Asset Performance Management

Release Notes

Ellipse APM 5.1
December 2018

Legal Disclaimer

The product described in this documentation may be connected to, and/or communicate information and data via, a network interface, which should be connected to a secure network. It is your sole responsibility to ensure a secure connection to the network and to establish and maintain appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of antivirus programs, etc.) to protect the product, the network, your systems, and the interface against any kind of security breach, unauthorised access, interference, intrusion, leakage, damage, or corruption or theft of data. We are not liable for damages or losses related to any such security breach, unauthorised access, interference, intrusion, leakage, damage, or corruption or theft of data.

Contents

Overview

The dates by which the release notes are grouped refer to the dates of deployment to Pre-production environment. Deployment of the changes to the Production environment typically follows two weeks later.

2018_OCT10

APM | Remove the custom-built authentication/authorization mechanism for API

Enhancement Number   B-140286

After the removal of the legacy custom-built authentication mechanism, all API traffic to and from Ellipse APM will require authentication and authorization via Azure Active Directory (AAD), or for on-premises applications via Active Directory (AD).

APM | PowerBI data API | PowerBI changes

Enhancement Number   B-149750

The goal of this change was to provide a Customer with an access to the data in Ellipse APM for the creation of consistent reports in external tools such as Microsoft PowerBI. To make it possible the following alterations have been made: the addition of a new schema REPORTS in the internal database with views to be utilized by external reporting tools, and changes in SQL data API (formerly known as PowerBI database) - PowerBI database is replaced with dedicated views in APM database:

AssetParameters

- replaced with *reports.AssetParameters*

Assets

- replaced with *reports.Assets*
- added columns:

  - Age (ASSET AGE)
  - AssetName (ASSET)
  - EamEquipmentNumber (EAM EQUIPMENT NUMBER)
  - EffectiveManufacturedDate (MANUFACTURED DATE)
  - IsObsolete (IS OBSOLETE)
  - Latitue (LATITUDE)
  - Longitude (LONGITUDE)
  - MaintenancePriorityScore (MAINTENANCE PRIORITY)
  - ManufacturerExpectedLife (MANUFACTURER EXPECTED LIFE)
  - ManufacturerMode (lMANUFACTURER MODEL)
  - OpenIssues (OPEN ISSUES)
  - Region (REGION)
  - ReplacementScoreValue (REPLACEMENT SCORE)
  - Status (STATUS)

AssetsHistory

- replaced with *reports.AssetsHistory*
- *ID* column renamed with *AssetId*

DegradationScores

- Removed
- use *reports.AssetsHistory* for condition's history
- use *reports.DegradationScores* for latest values of the condition/factors/sub-factors

OutputDateValues

- removed

OutputNumericValues

- replaced with *reports.OutputNumericValues*

OutputTextValues

- removed

Settings

- replaced with *reports.Settings*

2018_SEP26

APM | Re-establish the Message Log and adjust front-end

Enhancement Number   B-150589

Message Log has replaced Data Quality tab on the Asset Details Page. For this purpose the following steps have been done:

- Data Quality tab is relabeled to **Messages**
  - Total count of messages in three colors and icons is displayed on the tab:
    - blue - no warning and no alert in messages
    - orange and icon- at least one alert
    - yellow and icon- no alert and at least one warning

- Message log table is added and it consists of columns:
  - **Type**: Action, Alert, Diagnosis, Informational, Predictive, Solution, Timeframe, Unknown, Verification, Urgency, Warning and Errors
    - Two types of errors are shown after clicking on the **Show errors** checkbox :
      - model errors related to the model failing to run
      - errors for data quality output from the model
  - **Message** shows the message content
  - **Initially Identified** shows a date of initial message creation in a continuous string (not the latest model run, and not the first time the message was generated if at least one run in the meantime did not generate the message)
    - **Algorithm** indicates the algorithm that has produced the message

- There is information about the number of hours from the **Last update** shown
- **Numbers of rows** at the bottom shows the same number of displayed messages
- Message log can be sorted by message type, date of 'Initial Identification' and Algorithm.

