IBM Engineering Lifecycle Management

What’s new in ELM 7.1

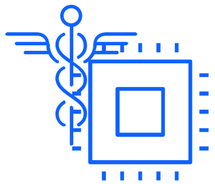
Fariz Saracevic
Senior Product Manager

November 2024

IBM Engineering enables customers with complex engineering needs

Automotive

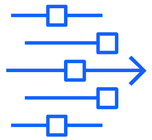
Aerospace & Defense



Electronics & Medical Devices

Public & Government

Regulated Finance & Insurance



Infrastructure

Our strategic focus addresses

Complexity

deliverable interacts with multiple other systems

Compliance

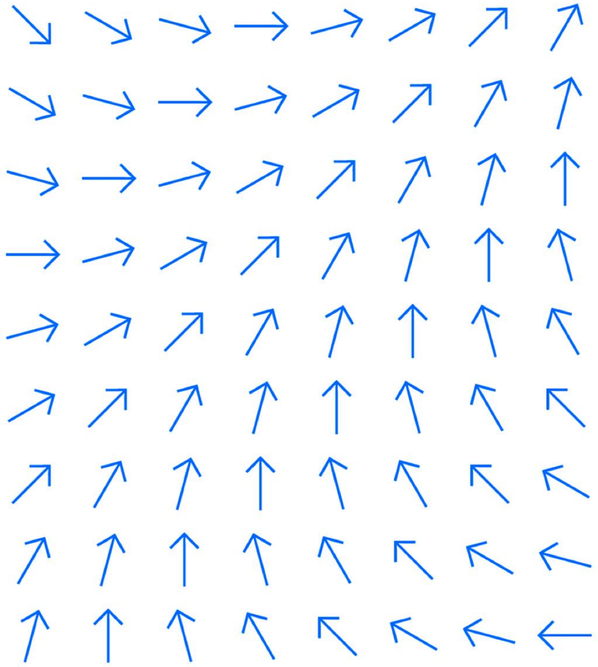
safety- and mission-critical systems, including those subjected to regulatory standards

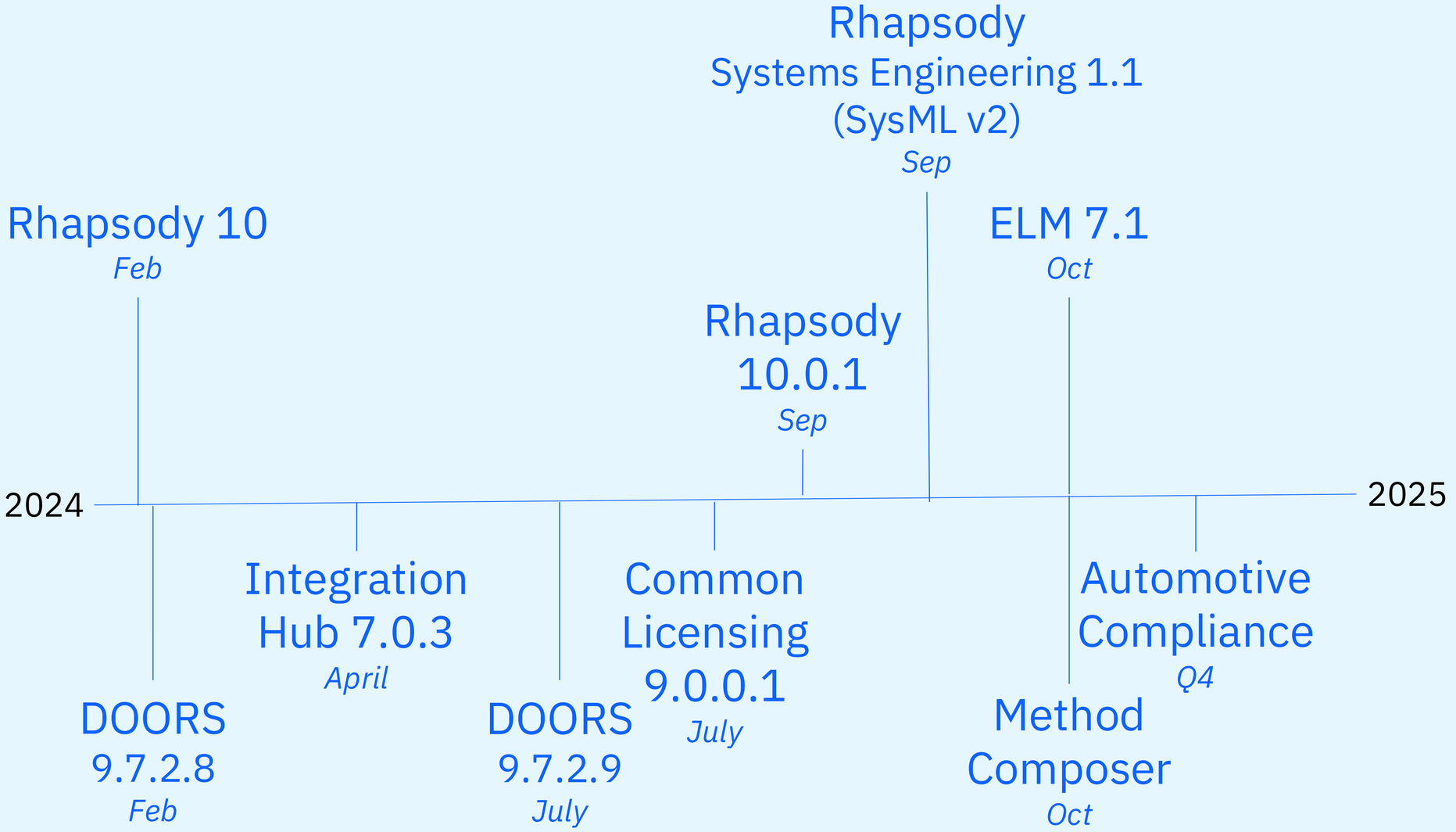
Distributed Work

large, multi-faceted development organizations or partner/supplier chains

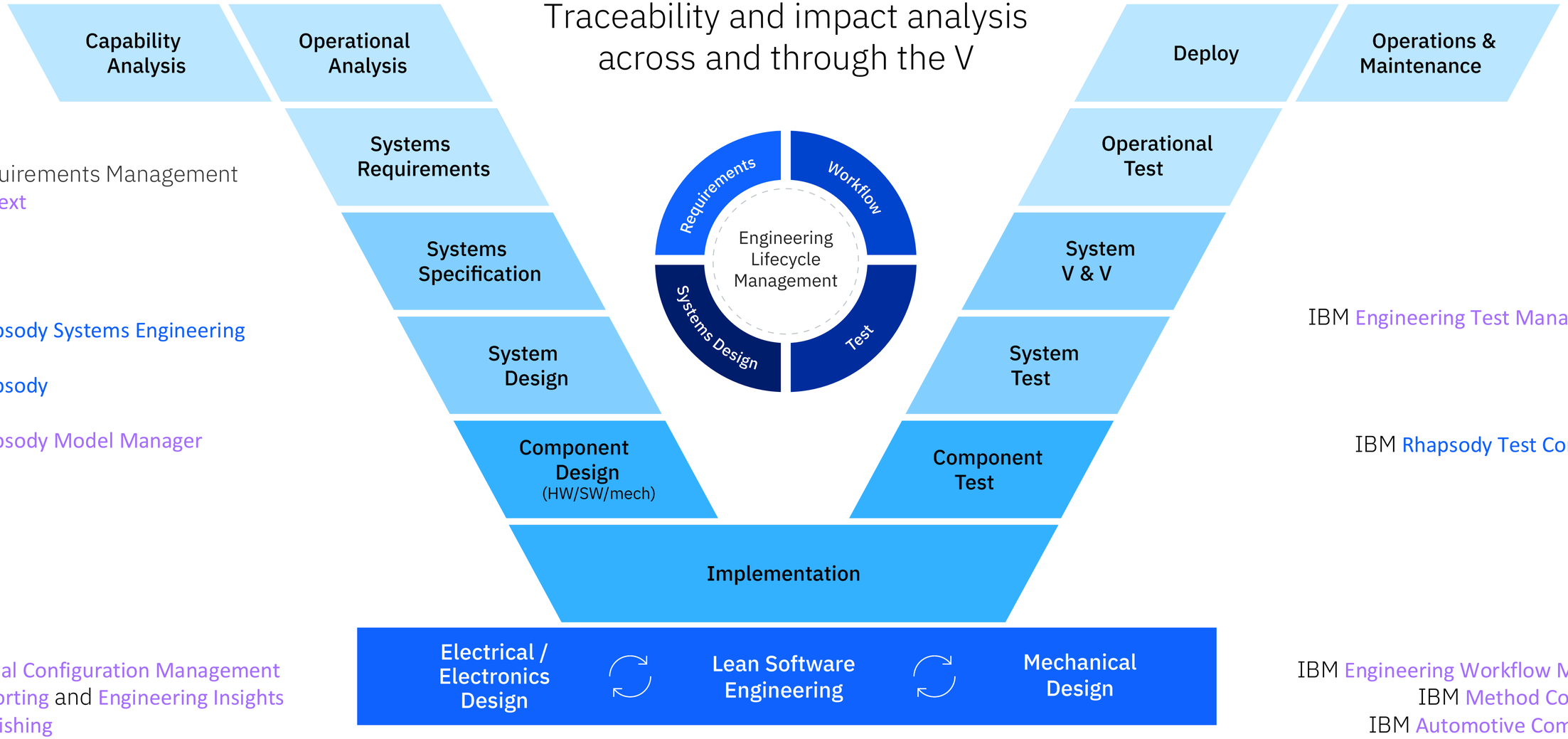
ELM is the foundation for complex software and systems development

IBM ELM deliveries in 2024





2024Q4 updates: ELM 7.1 and related



IBM Requirements Management
DOORS Next
DOORS

IBM Rhapsody Systems Engineering

IBM Rhapsody

IBM Rhapsody Model Manager

IBM Engineering Test Management

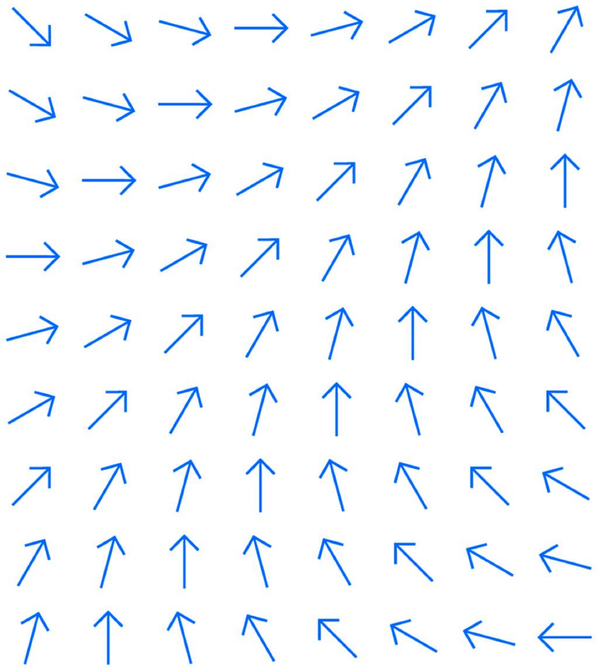
IBM Rhapsody Test Conductor

IBM Global Configuration Management
IBM Reporting and Engineering Insights
IBM Publishing

IBM Engineering Workflow Manager
IBM Method Composer
IBM Automotive Compliance
IBM Integration Hub

ELM 7.1

builds on IBM leadership in…



1

Digital Thread

Defines and helps teams manage dependencies among engineering data from their tools

Link between models with OSLC-AM (RMM), including with the new Rhapsody Systems Engineering (employing SysML v2)

Simplified linking: drag-n-drop across RMM browser windows

Larger/more convenient drop zone for work item drag-n-drop linking and adding attachments

Engineering Insights knowledge / traceability graph using LQE rs

2

Reporting

Automates the gathering and presentation of project and program-wide status information and program deliverables

Report on additional dimensions in historical metrics when using LQE

Built-in Report Builder type explorer documents data source schemas, simplifying advanced report authoring

Reporting performance, scale reliability, availability:

- New relational database store for LQE is the default
- DOORS Next log-based TRS required
- Removed many cases for needing to reindex

3

Configuration and Change Management

Improves the process of defining, reviewing, and changing artifacts in the context of the larger product under design or development

Create DOORS Next baseline at a time in the past

Export requirements in a baseline using an existing ReqIF definition

Enforce unique config names in ETM

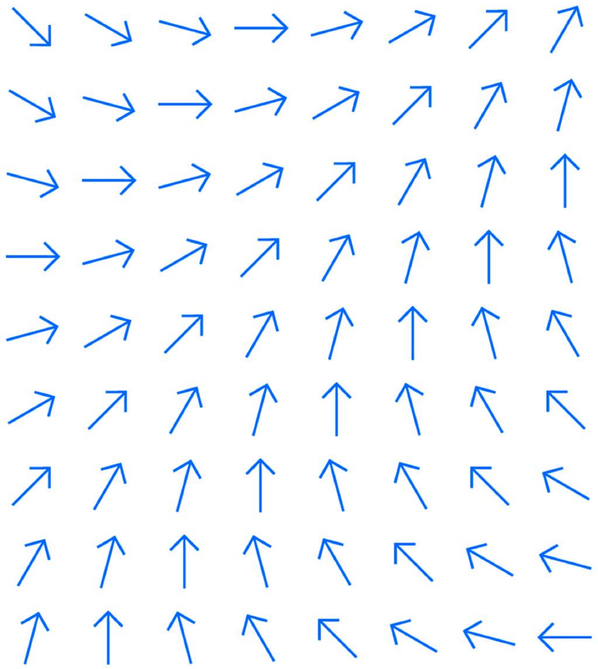
Use a more flexible and consistent grammar for more predictable EWM-Git workflow

Code review improvements

LDX rs: link index moved to relational store and combined with LQE rs (one less server!)

ELM 7.1

builds on IBM leadership in…



4

Agile Engineering

Facilitates planning and managing work to reduce time to market, minimize bottlenecks, and accelerate the flow of work across the value stream for continuous value delivery

Express yourself: images and tables in work items descriptions

Enhance agility using latest guidance for SAFe®
– Updated flow metrics reports and templates

Extend Automotive Compliance
– ASPICE 4.0 updates
– ASPICE for Cybersecurity
– Improved TARA and guidance on vulnerability management

5

User Productivity

Practitioners and administrators can work faster with less overhead and fewer opportunities for error

Get the requirements data you need in front of you:
– Ancestors and descendants
– Advanced filtering

Easier navigation through Rhapsody models in web browser with RMM sidebar model explorer

6

Operating at Scale

With hardened deployments, increased data and user scale, and keeping current with the specific operation environment and integrations

Easier auditing of user access and permissions
– APIs and logging

Performance optimizations
– Significant improvements in report queries with LQE rs
– Significant improvements in versioned link lookups for UIs with LDX rs
– Other improvements

Secure deployments
– updates to components, specified operating environment, and integrations

DOORS Next

Engineering Requirements Management DOORS Next 7.1

User Productivity

Easier to get the information you need in front of you

- Show ancestors and descendants in modules
- Advanced filtering with disjoint (“OR”) conditions with new query builder UI
- Configure the artifact sidebar width in the Artifact editor

Configuration management

- Create baselines in the past (“historical” a.k.a. “retroactive” baseline), removing the need to create “just in case” baselines
- Export requirements in a baseline using an existing ReqIF definition

Quality, availability, and serviceability

Reporting

- TRS more resilient to unplanned server outage and heavy server load
- Reduced time to resolution in cases of TRS "skipped resource” or other reason to reindex

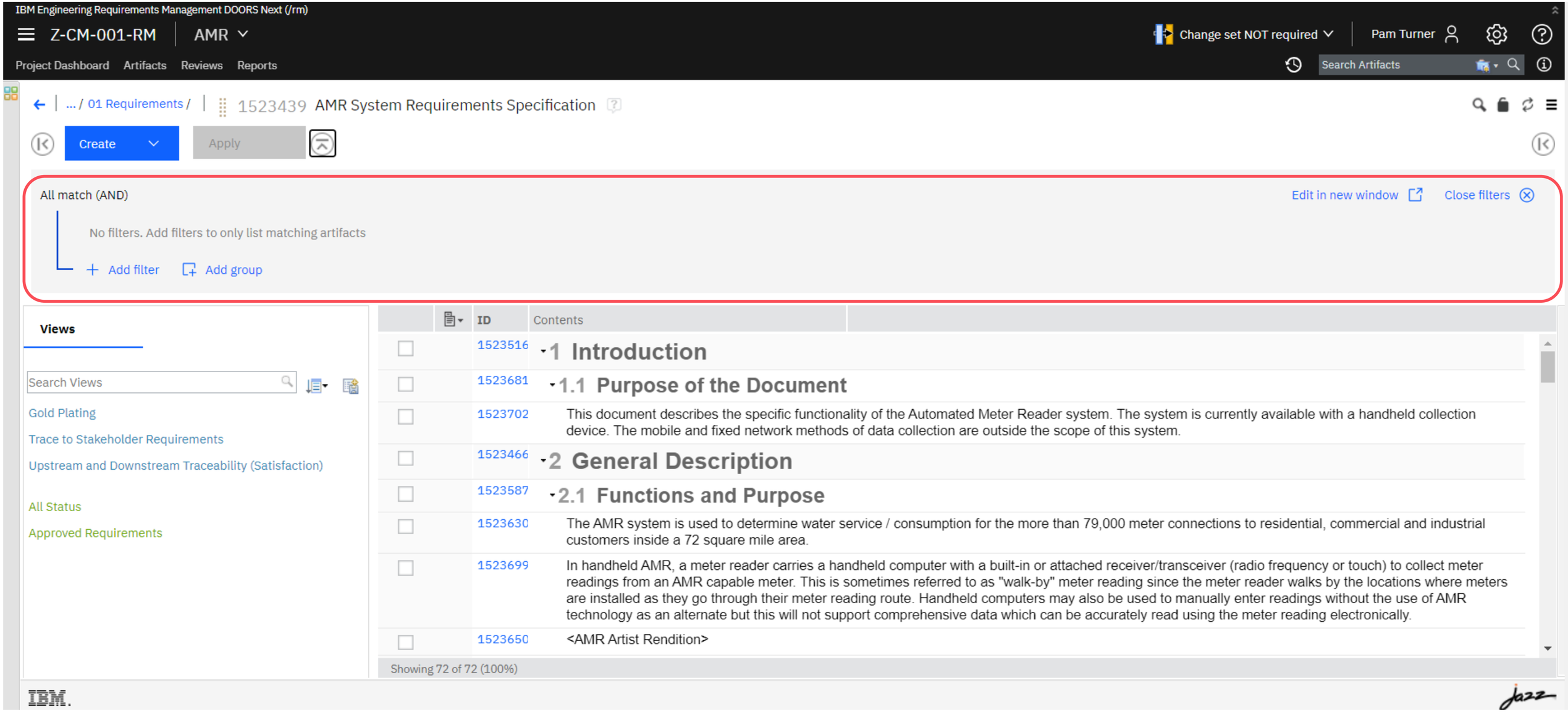
Configuration management

- Change set delivery logging improvements

Integration, automation, auditing

- New and extended REST APIs
- New user access log

Complex Expressions with AND/OR Boolean Operators



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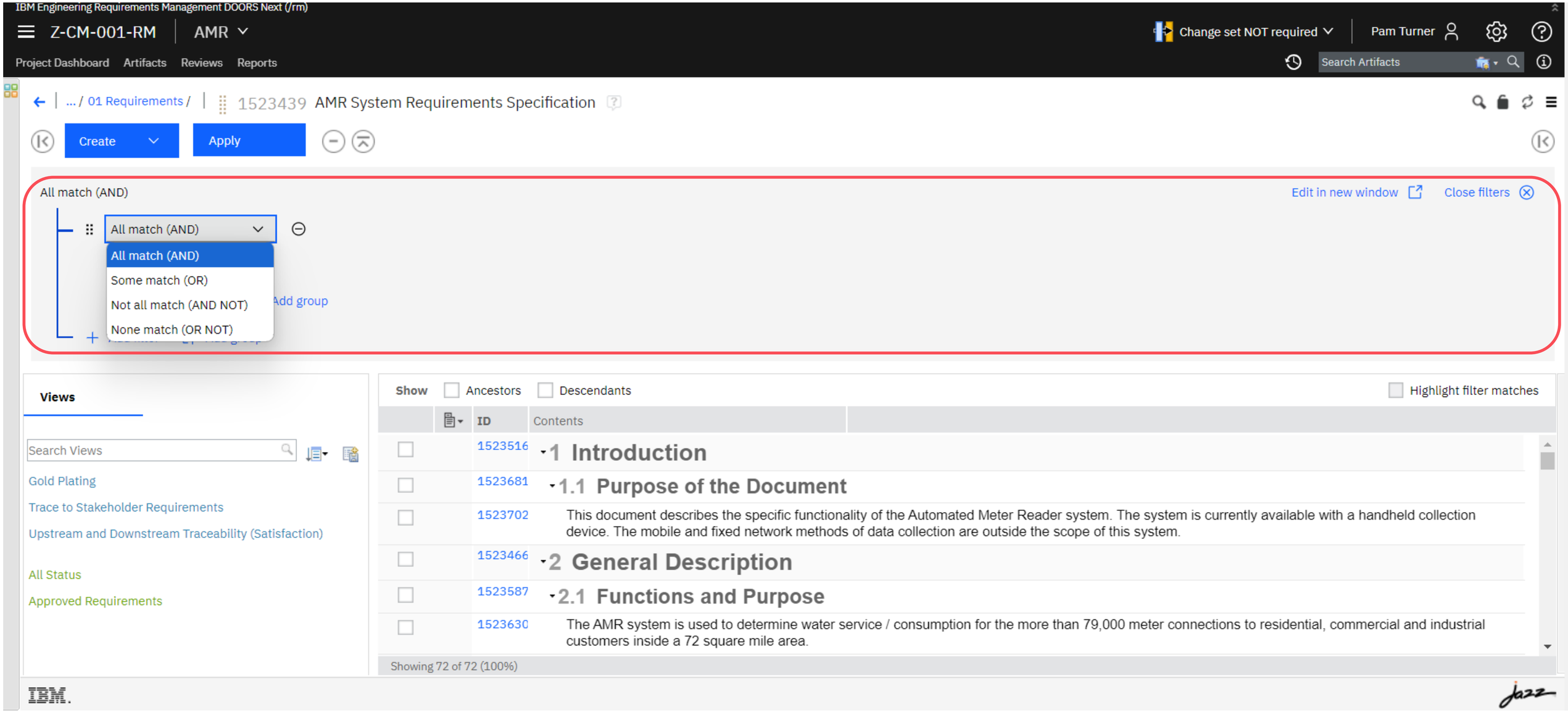

