What's New in AssetWise Performance Management 7.10

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What's New in AssetWise Performance Management 7.10

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APM Release 7.10.0

What's New in APM 7.10

Release 7.10 of AssetWise Performance Management (APM) introduces Asset Restoration Planning, enhancements to comparative analyses, server port consolidation, and much more.

Contents

APM Mobile Inspection and Inventory

The following enhancements have been made to APM Mobile Inspection and Count Sheets.

Mobile REST Service and Port-Sharing

The APM Mobile Rest service is now represented in URLs as "rest/" rather than "RESTService". As well, because of port-sharing in 7.10, the URL must include the name of the server instance.

The URL for connecting to the APM server from a mobile client uses this syntax:

https://*ServerName*/*ServerInstanceName*/rest/

If the server instance does not use a default port (443 or 80), include the port number after the server instance name. For example:

https://*ServerName*/*ServerInstanceName:port*/rest/

Note: The final "/" is required.

Customers who are upgrading to 7.10 need to re-enter the URL on their mobile clients.

For related information, see "Server and Client Management – Port Consolidation" on page 18.

APM Mobile Inspections – Android™ Version

APM Mobile Inspections is now supported on any device that runs Android 4.4.0 (KitKat) or newer.

APM Mobile.NET Defeatured

As of version 7.10, APM Mobile applications for inspection and inventory have replaced the APM Mobile.NET application for Windows Mobile.

APM Mobile Count Sheets and Mobile Inspections are available in the Google Play™ Store for use with Android devices.

APM Mobile.NET software is no longer included in APM installations.

For information about moving from APM Mobile.NET to an APM Mobile app, see "Upgrading to 7.10 – Considerations" in *APM Upgrade Guide*.

Asset Reliability Programs – PM Generation Profile

Work order options for PM generation profiles have been clarified. For shutdowns, enter the number of days in the future that the shutdown is planned to start. Work orders to be performed during the shutdown will have their planned start dates set to the calculated date.

Asset Restoration Planning

An asset restoration plan (ARP) defines the steps and expected costs for improving assets that have reached, or will soon reach, an unacceptable condition. An ARP is typically based on an asset condition analysis (ACA) that identifies the assets requiring improvement.

An asset's restoration plan consists of:

- A spending plan for each asset included in the plan. The spending plan identifies the expected costs over a number of periods (next five years, for example) and by expense type (maintenance, capital, operating costs). You can also add detailed costs for each financial period and expense type
- Description of the work involved in restoring or replacing assets
- Description of the restoration plan
- Priority and condition of the asset

Asset restoration plan assets can be linked to new or existing projects to track the progress of the work.

Asset restoration planning is included in the Asset Health application module. You can view and create plans on the site's **Asset Health** view, **Restoration Plans** tab.

For more information, see "Asset Restoration Plans" in Help.

Comparative Analyses

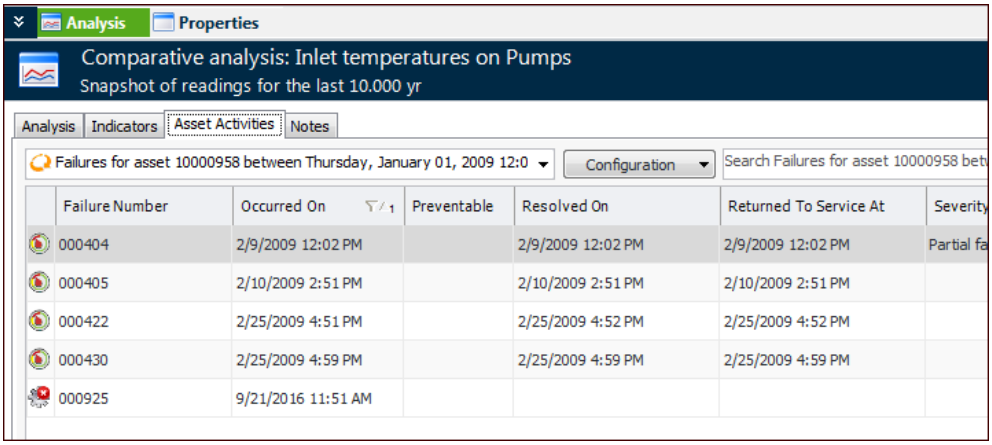
Comparative analyses allow you to select multiple indicators in order to compare their readings over time. Analyses typically compare readings from similar indicators that can be numeric, calculated, cumulative, descriptive, or performance indicators. For example, a technician might want to compare pressure readings for a group of pumps over a six-month period. You can view the results in charts as well as tables, forms, and dashboards.

Asset Activities

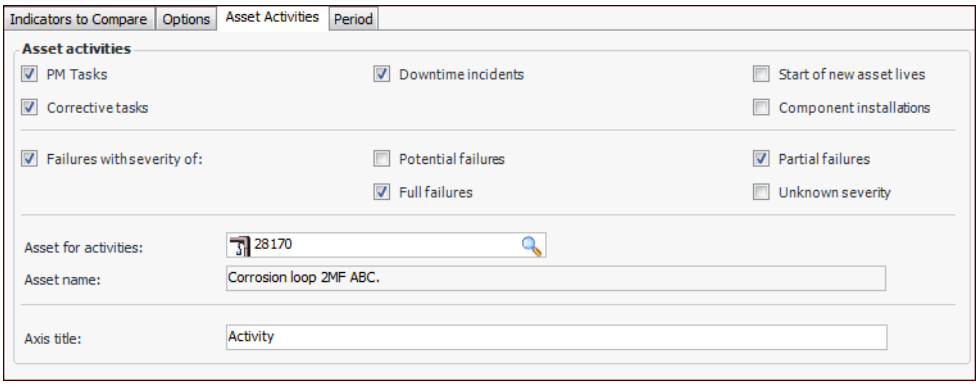
This release provides more information about asset activities, based on the asset and time period selected for the analysis. In the Comparative Analysis window's **Analysis** view, the **Asset Activities** tab offers these configurations:

- Completed tasks for the asset during the time period
- Failures for the asset during the period
- Downtime for the asset during the period
- Downtime incidents that affected the asset during the period
- Asset lives started or ended for the asset during the period

This example shows failure records:

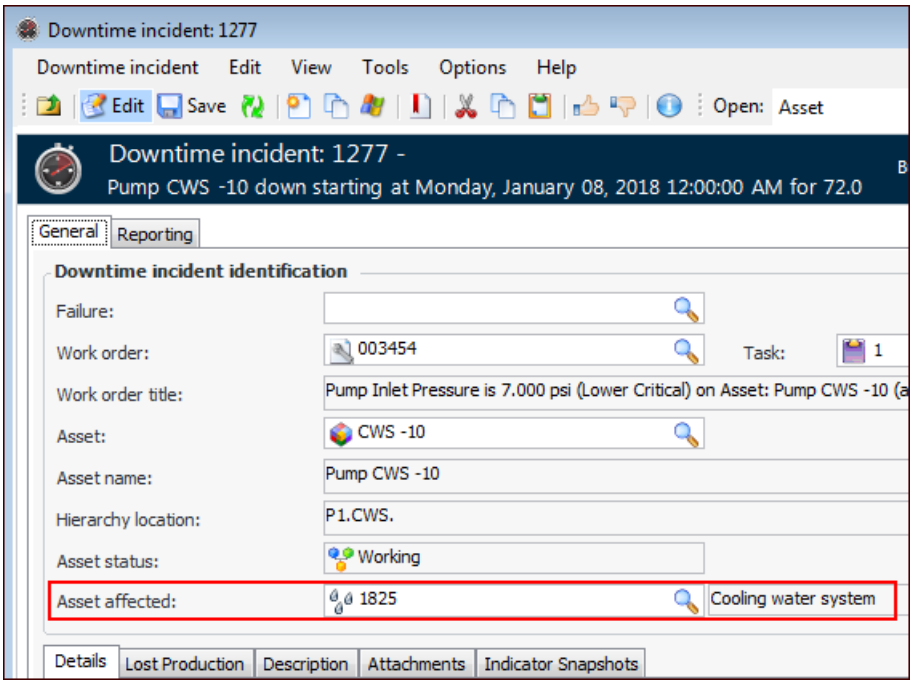


When setting up the analysis, you have more asset activities to choose from: corrective tasks, downtime incidents, and failures according to severity. For example:



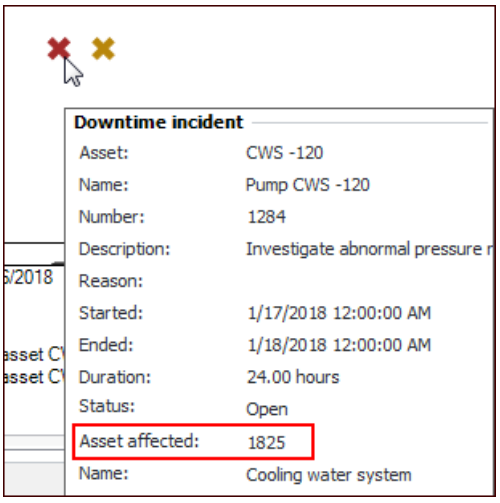
Downtime – Affected Asset

When reporting a downtime incident, you can now identify the asset that was affected by the incident. For example:

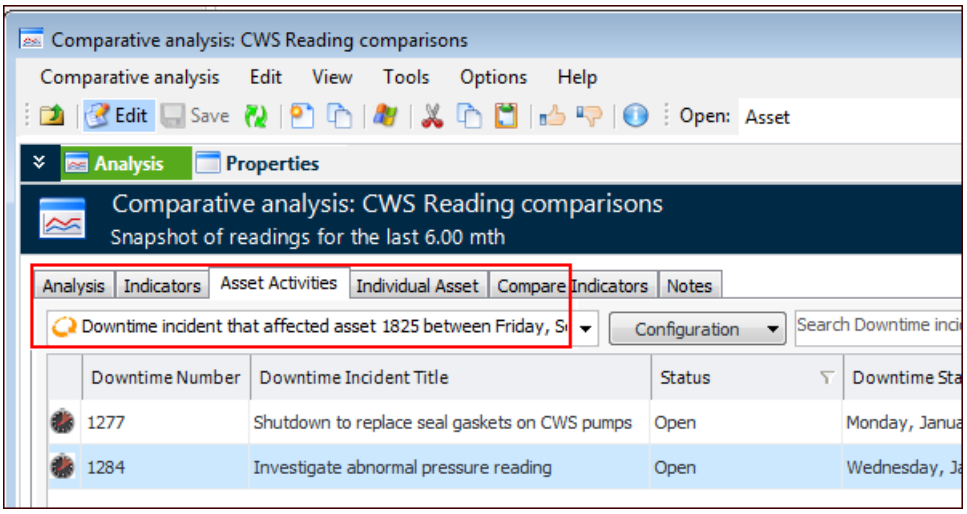


The downtime incident can then be included in basic and advanced comparative analyses where the affected asset has been designated the "asset for activities".

The downtime incidents are shown in the readings graph. For example:



In the **Analysis** view, **Asset Activities** tab, you can select the table configuration "Downtime incident that affected" the asset.



View Readings for a Single Asset

In the **Analysis** view of a comparative analysis, select the **Individual Asset** tab and select one of the analysis assets from the list. Numeric indicator readings and asset activities are shown in the chart.

Compare a Subset of Indicators

In the **Analysis** view of a comparative analysis, select the **Compare Indicators** tab. The table on the left lists the indicators selected for the analysis. Select two or more indicators to compare their readings in the chart on the right.

For more information, see "Comparing Indicators" in Help.

Data Loading

The following enhancements have been made to data loading.

Miscellaneous Cost Transactions

A new data loader is available for importing miscellaneous cost transactions. In the Enterprise window, **Data Loaders** view, select the **Resource Transactions** tab. Select the "Miscellaneous transactions" configuration to create an import template, import from a file, and view import history.

Standard Tasks

The data loader for standard tasks now includes the Planner number property. Planners are identified by their employee numbers. The employee must exist at the task's site or above and must have the role of planner.

Warehouse Items Data Loader

Inventory balance quantities (On hand and Available), unit cost, and inventory group have been added to this data loader.

Work Order Task Purchasing Information Data Loader

You can use this data loader to import purchasing activities for work order tasks, including detailed information about resources, purchase orders and lines, and requisitions.

In the **Data Loaders** view on Enterprise, select the **Work Management** tab and the "Work order task purchasing info" configuration.

Integration Features for Purchasing and Materials Systems

This release introduces the following enhancements for integration with external purchasing and materials systems.

Integration with Oracle® Purchasing

APM 7.10 introduces a new integration feature for Oracle E-Business Suite. The APM integration with Oracle Purchasing involves data exchanges between the two systems:

- Export APM assets, asset hierarchy, work orders and tasks, and their material and service requirements
- Import miscellaneous cost transactions, inventory, materials, services and trades into APM (using the data loader)
- Import work order task purchasing information (using the data loader)

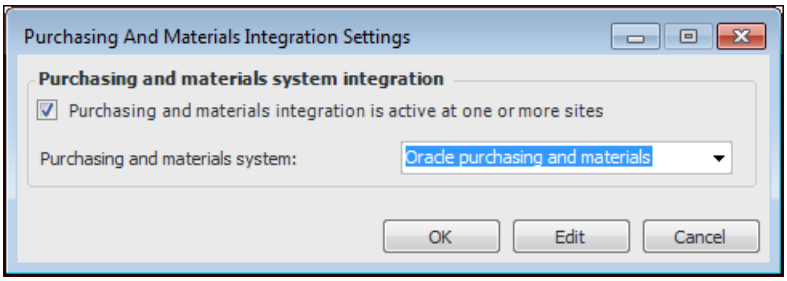
APM does not provide functionality for extracting data from Oracle or updating Oracle with APM data. For more information, contact Bentley Technical Services.

Purchasing and materials system integration is included with the Enterprise Asset Management (EAM) product module.

Enabling the Integration

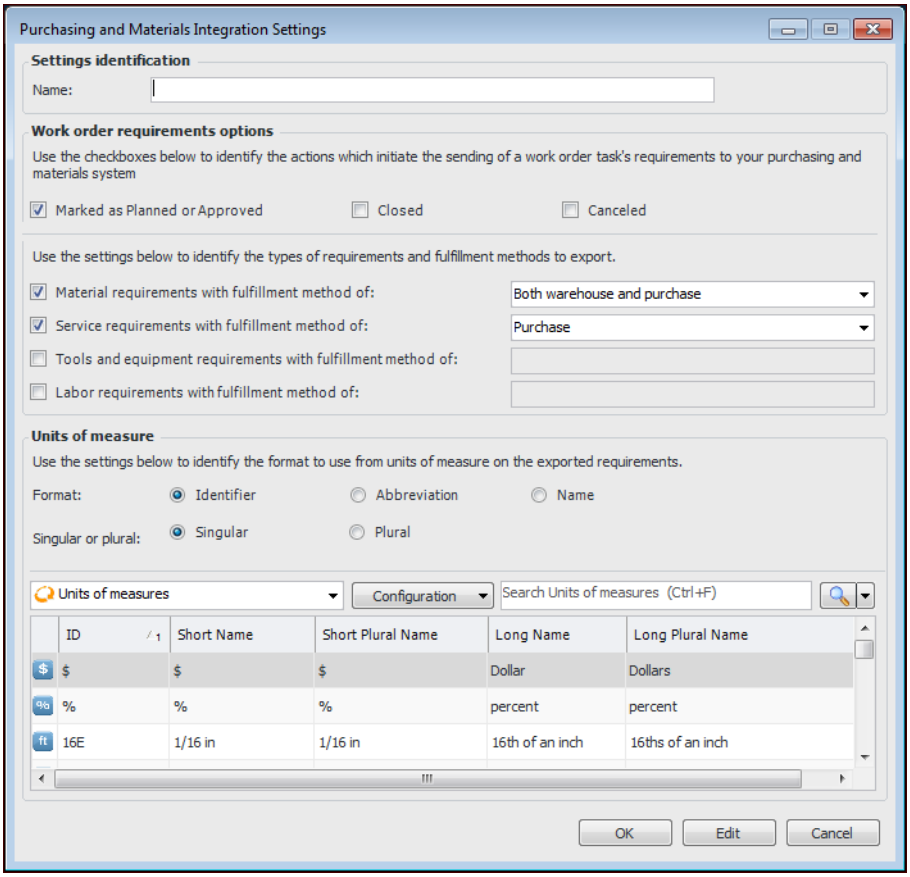
The integration is enabled at the Enterprise and site levels. You must also define site settings on the Enterprise and assign them to individual sites.