APM| Models Data router cannot process health-scores from Child Assets

Defect Number   D-143311

Within this Defect, the issue with processing health-scores of Child Assets by Models Data router has been resolved. As a result, all calculations based on the Child Assets health-scores (i.e. the Parent Asset health-scores) have become more accurate. This is currently only applicable to users of the T-Line models.

2018_SEP12

APM | HV CBK | Rewrite message creation logic (model)

Enhancement Number   B-152927

Within this task, below described changes have been done:

- Issues are created from ABB Circuit Breaker and are visible in the Action Plan on the Asset Details Page. The way these Issues are being built has been changed. Before the change, recommendations had been bundled into a single issue per subsystem. Now a separate issue is created for each recommendation output by the model. As a result of this change, an Issue can be translated into different languages and its title became more descriptive.

- Before the change, ABB Circuit Breaker model errors displayed on the Asset Details Page in the Messages tab were related to the model failing to run. Now, in addition to these, errors for data quality output from the model are displayed as well.

2018_AUG15

APM | API documentation

Enhancement Number   B-150551

Online, interactive API documentation has been created and is available at:

- app_address/swagger/ (e.g. https://ahc.enterprisesoftware.abb/swagger)
- app_address/swagger/docs/v1/ (e.g. https://ahc.enterprisesoftware.abb/swagger/docs/v1/)

Documentation can be made available offline upon request.

2018_AUG01

APM | TRES | Incorporate latest version of TRES algorithm(s)

Enhancement Number   B-151027

The aim of this story was to incorporate the latest enhancements to the ABB Transformer Algorithm (algorithm version 5.2.6.). For the time being, users can elect to defer the implementation of these enhancements and continue to use the previous version of the model. Differences between them are as below:

• Data penalty for partially missing data has been removed from the Condition Score - Bushing Diagnostic factor (BDF).
-When a bushing power factor or capacitance measurement is not present, even if the relevant FAT reference is present, that bushing's contribution to the BDF will be zero.
-Missing Voltage class, as well, will no longer influence the score negatively
-Users may see a reduction of this factor (and the condition score) of up to 0.13 points per bushing as a result.
-This factor already defaulted to 0 in case *all* data was missing

• The impact of Condition Score - Bushing time in operation (BTO) factor has been reduced, and missing data penalty has been removed.
-The default value has been reduced from as high as 2.0 (depending on the transformer age and phase count) to 0. Also, the maximum value of BTO is reduced from 2 to 1.

• Missing data penalty has been removed from the Condition Score - Bushing Type factor (BTF)
-The Default value has been reduced from 0.15 to 0.

• Missing data penalty has been removed from the Condition Score - Bushing Operation factor (BOP), and its impact has been reduced.
-The default value has been reduced from 0.1 or 0.3 (for a 1-phase or 3-phase transformer respectively) to 0. Also, the maximum score for this factor is reduced to from 2 to 1.

• Missing data penalty removed from the Condition Score - Bushing Maintenance factor (BMNT)
-The default value has been reduced from 0.24 or 0.72 (for a 1-phase or 3-phase transformer respectively) to 0.

• Duval diagnoses have been updated
-New regions T2-H and T3-H that indicate thermal issues in the oil have been introduced. Depending on the data, these changes could affect the messages from the expert system.
- Specific data conditions that the user may test:
-T2-H will result if H2: 1,000, CH4: 1,674 ,C2H2 : 0 ,C2H4: 380 ,C2H6:195
-T3-H will result if H2: 180, CH4:130, C2H2 :0, C2H4:200, C2H6:10

• IEEE condition 1 for C2H2 (Acetylene) is set for 1ppm
-IEEE condition 1 to condition 2 boundary for C2H2 (Acetylene) is set for 1 ppm (from 4 ppm in the previous version). This change may lead to a score increase and additional messages if Acetylene level is between 1 and 4 ppm.

• Condition Score - Accessory Age factor (AAGEF) Impact reduced
-Maximum score contribution for this factor is reduced from 1 to 0.2.

- Condition Score - Oil Quality factor (OILF) Impact reduced

-Maximum score contribution for this factor is reduced from 3.5 to 2.0.