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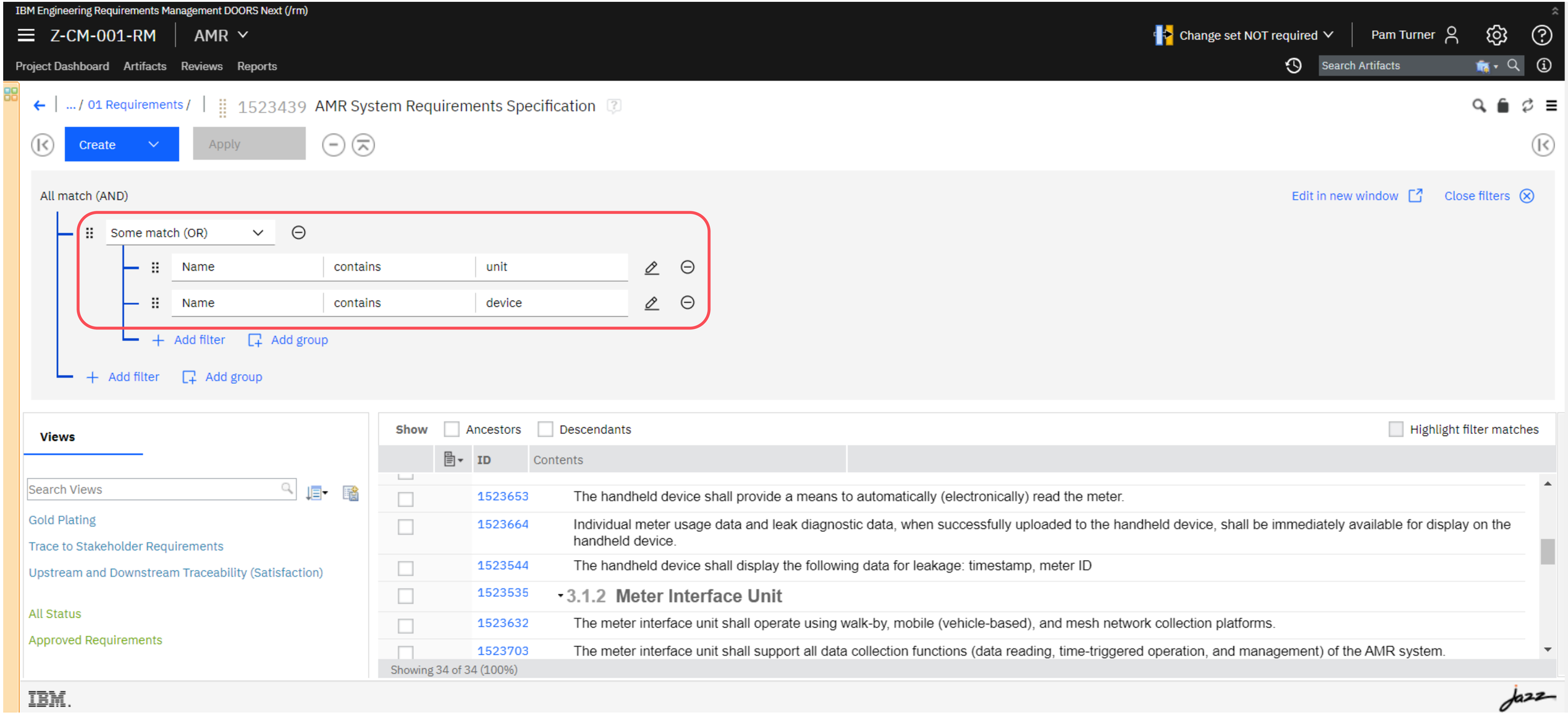

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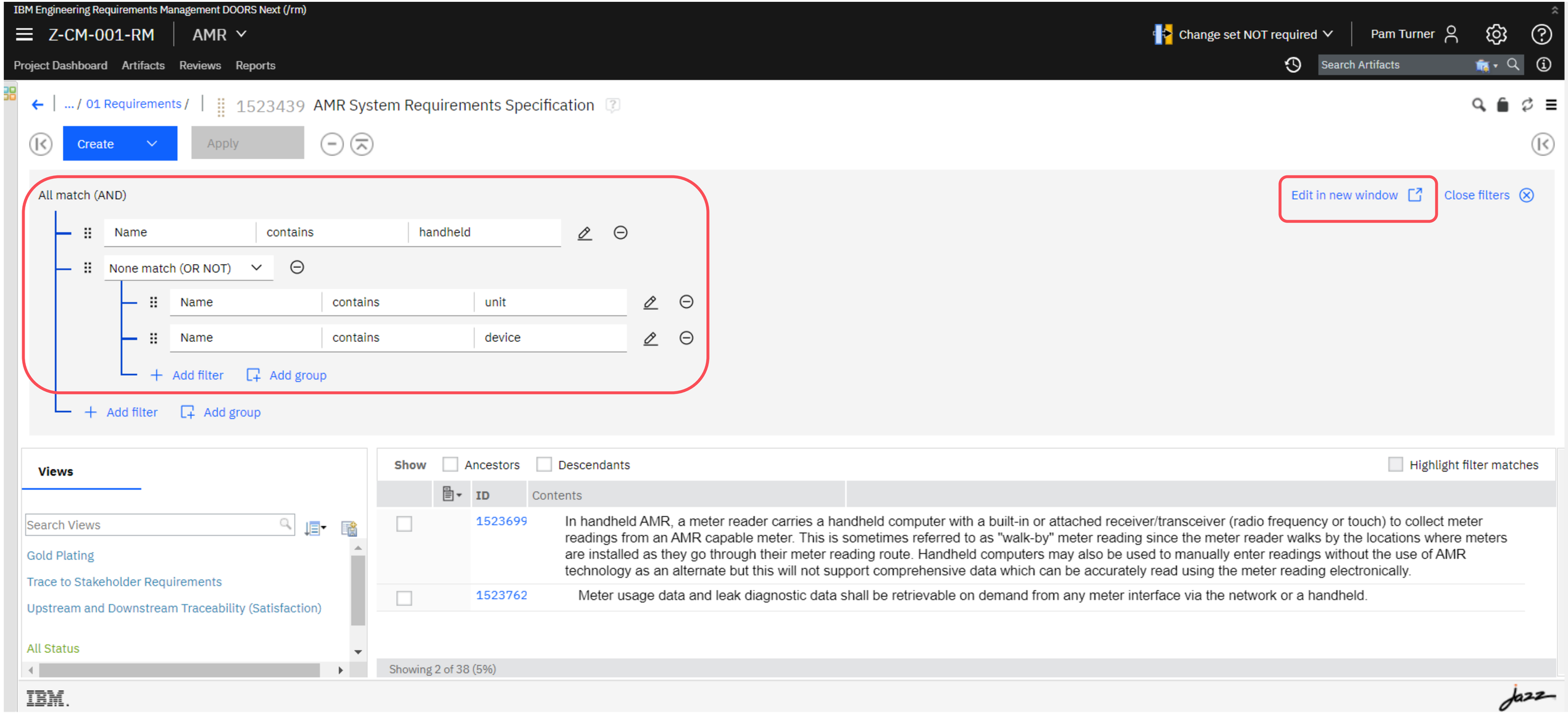

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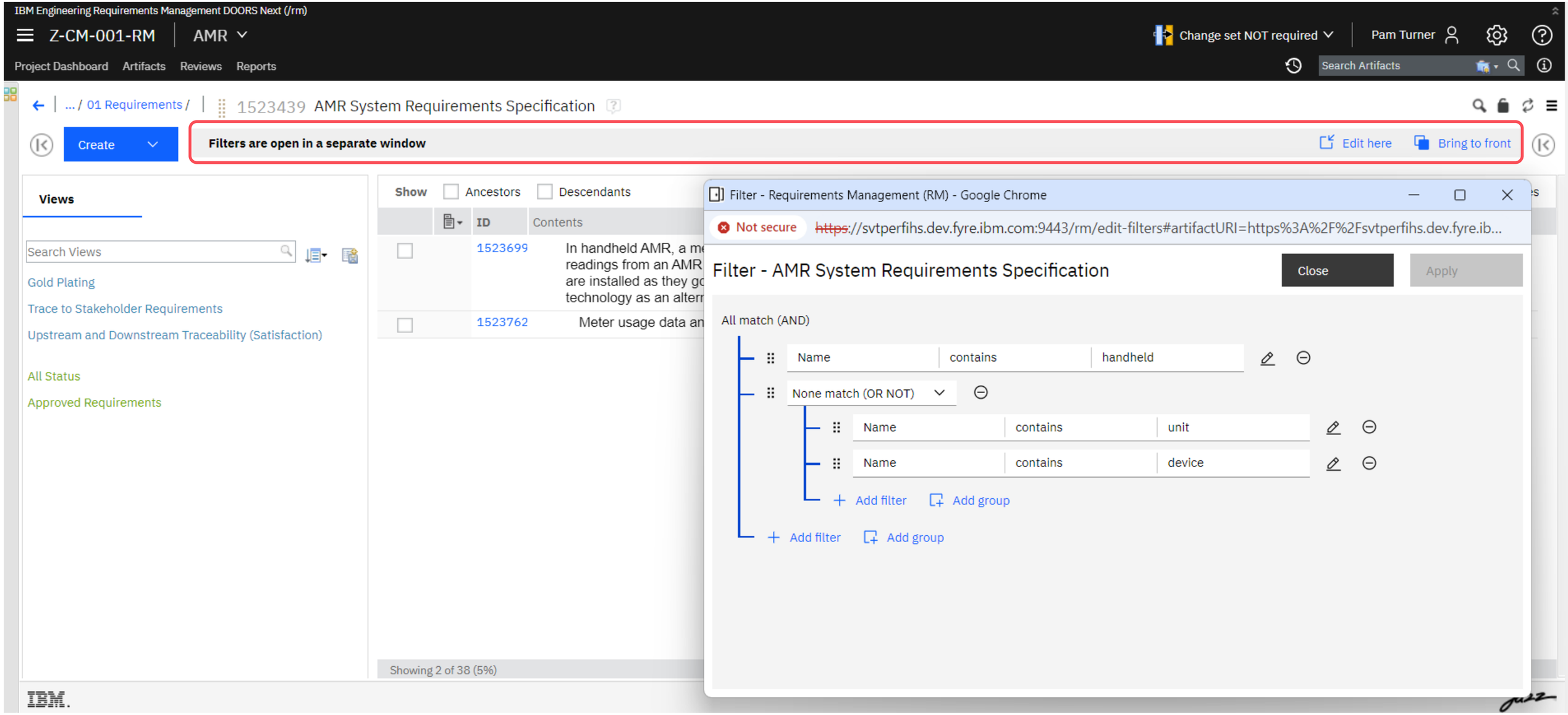
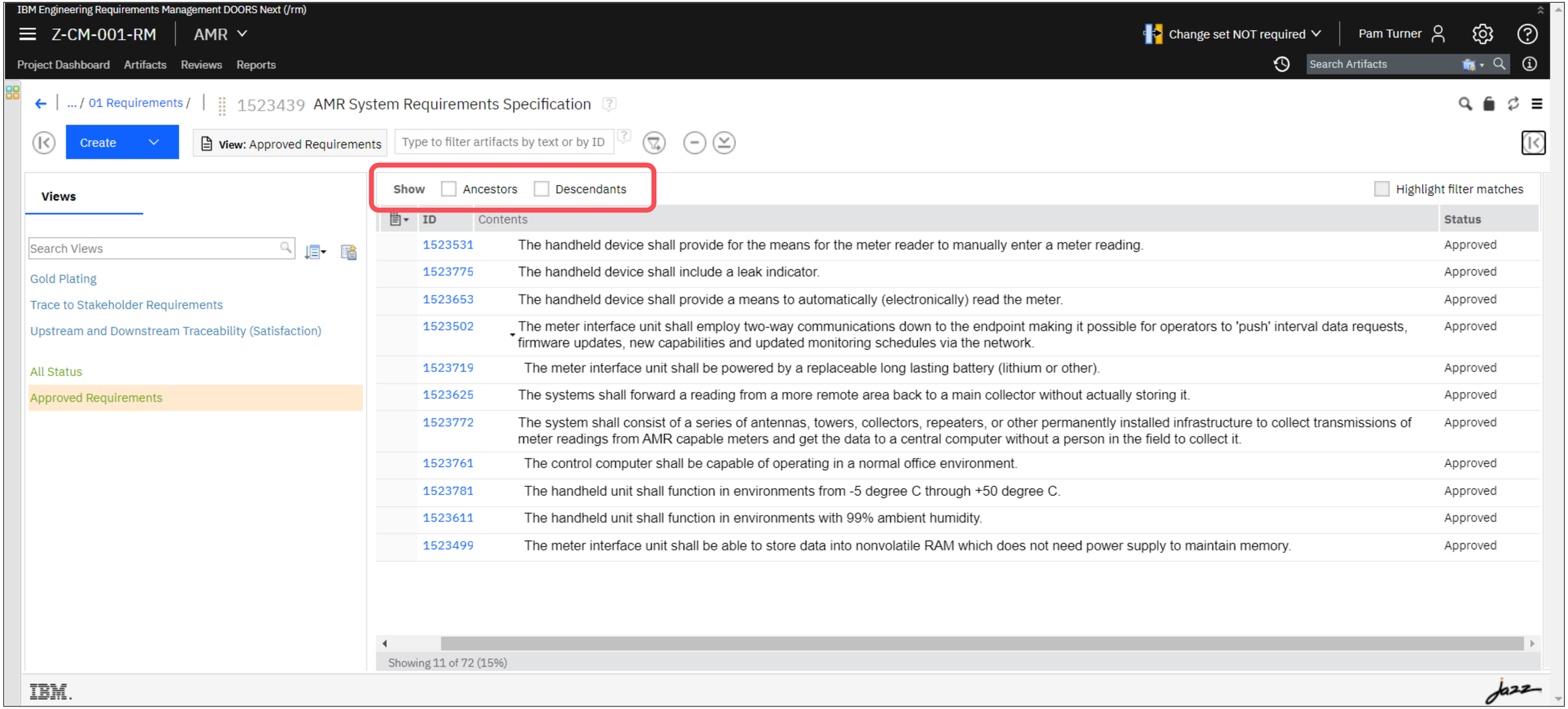


Show Ancestors/Descendants



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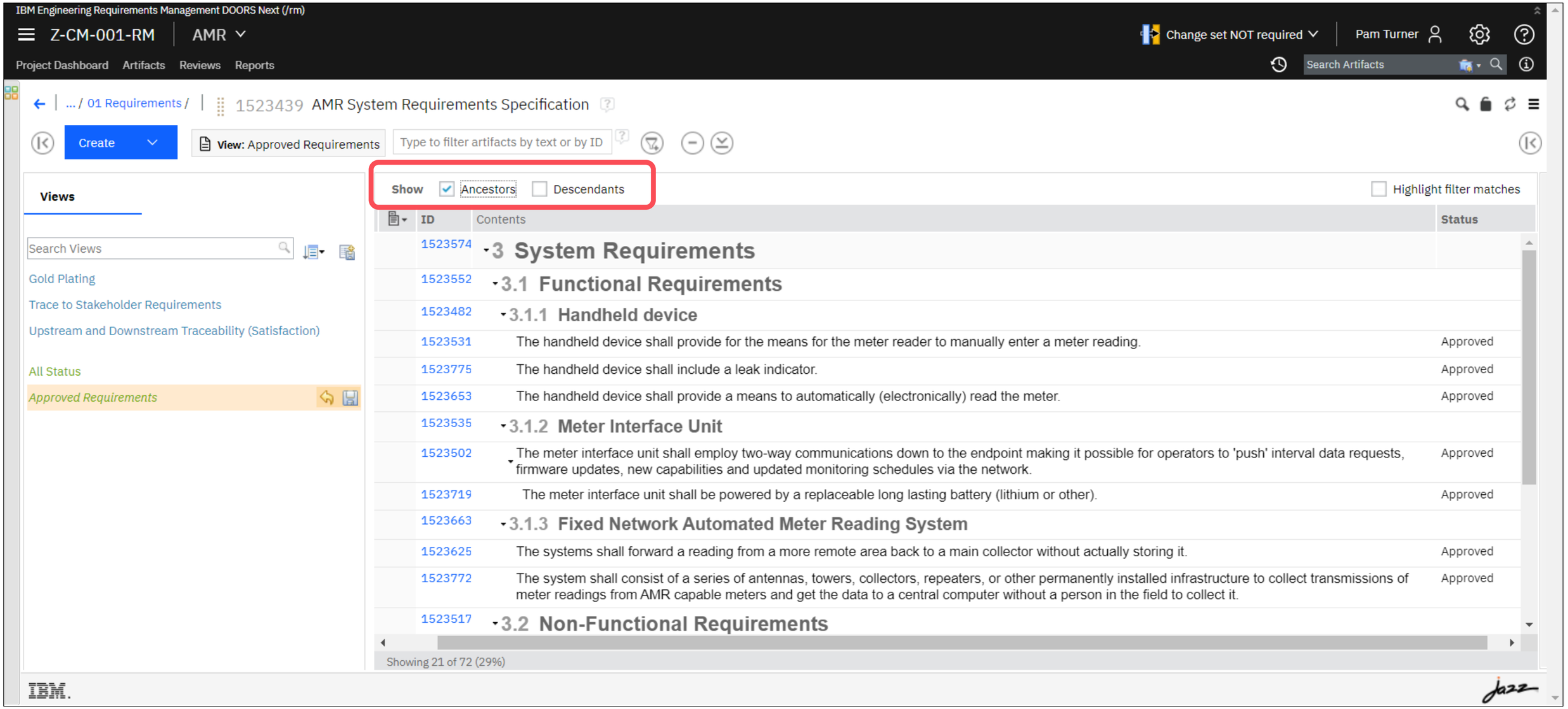

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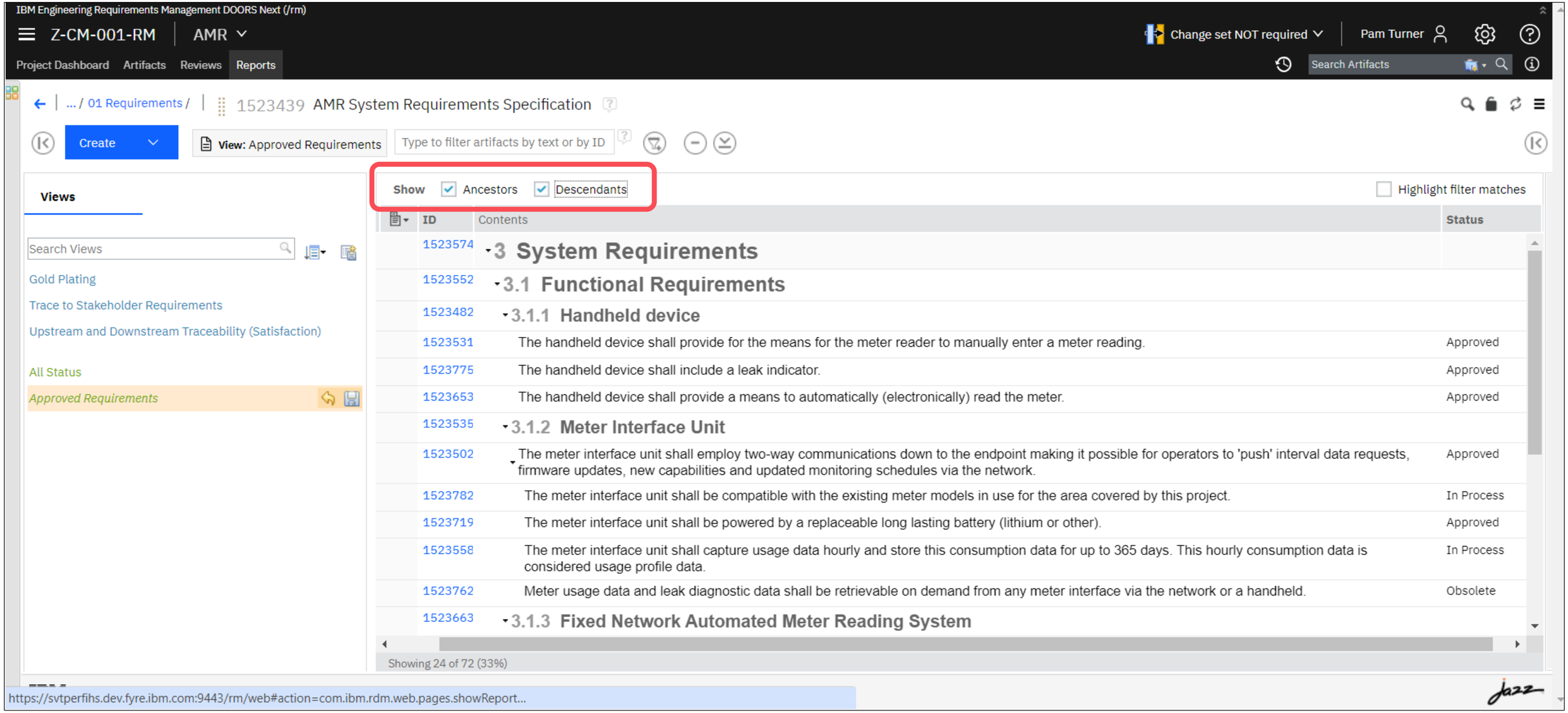

