public void setBackgroundDrawable(IBackgroundDrawable background)

- public IBackgroundDrawable getBackgroundDrawable()

Additionally, there is now a com.softwareag.mobile.runtime.nui.background package that manages the following types of IBackgroundDrawable that can be set:

- ColorBackground describes a single colour for the element's background

- DefaultBackground is used to give the standard behaviour for that handset and OS combination, and

- PatternImage, which can be used to draw an Image into the background of an element (OS and element permitting).

PatternImage is the most complex among these, and it supports several different modes of operations such as tiling, scaling proportionally, and stretch to fit. When tiling, you can specify vertical and horizontal tiling independently, or to have both enabled.

Support for Self-Signed SSL Certificates (iOS and Android only)

Self-signed certificates are now allowed for each URL on Android and iOS. Android and iOS uses the following API function for checking Self-signed certificates:

public boolean allowUnsecureSSLConnectionForURL(String url)

For each web page (*https://...*), the operating system uses this API to verify if the associated URL is valid (even if a certifying authority has not verified the URL).By default, this API function returns false for all URLs (rejecting all self-signed certificates).

Android 6 Certification

Mobile Suite is now certified for Android 6.

Improved Build Job Details in Mobile Administrator

Build jobs now link directly to the build configuration used for the build. Further, build jobs now provide information about the client application version on the build node used to execute the build. The build job now also contains build logs, which helps developers troubleshoot issues during the build.

Removed Deprecated Mobile Device Management Capabilities from Mobile Administrator

Mobile Administrator does not support Mobile Device Management as of 9.12 release. All corresponding features are removed or disabled.

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webMethods OneData

User Interface Improvements

The new user interface for OneData is enhanced in the following areas:

- In data entry screens, improved display of errors and new customization options for data display.

- In the data grid for search results, improved user experience in the display of dates, sorting of data columns, and resizing of the left panel.

- In the audit data screen, more filter options are introduced.

- Searching and browsing of data, which now includes remote objects.

API Layer Enhancements

New public data quality APIs is now exposed:

- Data cleanser APIs, which include:
  - A generic cleanser.
  - A cleanser that uses OneData-defined cleansing projects.
  - A cleanser that uses OneData-defined cleansing projects for a given data object.
- Data matcher APIs, which include:
  - A generic matcher.
  - A matcher that uses OneData-defined matching projects.
  - A matcher that uses OneData-defined matching rules.
  - A matcher that uses OneData-defined matching projects for a given data object.

OneData objects now support JSON schema:

- You can use JSON as the payload format in HTTP POST calls to OneData REST data.

- The object definition allows you to generate a JSON schema for such calls. You can then retrieve this schema in an API call with "/JSONSchema" appended to the REST API exposed by the object.

Security Improvements:

In addition to the previously available protection of input validation against cross-site script (XSS) attacks, OneData now provides enhanced protection against security vulnerabilities of XSS through responding encoding. API methods are also now protected against XSS attacks.

Infrastructure Improvements:

The search functionality in OneData is now configured to use Software AG Event Data Store by default. This change does not affect the previously available option to use a separate instance of Elasticsearch as the search engine.

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webMethods Optimize for Infrastructure

New Monitoring Capabilities

- Optimize for Infrastructure can now monitor named objects, or durable subscribers for Universal Messaging.

- Optimize for Infrastructure can now monitor the event routing runtime.

- My webMethods Server deployments that are configured with a custom root context can now be monitored by O4I.

- Terracotta Server Array (TSA) can now be monitored over SSL (HTTPS).

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webMethods Optimize for Process

508 Compliance - Tables and Forms

508 compliance is implemented for tables and input fields in forms, thus improving the accessibility for Optimize portlets.

Custom Range and Auto-Refresh for Process Analytics

The dynamic ant farm process analytics view can now be configured to a specific date or time range. In addition, you set the refresh rate to automatically refresh on a user-defined interval.

webMethods Process Performance Manager

Ease of Use

New expanded search functionality makes it possible for users to select from all available dimensions and measures in the Analysis UI independent of process type.

