



“Is that it?”
“No. That’s a wall.”
“It could be disguised.”
“You’re not very good at looking for things, are you?”
“I’m good at looking for walls. Look, I found another one.”

— Derek Landy, Kingdom of the Wicked

SESSION 172 NEW SEARCH CAPABILITIES IN PTC WINDCHILL 11

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Thursday 9th June

liveworx.com | [#LIVEWORX](https://twitter.com/LIVEWORX)



AGENDA

- Improvements To Search
 - Advanced Search Page, Nested Queries, Related Object Search, Search History & Saved Searches

- Improvements To Search Results
 - Facets, Keyword in Context, Dynamic Columns

- Improvements To Classification Search
 - Classification Explorer, Auto Name Generation for Classified Parts, Classification Structure loader

- Administration
 - Indexing Status Report

- Roadmap
 - Windchill 11.0 M010

UPDATED ADVANCED SEARCH PAGE



Keyword Search
Search on Content and meta Data

Type Field Set
Select Object Types

Context Field Set
Select Contexts to search on

Classification Field Set ★
Select Classification(s) for Parts to Search against
Type Ahead for classification nodes

Criteria Field Set ★
Specify Criteria against Classification Modelled or soft attributes
Picker for multi values attributes
Create Complex Queries with Grouping and Nesting

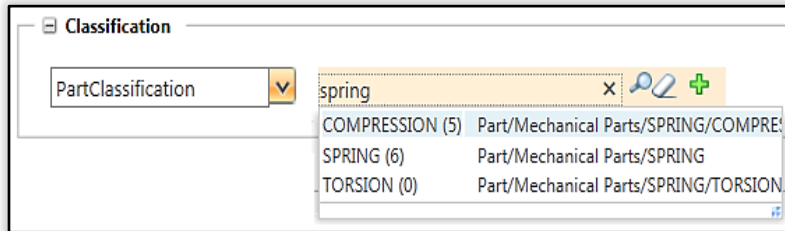
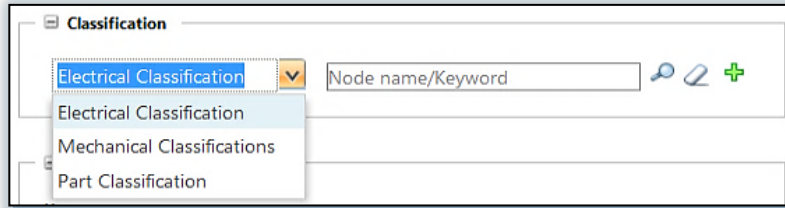
Related Object Search ★
Search against attributes of related objects
Build complicated relationship scenarios on the report template
and execute on Search



CLASSIFICATION SEARCH ON THE ADVANCE SEARCH PAGE



Classification Field Set



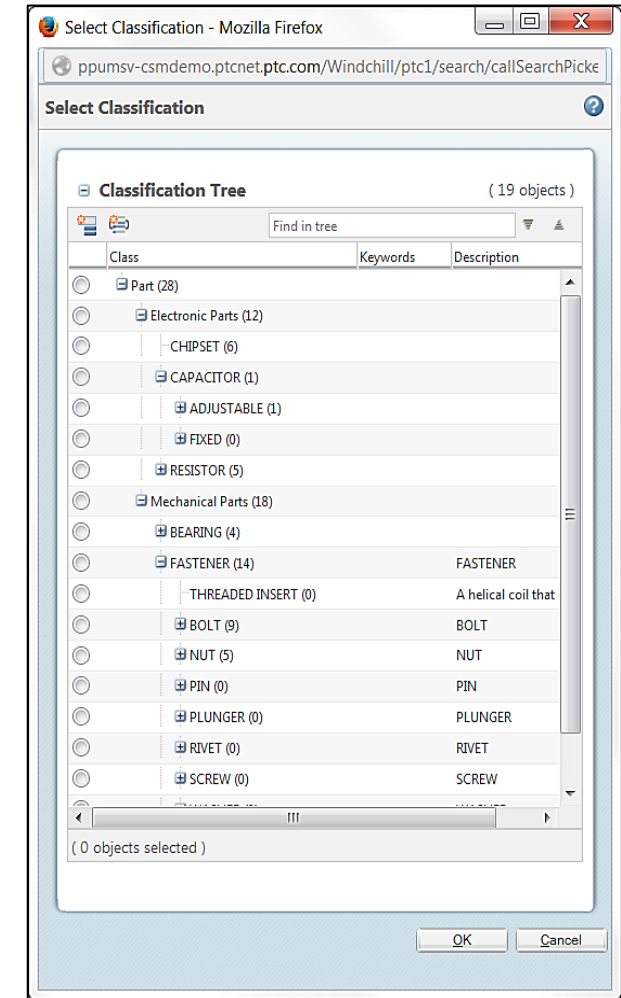
- The new Classification field set is available on selecting a Part and/or its subtypes
- Concept of Binding Attributes – Filters the classification structure based on the need (for eg. Show me only the nodes specific to my department)
- Type ahead for classification nodes
- Shows the full path of the classification node

Classification Node Picker

- Ability to pick a classification node from the classification structure
- Tree capabilities like “Find in Tree”
- Next and Previous match from “Find in Tree”
- Expand and Collapse
- Total number of parts classified
- Number of parts classified against each node

Multi Classification (+)

- Ability to search against multiple binding attributes
- Ability to search against multiple nodes against the same binding attribute



CLASSIFICATION SEARCH ON THE ADVANCE SEARCH PAGE



Classification Attributes on Query Criteria

Criteria

(Application Industry = 'Automotive') AND (Coil Direction = 'Right Hand') AND (End Item = 'No') AND (State = 'In Work') AND (View = 'Design')

AND

Application Industry = Automotive

Coil Direction = Right Hand

End Item = No

Hole Diameter = m

Last Modified = Choose Date Range From: yyyy-mm-dd To: yyyy-mm-dd

Load = N

Pitch = m

State = In Work

View = Design

Weight = kg

Wire Diameter = m

- The new Criteria field set includes all classification attributes along with modeled attributes and Soft attributes
- The Classification attributes (for the selected Classification node) are available on the query builder

Classification Attributes in the Attribute Selector

- The Attribute picker shows a list of all classification attributes along with the Object type attributes (Part)
- The attribute picker shows three columns - Data type (with icons representing a type of attribute), Attribute name and the attribute type
- In case of Classification attribute, the attribute type shows the complete path of the Classification Node
- Multi-select - Ability to select all relevant attributes at once

Attribute Selector

All Attributes (40 objects)

Data Type	Attribute	Type
1/r	End Item	Part
0.1m	Free Length	Part/COMPRESSION
	General Description	Part/COMPRESSION
0.1m	Hole Diameter	Part/COMPRESSION
	Iteration	Part
	Last Modified	Part
0.1m	Load	Part/COMPRESSION
0.1m	Load Length	Part/COMPRESSION

(0 objects selected)

OK Cancel

ADVANCED SEARCH QUERY TO INCLUDE CLASSIFICATION SEARCH CAPABILITIES



Inclusion of the Classification Attributes on the search criteria at all locations

On the Search criteria string

<< Edit Search Criteria Start a New

Criteria: ((Name = 'p*') AND ((Application Industry = 'Automotive') AND (Assembly Mode = 'Separable') AND (State = 'In Work')));Type=Part;
PartClassification=COMPRESSION;Context=All Contexts;Sourcing Context=Default

Search Results Default Part View

	Number	Name	Context
	0000000042	P2	GOLF_C
	0000000041	P1	GOLF_C

On Global Search history

Part, Document, CAD D... Search ... Quick Links

((Name = 'p*') AND ((Application Industry = 'Automotive') AND (Assembly Mode = 'Separable') AND (State = 'In Work')));Type=Part;
PartClassification=COMPRESSION; Context=All Contexts; Sourcing Context=Default

Type=Part; PartClassification=Part; ...