In the Enterprise window, click the **Administration** menu, **Integration Settings**, and then **Purchasing and Materials Integration**. In the settings dialog that appears, activate the integration and select the system:



When you click **OK**, integration information is added to the user interface. You can now define settings.

In the Enterprise window, select the **Integrations** view, **Purchasing Integration** tab. Click **New** to open the Purchasing and Materials Integration Settings dialog:



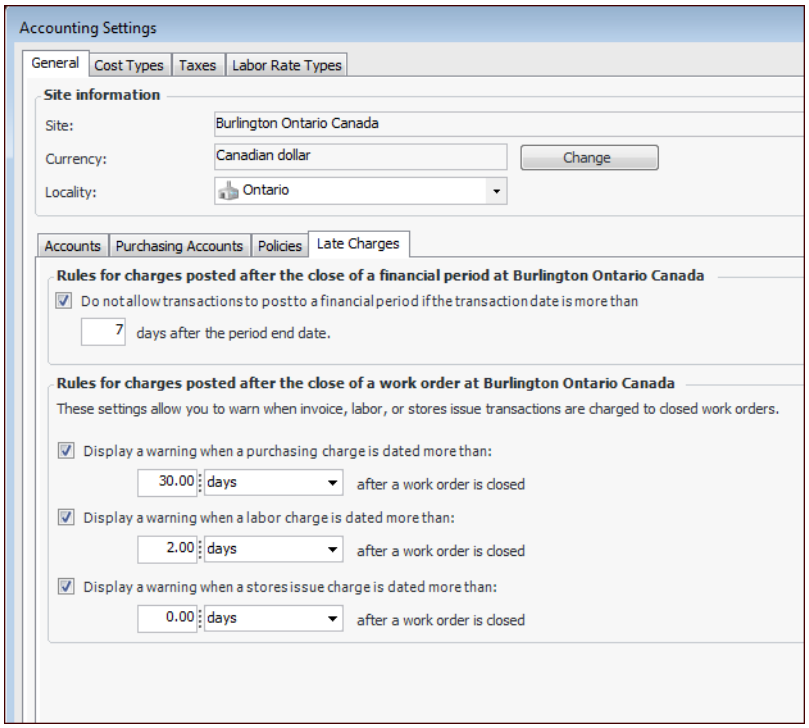
Here you can name the settings profile and select settings for work order requirements and units of measure. Click **OK** to save the settings and close the dialog.

In the Site window, click the **Administration** menu and then **Purchasing and Materials Integration Settings**. In the dialog that appears, activate the integration and select the site settings.

Data Export View

In the Enterprise window, the new **Export Data** view displays database views of objects and their properties. The **Assets** tab lists all assets in APM by site and includes the asset properties used for exports to external systems. On this view, you will also find the work order tasks view, lists of work order task reserve demands, and work order task requisition demands.

> **Note:** The **Work Order Tasks** tab lists calculated values based on dates: "purchasing changes allowed until" and "stores charges allowed until". In order for these values to be accurate, the site rules for late charges must be defined in days. For example, open the site's Accounting Settings dialog, select the **General** tab and then the **Late Charges** tab:



Online Data Collection (ODC)

In the Enterprise window, **Security** view, the **ODC Agent** tab has been renamed **API Key** to be more accurate. Select this tab when you wish to generate the API key used with ODC and other APIs.

Procurement

The following enhancements have been made to extra charges and the purchasing description.

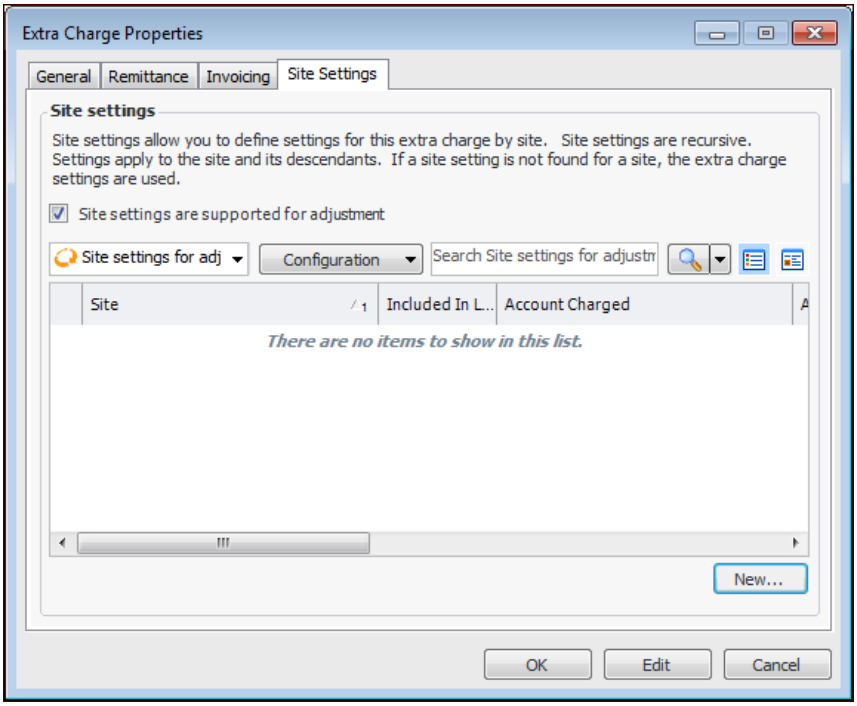
Extra Charges – Site-Specific Settings

You can now create site-specific settings for extra charges. Settings include the site (which includes its descendants in the hierarchy), GL account or loaded costs option, remittance rule, price tolerances, and invoice discounts.

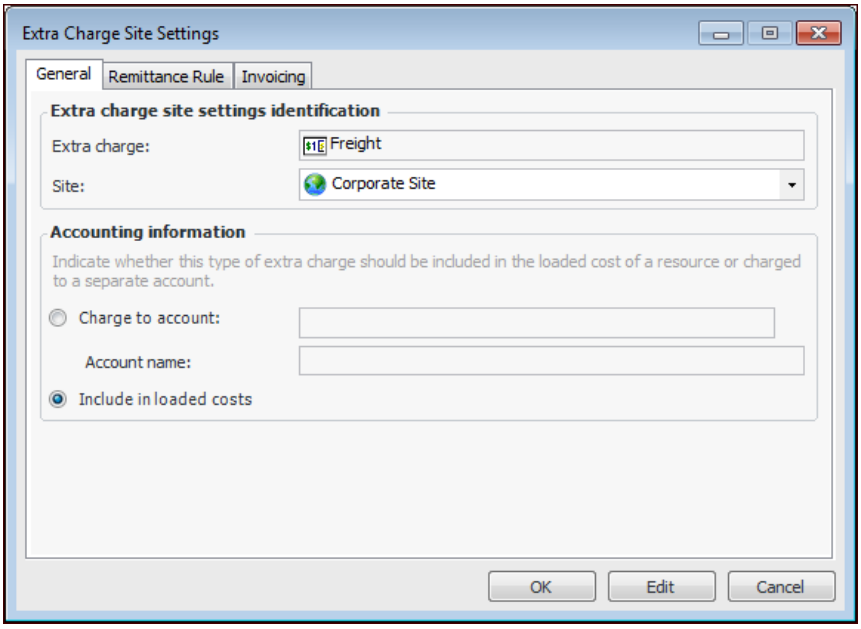
When you add an extra charge to an object (such as a purchase order line) and select the charge type, APM checks whether the charge supports site-specific settings. If the charge supports site settings:

- APM looks for a match between the object's site and the charge's site-specific settings. If it finds a match, the site settings are applied to the object's extra charge
- If a match is not found, APM checks the site hierarchy for the closest ancestor of the object's site that matches the charge's site settings. If it finds a match, the site settings are applied
- If a match is still not found, the charge's non-site settings are applied

To take advantage of this feature, create one or more site settings for your extra charges. The Extra Charge Properties dialog provides the **Site Settings** tab:



For each site that requires it, click **New** to create the settings. For example:



For more information, see "Setting up Extra Charges" in Help.