Core PPM components now have less restrictive locking defined so more activities can be performed simultaneously. For example, when a user is editing a user-defined measure, imports can proceed in parallel.

Reports can now be issued using the XLSX report output format. Tables can be exported using this format as well.

There is improved consistency checking and error handling for Microsoft SQL Server.

Improved User Interface

A new simplified process flow visualization is available that can be used along with the classic process flow. This view provides reduced complexity. Users have the ability to drag and drop steps to arrange the discovered process in a clearer pattern and save the preferred view.

PPM can now be used as a data source for MashZone NextGen Business Analytics dashboards. Users can now create MashZone NextGen charts that consume data from PPM and filter those charts using business dimensions from the process.

The Microsoft Edge browser is now supported.

Monitoring and Administration

Command Central, the centralized monitoring tool for the webMethods suite, can now be used to monitor, stop, start, and pause the PPM remotely. Administrators can see CPU and memory utilization, and have remote access to logs for analysis. All Command Central capabilities are fully automatable through command line scripting or REST services. More granular permissions can now be defined for reporting.

The report automation authorization is now separate from the report definition authorization.

SAP Support

Using SAP SNC, it is now possible to configure a secure connection to SAP for data extraction.

PPM supports SAP for process discovery. This includes any SAP-supported database such as HANA.

Cloud Support

Old protocols used to communicate across runtimes are replaced with HTTP-based communication to enable cloud deployment.

PPM now allows administrators to define a separate public server name from internal server names for intra-server communication. This addresses some cloud deployment scenarios where the name used to externally access the webserver is different from the server name of the running hardware.

webMethods Service Development

Mapping Enhancements

Service Development provides an enhanced mapping construct that allows a business analyst to map an array of input documents (source) to the target, using a single mapping step. Service Development offers improved debugging of data mapping by introducing the Data Mapper view. While in this new view, developers or mapping analysts can test the map step without executing the entire flow service. Furthermore, users can execute, modify, and then re-execute a mapping without saving the changes in between test executions.

Search and Refactor Support

Service Development now supports the ability to search for a particular variable and identify all references to that variable in other assets, such as flow services, document types, specifications, and triggers. Users can selectively or globally replace a particular variable with another variable. This kind of global search and refactor increases developer productivity and enables easier maintenance of the code base thereby reducing costs.

Publish REST API Descriptor to API Portal

Users can now publish the Swagger document for a particular REST API descriptor to the API portal.

Improved Debugging for Flow Services

To improve debugging capability, Service Development includes a Debug to Here option, which allows a developer to debug a flow service up to a specific flow step.

Visual Comparison and Merge for JMS Triggers, Adapter Services, and Adapter Connections

Service Development now provides support for visually comparing versions of JMS triggers, adapter services, and adapter connections and merging any differences between versions.

webMethods Trading Networks

Tight Integration with ActiveTransfer

webMethods Trading Networks is now tightly integrated with webMethods ActiveTransfer for better management and monitoring of files or documents exchanged. Trading Networks now provides an ability to deliver documents through ActiveTransfer. Administrators can explicitly select ActiveTransfer as the delivery method in Trading Networks and set the end points that ActiveTransfer connects with to transfer the documents. Documents delivered through ActiveTransfer are monitored directly in the Transactions page that includes the transaction ID for the document as an attribute.

Eliminate Co-Dependency Between ActiveTransfer and Trading Networks

Trading Networks and ActiveTransfer instances no longer need to run on the same Integration Server instance for ActiveTransfer to communicate with Trading Networks and Trading Networks to communicate with ActiveTransfer. ActiveTransfer can now route inbound files to any Trading Networks instance without any intermediate storage. Similarly, Trading Networks can deliver files through any ActiveTransfer instance for outbound file transfers.

Configure User Status

Administrators can now optionally configure user status and allow it to be set only from a predefined set of values. Using this option, users can set a user status to one of the values from the pre-defined list. This eliminates users from making typographical errors while specifying the user status values in a free form setting.

View Transport Status

Trading Networks now lists the transport status as a column in the Tasks lists to view the transport status messages for delivery tasks.