On Search History

Search History

Today

((Name = 'p*') AND ((Application Industry = 'Automotive') AND (...))

On Search mini info page

Search History

Last performed on : 2015-05-15 11:50:42 IST

Keyword :
Type : Part
Context : All Contexts
Classification : PartClassification = COMPRESSION

Additional Criteria : ((Name = 'p*') AND ((Application Industry = 'Automotive') AND (Assembly Mode = 'Separable') AND (State = 'In Work')))

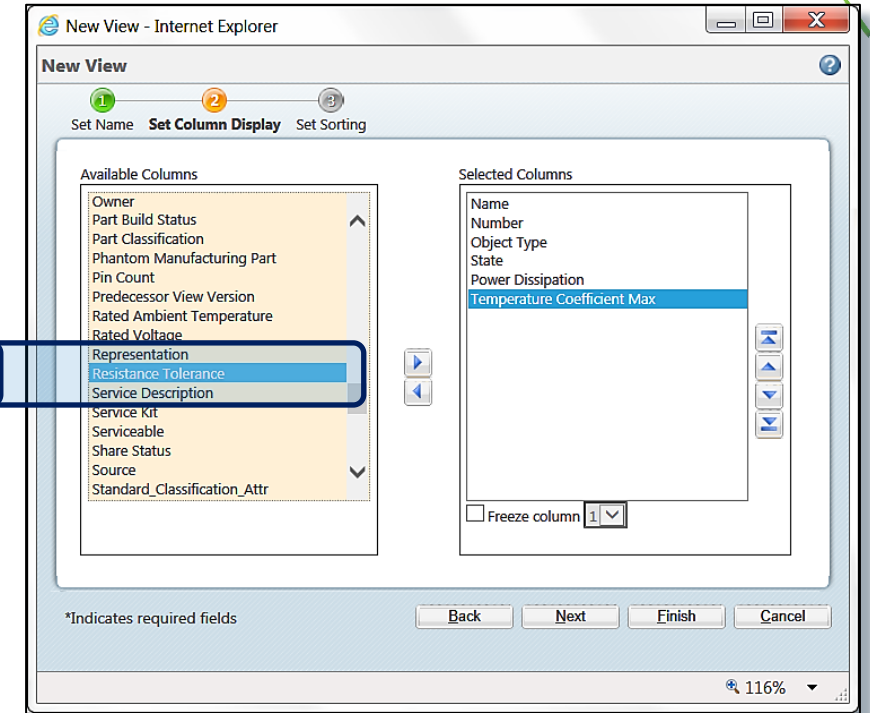
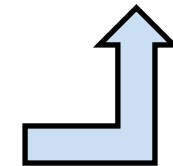
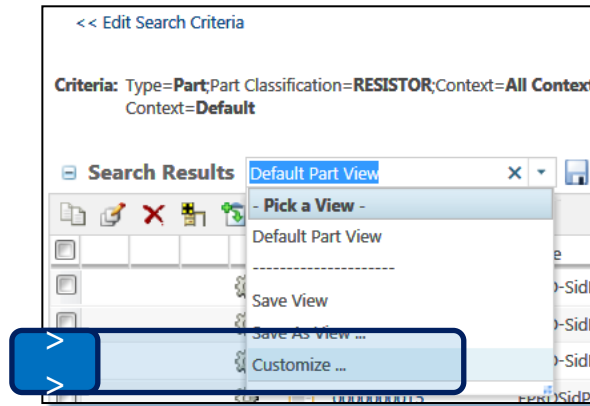
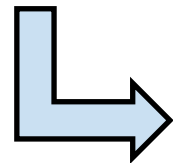
Sourcing Context : Default

Search Edit Criteria

TABLE VIEWS WITH CLASSIFICATION ATTRIBUTES

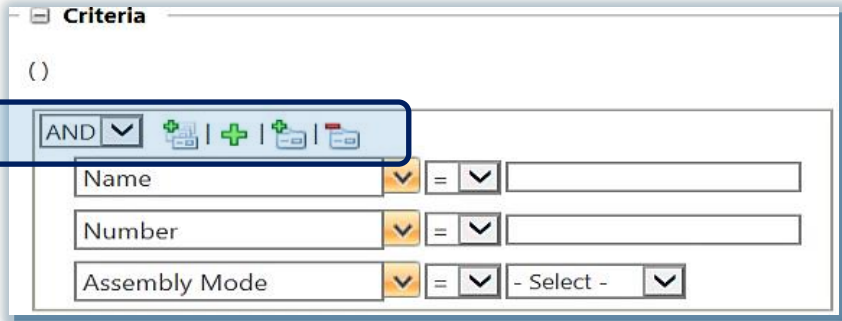
Build table views for specific Classification Nodes

- Classification Attributes are now available on the table views for selection
- The Classification Attributes are available for the Node selected on the Advance Search page
- The Table View can be saved for the respective Node
- When a query is executed for another Node, the table view changes to the Default part view
- When a query is executed for the same node, the table view reverts back to the saved view (specific to the node)



ABILITY TO PERFORM NESTED QUERIES

The Criteria Field set



AND/OR Operator (Default is AND)



Launch the Attribute Selector to select multiple attributes in one go



Add a new row to add an attribute using the drop down picker



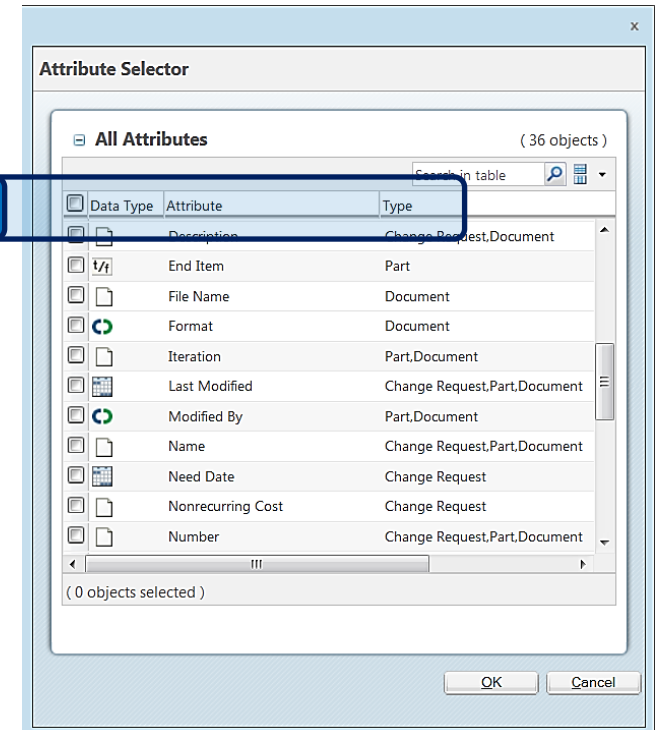
Add a new Group to club multiple attributes with an AND/OR operator



Remove a Group

Columns on the Attribute Selector help easier identification of attributes enabling appropriate selection

- **Data Type** → Shows the type of attribute (String, Date, Real number, Boolean, Reference etc.)
- **Attribute** → Display name of the Attribute
- **Type / Nodes** → List of all types that the attribute is relevant for (All Nodes in case of a classification attributes)



ABILITY TO PERFORM NESTED QUERIES

The screenshot shows a 'Criteria' panel with a list of attributes on the left and a search criteria builder on the right. The attributes list includes: Name, Number, Checked Out By, Collapsible, Color, Configurable Module, Created By, Created On, Default Trace Code, Default Unit, End Item, Iteration, Last Modified, Modified By, Name, and Number. The search criteria builder shows a dropdown menu for the 'Name' attribute.