Purchasing Description

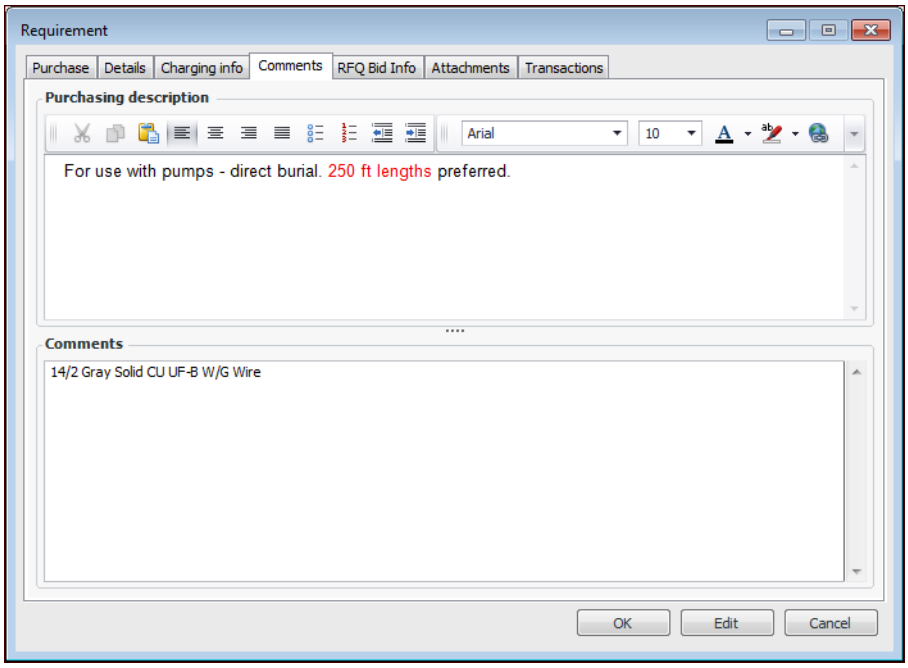
You now have more space for describing purchase information when entering resource requirements. Description sections provide text formatting options such as lists, font face and size, color, and bold. Up to one million characters of text can be stored in HTML format.

The information is copied to subsequent documents in the purchasing flow. For example, purchase information about a material requirement is copied to the RFQ (RFQ Resource) and the purchase order line created from the work order task. The description will be copied from the purchase order line to the invoice line.

In some cases, the description is read-only. For example, the purchasing description in the RFQ Resource dialog, **Description** tab might be read-only because of the RFQ bid status.

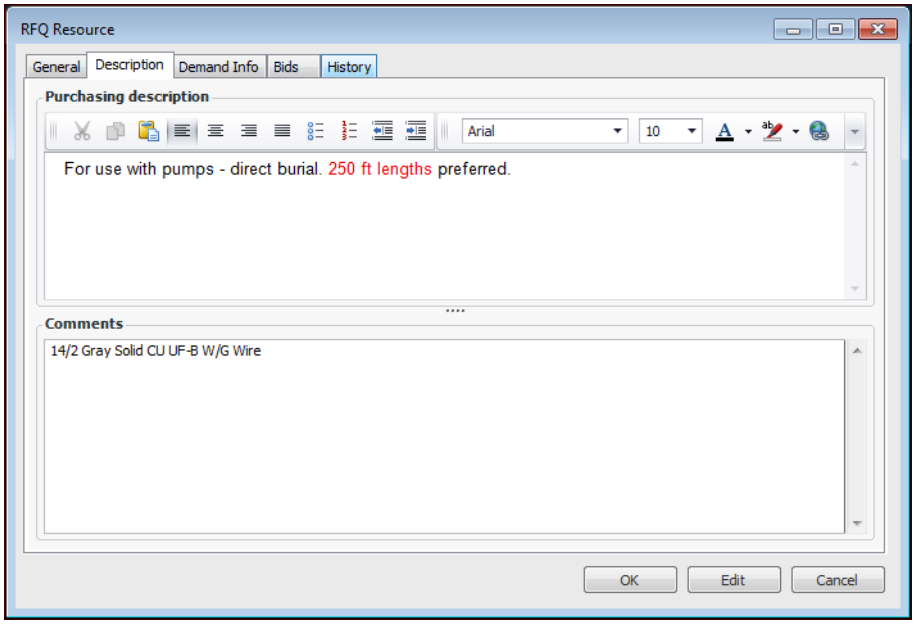
You will see the changes in these locations:

- Work order task or requisition – Open the Requirement dialog for a resource to be purchased. Select the **Comments** tab:

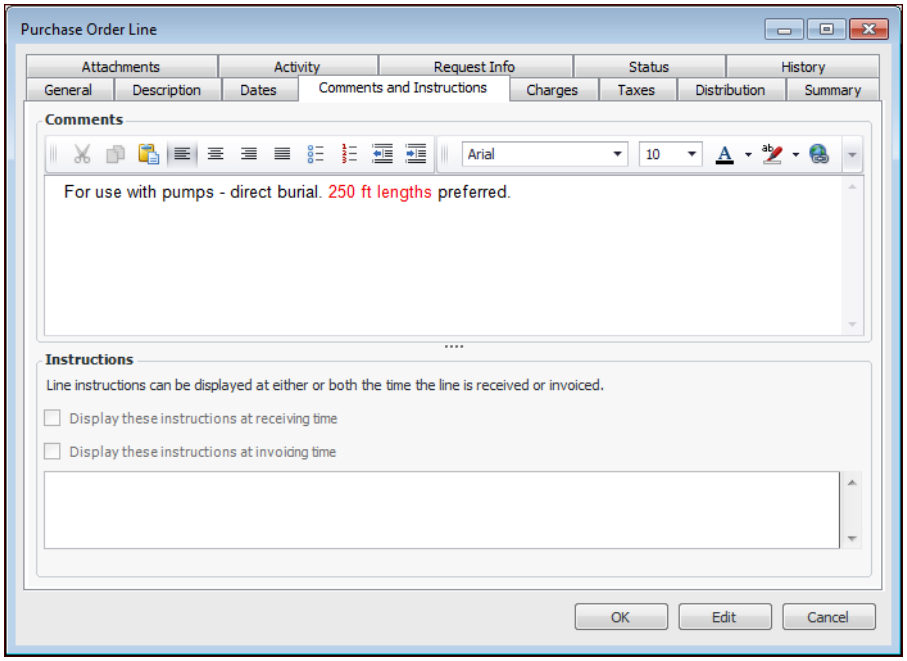


The **Comments** tab has been expanded to two sections. In addition to comments, there is a separate section for purchasing description.

- RFQ – Open the RFQ Resource dialog and select the **Description** tab:



- Purchase Order – Open the Purchase Order Line dialog and select the new **Description** or the **Comments and Instructions** tab. For example:



The **Comments** section now supports text formatting and one million characters in HTML format.

Resource Management and Transactions

The following enhancements have been made to inventory adjustments, the Material Issue dialog, and miscellaneous cost transactions.

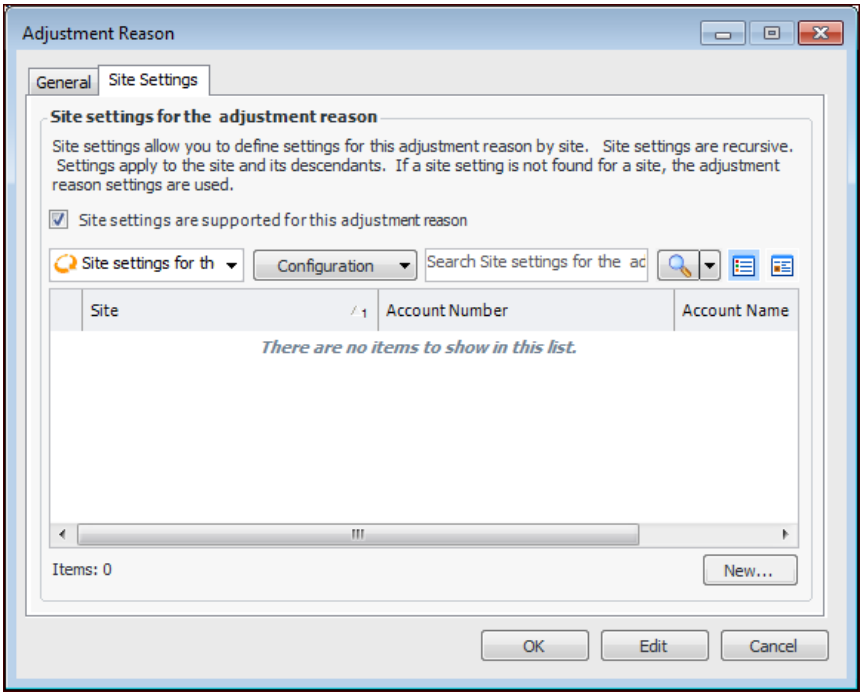
Inventory Adjustment – Site-Specific Settings

You can now create site-specific settings for inventory adjustment reasons. Settings include the GL account to charge and the consignment responsibility (customer or supplier).