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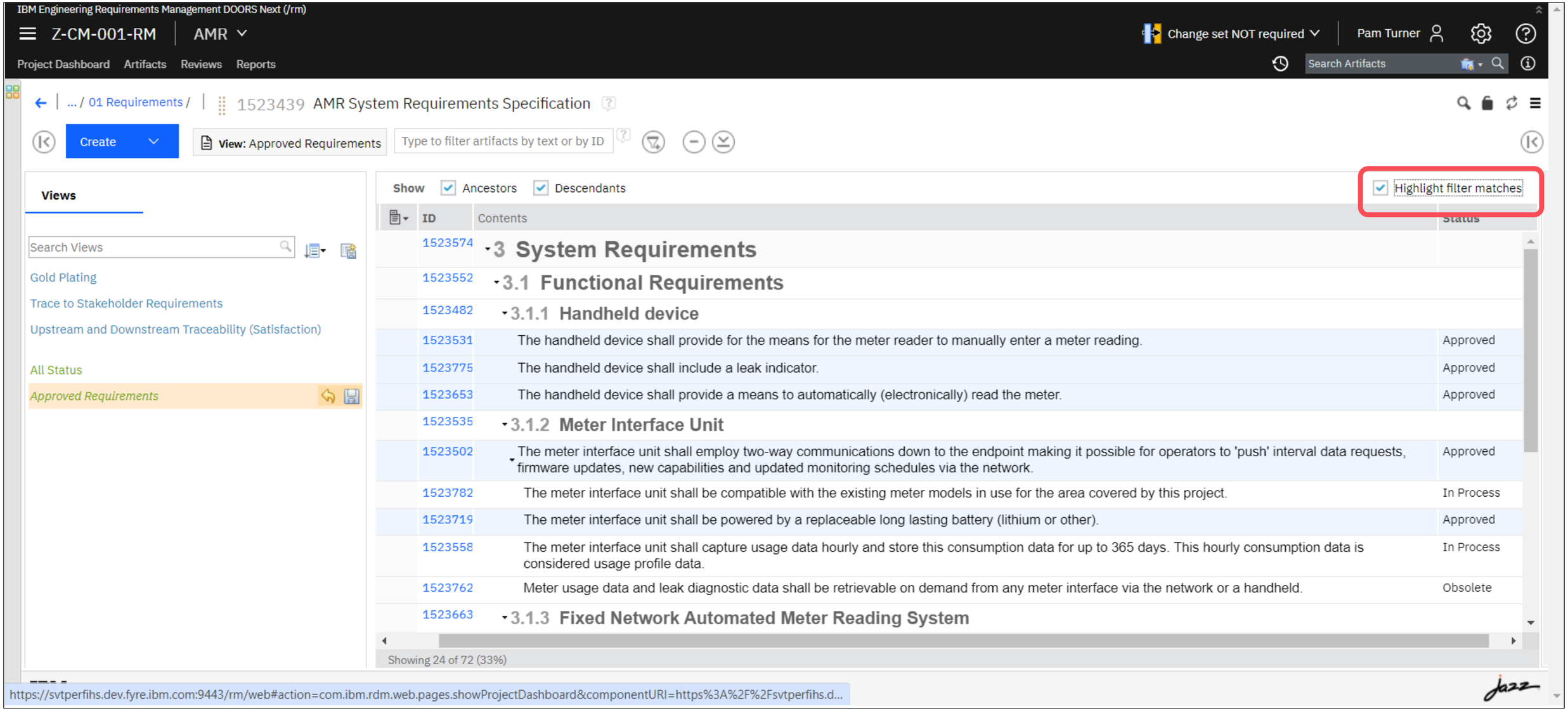

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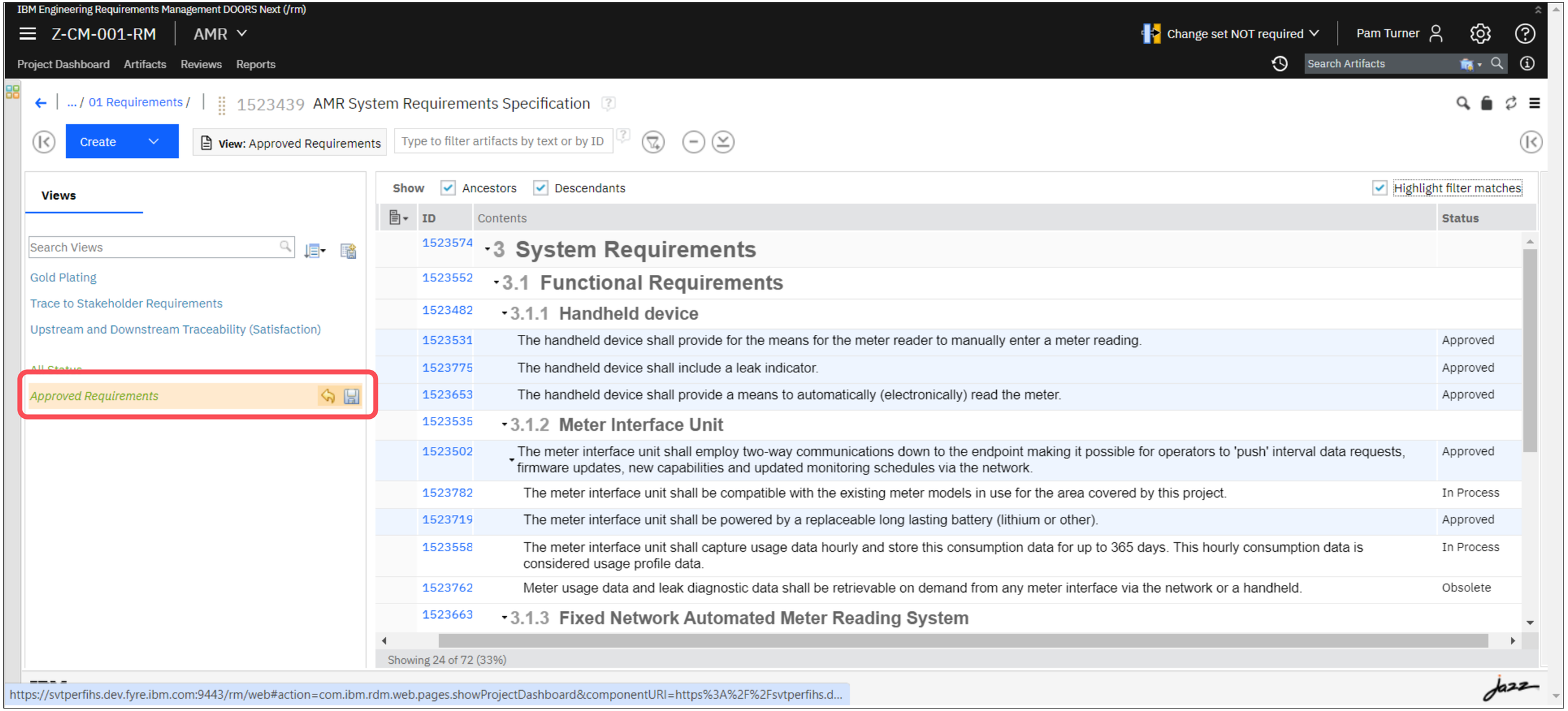


Improved DOORS Next TRS

The DOORS Next Tracked Resource Set (TRS) service is now **more resilient** to unplanned server outages and heavy server load.

It provides data to (1) LQE for reporting (Report Builder, Engineering Insights) and (2) LDX for versioned link information when using global configurations.

The improved **log-based TRS** replaces the previous **event-based TRS**.

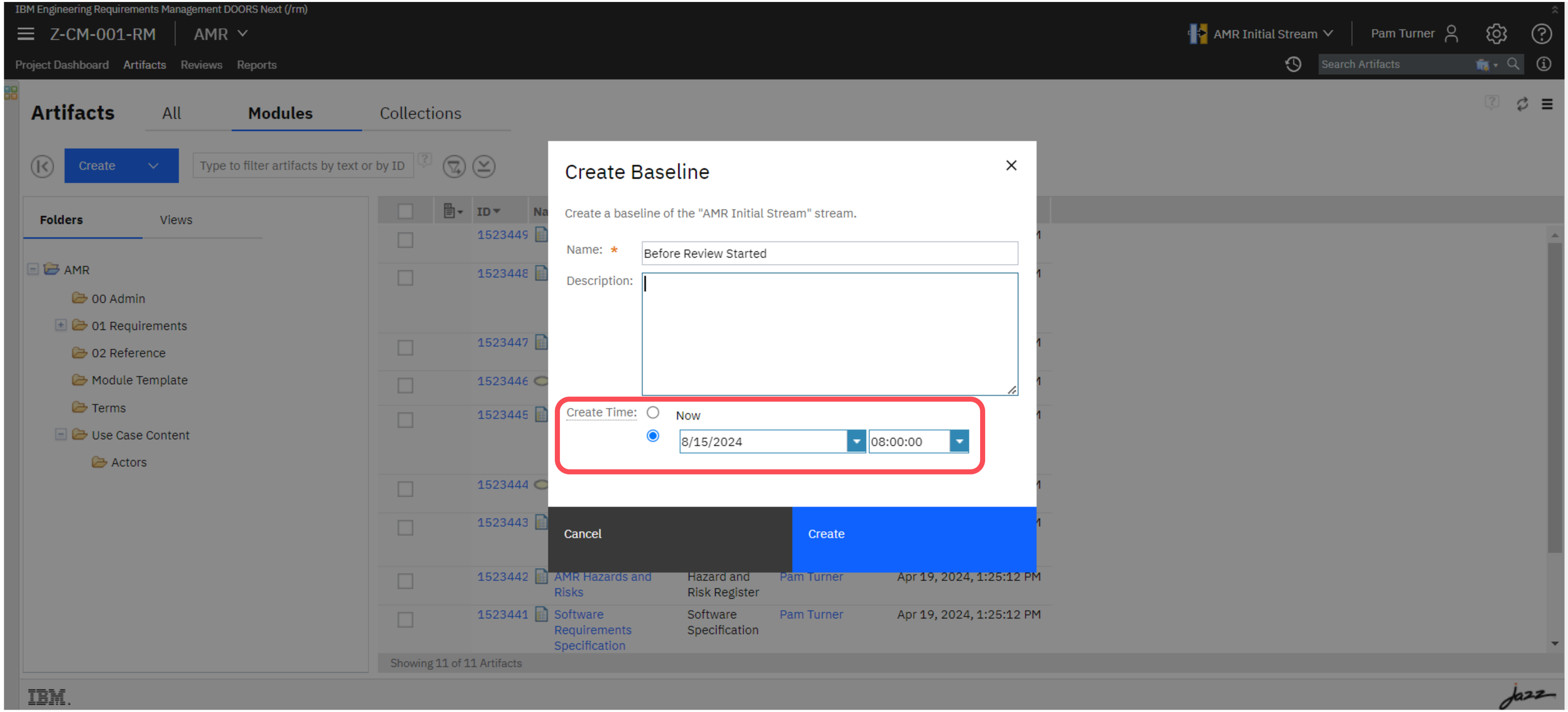
New installations: New DOORS Next v7.1 server deployments use the new, improved log-based TRS

Upgrading to 7.1: Switching to log-based TRS required* as part of the upgrade process. This includes a DOORS Next TRS rebase operation and LQE reindex of the DOORS Next TRS data

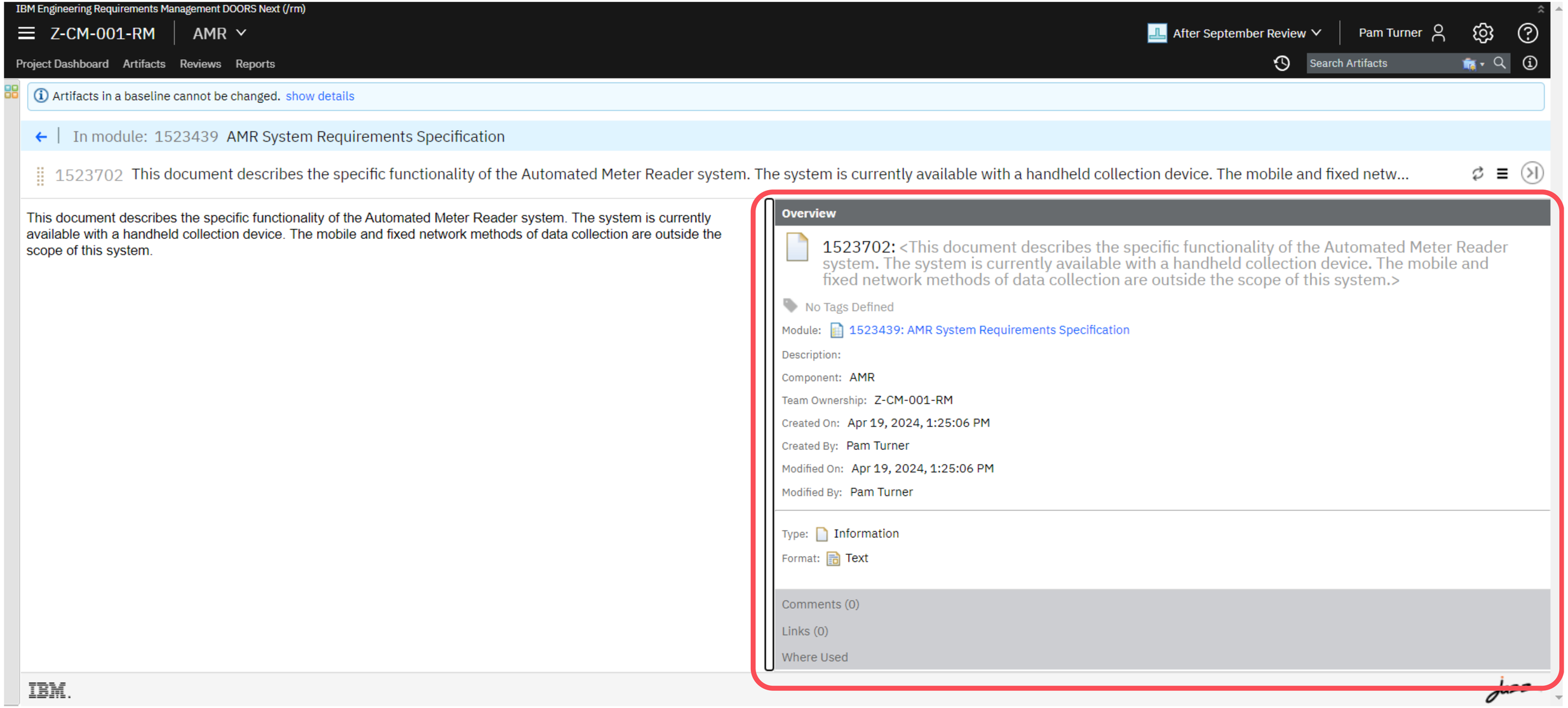
For additional details, see the interactive upgrade guide.

** If not already configured in 7.0.2 or 7.0.3.*

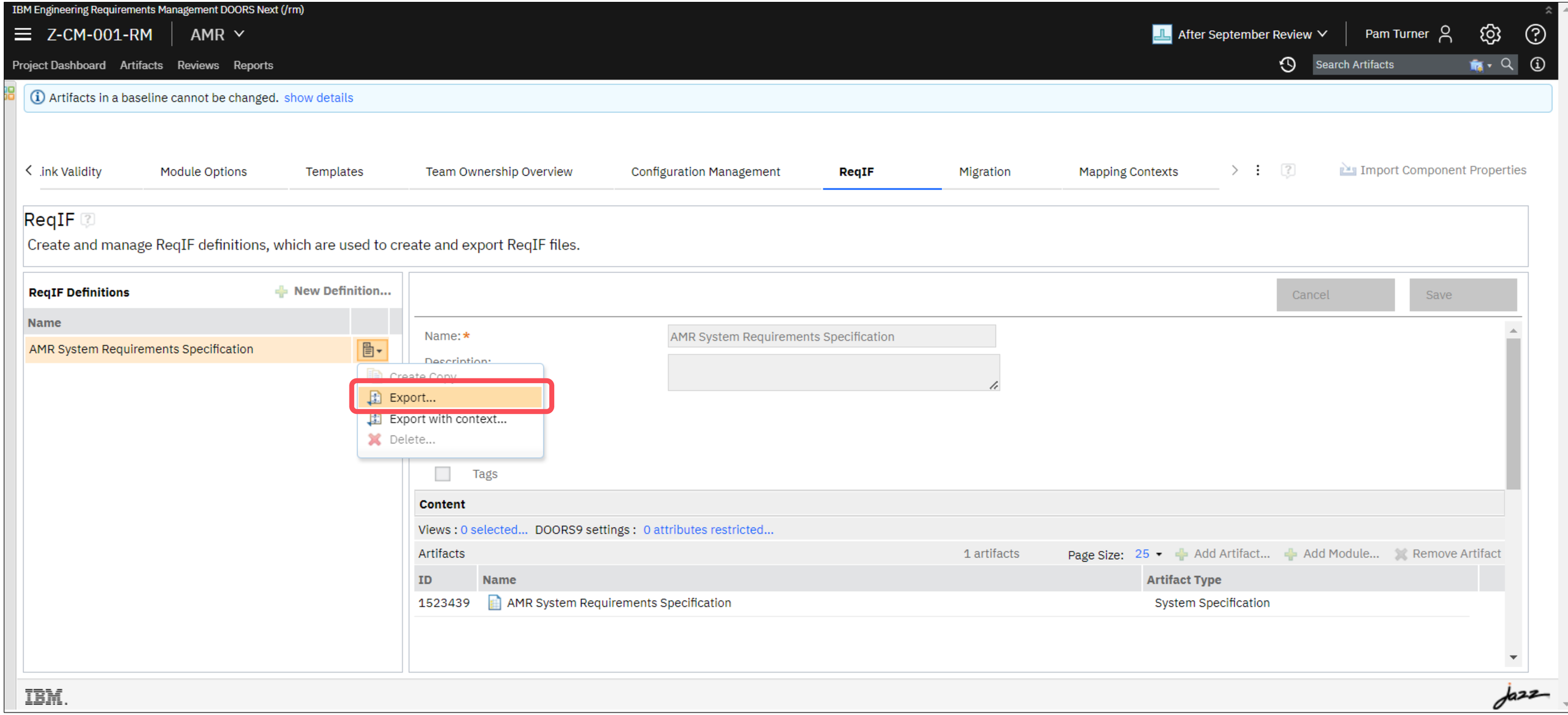
Create a historical baseline



Configure the artifact sidebar width in the Artifact editor



Export and download ReqIf definitions from a baseline context

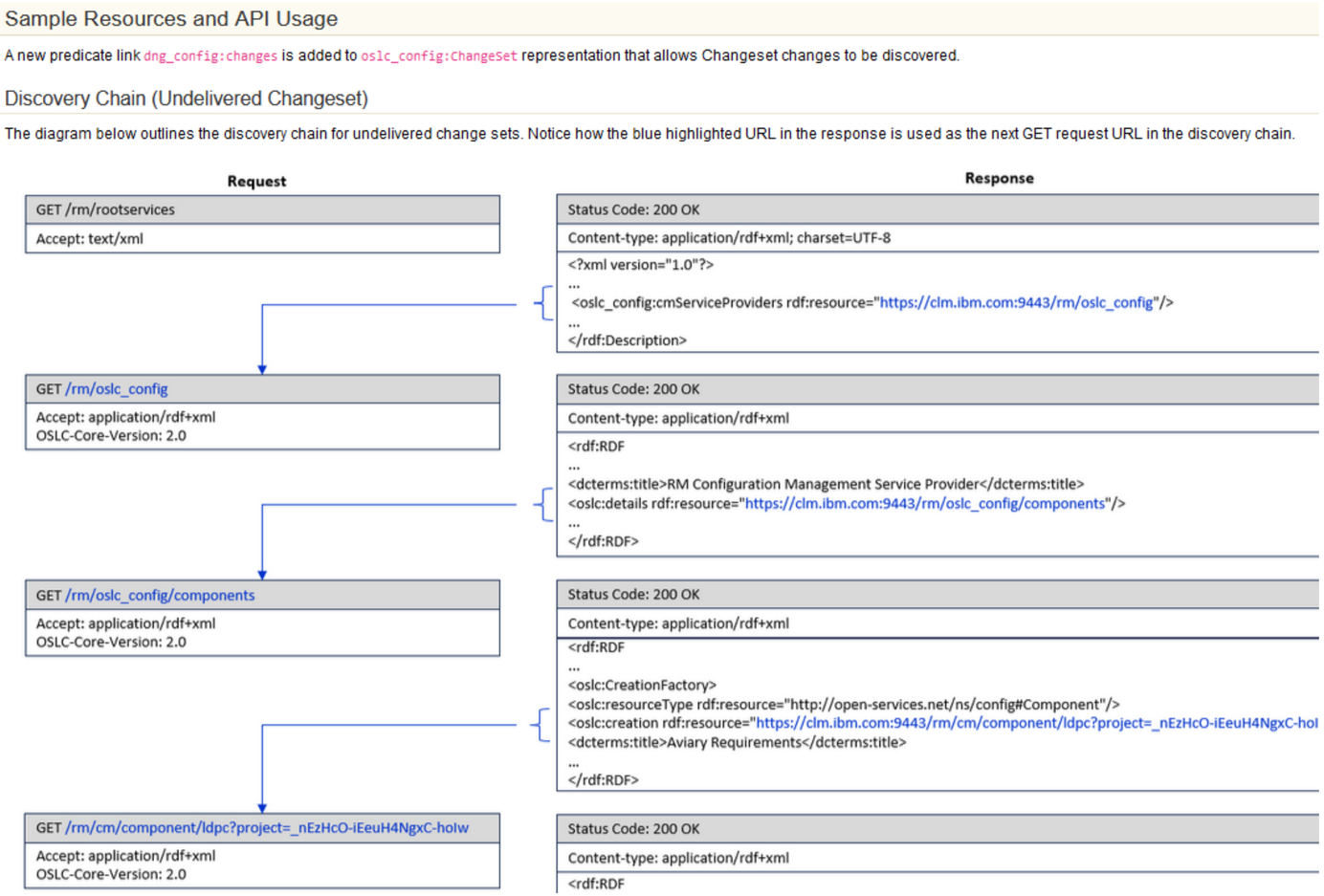


Enhancements to DOORS Next REST APIs

- Create a baseline of a stream at a time in the past (“retroactive baseline”)
- Allow HTTP clients to retrieve the content of the delivered and undelivered changesets
- Retrieve a list of baselines for a given stream by introducing a new public OSLC configuration query capability
- Provide information about an artifact such as when it was created, modified, or deleted by a specific user within a given period
- Added a filter to an existing REST API that retrieves history of an artifact within a given period.