- Drop down picker for attributes
- The list is driven from the objects types selected from the type picker

This screenshot shows the 'Criteria' panel with a type-ahead search for the 'Name' attribute. The dropdown menu is open, showing a list of attributes: CBAWithoutNamespace, Checked Out By, Collapsible, Configurable Module, Created By, and Created On. The search criteria builder shows the 'Name' attribute selected with a value of 'c'.

- Type ahead for attributes, the list is dynamically refreshed as text is entered

- The search query is also displayed in a textual format (to help readability) :
- The criteria string represents the complete nested query in a string format (that includes Boolean operators, between groups as well as individual attributes).
 - The query represents nested loops in parenthesis.
 - The string only displays attributes against which a value has been selected.
 - The string is localized.
 - The string is wrapped if too long (will continue in the next row)
 - When there is no criteria added, then only the default brackets are shown in the criteria string.

This screenshot shows the 'Criteria' panel with the final nested query string displayed in a blue box: `(((Name = '*.asm') AND (Number = '0002*') AND ((Assembly Mode = 'Separable') OR ((End Item = 'Yes') OR (Iteration = 'Latest')))) AND (Default Unit = 'meters') AND (View = 'Design') AND (State = 'In Work'))`. Below the string, the search criteria builder is populated with the following values: Name: *.asm, Number: 0002*, Assembly Mode: Separable, End Item: Yes, Iteration: Latest (selected), Default Unit: meters, View: Design, and State: In Work.

ABILITY TO PERFORM NESTED QUERIES

Need more explanation?

- When multiple object types are selected to build a query, each attribute on the query builder could be relevant for multiple types. To avoid any post execution complexity, user needs to understand which attribute would result in search results against which object type. An “Explain” link is available at the end of the Query Builder, which shows a breakup of the query against each object type

Criteria

```
(( (Assembly Mode = 'Separable') AND (Business Decision Category = 'Approved') AND (Complexity = 'Fast Track') AND ((Configurable Module = 'Variant')) ) AND (Request Priority = 'Emergency'))
```

Explain

AND

Name =

Number =

AND

Assembly Mode = Separable

Business Decision Category = Approved

Complexity = Fast Track

OR

Configurable Module = Variant

Request Priority = Emergency

On clicking the Explain Link

Typewise Query Builder Criteria

Criteria String

```
(( (Name = 'a*') AND (Number = '00007') AND ((Assembly Mode = 'Separable') AND (Business Decision Category = 'Approved') AND (Complexity = 'Fast Track') AND ((Configurable Module = 'Variant')) ) ) AND (Request Priority = 'Emergency'))
```

Search Types	Applicable Query Builder Criteria
CAD Document	(((Name = 'a*') AND (Number = '00007')))
Part	(((Name = 'a*') AND (Number = '00007') AND ((Assembly Mode = 'Separable') AND ((Configurable Module = 'Variant')))))
Change Notice	(((Name = 'a*') AND (Number = '00007') AND ((Complexity = 'Fast Track'))))
Problem Report	(((Name = 'a*') AND (Number = '00007')))
Change Request	(((Name = 'a*') AND (Number = '00007') AND ((Business Decision Category = 'Approved') AND (Complexity = 'Fast Track')) AND (Request Priority = 'Emergency')))
Document	(((Name = 'a*') AND (Number = '00007')))

SEARCH/QUERY ON ATTRIBUTES OF RELATED OBJECTS

Search on Relationships

- Power users can now build a search with knowledge of not just the objects they are looking for, but also about associations that the object has with other objects.
- Power users can now build complex queries as report templates and execute the query on the Advance search page
- End users will now be able to select a report template to display the attributes of associated objects, enter values for the attributes and execute search

Related object search preference

Search		
Advanced Search Default Types List	Part, Document, CAD...	This
All Applicable Object Types Search	Abstract Specification,...	List
Enable Index Search	Yes	Cho
Enable Related Object Search	No	Ena