- Condition Score - Conservator Type factor impact increased

-The TC value corresponding to an "unknown" oil preservation system type has changed from 0 to 1.5 (note that 'unknown' is not the default value, and thus this change should not impact the default scoring).
-The TC factor is not currently displayed in the application, but its change may impact the Short Circuit factor and the total condition score, which would be <u>reduced</u> slightly as a result of this change.

- MTMP messages have been enhanced

-The message that outputs the MTMP PoF (condition score) now also outputs the score of the five factors.

- A defect connected with "slightly low power factor" messages has been corrected.

-Messages will only be generated if the power factor is more than 25% from the reference value. Fewer messages may be generated as a result. This change will not impact the score.

For on premise users, to implement these changes in your application, AssemblyName in ModelConfiguration needs to be updated from:
ModelConfiguration: {
AssemblyName: ABB.AHC.Models.ABBTransformer.dll,
ClassName: ABB.AHC.Models.ABBTransformer.TransformerStandardModel,
LevelsConfig: {
NormalizationScoreFactor: 0.333
}
To:
ModelConfiguration: {
AssemblyName: ABB.AHC.Models.ABBTransformer_beta.dll,
ClassName: ABB.AHC.Models.ABBTransformer.TransformerStandardModel,
LevelsConfig: {
NormalizationScoreFactor: 0.333
}

For SaaS users, please contact our support desk to schedule this change in your application.

APM | Dashboard Asset Risk Materializing

Defect Number   D-141542

The problem was this the underlying SQL for [vAssetRiskChanges] view was failing when there were no inputs at least from a year preceding the current one.

In these circumstances Min date was wrongly assumed:
MinHistoryDate as (select max([Year]) as Year, max([Month]) as [Month] from(select year(min(Date)) as [Year], month(min(Date)) as [Month] from dbo.AssetsHistory union allselect YEAR(DATEADD(YEAR, -5, GETUTCDATE())), MONTH(DATEADD(YEAR, -5, GETUTCDATE())))) as minDate
As a result, data in the Asset Risk chart was missing.

The SQL query has been corrected.

APM | Dashboard Assets by Organization issue.

Defect Number   D-141744

Fixed: When default "Unknown" organization was visible in APM - the most recently added custom organization wasn't displayed on "Assets by Organization" graph.

2018_JUL18

APM | View asset query results beyond 200 assets/issues

Enhancement Number   B-150229

In this story, a *lazy loading* mechanism has been implemented on Assets Page in order to enable the user to view more than 200 assets. Additionally, the *Data Quality* tab on Asset Detail Page has been renamed into *Messages* tab.

2018_JUL4

APM | Security | Introduce new authentication/authorization mechanism for API

Enhancement Number   B-149305

The purpose of this story was to introduce a new way of authentication and authorization.
The new way of authentication is based on Azure Active Directory and in the nearest future will replace the currently used custom authentication and authorization mechanism based on login/secret key. As such, all programs that need to authenticate to Ellipse APM should be updated to use the new way of authentication. Proper authentication data will be provided by the support team.

APM | ADP | Map not displayed (IE)

Defect Number   D-141016

The goal of this defect was to resolve a problem occurring in Internet Explorer with the display of the map on the main dashboard. The issue has been resolved. The map is now visible.

2018_JUN6

APM | 'Asset Risk - Spatial View' - indicate assets with unknown risk

Enhancement Number   B-142333

With this change the consistency of the spatial view has been improved, and (grey) assets with unknown risk are now included in the display.

APM | 'Asset Risk - Summary' | Risk charts drill down

Enhancement Number   B-145384

After this change, a user can drill down from the risk counters on the Assets Summary report (the total red/yellow/green/grey counts & trends) to the Assets page that will display a list of assets pre-filtered for the selected risk color.

APM | Turn off the Embedded Power Bi reports on the original homepage for on-premise

Enhancement Number   B-146605

Power BI report (Location Summary) has been disabled for on-premise deployments. Instead of being redirected to the report user is redirected to the Asset Page (filtered by location).