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webMethods Universal Messaging

Durable Subscribers Monitoring and API Improvements

Enterprise Manager has improved monitoring of durable subscribers and is now able to display more details for the durable subscribers, including details about the connections currently being used, the EIDs and the number of events outstanding in the queues. This information can now also be accessed via the administration API.

The client API for durable subscribers and named objects are redesigned to improve performance, robustness, and usability. The new durable subscribers API, available from the client API, maps to the existing durable functionality of subscriber functionality.

New and Enhanced Command Central Capabilities

You can now use Command Central to add, edit, delete, administer, and monitor channels (topics) and queues. In addition, you can monitor durable subscribers to easily detect and identify issues such as stalled triggers or processing backlogs.

These capabilities can be accessed using Command Central web user interface, Command Central command-line interface, and REST API.

The Command Central web user interface now provides the following capabilities:

- Create and delete Universal Messaging server instances.

- Search for JNDI entries, channels, and queues.

- View, create, edit, and delete access control lists (ACLs).

- View create, edit, and delete joins for a channel or a queue.

- Delete durable subscribers.

Improved Handling of Low Memory Situations

New methods for protecting against out-of-memory situations have been introduced to increase the robustness of Universal Messaging under heavy load.

The "event usage" metric provides information on memory currently in use by on-heap events. This includes current on-heap event memory usage, the maximum memory currently available to the JVM, and the percentage of on-heap memory currently in use. These statistics enable monitoring of the current memory usage, allowing action to be taken accordingly.

Universal Messaging servers can now throttle producing connections while processing their events. At predefined, configurable thresholds of on-heap event memory usage, producer connections are throttled, enabling consumers to reduce the number of events on the connections while they are throttled. Connections are more strictly throttled as memory usage rises, helping to prevent out-of-memory situations.

Round-Robin Message Publishing Using JMS Connection Factories

Horizontal scalability improvements are introduced with the API for JMS now allowing the configuration of round-robin connection factories. These factories allow clients to publish messages in a round-robin fashion, so that one message or transaction gets published to the first realm node or cluster, the next message to the next realm node or cluster, and so on.

These JMS connection factories have the following limitations:

1. Event consumption is not supported through these factories so, for example, message listeners cannot be registered and consumers cannot be created through the sessions created from these connection factories.

2. The sessions created through these connections factories do not support distributed (XA) transactions.

For more information consult the JMS section of the product documentation.

Logging Capabilities Enhancements

Support has been added for utilizing the third party logging frameworks Logback and Log4J 2. Both of these testing frameworks offer improved throughput performance when compared to the existing Flogger engine.

Log file entries are now categorized by the component which generated the entry, for example Cluster Communications and Joins.

Note: Changes have been made to the logging configuration items stored in the data/RealmSpecific/Logging Config.cfg file. When you migrate a realm data directory from an older version to the 9.12 installation, remove this file. The server then loads only the new configurations items on initialization. The logging configuration then needs to be reset through Enterprise Manager or the administration API. For more details on how to reset the configuration, see the Realm Configuration section in the Universal Messaging user documentation.

Improved Futureproofing for Universal Messaging Clients

The client API is now officially supported for use with newer versions of the Universal Messaging server. That is, the 9.12 client API will be supported for use with future versions of the Universal Messaging server.

The client API is extended in this release with features that were previously only in the administration API (which is not supported for use with newer versions of the server).

Access Control List (ACL) can now be set at store-creation time through the Java and C++ client APIs. This allows basic ACL control for stores without needing to use the administration API.

Setting ACLs at store creation time has been a typical use for the administration API. These changes allow the client API to be used in a greater number of use cases. The client API is lighter-weight than the administration API, and therefore switching to the client API can increase overall system performance and consumed bandwidth.

HTTP Drivers Support Checking of Origin Headers

The HTTP/WebSocket drivers are updated to process the Origin header field according to standards proposed in RFC-6454, RFC-6455 and the W3C Cross Origin Resource Sharing document (https://www.w3.org/TR/cors).