Related object search is valid only on a single object type selection

Type

All Types

My Favorite Types Add

CAD Document

Part

Change Notice

Problem Report

Report template Selection

Related Object Search

Report Template: -- Select --

Attributes from the related object

Related Object Search

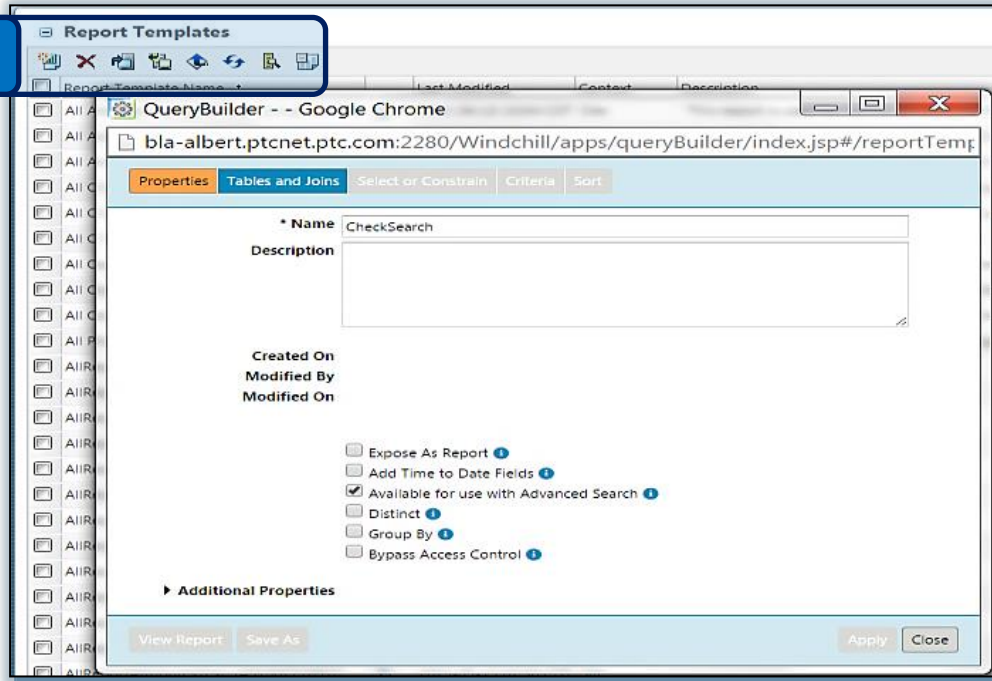
Report Template: Test Part Relationship

SourceParameter	equals	
Name	like	
Used_Part_Name	like	Oil
Used_Part_Number	like	

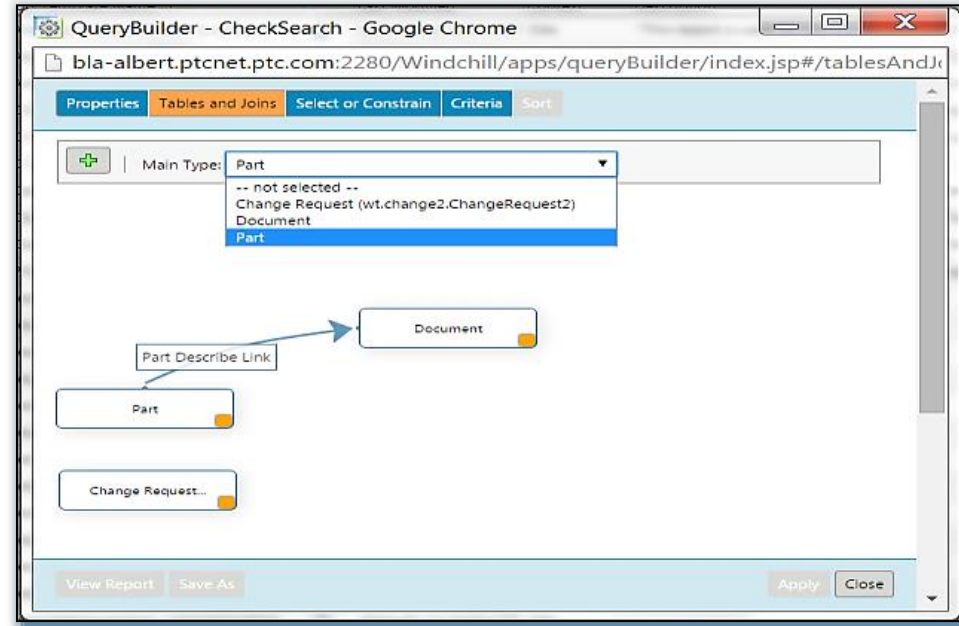
SEARCH/QUERY ON ATTRIBUTES OF RELATED OBJECTS



Building a Report Template



- An administrator can create a Report Template (which includes the desired associations for a particular object type)
- Administrator enables the availability of a Report Template on the Advance Search page



- Complex relationships can now be built on the new Query Builder (the new graphical UI has advanced features like drag and link)
- The report template is exposed on the advance search page, that pulls in all attributes for the associations selected on the Query Builder
- Ability to execute search against this Query

EMPTY SEARCH OR NULL CRITERIA IS SUPPORTED



Null Search

- Null Search is supported for:
 - String
 - Real Number
 - Real Number with Units
- This feature is property driven (off by default)

String Attribute

A screenshot of a search criteria editor. The window title is 'Criteria'. Below the title bar, there is a toolbar with icons for adding, deleting, and saving criteria. The main area shows a list of criteria under an 'AND' operator. The first criterion is 'Name' with an equals sign operator and an empty text input field. The second criterion is 'Number' with a dropdown menu open, showing options: 'is null' and 'is not null'. The 'is null' option is selected.

Real Number Attribute

A screenshot of a search criteria editor. The window title is 'Criteria'. Below the title bar, there is a toolbar with icons for adding, deleting, and saving criteria. The main area shows a list of criteria under an 'AND' operator. The first criterion is 'MarketPercentage' with an equals sign operator and an empty text input field. The second criterion is 'Number' with a dropdown menu open, showing options: 'is null' and 'is not null'. The 'is null' option is selected.

- Null Search is only supported on the query search criteria (not supported for Index search or Classification search)

- Validation on performing Null search with Index OR Classification Search

The page at sgarg2d.ptcnet.ptc.com says:

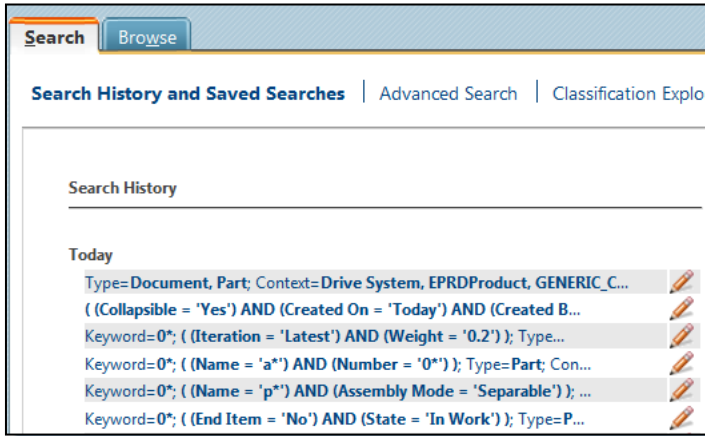
You cannot search for 'null' or 'not null' values when performing an indexed search or a classification search. To perform this search, either clear the Keyword field or disable indexed searching using the Preference Management utility. If supplied, clear any classification search fields.

OK

SEARCH HISTORY AND SAVED SEARCHES



Search History



- The sequence of criteria on the search history criteria string has been updated to display the attributes before the type and context.
- Earlier if the same search is executed multiple times, user was not able to differentiate between search queries as only the types and contexts were displayed before the string is truncated.
- The number of characters displayed on the string is configurable by a property (default is 65)

- By Default 15 search histories are stored
- Uniqueness is maintained across all 15 Search histories at all locations (including Global Search)
- The display order is maintained (most recent is at the top)
- In case of saved search, the uniqueness is maintained in terms of the saved search name and creator

For example:

ABC
ABC
ABC
XYZ
ABC
ABC
PQR

Will be:

ABC
XYZ
PQR

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REFINE SEARCH RESULTS USING FACETS

FACETS

➤ Now Windchill Search gives the same user experience as shopping on an e-commerce retail site

- With the availability of Facets, there is no need for users to know the exact search criteria when searching for data.
- Users only need to have a broad idea of what they are looking for and simply perform search on one or more keywords.
- On receiving search results, users can begin filtering them using facets, till the results are filtered down to the exact data that is being looked for.

The screenshot shows the PTC Windchill Administrator interface. The top navigation bar includes 'Search' and 'Browse' tabs. Below the navigation, there are links for 'Search History and Saved Searches', 'Advanced Search', and 'Classification Explorer'. The main content area is divided into two sections: 'Refine Results' on the left and 'Search Results' on the right.

Refine Results (Facets):

- Type**
 - Part
 - SoftPart
 - FacetClfSubType
 - EPRDPart
 - Electrical Part
 - FacetClfType
 - Supplier Part
 - Context
 - Created On
 - Last Modified
 - Assembly Mode
 - Checked Out By
 - Configurable Module
 - Created By
 - Default Trace Code
 - Default Unit
 - End Item
 - Modified By
 - Source

Search Results:

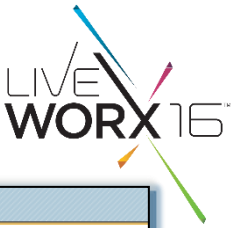
Criteria: Keyword=a*;Type=Part;Context=All Contexts;Sourcing Context=Default

Search Results (575 objects)

			Numeric_Integer	Number	Name
<input type="checkbox"/>				WCDS000036	01-5121040.asm
<input type="checkbox"/>				GC000031	WHEELS_ASSEM
<input type="checkbox"/>				WCDS000564	01-512040.asm
<input type="checkbox"/>				D3_0000000225	Cable Assembly, f
<input type="checkbox"/>				GC000040	WHEEL_ASSY
<input type="checkbox"/>				GC000034	AXLE_SLEEVE
<input type="checkbox"/>				WCDS000469	01-51283.asm
<input type="checkbox"/>				WCDS000748	01-512138.asm
<input type="checkbox"/>				WCDS000642	01-512050.asm
<input type="checkbox"/>				WCDS000147	head_mirror.asm
<input type="checkbox"/>				WCDS000531	01-51374.asm
<input type="checkbox"/>				WCDS000594	01-2_engine.asm
<input type="checkbox"/>				D3_0000000093	Enclosure, Shelf A
<input type="checkbox"/>				WCDS000140	01-51368.asm

(0 objects selected)

REFINE SEARCH RESULTS USING FACETS



Type Facets

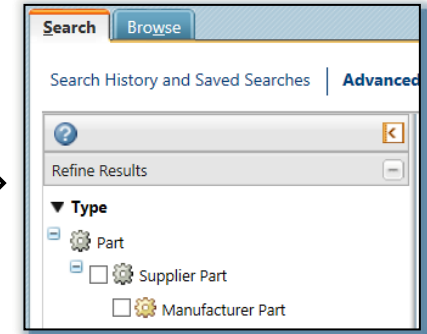
➤ If a single parent type is selected while performing the search query, the Type Facet shows the sub types as a tree with further options to filter

➤ When multiple types are selected then all selected types are displayed, but if a type is not applicable to the search results, it is greyed out.