APM | Create a documentation describing EventHub messages structure

Enhancement Number   B-147746

The created document describes integration with APM application using external tools by pushing messages to Azure Event Hub. The aim of such integration is to populate APM with asset condition data and other parameters. It is intended for developers and technical persons seeking to set up a simple data source for the Ellipse APM application. The document is available on request

2018_MAY23

APM | Remove 'Change password' option from menu

Enhancement Number   B-145463

'Change password' hyperlink for cloud and the on-premise variant of the application has been removed

APM | Notifications | Add options to be notified of improvements

Enhancement Number   B-146895

Existing notification functionality has been enhanced with an option of notifying about assets improving to green and/or to yellow.

APM 5.1 | Apply recent customers feedback related to Spanish translations

Enhancement Number   B-147273

Latest model translation update suggested by the customer has been applied

2018_MAY9

APM | Adjust Replacement Score algorithm and update ADP header

Enhancement Number   B-143914

The aim of this story was to modify Asset Details Page header by adding Replacement Score button (instead of Remaining Useful Life).

- Replacement Score button is not clickable for now
- Replacement Score algorithm (Age calculation) is done based on Manufactured Date (Install Date when the Manufacturer Date is not available and current date if both Manufactured Date and Install date are not defined)
- Additionally, Age calculation in other parts of the application was modified. Age is counted as a difference between a current date and Manufactured Date. In case of unknown Manufacturer Date, Install Date is taken to a calculation. In case of unknown Manufactured Date and Install Date, Asset Age is recognized as Unknown.

APM | Docs |Link in Release Notes doc to the application

Enhancement Number   B-145401

The aim of this story was to make Release Notes document accessible from the application.

2018_APR25

APM 5.1 | Extend Asset risk trending

Enhancement Number   B-145049

The aim of this story is to change on Asset Risk Chart to show 5 years history data- points (one per month) calculated for the end of each month. In case of lack historical data chart scales to fit the same size on UI.

APM 5.1 | Enhance assetID with asset name on dashboard's widgets

Enhancement Number   B-145052

The aim of the story was to include the asset **name** to the asset ID on the UI display in *Most important issues* and *Key risk changes* widgets (e.g **TR2HC22M005 - Quintero T2 110/12** instead of TR2HC22M005).

APM 5.1 | Fix remaining translation issues

Enhancement Number   B-145054

The aim of this story was to fix remaining translation issues:
1. Apply latest translations for transformer message 0079 & 0372
2. relabel transformer analytics tab
2.a. Pruebas de combustible estandar -> "Analisis F-Q"
2.b. Cojinete -> Bushing

APM 5.1 | Enlarge fonts on Location Summary PowerBI report

Enhancement Number   B-145058

Within this story we've enlarged fonts on Location Summary PowerBI report

APM 5.1 | Modify maintenance priority issues ranking

Enhancement Number   B-145175

The aim of this story was to change a way of active issues ranking. Below listed rules have been implemented:

- the higher MPS the higher ranking is
- issues with same MPS has the same ranking
- issues with no MPS have the lowest ranking
- ranking sample:
  - an issue with MPS=3 rank 1
  - an issue with MPS=2 rank 2
  - an issue with MPS=1 rank 3
  - an issue with MPS=1 rank 3
  - an issue with MPS=1 rank 3

- an issue with MPS=0 rank 6
- an issue with MPS=null rank 7
- DENSE_RANK computes the rank of a row in an ordered group of rows and returns the rank as a NUMBER. The ranks are consecutive integers beginning with 1. The largest rank value is the number of unique values returned by the query. Rank values are not skipped in the event of ties. Rows with equal values for the ranking criteria receive the same rank. This function is useful for top-N and bottom-N reporting.

APM | Fix ranges inconsistency for asset's age and voltage class

Defect Number   D-138051

What was the issue?

The way how the ranges were displayed in the drop-down selection lists in filters by age and by voltage classes: range "0 - 10" consists of assets in age from 0 to 10.0. Assets at the age from 10.1 fall into a range 10-20. The same issue occurs on Assets Page.

How was it fixed?