The nhp/nhps interfaces should have the CORS Allowed Origins (located under the nhp/nhps Interface -> Javascript tab in Enterprise Manager) altered if an HTTP request has the Origin header field set. Previous versions of Universal Messaging had default values of "localhost, 127.0.0.1" assigned to the CORS Allowed origins field, and would process only host names as values to this field. The current W3C standards now expect any origin to be of the form *<scheme>://<host>:<port>*; for example, *localhost* is an incorrect value, while *http://localhost:11000* is a properly formatted value. The exception is a single value of "*", which indicates that all hosts are permitted access; note that the processing of this value has not changed with the update, and is now the default value in the CORS Allowed origins field whenever an nhp/nhps interface is created.

In addition, support for matching *http://example.com* and *http://example.com:80*as origins (as documented in RFC-6454) is currently not supported. You will need to explicitly white list hosts with *:80 as potential origins (if needed) in addition to others.

Warning of the Effects of Editing Stores

When stores are edited, Universal Messaging deletes and recreates the store and this can disrupt active subscriptions. Enterprise Manager is updated to display a warning message that the store will be recreated, before a channel edit is performed.

nInterfaceTool Extended to Allow Editing of Additional Interface Settings

The nInterfaceTool is extended to provide additional capabilities. For example, it now allows you to set interfaces to automatically start when the server starts.

Support for Docker 1.10

The Universal Messaging Docker kit now supports Docker 1.10.

Inclusion of Python and iOS Client Libraries in Installation

The client libraries for Python and iOS are now included as part of the installation.

UM-Tools Runner Installed with Template Applications Module

The um-tools runner is now part of the installer the *Template applications* module and not the *Server* module. This allows you to install the um-tools runner without installing the server.

Updated Version of OpenSSL

Universal Messaging now uses OpenSSL 1.0.2 instead of the previous version 1.0.1.

Unit Test Framework

With webMethods 9.12, the Unit Test Framework, which is popularly known as WmTestSuite, is available as a product. It is officially supported and made available through Software AG Installer 9.12.

Documentation

Command Central

- Easier to Use Online Help and User Interface Instructions for Command Central

  Command Central online help has been reorganized and streamlined, and much information has been moved to the Command Central GUI where it appears in the form of instructions and tooltips. Product-specific information is moved from the Command Central help into the appropriate product documentation. With this change, all information for each product is in one all-inclusive location, and the Command Central online help is now product neutral.

- New Comprehensive Feature Support Matrix for Command Central

  A comprehensive feature support matrix for Command Central is now available as a separate document titled Software AG Command Central Feature Support Matrix, available on the Empower website. The matrix lists the products you can manage using Command Central and the features that are supported for each release of those products.

Trading Network

  From this release onwards, the Trading Networks Webhelp is not available as a standalone document on the Empower website. The content of the Trading Networks Webhelp is available in the B2B Integration compendium.

Upgrade

Integration Server Migration Utility Offers Separate Prompts for JDBC Pools in Prompt Mode and Options in Command Line Mode

Previously, JDBC pools were included as part of the prompt for configuration files, and you had to prompt through configuration files one at a time to prevent the migration of JDBC pools when using a cloned database. With this release, the JDBC pools prompt is separate, and asks whether you are using a cloned database. In addition, you can now specify the connection information for a cloned database in command line mode, which enhances the automation of migration.

My webMethods Server Cluster Migration is More Efficient.

My webMethods Server migration utility now performs faster and efficient cluster migration.

My webMethods Server Migration Utility Command Line Mode Offers the Ability to Migrate When Using Cloned Database.

Previously, you could use the My webMethods Server migration utility's prompt mode to migrate when using a cloned database. You can now specify connection parameters for a cloned database on the migration utility command line mode, which enhances migration automation.

Ability to Migrate All Universal Messaging Instances Simultaneously.

Previously, you could use the Universal Messaging migration utility to migrate multiple instances you specified explicitly by name. You can now migrate all instances at the same time without specifying instance names.

webMethods Adapter for SAP Migration is More Automated.

Another manual step in the webMethods Adapter for SAP migration has been automated. You no longer have to manually copy the *node.ndf* files from the old installation to the new installation.