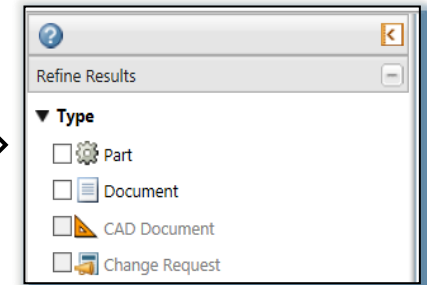
➤ When “All Types” is selected then only those types will be present in type facet which are applicable to the search results.

- Ability to select more than one type from the type facet
- Facets below will get refreshed as per type selections
- Search results will refresh as per type selection from facets
- Only common attributes will be shown in case of “All types” and multiple type selections

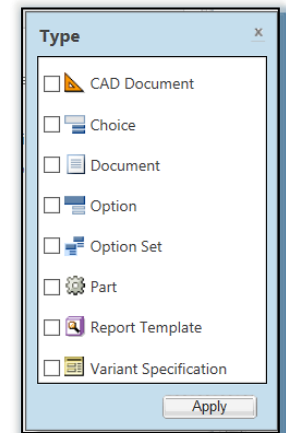
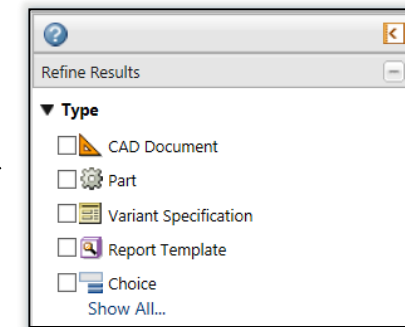
On execution of search on a Single object type



On execution of search on multiple object types



On execution of search for all available types



REFINE SEARCH RESULTS USING FACETS



Context Facets

- Ability to identify Contexts by icons (Product/Project/Library/Program)
- Selected contexts will be shown as facets if explicit contexts are selected on advanced search page
- Contexts are Access controlled

Refine Results

▶ Type

▼ Context

- GOLF CART
- GENERIC COMPUTER
- EPRDProduct
- Standard Parts
- Vendor Project

Date Facets

Options available for filtering search results based on date attributes such as created on/last modified on:

- Filter on Today, Yesterday
- Choose Date Range with Calendar inputs (From this date → To this date)
- Choose Days Range with input text boxes (From X number days ago to Y number days from now)

Refine Results

▶ Type

▶ Context

▼ Created On

Today

Yesterday

Choose Date Range (yyyy-mm-dd)

From --- To

Choose Days Range

(Days ago) --- (Days from now)

Apply

REFINE SEARCH RESULTS USING FACETS

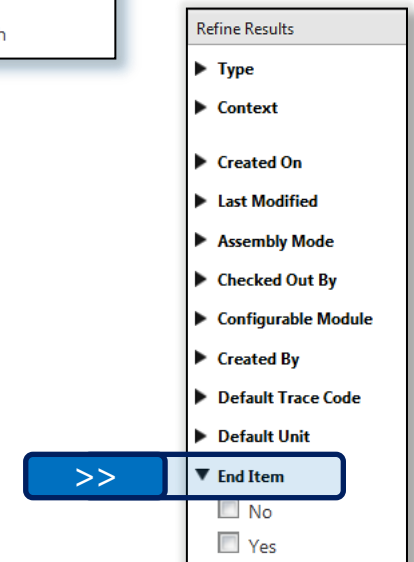
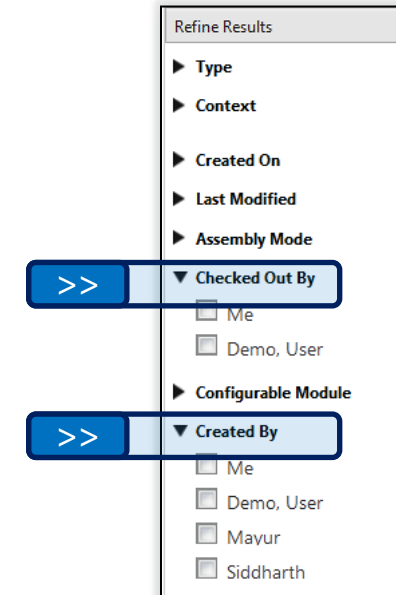


Principal Facets

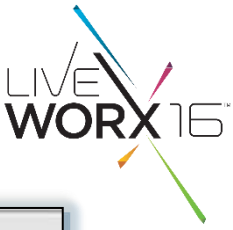
- Ability to filter search results based on user attributes (such as Created by/Modified by)
- The first option to filter is 'Me' (only when there are results matching 'me')
- User can select more than one value (check boxes)

Boolean Facets

- Both the values are displayed as checkboxes
- If none of the values are selected, the result table shows objects for all values (including 'undefined')
- If both the values are selected, the result table shows objects with both the values (minus 'undefined')



REFINE SEARCH RESULTS USING FACETS



Numeric Facets

- Facets are rendered for all numerical data type attributes
- A range is displayed based on the minimum and maximum values of that attribute for the given set of search results
- Ability to use sliders to adjust the min and max values
- Ability to enter text in the min and max boxes in case precise values are known
- Precision handling (for decimal values)
- Validation for data input for out of range values

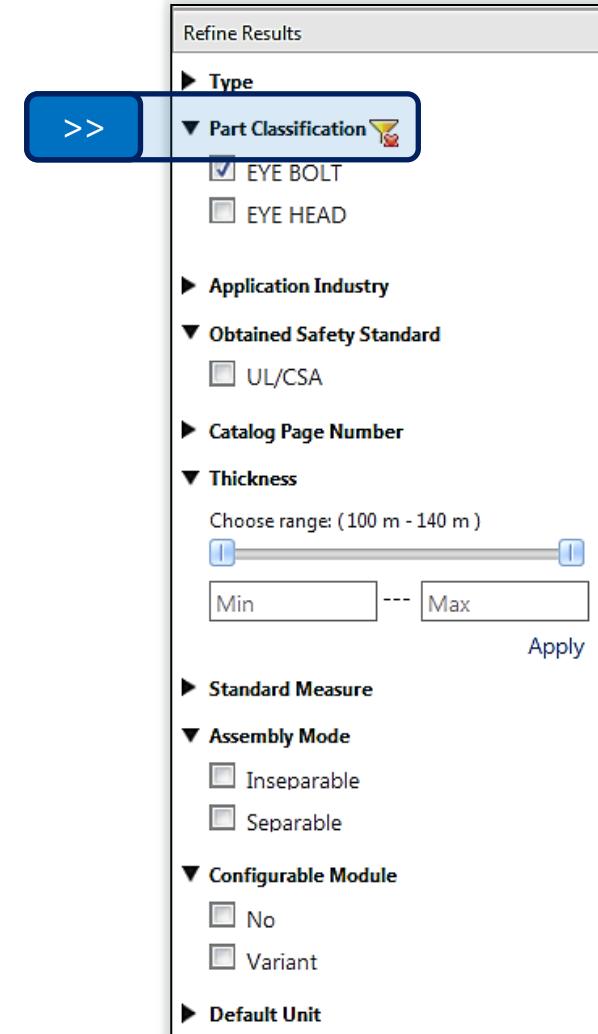
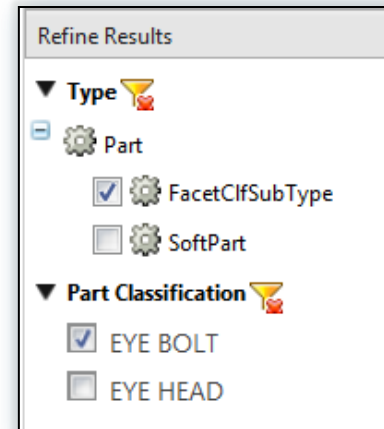
The screenshot shows a 'Refine Results' dialog box with the following sections:

- Numeric_Enum**: A list of checkboxes for values 100, 200, 300, 400, and 500. A 'Show All...' link is below the list.
- Numeric_Integer**: A section with a right-pointing arrow, currently inactive.
- Numeric_RealNumber**: A section with a downward arrow. It shows a range '(100.5 - 200.5)', a slider, and input boxes for 'Min' and 'Max'. An 'Apply' button is at the bottom right.
- Numeric_RealNumberUnits**: A section with a downward arrow. It shows a range '(100.5 m/s**2 - 200.5 m/s**2)', a slider, and input boxes for 'Min' and 'Max'. An 'Apply' button is at the bottom right.
- Numeric_RealNumberUnits_ENUM**: A list of checkboxes for values 100.1 m/s**2, 200.2 m/s**2, 300.3 m/s**2, 400.4 m/s**2, and 500.5 m/s**2. A 'Show All...' link is below the list.

REFINE SEARCH RESULTS USING FACETS

Classification Facets

- The Classification facet is named against the Binding attribute selected while performing the search query
- The relevant nodes (as applicable to the search results) are displayed as values under the Binding Attribute to enable further filtering
- The facet list is refreshed and Classification attributes related to the selected node/s are available as facets

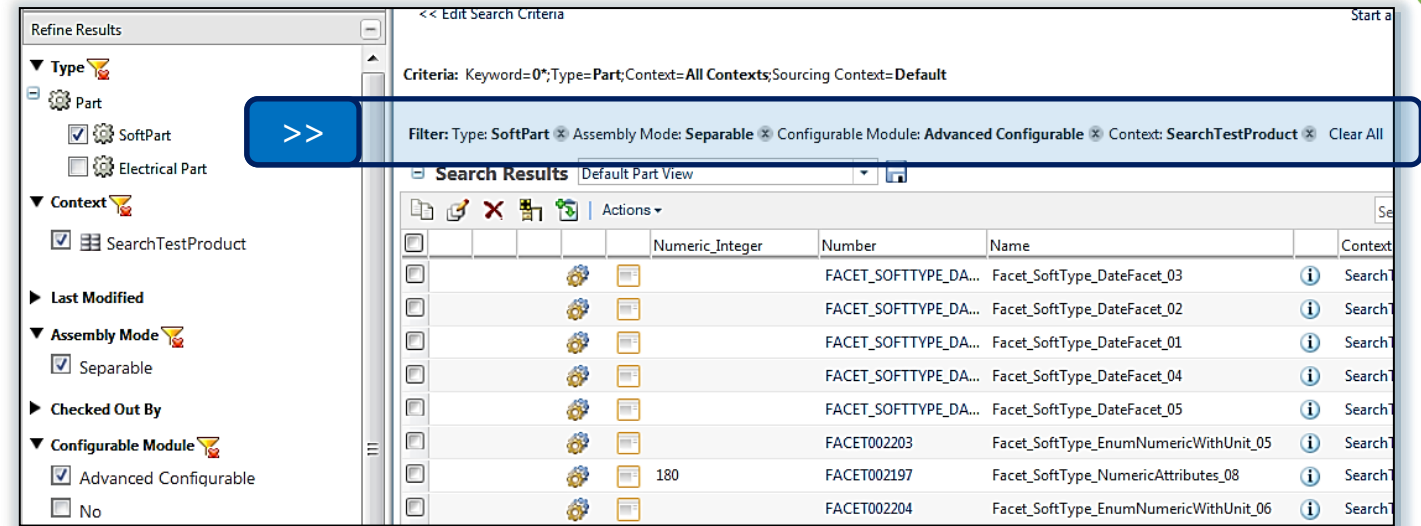


REFINE SEARCH RESULTS USING FACETS



Facet Status Bar

- All facets applied to filter data are shown as a string above the search results table
- Each facet has a remove icon next to it
- A "Clear All" action is available at the end of the string
- On removing a Facet or clearing all filter, the search results table is refreshed back to the original state.



Enabling Facets

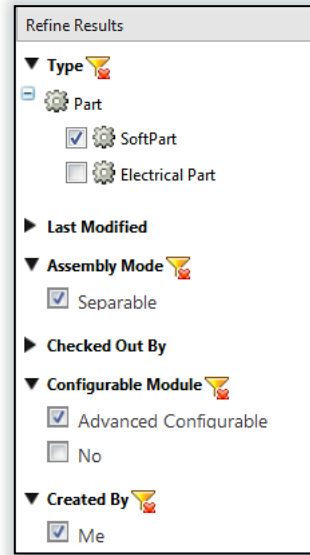
- Facets can be enabled/disabled using a preference available at all levels (Site/Org/Context/User level)
- The Preference is disabled by default at all levels

Search		
Advanced Search Default Types List	Part, Document, CAD ...	This preference specifies the object types d
All Applicable Object Types Search	Abstract Specification, ...	List of types shown in Type Picker in Search
Enable Index Search	Yes	Choose to perform an index search when t
Enable Related Object Search	No	Enable Related Object Search on the Advan
Enable Search Facets	Yes	Enables facets on the Search results page.

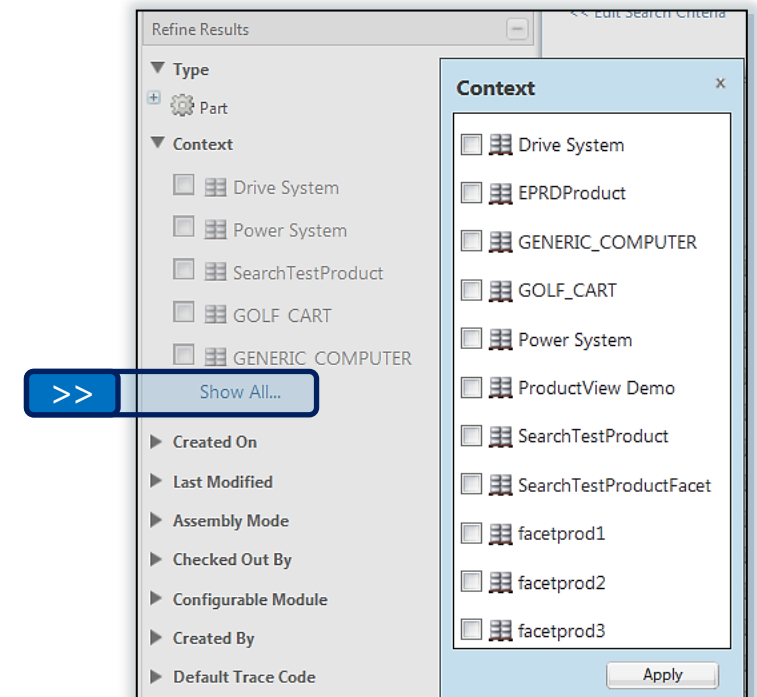
REFINE SEARCH RESULTS USING FACETS

Other features

- Expand\Collapse states are sticky for the user
- An indication to show that the filter has been applied against a facet.
- On clicking on indicator the filter is cleared



- The number of values displayed as a list under each facet is configurable via a property
- By default five values are displayed
- A "Show All..." link is displayed below these 5 values
- Clicking on the link will show all the values in a fly-out



KEYWORD IN CONTEXT FOR FULL TEXT SEARCH



Keyword:

<< Edit Search Criteria Start a New Search Save This Search

Criteria: Keyword=master ;Type=Document;Context=All Contexts

Search Results Default Document View (2 objects)

Number	Name	Text Preview	Context	Version	State
000000001	Approach_Search_Mult_Language_Support_v3[1]		GOLF CART	A.2	In Work
0000000021	Approach_Search_Mult_Language_Support_v3[1]				

(0 objects selected)

Text Preview

Or it can be in the translation dictionary. Or it may not be present if the **master** text is not yet translated.