For more information, see the following topics:

- DOORS Next (DN) Changeset Contents API Overview
- DOORS Next (DN) OSLC Configuration Query Capability Overview: To retrieve a list of baselines for a given stream URI
- DOORS Next Generation data sources



Workflow Management

Engineering Workflow Management 7.1

User Productivity

- Express yourself using inline images and tables in work item descriptions and Large HTML attributes.
- Add a paragraph using the magic line capability from inaccessible places in the active editor like tables and indented text.
- Drag & drop easily in a bigger drop zone when linking work items or uploading attachments.

Agile Engineering

- Use SAFe 6.0 Full and Essential templates available in the product to establish a SAFe tooling environment.
- Set the backlog iteration for a child project area without overriding the rest of the configuration using separate tabs for different planning configuration elements in web client.

Jazz Source Control

- Reopen operation added to code review tool
- Improved logging around change sets appearing for code review
- Improved search
- CLI improvements
- Additional logging for serviceability
- Improved change event processing to ensure that each change event uses a different category id

Developer Integrations

- Improved flexibility with grammar used for Engineering Workflow Management Git integration
- New version of Team Concert Git Jenkins plugin with security fixes
- Support for latest versions of Git, Jenkins

Updated System Requirements

- Eclipse 4.23 (via IM & p2), Eclipse 4.27 (via p2 install only), Eclipse 4.31 (via p2 install only)
- No known public API changes

Performance

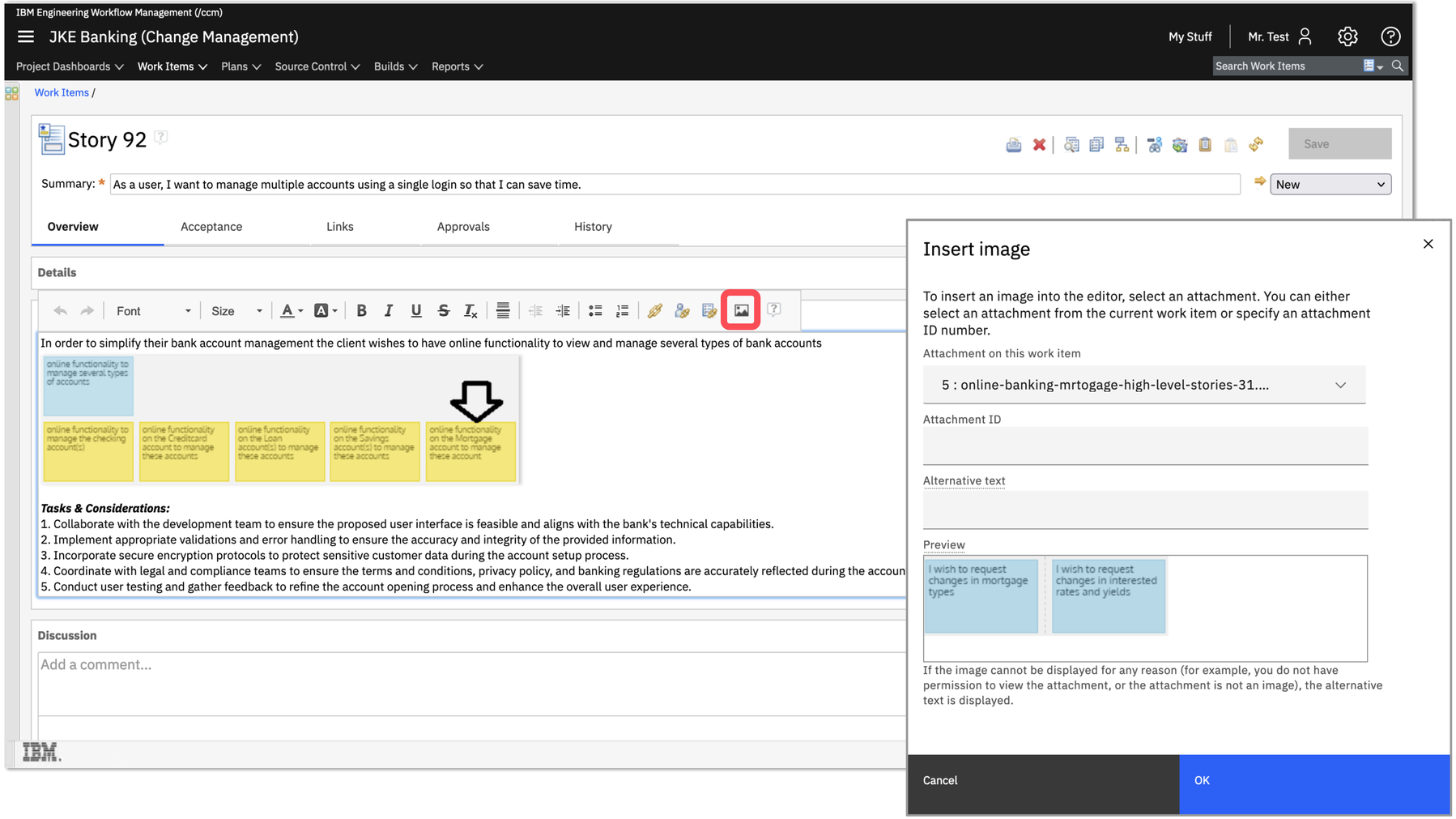
- Improved load time of work items in environments with many custom attributes paired with many users and project areas.
- Improved loading of plans when there are large numbers of concurrent users performing operations

Add images inline to work item description and large html attributes

Image types
jpeg, gif, png, and bmp

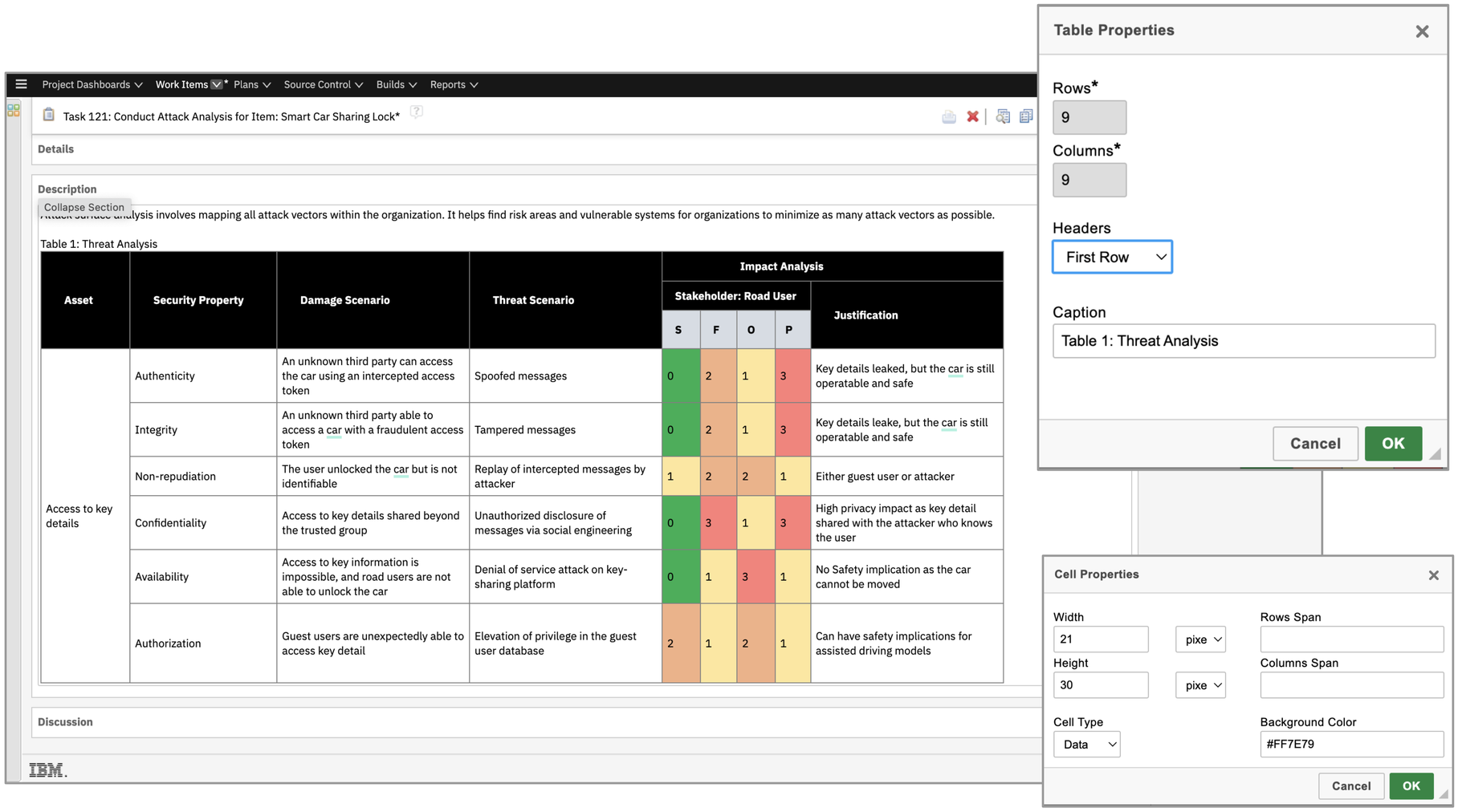
Copy-paste image from the clipboard or file explorer

Or use existing image attachments from current or different work item



Add tables inline to work item description and large html attributes

- Use common html table features
- Copy-paste table from MS Word and MS Excel



TaP: Other Enhancements

Magic line

Add a paragraph using the magic line capability from otherwise inaccessible places in the active editor like tables and indented text that start or end a document.

Planning-General configuration

Separate tabs for different planning configuration elements in web client to allow admin to set the Backlog Iteration for a child project area without overriding the rest of the configuration.

SAFe 6 templates

SAFe 6.0 Full and Essential templates are now available to establish a portfolio, large solution, ART, and team-level tooling environment.

Static text available for print

View static text and static rich text values when you print a work item.

Size of the drag & drop dialog

The size of the drag & drop dialog for linking work items and uploading attachments has been increased to make it easier to perform the actions.

Performance Improvements

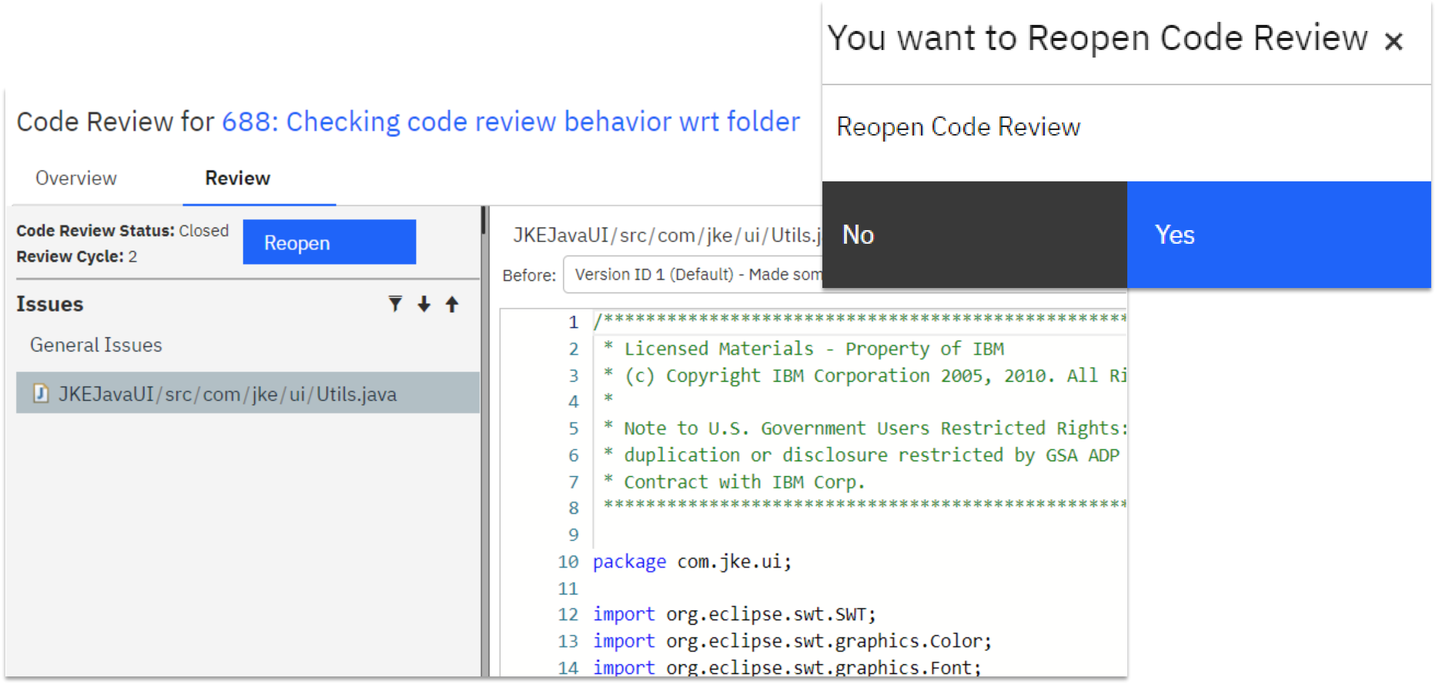
Improved load time of work items in environments with many custom attributes paired with many users and project areas.

Improved loading of plans when there are large numbers of concurrent users performing operations

Code Review Enhancements

Reopen a closed code review

You can reopen a closed code review with Jazz Admin and Jazz Project admin roles.



Improved logging of change sets appearing for code review

For special cases when there is a mismatch between the count of change sets displayed under work item and code review, happening due to related permissions or any other unexpected scenario.

SCM: Other Improvements

Improved search

Modified the text with "Search Current Page" in search box, same changes done and reflect for workspace and advance search result search box.

CLI improvements

Output of CLI locate command clearly states what changesets are directly included and which are indirectly included through a change set created by a gap merge.

Default logging enabled for CLI exceptions when running a command.

Serviceability

Additional logging for easier debugging in future and checks to guard against the case when event timestamp in query and event table were out of sync.

Improved logging to collect traces when upload of a large file.

Reliability

Improved change event processing to ensure that each change event uses a different category id to avoid missing events esp. if a new feed is added in the future.

Git-Jenkins integration improvements

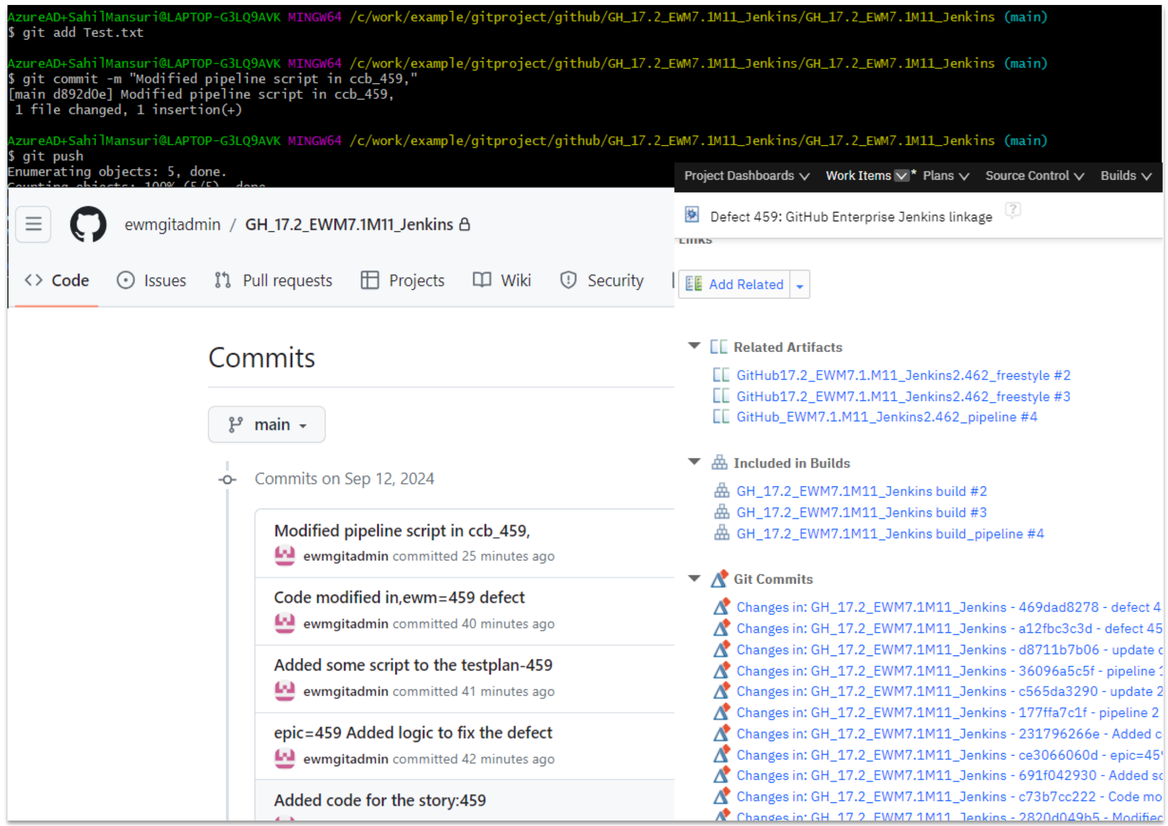
Improved flexibility with grammar used for Engineering Workflow Management Git integration

- Engineering Workflow Management now supports more keywords and delimiters to provide a more flexible grammar for linking work items in EWM-Git integration.
- The supported keywords that can be used in the commit message are workitem, work item, work-item, issue, feature, defect, ewm, story, epic, testplan, test plan, test-plan, ccb, bug, task, wi, and rtcwi.
- The supported delimiters are hyphen (-), underscore (_), colon (:), equal (=), and white space ( ).

The default grammar is also now consistent for pre-receive hooks, post-receive hooks, and webhooks. For more information, see Creating links from commit message.

Security fix for Team Concert Git Jenkins plugin

A new version of Team Concert Git Jenkins plugin, version 2.0.5 is now available. This version includes crucial security fixes and is available for download at https://updates.jenkins.io/download/plugins/teamconcert-git/2.0.5/teamconcert-git.hpi.



Workflow Management currency upgrades

Eclipse

Eclipse 4.23 via IM and p2 install

Eclipse 4.27 via p2 install

Eclipse 4.31 via p2 install

Visual Studio

Visual Studio 2022

Visual Studio 2019

Visual Studio 2015 is no longer supported.