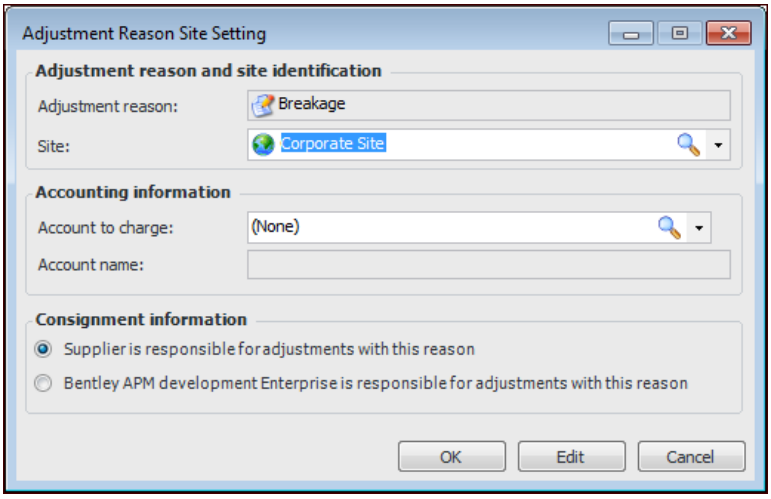
When you select a reason on an inventory adjustment, APM checks whether the reason supports site-specific settings. If the reason supports site settings:

- APM looks for a match between the transaction site and the reason's site-specific settings. If it finds a match, the site settings are applied to the adjustment
- If a match is not found, APM checks the site hierarchy for the closest ancestor of the transaction site that matches the reason's site settings. If it finds a match, the site settings are applied
- If a match is still not found, the reason's non-site settings are applied

To take advantage of these features, create one or more site settings for your adjustment reasons. The Adjustment Reason dialog provides the **Site Settings** tab:



For each site that requires it, click **New** to create the settings. The settings include the account to charge and consignment information. For example:



For more information, see "Setting up Material Adjustment Reasons" in Help.

Material Issue Dialog – Selecting Employee Issued To

You can issue materials from a warehouse and charge it to a work order, account, or directly to an asset. The Material Issue dialog appears when, for example, you right-click a warehouse resource and click **Issue Item**.

Now, instead of browsing for the employee to whom the material is to be issued, you can select from a list of employees. APM will also auto-populate the **Issued to** box when you type the first few letters of the name.

Miscellaneous Cost Transactions

The following properties can now be recorded in miscellaneous cost transactions:

- Resource
- Quantity amount and unit of measure
- Warehouse – Must be a valid warehouse for the resource

When the transaction is posted, the work order task's costs are updated and the transaction is shown on the work order's list of transactions. If there is a resource demand for the work order task and resource, the quantities on the demand are not updated. The balance on the warehouse item is not affected.

Note: A resource transaction originating from the data loader is posted to the transaction site. This differs from a transaction entered manually in APM, which is posted to the work order site.

Server and Client Management – Port Consolidation

In previous APM releases, every server running on a machine required a unique port. As of 7.10, APM allows all servers to share the same port. Individual servers are identified by the server instance name, along with the machine name and port.

Endpoint services are identified by the name of the service. The current options are:

- SmartClient
- WebMonitor
- MobileService
- RemoteService
- rest (for the mobile rest service)

For example, for a machine named "Server1", on port 443:

- With APM server instance "APMInstance1"
  - https://Server1:443/APMInstance1/SmartClient
  - https://Server1:443/APMInstance1/WebMonitor
- With APM server instance "DevStaging"
  - https://Server1:443/DevStaging/SmartClient
  - https://Server1:443/DevStaging/WebMonitor
  - https://Server1:443/DevStaging/rest

If the Server Manager (broker) is running on the same machine, its address might be something like:

https://Server1:443

or

https://Server1 when the port is the default port (80 for http, 443 for https)

The broker and individual servers can still be run with different ports or on different machines, if desired.

IvaraClient.exe

If the smart client is connecting using the Server Manager, no change is required to take advantage of port-sharing. The required command line parameters are still:

-ccm:http[s] -b:[address of broker:port]

The Server Manager provides the client with the information it needs to connect to a server, as it did previously.

If the smart client is connecting directly to a server without the Server Manager being involved, then an additional command line parameter is needed to identify the instance of the server to connect to. If none is specified, "default" is used. This new parameter is the "Server Instance", and can be specified as:

-si:{server instance name}

or

-serverinstance:{server instance name}

For example:

- IvaraClient.exe -r -ccm:https -a:Server1 -p:443 -si:APMInstance1
- IvaraClient.exe -r -ccm:https -a:Server1 -p:443 -instance:ClientInstance1 -serverinstance:DevStaging

where

- -instance or -i is the client instance name
- -serverinstance or -si is the server instance name

If you wish to run multiple smart client instances (IvaraClient.exe) on one machine, each instance must have a unique instance name. This also applies to server instances (IvaraServer.exe) when running on one machine.

Desktop shortcuts and email attachments use the configured server instance name when they are created. Old shortcuts and email attachments are not updated when APM is upgraded.

If you are upgrading to 7.10, see *APM Upgrade Guide* and *APM Remote Upgrade Guide* for more information.

APM Configuration Settings

When setting up a server/service instance, you only need to set the global communication protocol (http or https) in mandatory network settings. The protocol cannot be changed in other locations, such as network client

communication and the Web Monitor base URL. Consequently, protocol settings have been removed from some locations in APM Configuration and the Settings Editor. In other places, the protocol is read-only.

Similarly, you need only set one port (typically, 443 or 80) for the server to listen on. The port is used to calculate other settings like the URLs for services. As a result, port settings have been removed in several locations. All of the port mapping tests and the Manage Ports window have been removed from APM Configuration.

APM Server Manager

The Web Monitor URL displayed in the main index page reflects the new URL for the Web Monitor.

When serving clients, the appropriate server instance information is communicated to the clients so that they can connect.

Web Monitor

The address has changed to reflect the new URL structure (scheme:// host:port/serverinstance/WebMonitor).

All pages and functionality reflect the new structure, but are otherwise unchanged.

IvaraServer.exe

- On the **Tools** menu, the **Web Monitor** item launches with the new address structure.
- The -w (Web Monitor port) command line parameter has been removed. The port used is the one in the configured settings.
- For services, the server instance name is appended to the service name.
- When services are installed, the port is controlled by the currently configured setting.

Packagers

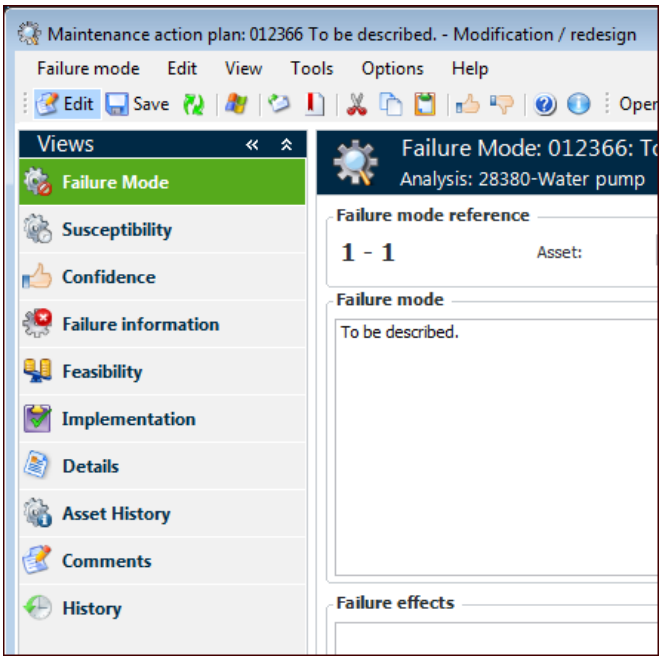
- The deployment option using Web Monitor uses the new structure.
- Shortcuts created on installation use the server instance name required to connect when the broker is not involved.