- assets by age
  - 0-10 (assets at age until 10.9999)
  - 11-20 (assets at age 11 until 20.9999)
  - 21-30 (assets at age 21 until 30.9999)
  - 31-40 (assets at age 31 until 30.9999)
  - equal or greater than 41 (assets at age 41 and more)
- assets by voltage class
  - 0-44 kV (assets with voltage class until 44.9999 kV)
  - 45-66 kV (assets with voltage class from 45 kV until 66.9999 kV)
  - 67-110 kV (assets with voltage class from 67 kV until 110.9999 kV)
  - 111-220 kV (assets with voltage class from 111 kV until 220.9999 kV)
  - equal or greater than 221 kV (assets with voltage class equal or greater than 221 kV

APM 5.1 | Fix maintenance priority issues total count

Defect Number   D-138509

What was the issue?
Maintenance Priority ranking visible on Action Plan includes both: active and inactive issues as well as issues for assets' components. As a result, we can see an inconsistency between Maintenance Priority ranking on Action Plan and Issue widget on the Main Dashboard.

How was it fixed?
Maintenance Priority ranking visible on Action Plan includes only active issues of parent assets.

How to replicate and validate?
Open (active) Issues with calculated MPS for a specific asset (parent) were queried and compared with data displayed. Issues count is consistent with all dashboards. Automated tests (WebAPI, unit tests) were updated to avoid regression issues.

APM 5.1 | Key Risk Changes | Do not show assets that have not changed

Defect Number   D-138582

What was the issue?

Assets that differ by condition score at the second place after the comma (and more) can be sorted by that factor. Because of the fact that only one place after the coma is visible, it seemed that assets with no changed Risk were shown on Key risk changes widget.

How was it fixed?

• Rounding is now done to the first decimal place. If at least the first decimal place has changed within last 30 days the asset will be included to Key risk changes widget.
   • New sorting criteria:
      • an absolute value of relative difference
      • difference direction (degrade/increase first, improve/decrease second)
      • current asset risk level (higher go first)
      • assetID alphabetically

How to replicate and validate?
It has to be tested in a clean environment.

2018_APR11

APM | HV model | Message localization (Spanish & Chinese)

Enhancement Number   B-124721

Within this story Chinese and Spanish translation for HV model messages have been incorporated.

APM | TRES & HV CBK | Detail message log - API extension

Enhancement Number   B-137687

This is a part of the message log creation. The aim of this story was API data structures preparation. These structures are going to be used for creating Message Log.

APM | FE | Extend asset nameplate and excel template adding new fields

Enhancement Number   B-143915

Changed on customer request. The aim of this was to extend a nameplate and excel template with new fields:

- rated power (including unit, positive integers)
- manufactured date (date)
- serial number (string, 50 characters)
- In case of no data - will be displayed to keep consistency with other fields

APM | Security | Lack of proper debug logs and audit trails

Enhancement Number   B-144543

Lack of a proper logging mechanism was pointed a security issue. The aim of this story was to extend operation log in order to have all user actions tracked.

Actions listed below are tracked:

- adding/update/delete tenant
- other operations like:
    - call to reconfigure security, secret key(s),
    - customer modification
- all business-related events:
    - issue creation and close
    - tenant change
    - data uploading (inspection/ nameplate)
    - model modification on the Model Admin page (Add new rest model, model run, change in Model Parameters Mapping, change in Risk Configuration)
    - Notification (on and off)
    - a continuous use session -each time user accesses application (even read-only)

Actions listed below are not tracked:

- issue modification (part of 5.2)
- work-request creation and close (done in the EAM)
- password stored in AAD
- adding/removing/changing rights of users (this is AAD, so we can't track this via application code)

AHC3+ | Translations | Locale settings of a browser ignored

Defect Number   D-119933

Issue resolved

APM | UI Translation | IDs displayed when language is not supported

Defect Number   D-138195
Request ID   R-42349
SFDC CR ID   CR-559376
SFDC Case   00861713

AHC3+ | Spatial View | Locations removed from assets are still presented on the map

Defect Number   D-138258

Defect fixed: after removing all assets from a given localization, this localization disappears from the map.