Git Integration Toolkit

GitHub Enterprise v3.14, v3.12

GitLab v17.2, v17.0.3

Git v2.45

Gerrit v3.10

Node.js v20.0 and v22.4

Jenkins

Jenkins v2.458, v2.462.1 and future fix packs

Latest version of plugin: TC- Jenkins v2.4.4 plugin and TC-Git-Jenkins v2.0.5 plugin

Rhapsody Model Management

Rhapsody Model Manager 7.1

User features and productivity

- Model-to-model linking with RMM
- Simplified linking: "Copy & Paste" + "Drag & Drop" between RMM browser windows
- Model element type icons are now displayed in the RMM UI (due to Systems Profile added to RMM server deployments)
- Sidebar Explorer: Links, diagrams, tables, and matrices now have their own tabs, making it easier to access the information when needed and reducing overall page clutter by minimizing scrolling.
- Quick search now works on the sidebar explorer

Governance

- New role-based permission for Link Validity status changes

Aids to correctness, configuration, and visibility

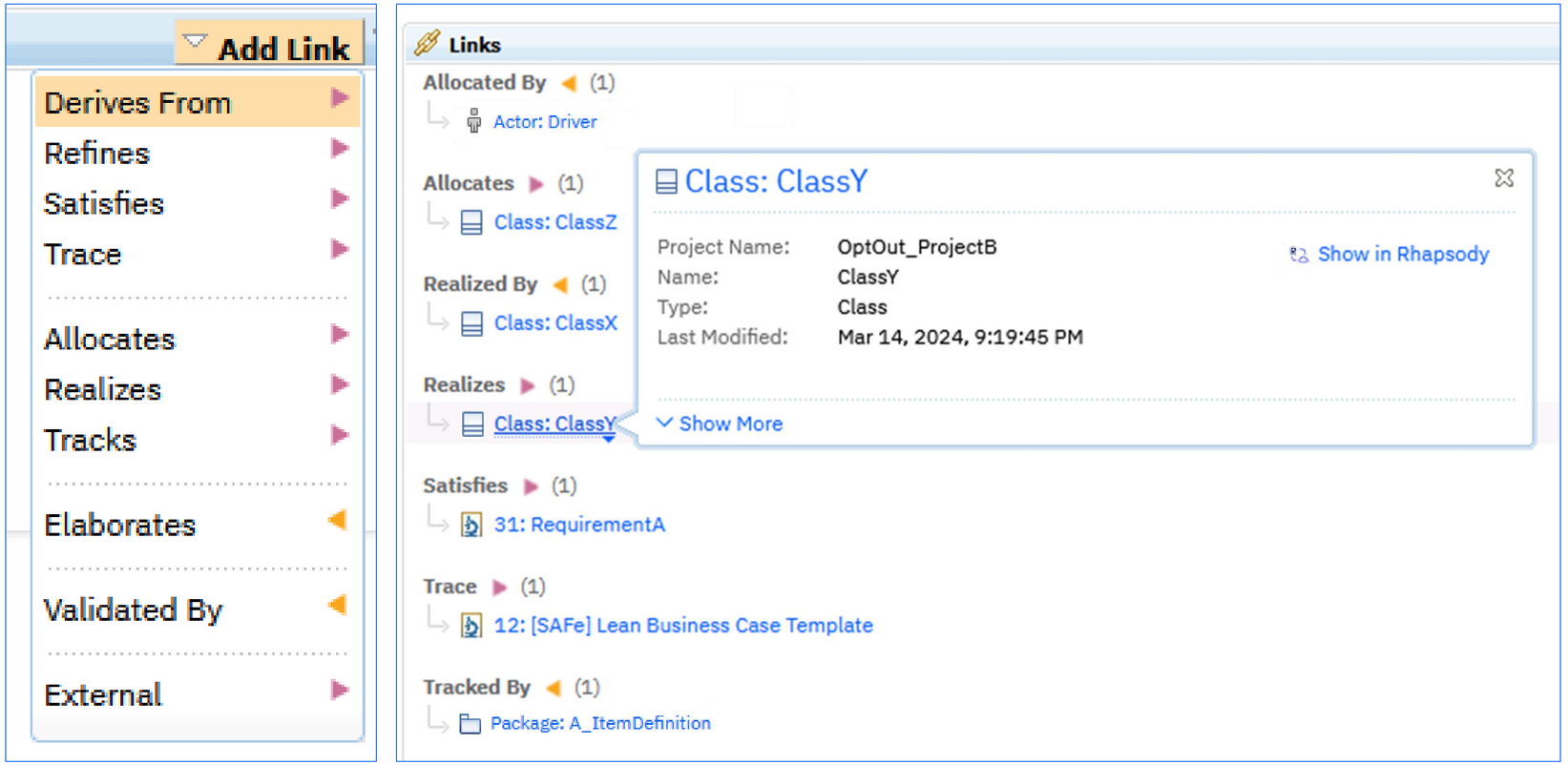
- Stream names are displayed on component nodes when working in a global configuration aware context.
- Component skew detection: Decorator text added to component nodes that exists in multiple local configurations of the selected global configuration hierarchy.
- The component limit can be configured for viewing.
- Rhapsody DiffMerge is now available as a selectable (pre-configured) external compare tool in the 7.1 Engineering Workflow Management (EWM) Eclipse client.

Model-to-model linking with RMM

OSLC-AM consumer as well as provider

- Link Rhapsody model elements across servers or project areas
- Link Rhapsody SysML/UML model elements with Rhapsody Systems Engineering SysML v2 model elements
- Link with other tools implementing OSLC-AM (e.g., PLM Bill of Materials)

Simplified linking: "Copy & Paste" + "Drag & Drop" between RMM browser windows



Enriched user experience with RMM

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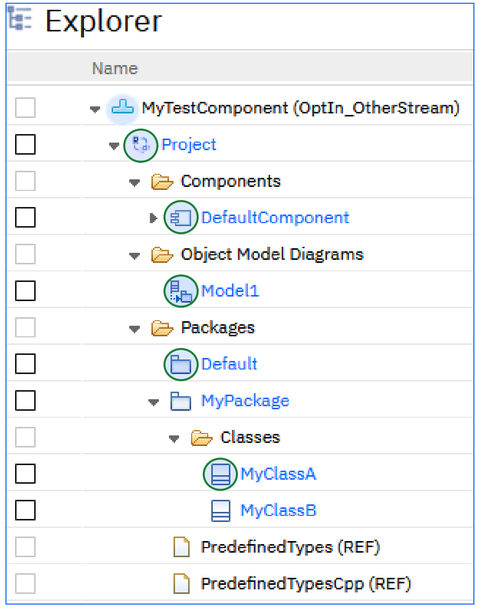
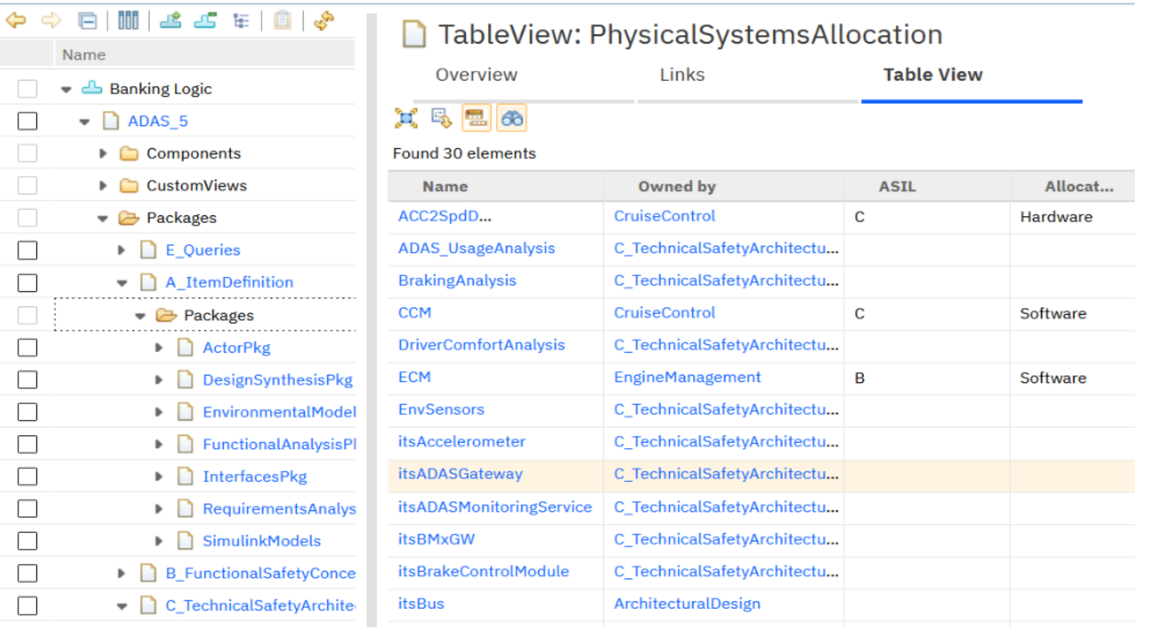
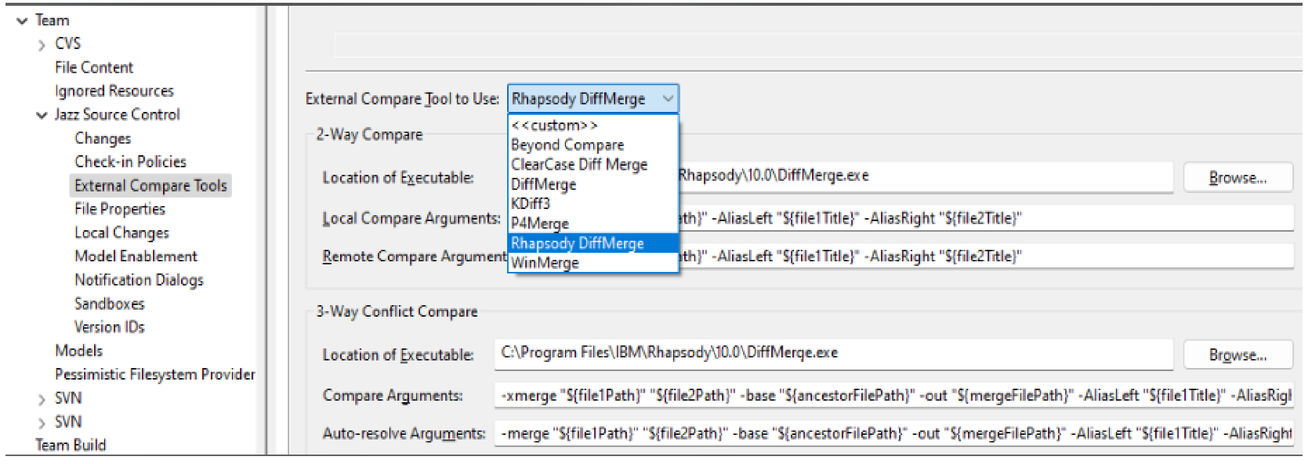






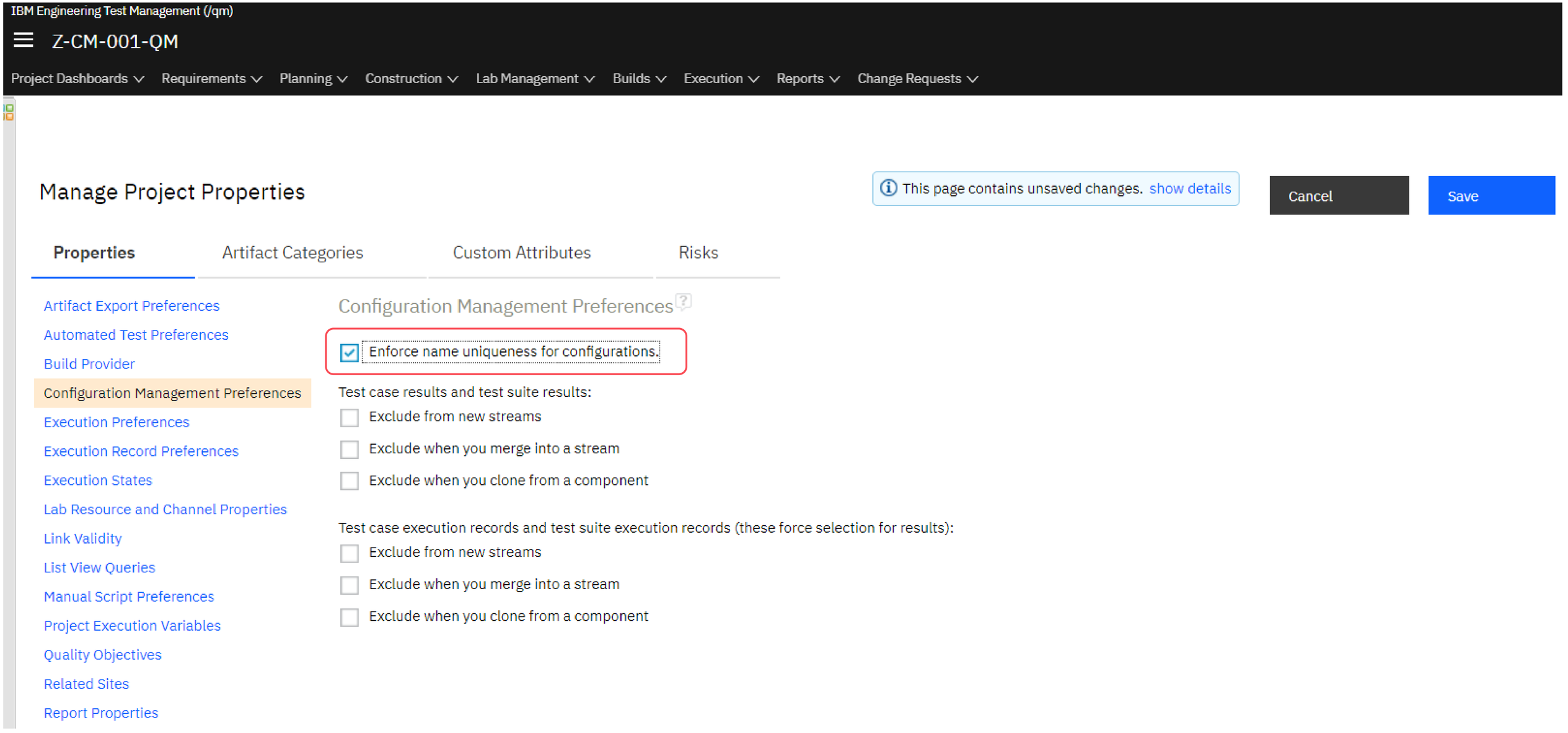
Test Management

Engineering Test Management 7.1

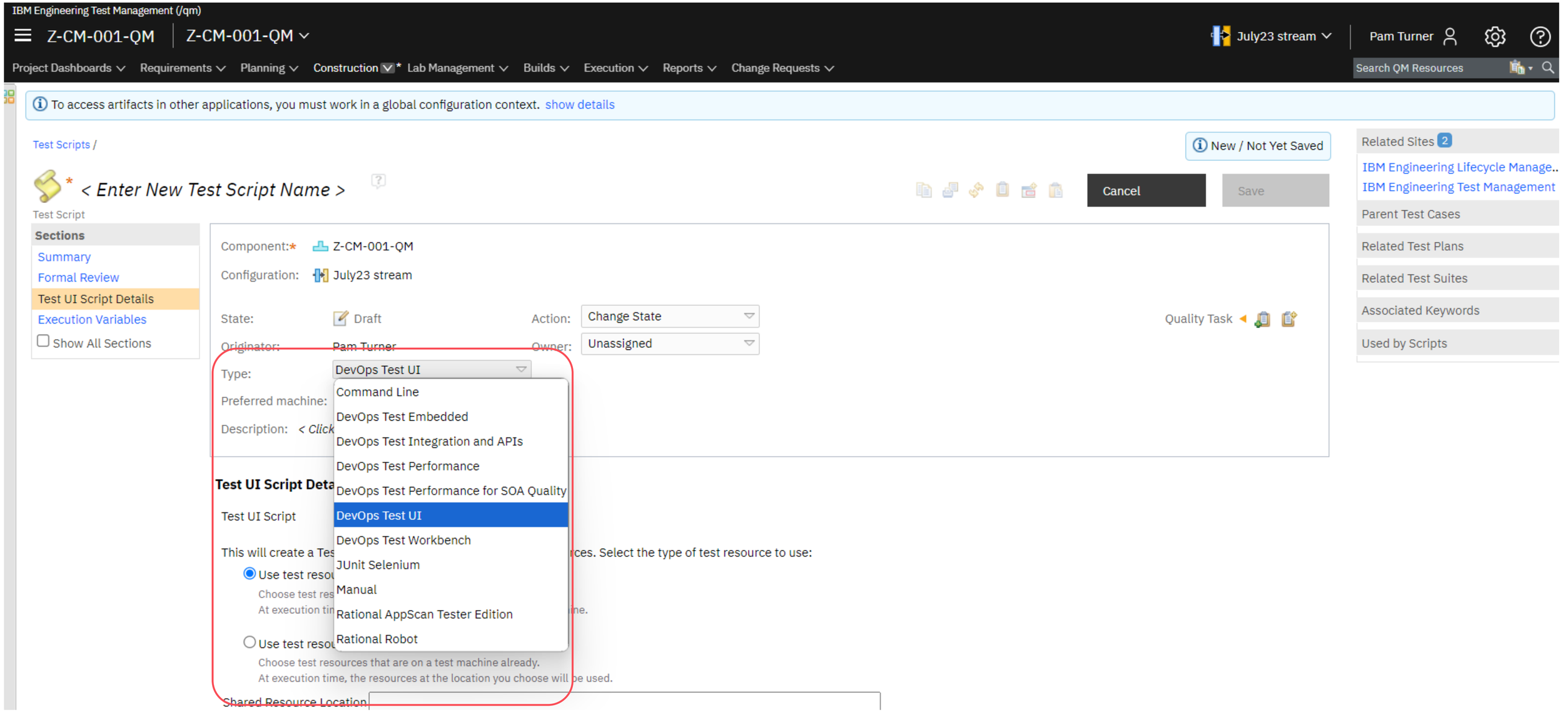
User productivity

- Enforce name uniqueness for configurations
- Updated names for Rational automated test script type

Enforce name uniqueness for configurations



Updated names for Rational automated test script types



Jazz Reporting Service + Link Index Provider

Jazz Reporting Service 7.1

User features and productivity

- Report on additional historical metrics when using LQE
- View data source schema details with the Type explorer, making it easier to write advanced queries
- It’s easier to use custom attributes from child artifact types when reporting on top-level artifact types in LQE reports
- Move a report to new folder by dragging over the breadcrumb node

JRS higher performance and availability

- LQE relational store is now the default for LQE
- LQE rs performs significantly better than LQE Jena. Long-running queries do not block other users.
- Link Index Provider via LQE rs (better performance and one less server!)
- Report Builder search is faster
- Other query performance optimizations
- Automated server rename for LQE rs (no need to reindex!)
- New TRS validation in LQE replaces data source reindexing for recovering from data gaps

Observability and serviceability

- LQE provides more kinds of admin notification events for monitoring LQE health
- Admin can monitor the configuration scope of queries in the LQE, which can be useful in advising users to reduce config scope of long-running reports
- Additional diagnostics and logging for admin intervention and problem determination

For practitioners

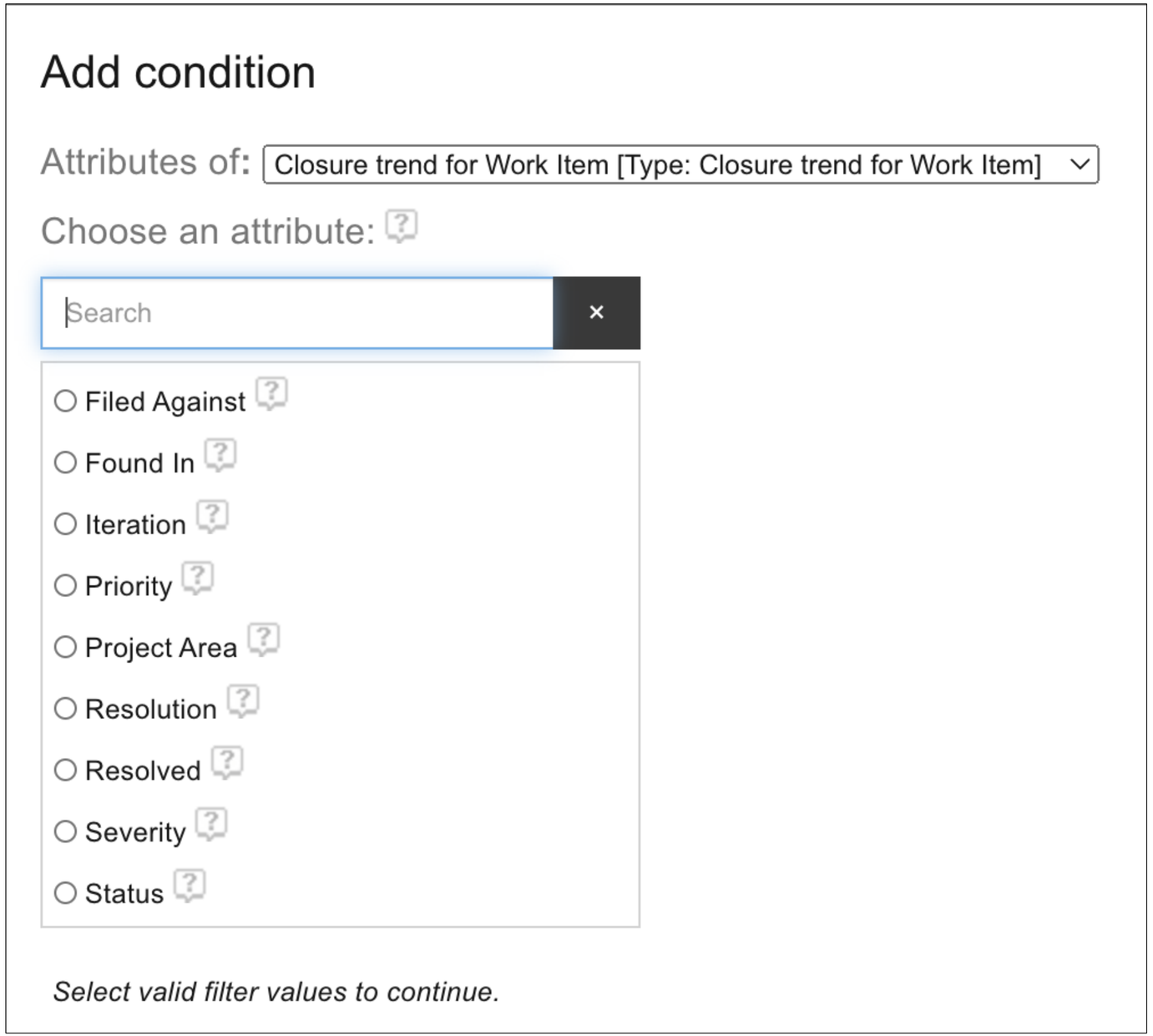
Report on additional LQE historical metrics