Strategy Development Analysis

The following enhancements have been made to strategy development analyses.

Maintenance Action Plan Window – Simplified Views

The Maintenance Action Plan window has been reorganized for all varieties of analysis. Instead of a **Facilitation** view with several tabs, the window now has additional views with fewer tabs. Here is an excerpt for a failure mode in an MTA2 analysis:



The views' tabs have these functions:

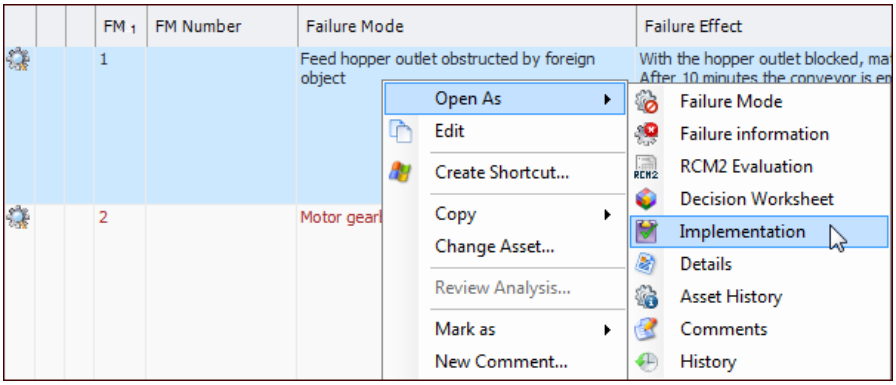
- **Failure Mode** – Describe the failure mode and failure effects, including the strategy and notes
- **Susceptibility** – Analyze the asset's susceptibility to failure, if the analysis settings support it
- **Confidence** – Perform the confidence evaluation, if enabled in the analysis settings
- **Failure Information** – Enter the failure data and pattern
- **Feasibility** – Determine the feasibility of recommended tasks, if this form of analysis is supported
- **Implementation** – Develop primary and secondary action plans (available when the strategy is selected)
- **Details** – Use the tabs to view or enter information

- **Asset History** – View checksheets, failure records, work orders, and work requests
- **Comments** – Add and review comments
- **History** – View audit information about failure modes, action plans, activity reports, and criticality and feasibility evaluations

RCM2, RBI, SIF, and HAZOP analysis windows have additional views. For example, RCM2 analyses provide views for evaluation and the decision diagram.

In CPR Maintenance Action Plan windows, the **Facilitation** view has been renamed **Failure Mode** and continues to hold primary and secondary action plans. The **Details** tab is now a view.

To quickly open a Maintenance Action Plan window to a particular view, right-click it, click **Open As** and then the view:



Risk Plot Charts – Color Segments

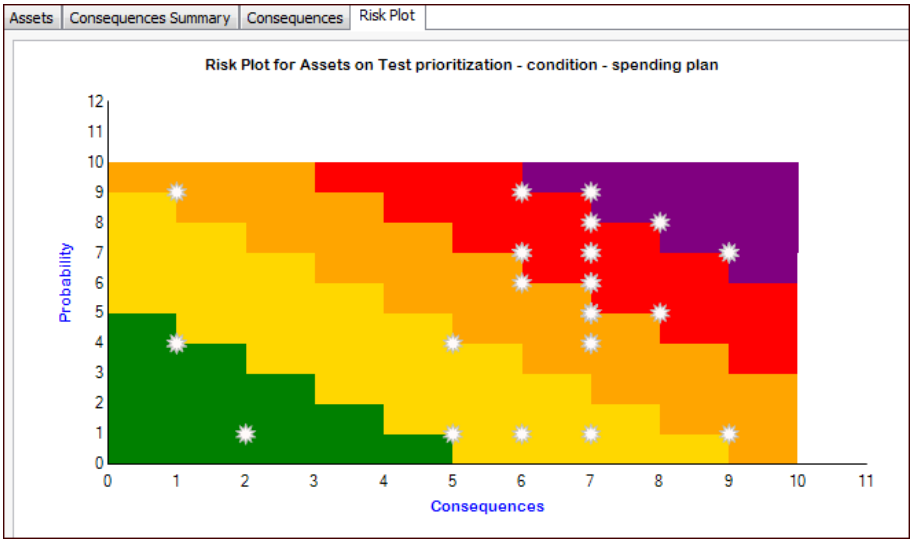
Risk plot charts provide a visual representation of an asset's initial risk based on severity (consequence) and probability of failure. The risk value is determined by asset prioritization or strategy development analysis.

The risk plot chart can appear in the following locations:

- Asset Prioritization Analysis window, **Worksheet** and **Summary** views
- Maintenance Action Plan window, **Criticality** and **Feasibility** views (MTA2, RCM2, RBI analyses)
- Strategy Development Analysis window, **Risk Assessment** view, **Risk Plot** tab

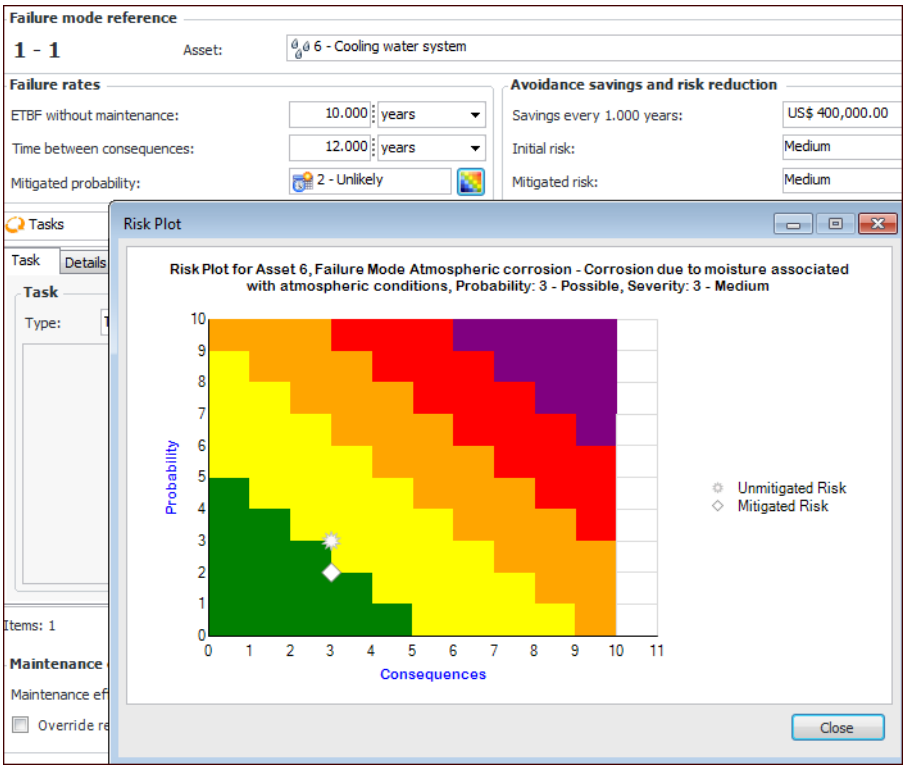
Risk plot charts now support as many as five color segments (named Extreme, High, Medium, Low, Negligible). You can change the default colors for the segments provided with APM: purple, red, orange, yellow, and green, respectively.