- The keyword entered on the search page was “master”.
- The search results table reflects the documents that have the word “master” in the content of their attachments.
- The text preview column on the search results table shows icons, which on mouse rollover display a sentence where the word “master” is used

- This feature is controlled by a property and is switched off by default
- This feature is only supported for Windchill Documents.
- The “Text Preview” column needs to be manually added to the search results table view.

DYNAMIC COLUMNS



Criteria

((Name = 'P*') AND (State = 'In Work') AND (Assembly Mode = 'Separable') AND (Created By = 'Site, Administrator') AND ((Application Industry = 'Automotive') AND (Material = 'Stainless Steel')))

AND

Name = P*

State = In Work

Assembly Mode = Separable

Created By = Site, Administrator

AND

Application Industry = Automotive

Material = Stainless Steel

Classification Search:

- If the search criteria includes both typed attributes (for the part) as well as Classification Attributes, on execution, the search results table collectively shows all attributes as columns with the values populated
- In addition, for classification search, it also shows a column that reflects the complete path of the node against which the part is classified

➤ Attributes (with values defined) selected while building the search query are displayed as Column headers with the selected values populated on the search results table on execution of the query

Criteria: ((Name = 'P*') AND (State = 'In Work') AND (Assembly Mode = 'Separable') AND (Created By = 'Site, Administrator') AND ((Application Industry = 'Automotive') AND (Material = 'Stainless Steel')));Type=Part;
PartClassification=COMPRESSION;Context=All Contexts;Sourcing Context=Default

Search Results Default Part View (2 objects)

Number	Name	Context	Version	State	Assembly Mode	Created By	Application Industry	Material	PartClassification	Last Mo
0000000042	P2	GOLF_CART	A.1 (Design)	In Work	Separable	Site, Administra...	Automotive	Stainless Steel	Part/Mechanical Parts/SPRING/COMPRESSION	2015-05
0000000041	P1	GOLF_CART	A.1 (Design)	In Work	Separable	Site, Administra...	Automotive	Stainless Steel	Part/Mechanical Parts/SPRING/COMPRESSION	2015-05

AGENDA

- Improvements To Search
 - Advanced Search Page, Nested Queries, Related Object Search, Search History & Saved Searches

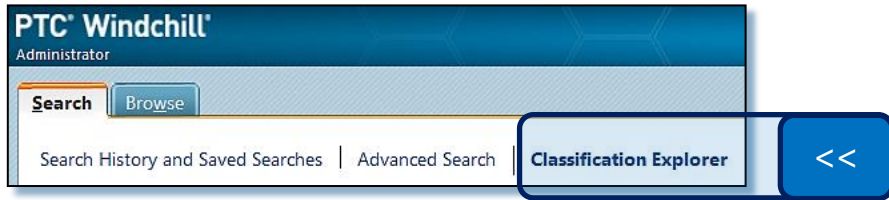
- Improvements To Search Results
 - Facets, Keyword in Context, Dynamic Columns

- Improvements To Classification Search
 - Classification Explorer, Auto Name Generation, Classification Structure loader

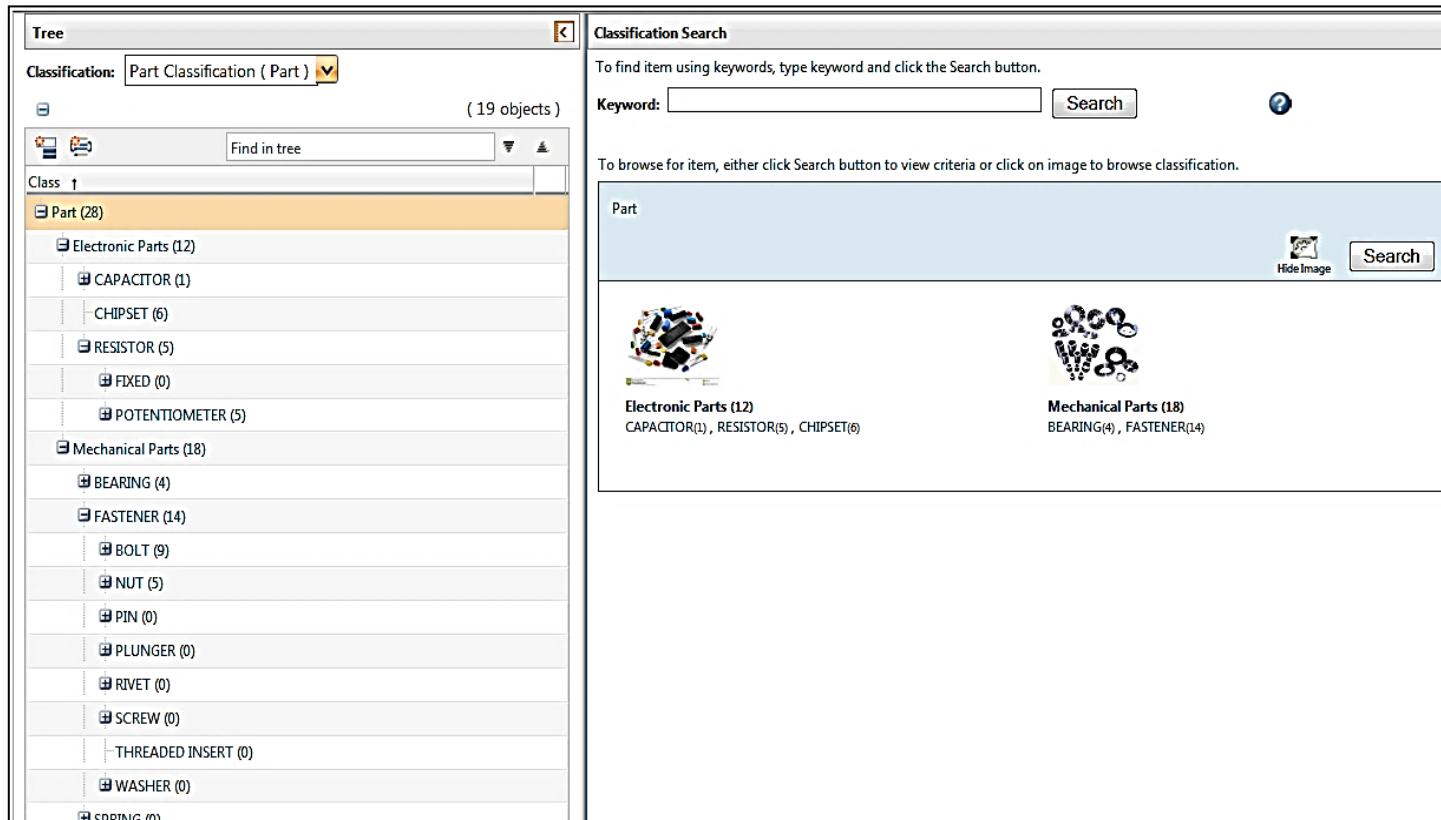
- Administration
 - Indexing Status Report