You can report on these additional dimensions using Lifecycle Query Engine **historical metrics**

Work Item **Closure**
- Filed Against
- Resolved
- Resolution
- Team Area

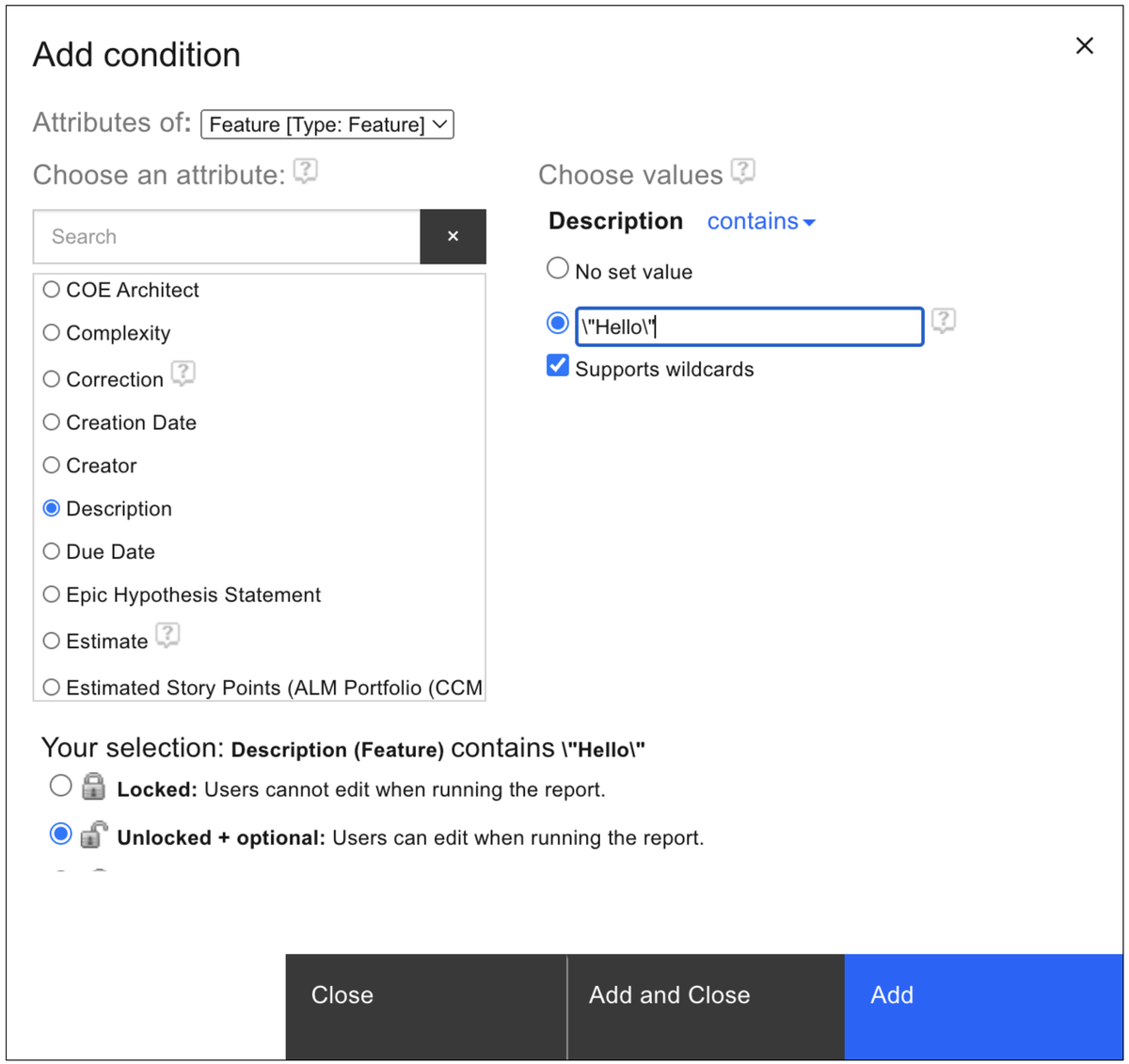
Work Item **Creation**
- Found In
- Resolved
- Resolution

Work Item **Totals**
- Found in
- Priority
- Resolved
- Resolution
- Severity
- Team Area



Report Builder supports wildcards for additional operators on string properties

- A **Supports wildcards** checkbox is added in the Report Builder for query conditions on string properties. By default, the checkbox is set to true when the "contains" or "does not contain" operator is selected and false for all the other operators. However, you can change that based on the requirement.
- Previously, the Report Builder used an unquoted asterisk as a wildcard for the "contains" and "does not contain" operators. When the unquoted asterisk was specified for "is", "is not", "starts with", or "ends with", the asterisk was always treated literally.
- If you select the **Supports wildcards** checkbox, an unquoted asterisk is taken as wildcard for all the operators. If the **Supports wildcards** checkbox is not selected, an unquoted asterisk is taken literally. For more information, see Querying on string properties.

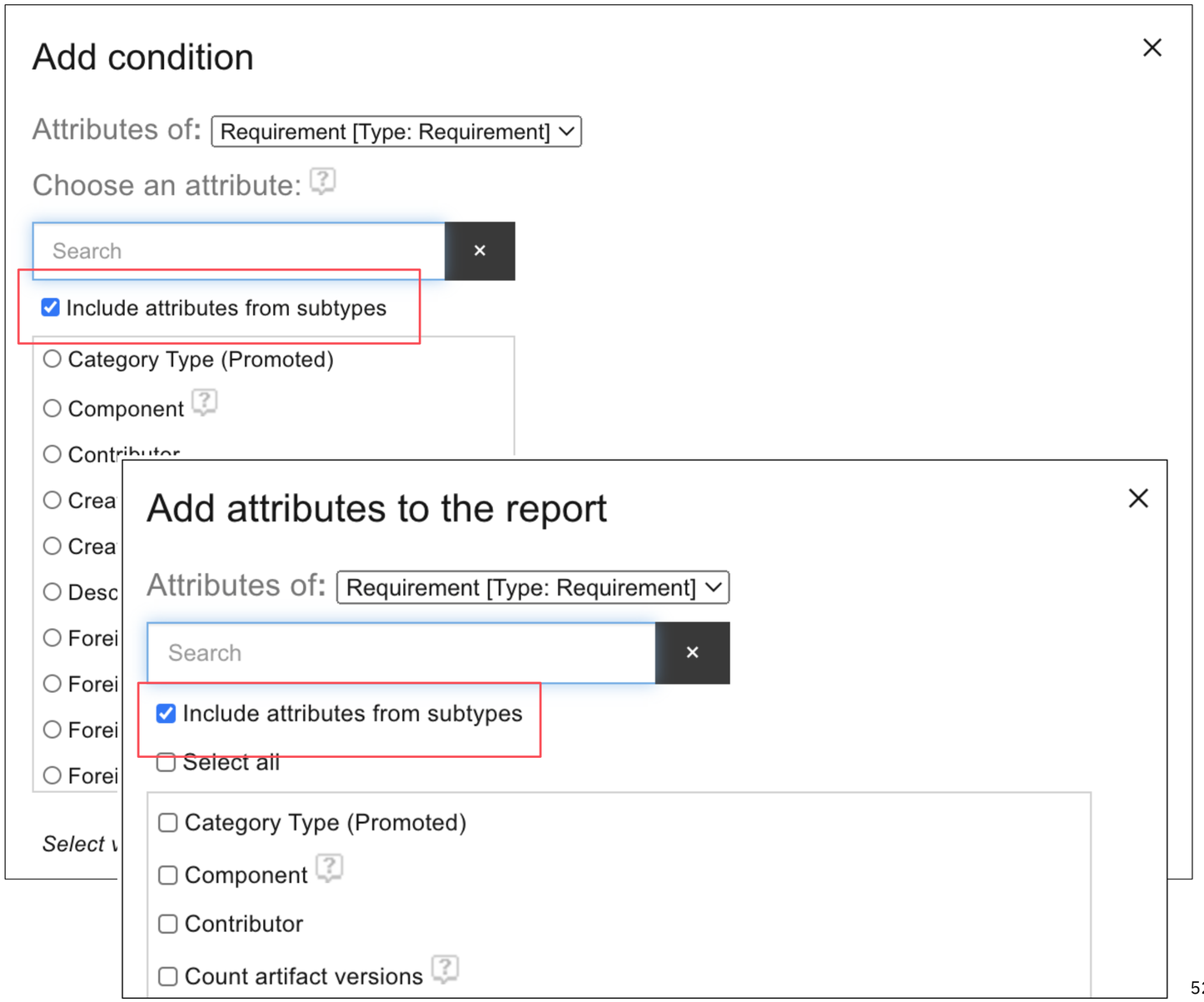


Creating simpler reports across subtypes in reports with LQE data source

When reporting across multiple child types that shared a common parent type such as Work Item or Requirement using an LQE data source, you would previously create a report using the merge or append of multiple report branches, that could lead to repeating traceability paths in each branch making the report more complex to maintain and slower to perform.

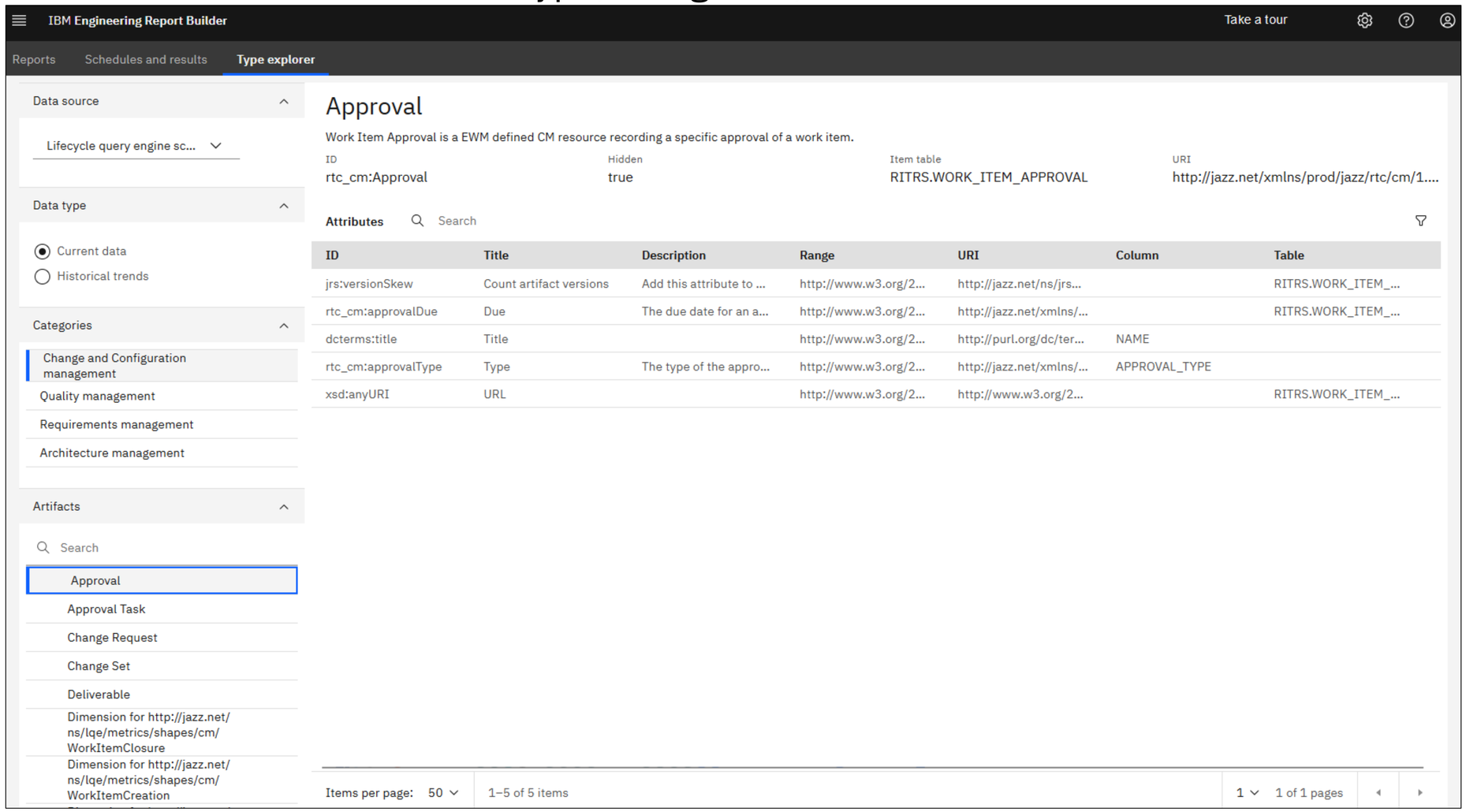
Now you can use external URIs to promote them into the parent type and create single branch reports with LQE data source that can return and filter on those promoted properties including common filtering across sub-types from the same parent type.

To distinguish subtype attributes, after attribute in the brackets, the word **Promoted** is added. The end result should be simplified report creation and most likely improved report performance when there is a large number of subtypes.



A help when writing advanced queries: RB Type explorer documents data schemas

- You can view data source schema details for all data sources (LQE rs, LQE Jena and DW) and use it to develop reports in Report Builder (RB). From the **Help** menu in RB, click **Type explorer** to view data source schema details. Filter the details based on data source, data type, categories, and artifacts.
- Use this information to understand the structure and dependencies of the data source schema. By using the detailed insights about the data source schema, you can create custom SQL queries and develop reports in RB.

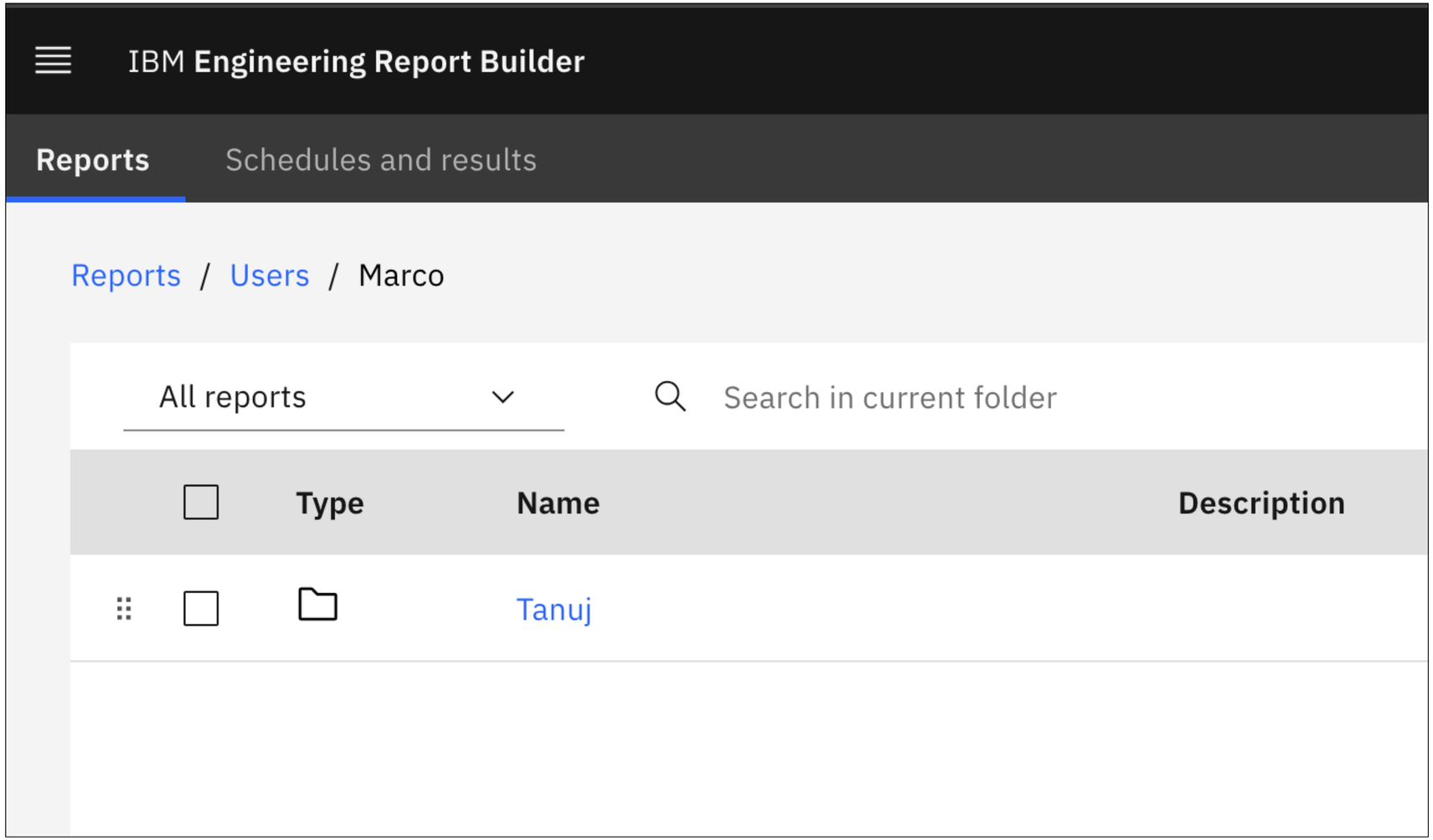


Move items by dragging over the breadcrumb node

In Report Builder, you can now move items to any parent folder using the breadcrumb.

Previously, to move or copy one or more items to a parent folder, you had to select the items and then use the **Move** feature to move them to the intended folder.

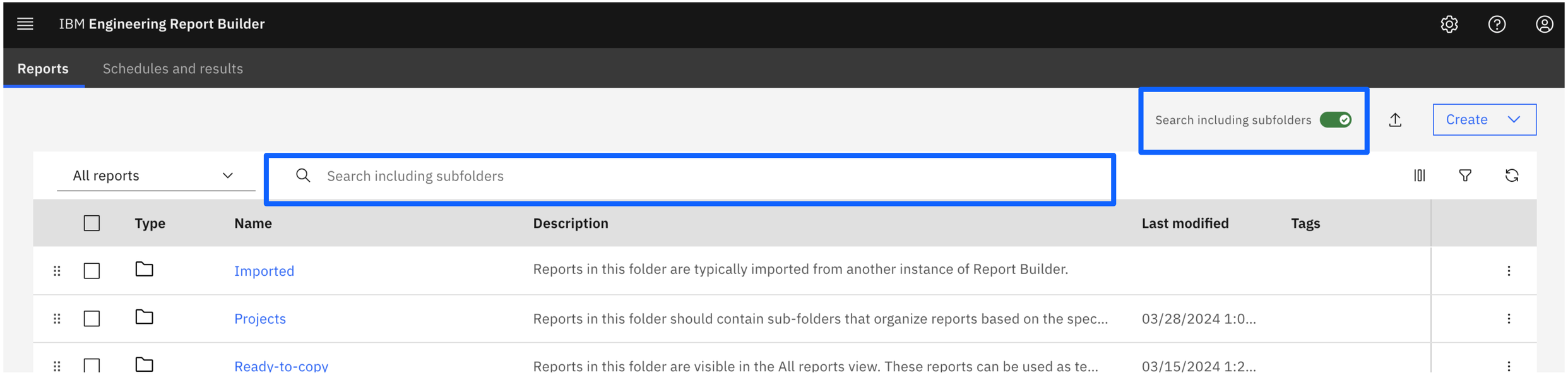
With this new feature, you can simply select and drag the items over the breadcrumb node to move them to the desired parent folder. For more information, see Moving reports or folders.