Here is an example from an asset prioritization analysis:



Risk Plot Charts – Mitigated Risk

When a feasibility evaluation is performed on a failure mode, the analyst can enter the estimated time between unexpected consequences when inspections and maintenance are performed on the asset. APM then calculates the mitigated probability and mitigated risk. The mitigated risk is now plotted on the risk chart. For example:



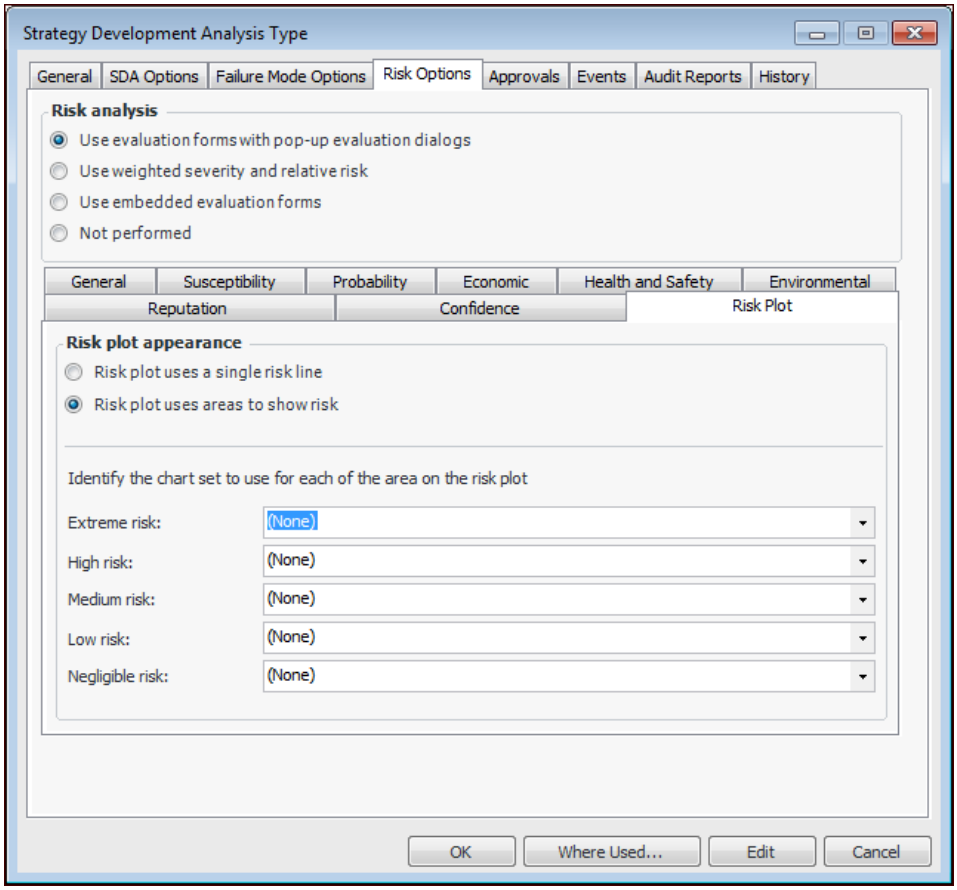
In previous releases, the Maintenance Action Plan window, **Feasibility** view referred to "Residual risk". The term has been changed to "Mitigated risk" to match common usage.

Risk Plot Charts – Adding to Analysis Types

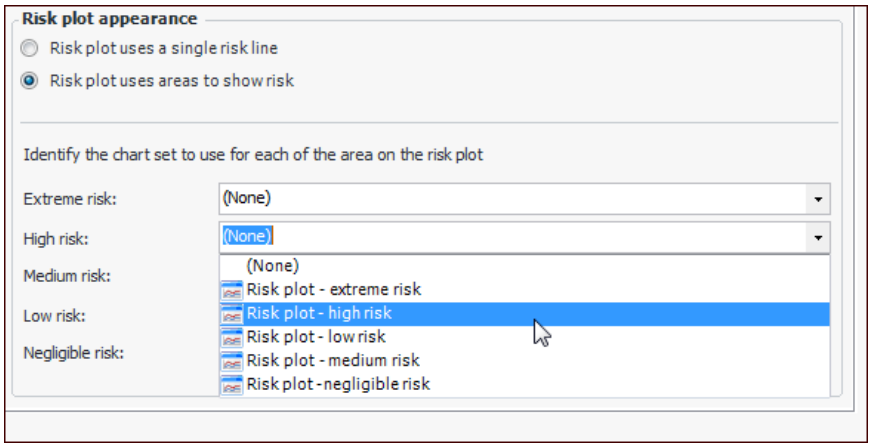
In the Strategy Development Analysis Type window, **Risk Options** tab, the risk target line option was removed from the **General** tab. Instead, select the new **Risk Plot** tab.

You can set up your risk plots to use color segments in analysis types. You can also adjust individual MTA2, RCM2, or RBI analyses (select the **Properties** view, **Risk Options** tab, and then the **Risk Plot** tab).

1. Double-click an analysis type that supports one or more of MTA2, RCM2, RBI, SIF, or HAZOP analysis. The Strategy Development Analysis Type window appears.
2. Select the **Risk Options** tab and then the **Risk Plot** tab. By default, the single risk line option is enabled.
3. Click **Risk plot uses areas to show risk**. The tab changes as follows:



4. For each of the areas you wish to use, select the appropriate chart. For example:



For asset prioritization analysis types, the same risk plot options are on the **Asset Analysis Options** tab.

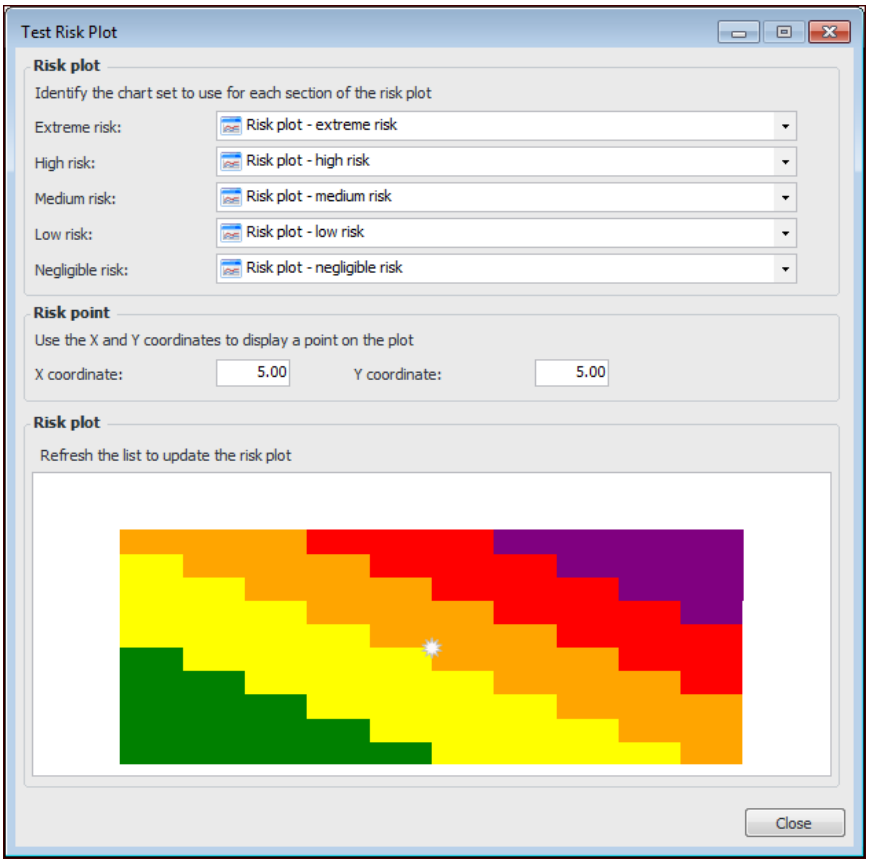
Risk Plot Charts – Testing Chart Sets

You can create and test your own chart target lines. For more information, see "Setting up Risk Plot Lines" in Help.

As of this release, you can also test risk plot charts with color segments. In the Site window, select the **Strategy Development** view, **Settings** tab, **Charts** tab.

Click **Test Risk Plot**. The Test Risk Plot dialog appears, where you can select chart sets for each of the segments you wish to use. Enter x and y coordinates for a risk point.

The Risk plot box displays the results:



Technology Preview – Asset Activity

You can enable a preview of asset activity features, which adds two tabs to the site's and asset's **Analytics** view. The **Asset Activity** and **Activity Analyses** tabs are rich sources of data about your assets' history. Lists of activities and an overview chart are available for each asset by default. You can define analysis types to extend and refine the data to meet your needs.