Optimized the searching feature in Report Builder

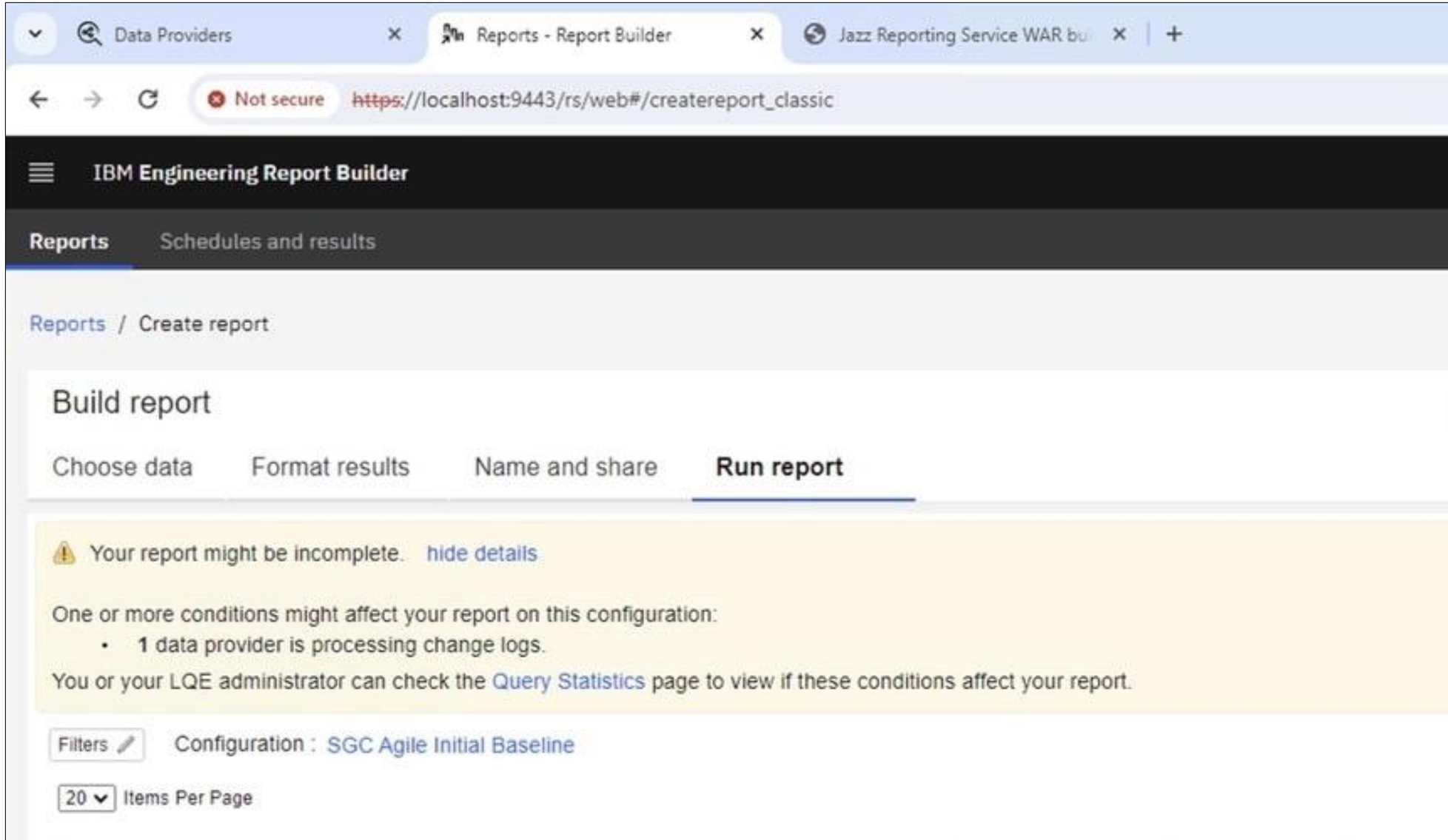
- As part of JRS 7.1, team focused to improve performance of the **Search all folders.** Search change made to follow MS Windows Explorer behavior. With this update, report search process is optimized by setting the scope of your search to include the subfolder, starting from the current folder in the RB. Previously, selecting **Search all folders** would search all the folders in RB.

- Search in current folder – cached data with almost instantaneous results.
- The **Search all folders** button is updated to **Search including subfolders** .
- You can still search all folders from root level.
- For more information, see Searching.



Improved Data completeness check feature

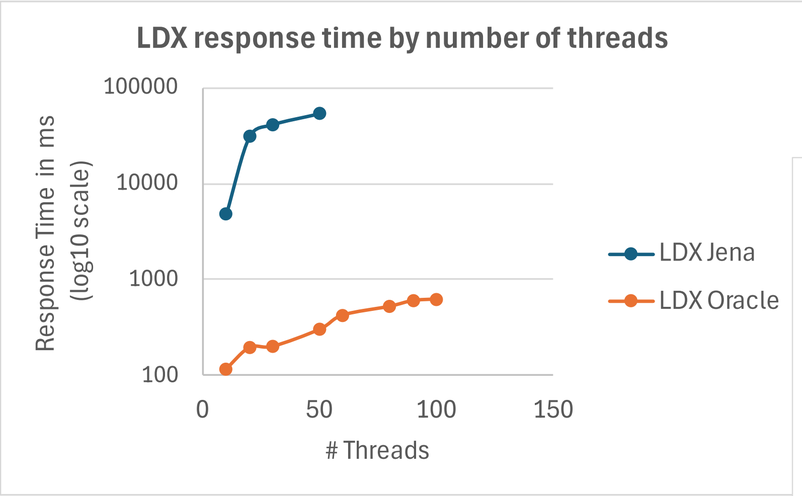
- When you perform the data completeness check for a report in Report Builder, you can now view the message about number of data sources that are processing the change logs.
- If the message states that the LQE is processing the change logs, it implies that the data might be incomplete, and your report might be impacted. You should wait until the LQE completes the change log processing and is up to date.
- For more information, see Run the report with data completeness check enabled.

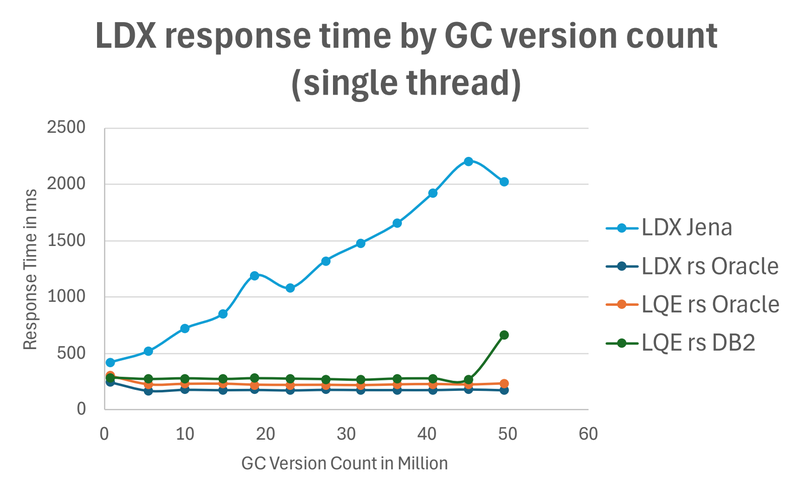


For administrators

Major improvements using Lifecycle Query Engine relational store (LQE rs and LDX)

- LQE rs is the default installation for new JRS deployments
- It offers significantly better performance and availability than LQE Jena: Generally faster queries, higher concurrency, less RAM required.
- Improvements are so good* that we now recommend using LQE rs for Link Index Provider (LDX) as well. LDX rs 7.1 performance report.

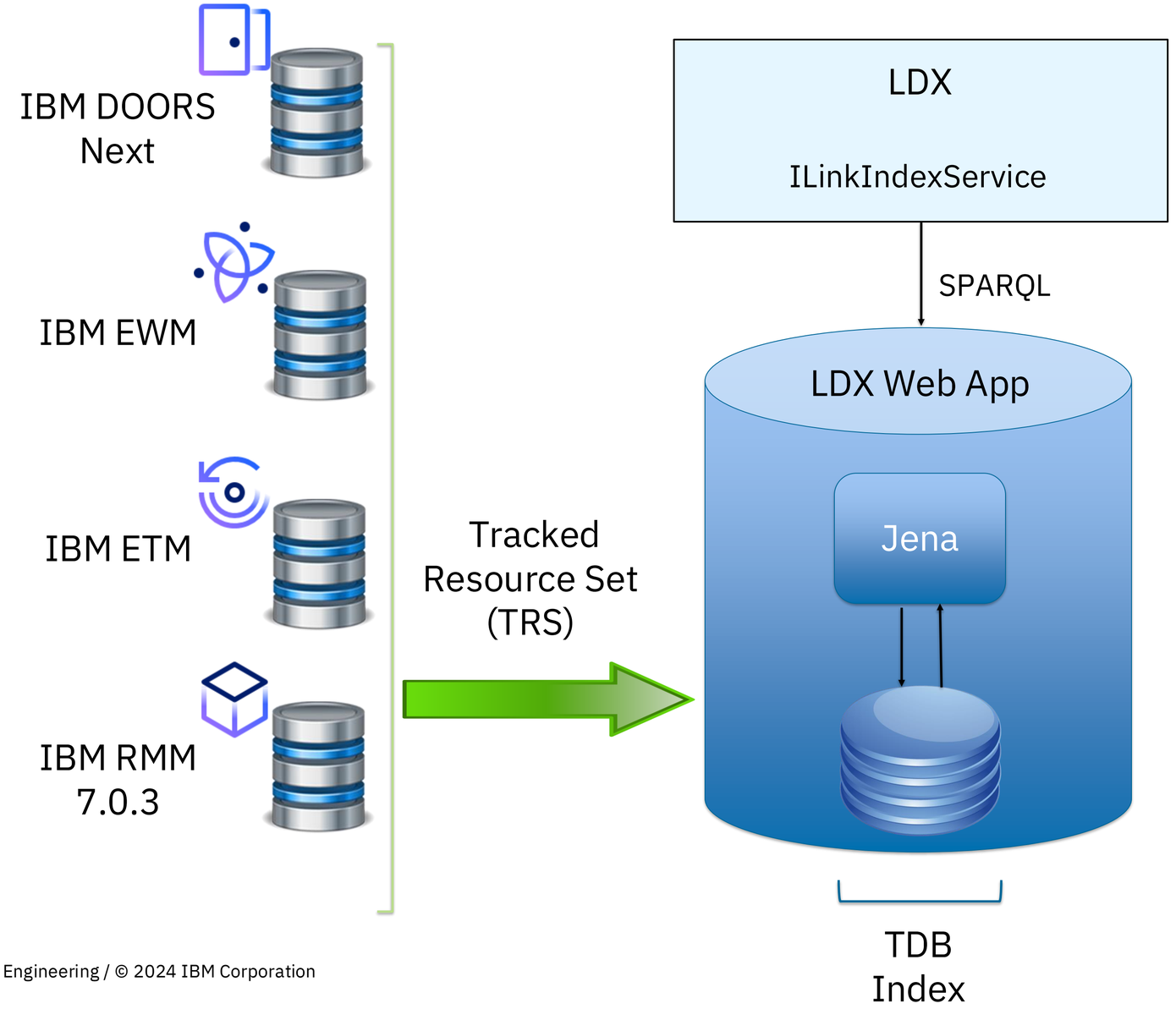




- Enable LQE rs during JTS setup. Report Builder detects whether LQE relational store is enabled. If so, then Report Builder enables LQE rs for reports.
- When LQE Jena is not installed or disabled, only SQL query language is supported, and query language options are not visible
- During the time that ELM 7.1 is deployed in your organization, plan to convert all remaining RB SPARQL reports to SQL. ELM 7.1 is the last version that will include LQE Jena.

** Tested in IBM lab; your performance may vary*

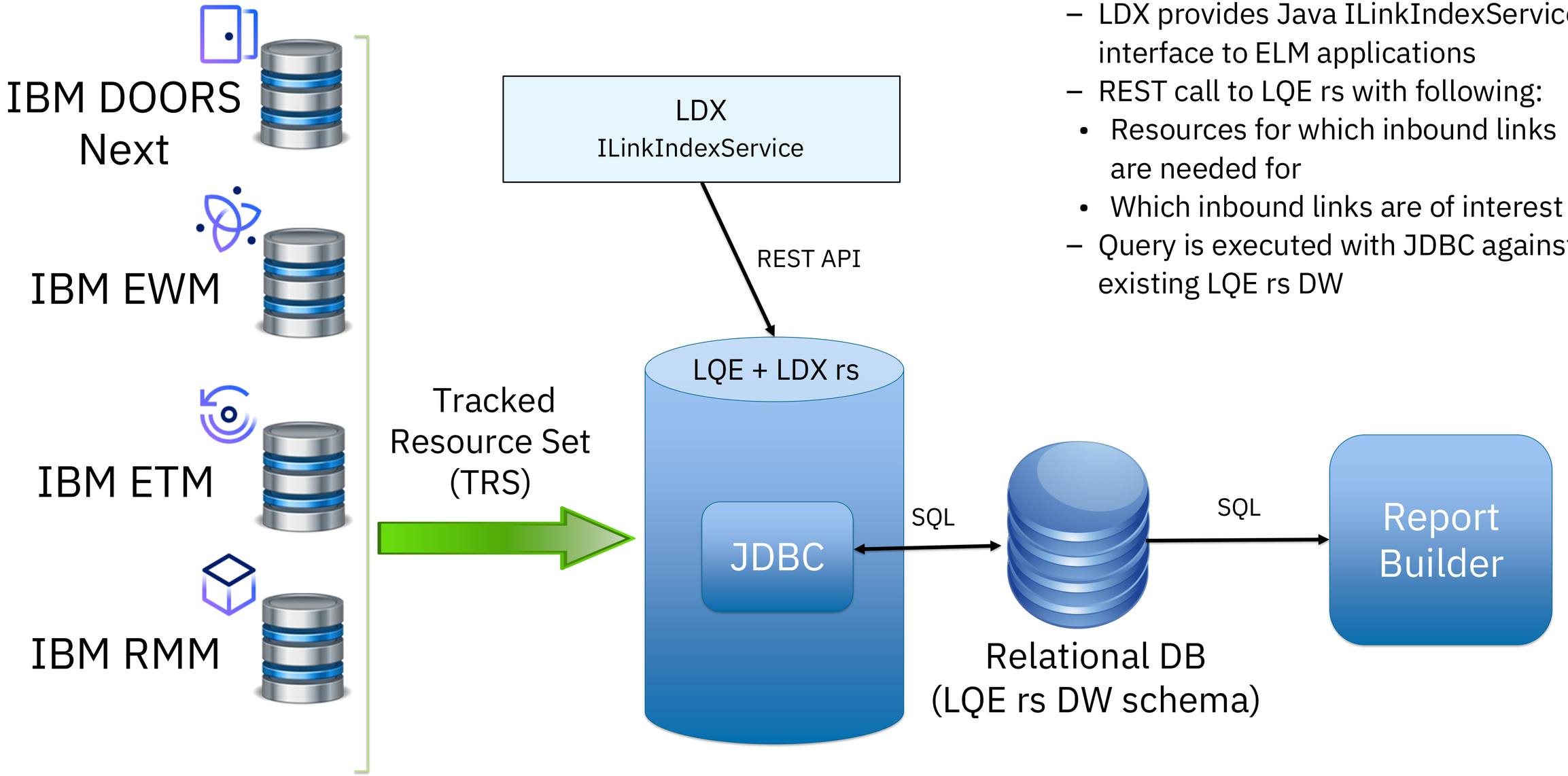
LDX in 7.0.3 and earlier was a separate application (a special case of LQE)



- LDX provides Java ILinkIndexService interface to ELM applications
- The interface utilizes a parameterized SPARQL query
  - Resources for which inbound links are needed for
  - Which inbound links are of interest
- Query is executed against the custom LQE at /ldx

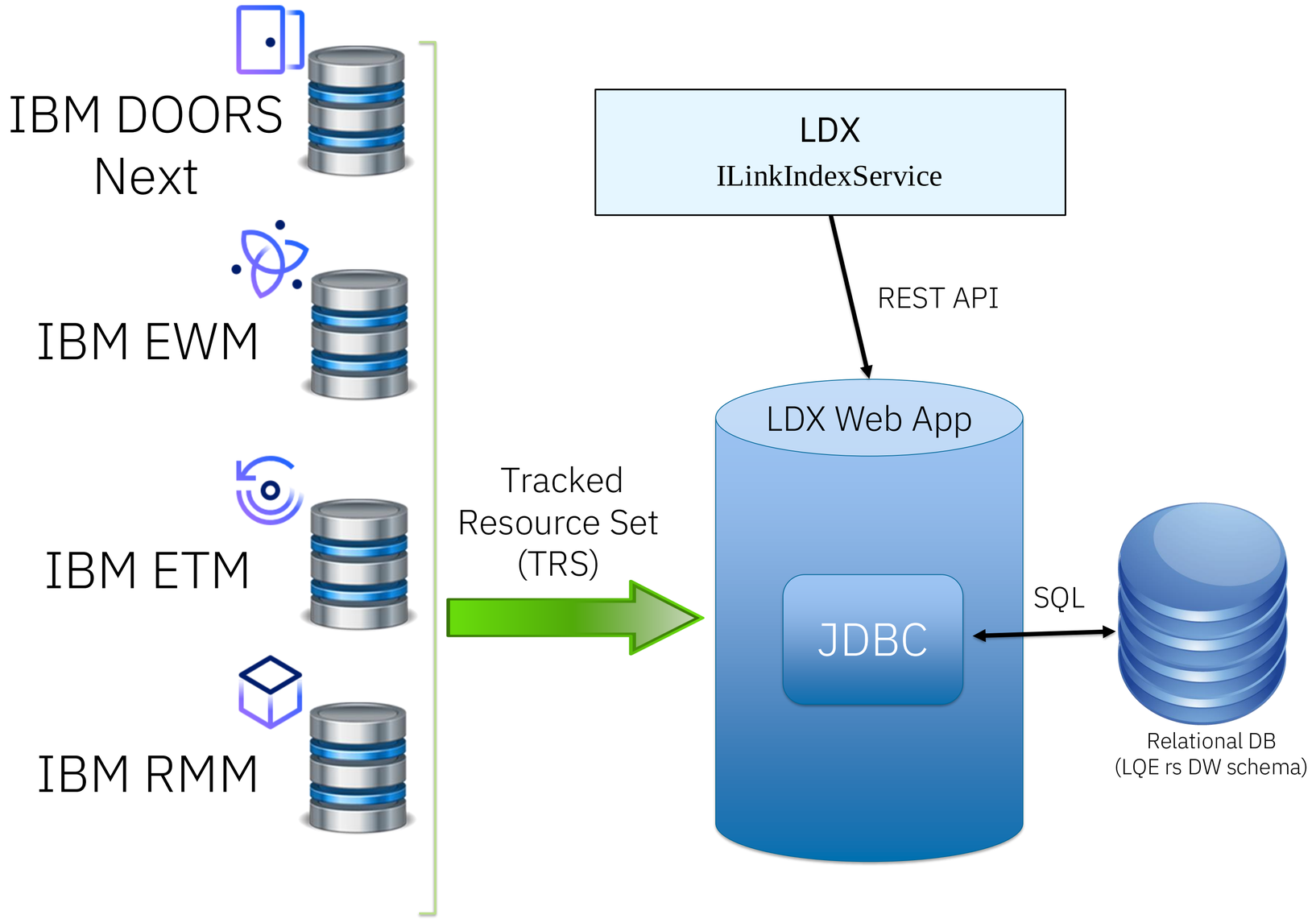
- Customized LQE as /ldx web app
- Adjusted to store only link info from resources, as well as GC, LC for scoping details
- Setup to index a subset of ELM data providers
  - Only the ones that own the storage for links between 2 domains
  - If cross DN to DN server links are created, those DN TRS feeds added as data providers

LQE rs can service LDX and it is the default for 7.1 and recommended for nearly all customers



- LDX provides Java ILinkIndexService interface to ELM applications
- REST call to LQE rs with following:
  - Resources for which inbound links are needed for
  - Which inbound links are of interest
- Query is executed with JDBC against existing LQE rs DW

You can still run LDX separately from LQE rs as LDX rs



- LDX provides Java ILinkIndexService interface to ELM applications
- REST call to separate LDX rs web app with following:
  - Resources for which inbound links are needed for
  - Which inbound links are of interest

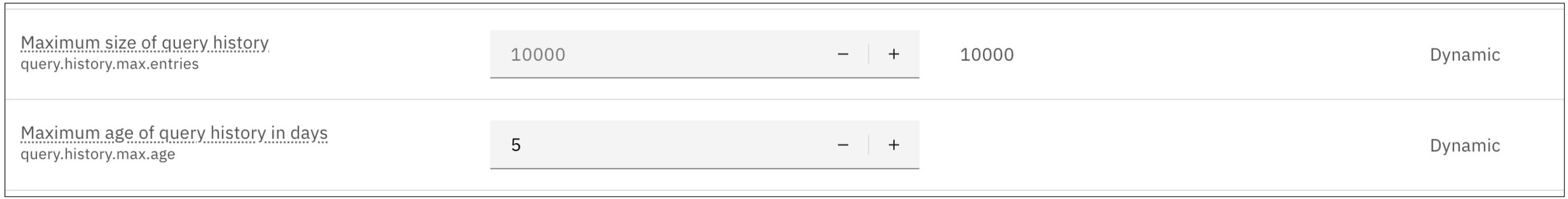
- LDX Web App - customized LQE rs setup as /ldx
- Adjusted to store only link info from resources, as well as GC, LC for scoping details
- Setup to index a subset of ELM data providers
  - Only the ones that own the storage for links between 2 domains
  - If cross DN to DN server links are created, those DN TRS feeds added as data providers
- Separate data warehouse instance

Automated the LQE server rename for LQE with relational store removes the need to reindex

- LQE server rename for LQE rs is now automated in Report Builder: **no need to reindex!**
- To rename the LQE server, all you need to do is generate and replace the mapping.txt file into the JTS LQE location and restart the Jazz Team Server.
- Previously, whenever the LQE server renaming process was triggered, you had to first unregister LQE from JTS, manually rename the server, and register the LQE again, and then reindex all data sources.

Configure the maximum size and age of query history

- You can use the following server properties in Report Builder to set the expiry of query history and report caching:
  - **Maximum size of query history:** The maximum size of query history must be a value between 1000 and 1000000. If maximum age of query history value is nonzero, then the query history maximum size value is ignored.
  - **Maximum age of query history in days:** The maximum age of query history must be a value between 0 and 365 days.
  - **Cache report results per user:** If true, report results are cached for each individual user. The same report result is not shared by more than one user. Caching the report results per user can improve tracking of report data usage.