To Enable the Technology Preview

The asset activity feature has not been fully certified with this release, so it is not visible in the product unless manually enabled. To enable it:

1. Open the Enterprise window, click the **Administration** menu, and then **Application Settings**.

2. In the Application Settings window, select the **Asset Activity** tab and click **Enable asset activity analysis feature**. For all sites and assets, the **Analytics** view now shows the **Asset Activity** and **Activity Analyses** tabs.

Asset Activity Tab

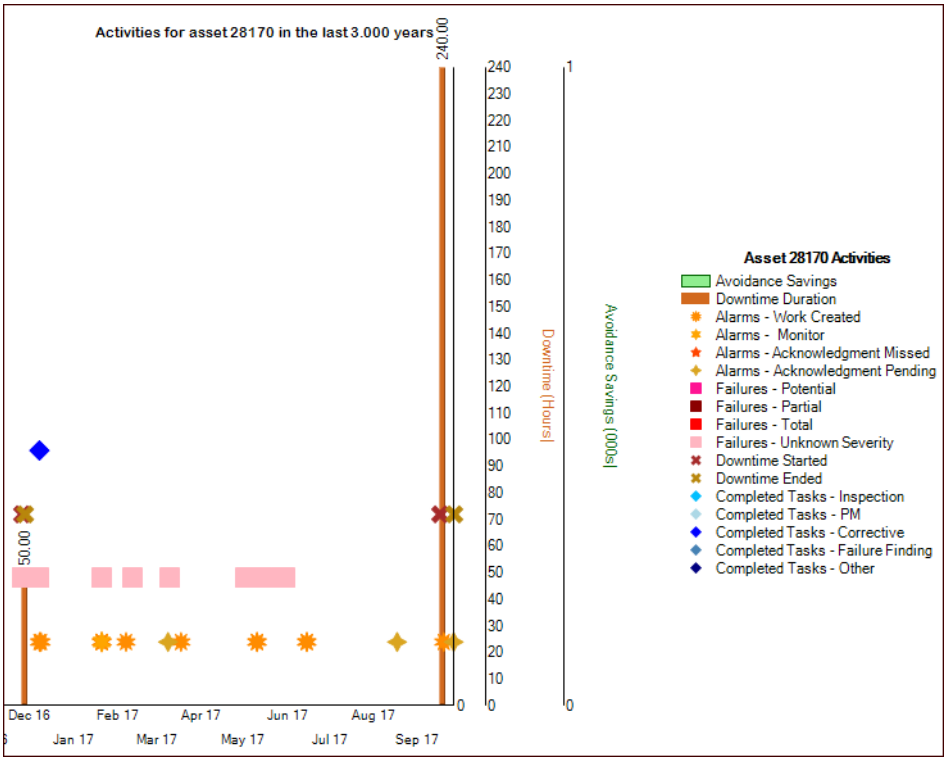
In the **Analytics** view, **Asset Activity** tab, select an asset in the physical hierarchy to view tabs listing its indicator readings, indicator alarms, failures, downtime incidents, and completed work order tasks.

Each tab provides one or more configurations for detailed filtering. For example, in the **Alarms** tab, you can select from these configurations:

- Alarms for the asset over the specified time period
- Alarm summary by acknowledgment method
- Summary of missed alarms by alarm type
- Alarms waiting for acknowledgment

The time period is controlled by the activity horizon value for the site. To change the default value (15 months), select the **Analytics** view, **Settings** tab, **Options** tab and edit the **Horizon** value.

The **Overview** tab displays a chart showing the selected asset's activities over the time period. This excerpt shows alarms, failures, downtime, and completed tasks:



The **Asset Activity** view is also available in Asset Condition Analysis and Asset Restoration Plan windows.

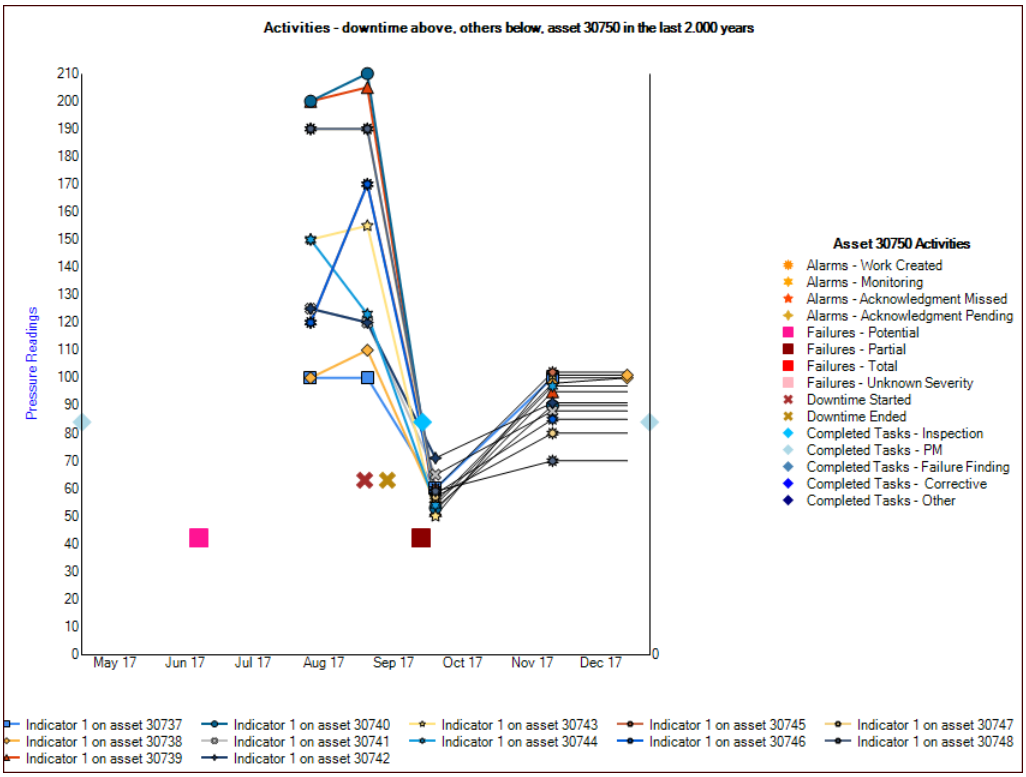
Activity Analysis Types

To refine and extend this functionality, you can set up activity analysis types and analyses by following these steps:

1. In the site's **Analytics** view, **Settings** tab, define asset activity analysis types. You can:
   - Define an activity horizon specific to this analysis type
   - Set the recursion type, for example, all activities for the asset and below
   - Specify filters for indicators according to indicator type, name, template, and so on. You can add filters for as many as three objects in the case of indicator type, template, collection group, and collection set
   - Select the specific activities to show, for example, completed corrective tasks, partial failures, alarms acknowledged with work created, and downtime incidents and duration
2. Assign the analysis type to one or more asset types. As a result, when an asset of that type is selected in the **Analytics** view, **Asset Activity** tab, the **Overview** tab displays the analysis type's chart.
3. You can also create an asset activity analysis. In the **Analytics** view, select the **Activity Analyses** tab and click **New**. You can select the asset and analysis type and enter a title.

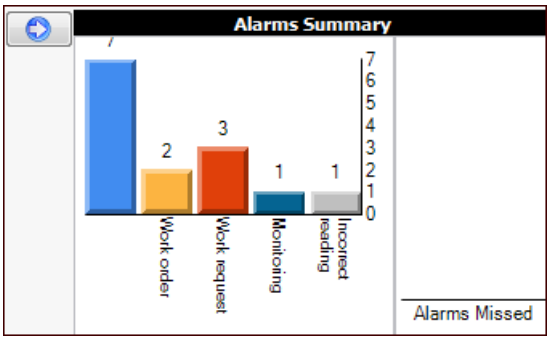
   In the Asset Activity Analysis window, select the **Activity** view to see the overview chart, as well as tables listing activities.

This example shows the chart, which includes indicator readings as well as activities:



Activity analysis types supply a summary sidebar containing charts for each of the four activities. The sidebar appears in the **Overview** tab, to the right of the overview chart.

Here is an example of the Alarms Summary chart:



Use the arrow buttons to hide () and show() the sidebar for the site.