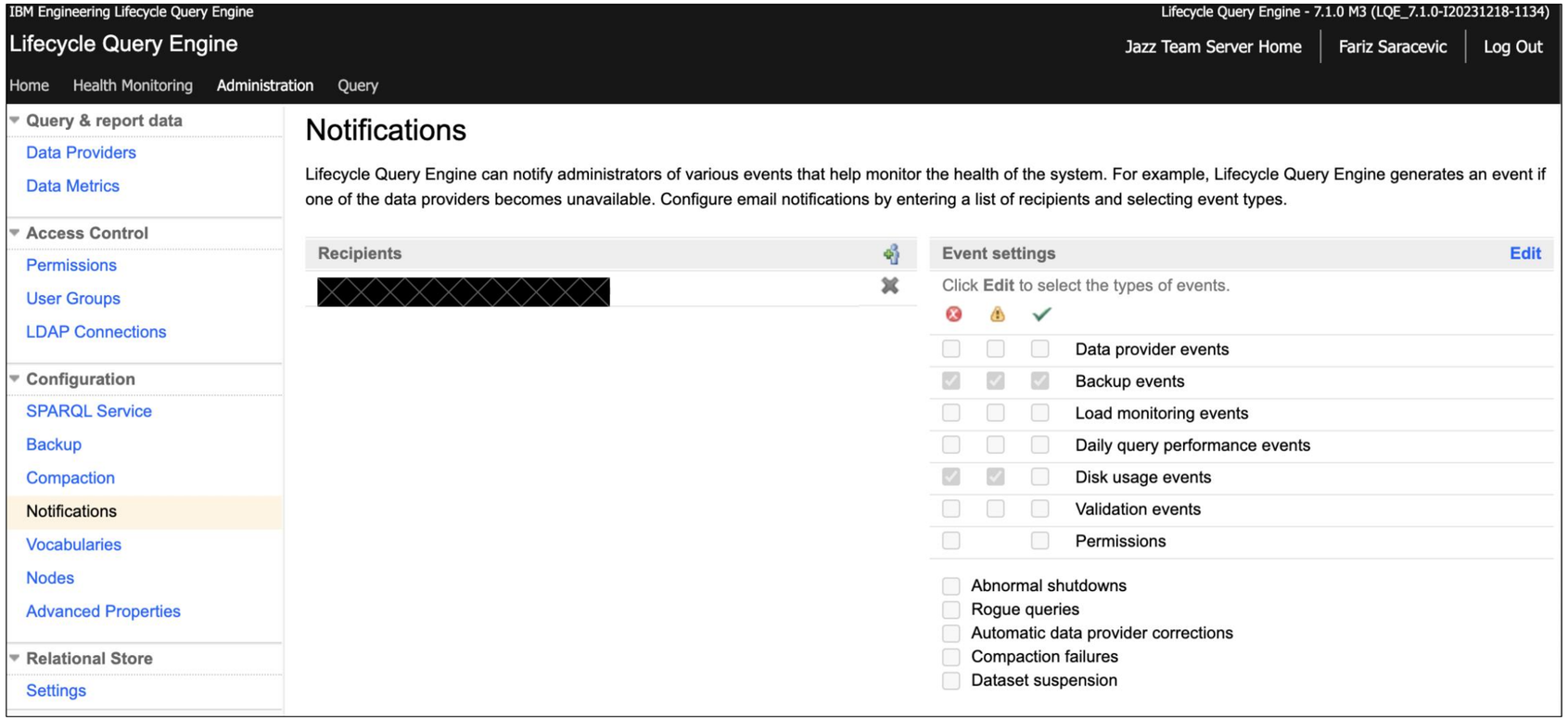


Note: If both the maximum size of query history and maximum age of query history in days are set, then maximum age of query history in days takes precedence.

For more information, see Report Builder configuration properties.

LQE provides additional notification events

- Additional events are added to the existing LQE notifications, **Compaction failures** and **Dataset suspension**. This helps the administrators monitor the health of the LQE servers and take corrective actions.
- To receive the notifications, the administrators can add recipients to the compaction and dataset suspension failures by enabling the notifications from https://<server>/lqe/web/admin/notifications.
- On compaction failure, an email about the failure is sent and the compaction schedule is disabled. They need to rectify the cause of failure and enable the compaction schedule.
- On data set suspension failure, an email is sent about the failure and the cause for the same.



Engineering Insights

Engineering Insights 7.1

User productivity

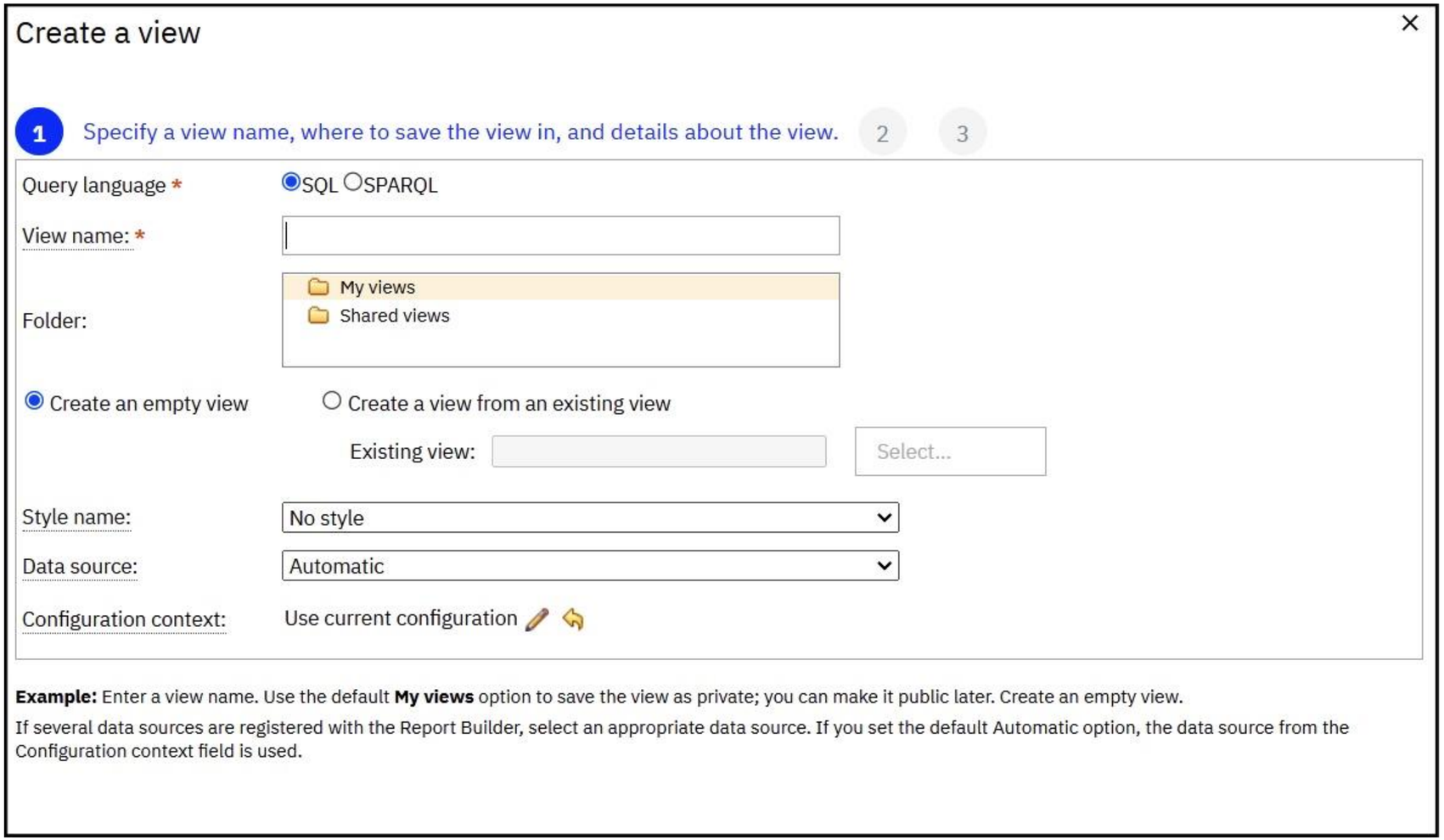
- ENI support for LQE rs
- Improved querying for string properties

Performance

- ENI view support using LQE rs performs generally better compared with LQE Jena

Engineering Insights (ENI) works with LQE relational store

ENI uses LQE rs to increase the overall scalability. ENI fetches the details of relational store if enabled, directly from LQE (no extra action required). If both relational store (rs) and Apache Jena triple store are enabled in LQE, ENI provides options to work with either of the query languages, SQL or SPARQL.

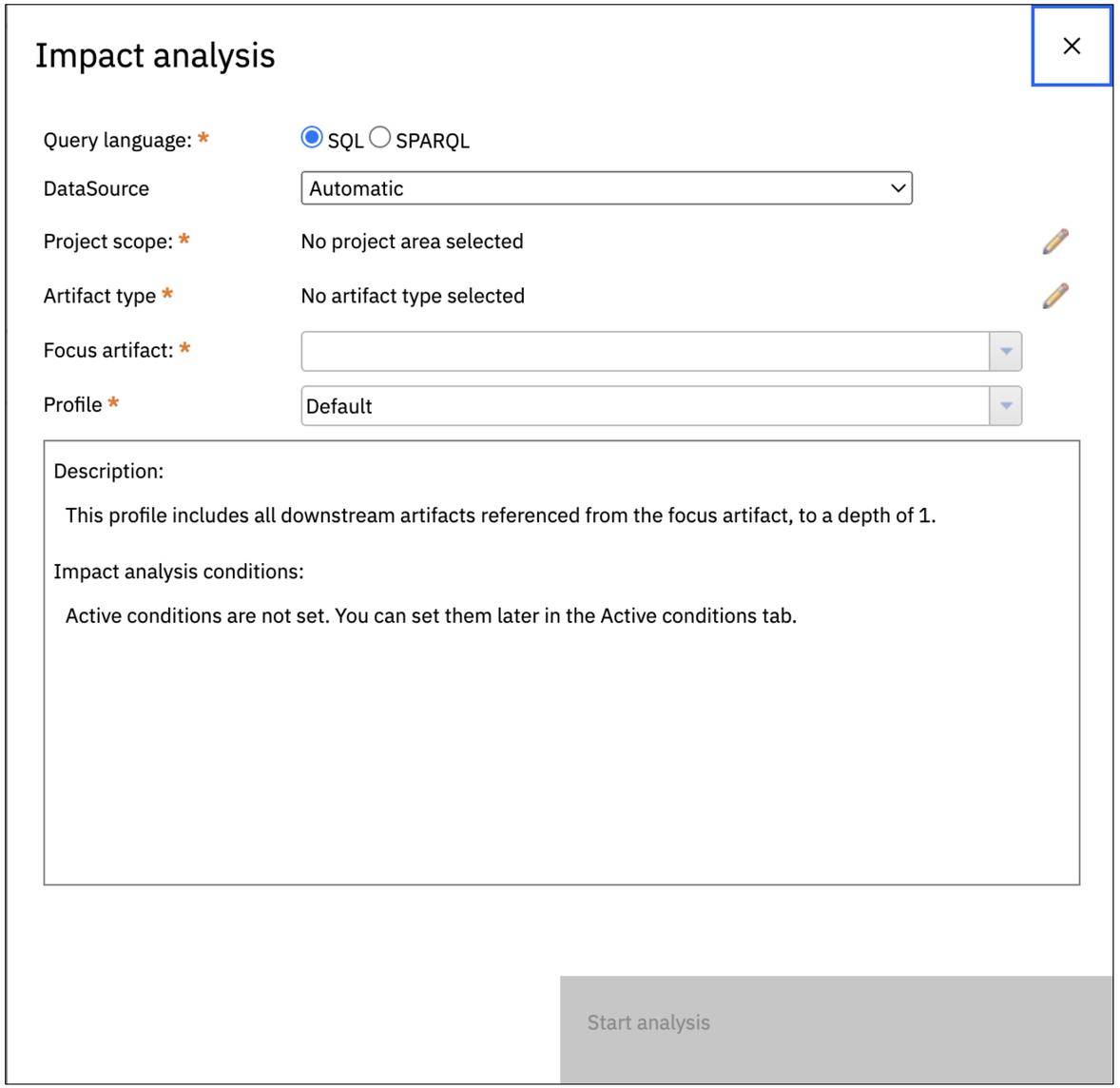


Create Custom Artifact Element using SQL as the query language

A new Custom Artifact Element (CAE) can be created by selecting SQL as the query language when LQE rs is enabled. For more information, see Creating a custom artifact element using SQL query.

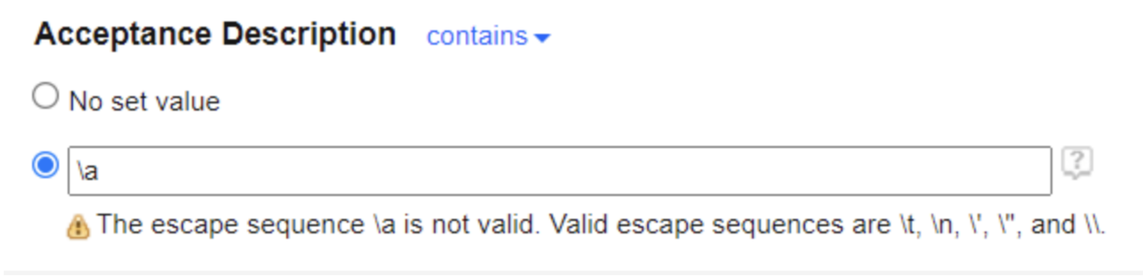
Create Impact analysis diagram using SQL as the query language

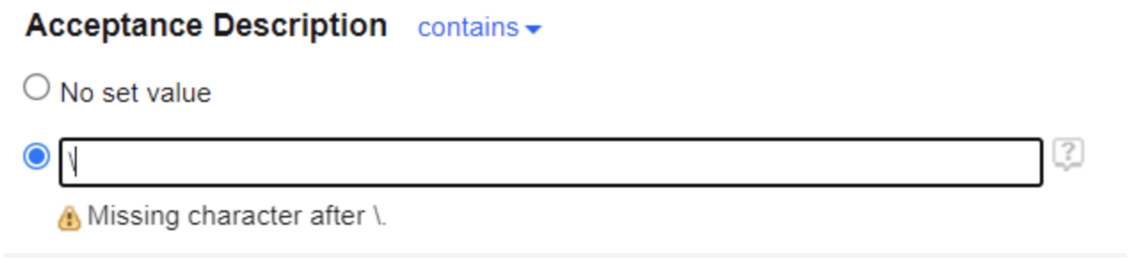
A new Impact analysis diagram can be created by selecting SQL as the query language when LQE rs is enabled. For more information, see Creating impact analysis diagrams using SQL.



Improved querying for string properties

- String queries in ENI now make use of improvements introduced in Report Builder 7.0.3. This change provides a consistent and documented design for querying string properties in both applications.
- The following are the images that display warnings related to the validation of string values:





Publishing

Engineering Publishing 7.1

User productivity

- Preserve the original image quality when generating PDF in PUB
- Publishing honors domain application vertical alignment in table cells
- Folder action permissions ensure no unauthorized changes

Preserve the original image quality when generating PDF in PUB

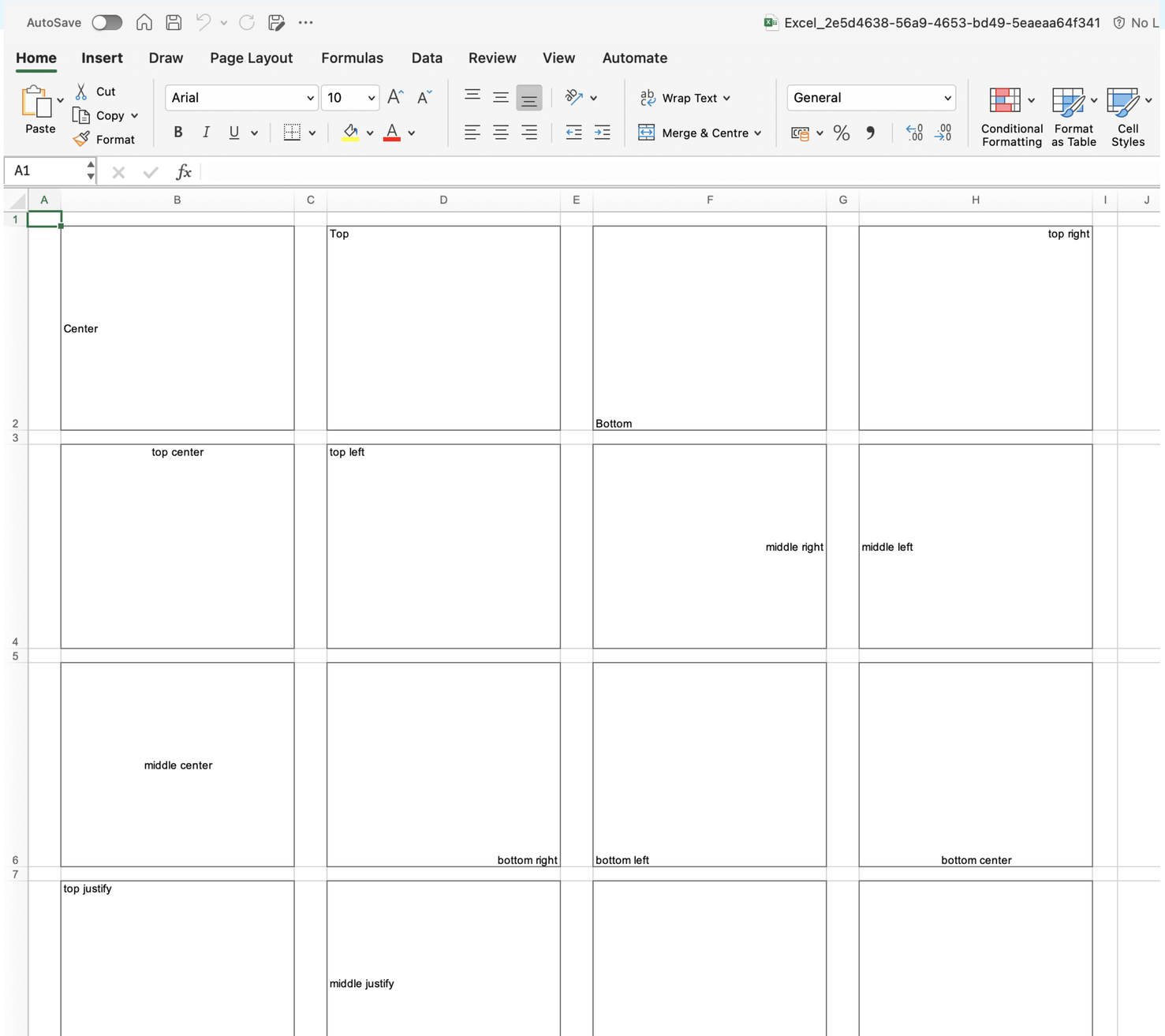
- PUB allows users to preserve the original image quality from the source document when generating a PDF. Previously, you might select from the following image quality in pixel per inch (ppi) for your PDF format report: Low (140 ppi), Medium (220 ppi), and High (300 ppi). However, if the original image quality was higher than the listed image sizes and you zoom the image in the PDF, the image in the PDF gets blurred.
- With the **Keep as original** image quality option, the image quality in the generated PDF report is the same as the source document. On the Resources page in Publishing Document Builder, go to the Reports tab and click Edit Report. In the Report output format section, select PDF and click **Update and configure**. In the Configure report window, go to **Outputs** tab, and specify Image Quality (ppi) as **Keep as original**.

Publishing honors domain application vertical alignment in table cells

Engineering Publishing honors vertical alignment of the table cells that are passed by IBM® DOORS® Next or Engineering Test Management.

Previously, the template designers were not able to use configured vertical alignment of table cells.

The following is an image displaying a PDF output with the various vertical alignment options:



ELM Automotive Compliance 1.1

ASPICE 4.0

- New process group: VAL.1 Validation has been introduced
  - New test plan artifact category: Validation strategy
  - JRS Report for traceability (coverage, correctness, and gap)
  - MEC: Process guidance
- Updates to Automotive Compliance MEC process as per as per new terminology guidelines provided by ASPICE 4.0.
- Removed support and guidance for the following process groups:
  - ACQ 12
  - SUP.2

ASPICE for Cybersecurity

- Updates for process group SEC.3 Risk treatment verification and SEC 4. Risk treatment validation
  - New test plan artifact category
  - JRS Report for traceability (coverage, correctness, and gap)
- Updates to MEC: Process for:
  - New guidance and standard mapping for SEC.1, SEC.2, SEC.3, SEC.4, and MAN.7 process groups
  - Updates for MAN.7 and adjacencies to TARA process

ISO 21424 for Cybersecurity

- Updates for Threat Analysis and Risk Assessment (TARA)
  - Extend TARA calculator to provide of additional calculations like attack vector, risk value etc.
  - Updated information model of DOORS Next template
  - Updated JRS Report for traceability: Cybersecurity goals, risk treatment validation specification, and validation results
- New calculator to determine value of CAL of cybersecurity goals

Other Updates

- Updates related to SAFe 6.0 terminology and support
  - Updates to Automotive Compliance process to reflect terminology changes in SAFe 6.0
  - Minor updates to EWM and DOORS Next template for Portfolio Management with guidance on how to use SAFe 6.0 template for creating project Lean Portfolio Management (LPM) based on SAFe 6.0.
  - Updates to names and descriptions of all existing JRS reports to reflect SAFe terminology updates
- Use of folders to package existing and new JRS reports and discontinue use of tags as primary mechanism for organization.

Thank you