- Roadmap
 - Windchill 11.0 M010

CLASSIFICATION EXPLORER



➤ A new link is added to the navigator (under the Search tab) called the “Classification Explorer”



- The new Classification Explorer retains the old look and feel of the legacy classification search but with advanced browsing capabilities
- Classification tree which works alongside the classification browser. So user can pick any node from the tree and further navigate to the lower levels as needed



CLASSIFICATION EXPLORER



Browse for Classified Parts



Tree (19 objects)

Classification: Part Classification (Part)

Find in tree

Class ↑

- Part (28)
 - Electronic Parts (12)
 - CAPACITOR (1)
 - CHIPSET (6)
 - RESISTOR (5)
 - FIXED (0)
 - POTENTIOMETER (5)
 - Mechanical Parts (18)
 - BEARING (4)
 - FASTENER (14)**
 - BOLT (9)
 - NUT (5)
 - PIN (0)



Classification Search

To find item using keywords, type keyword and click the Search button.

Keyword: Search

To browse for item, either click Search button to view criteria or click on image to browse classification.

Part > Mechanical Parts > FASTENER

 BOLT (9) EYE HEAD(3), EYE BOLT(6)	 NUT (5) HEXAGON(5)
---	--

➤ Each node in the tree shows the count of the number of parts classified against it

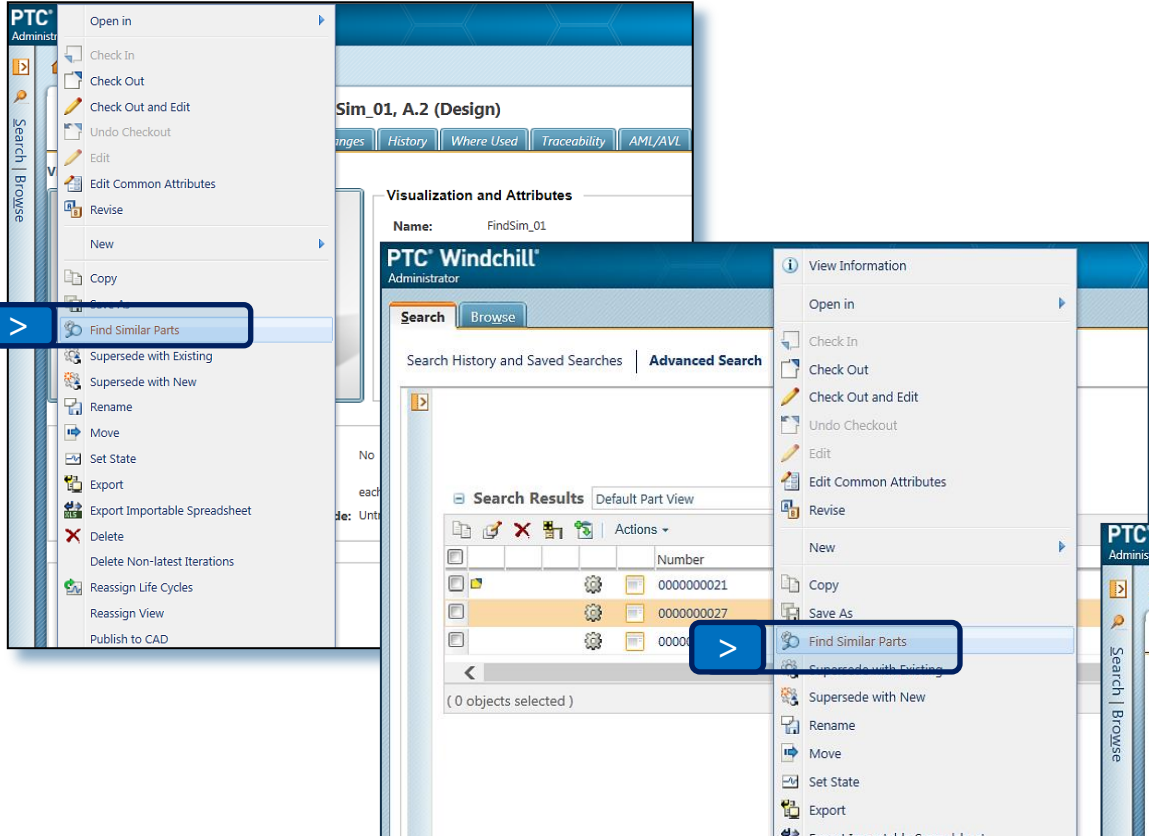
➤ Only the nodes that have parts classified against them are clickable

➤ On clicking on a parent node the browse section shows the sub nodes under it.

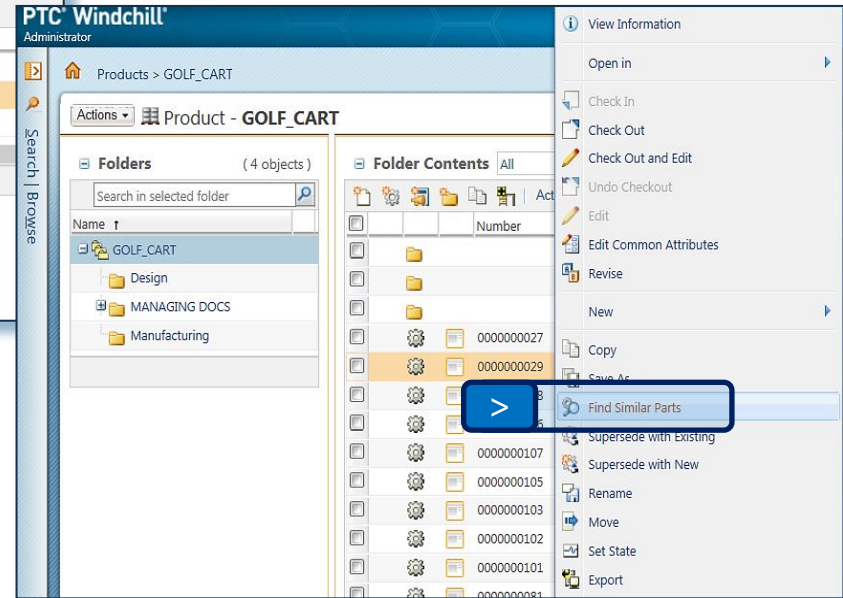
➤ On clicking on a leaf node, user is taken to the search results table with the classified parts as search results

ABILITY TO FIND SIMILAR PARTS

Find Similar Parts



- The “Find Similar” capability allows searching for other classified parts matching to the values of a given classified part
- Earlier find similar capability was available only on classification search result table.
- This capability will now be exposed on all locations like Part information page, folder browser, Part structure browser (in addition to the advance search results table)
- The capability will be available as a row level action for classified parts only



ABILITY TO FIND SIMILAR PARTS



Classification Search
Specify the attributes and constraints you want to include in your search.

Find Similar Parts: Part_COMPRESSION (19 objects)

Attribute	Value	Modifiers	Units
<input checked="" type="checkbox"/> Application Industry	Aerospace	Aerospace	
<input checked="" type="checkbox"/> Coil Direction	Left Hand	Left Hand	
<input type="checkbox"/> Free Length	1.0025	+/- Absolute	m
<input type="checkbox"/> General Description	0		
<input type="checkbox"/> Hole Diameter	0.0	+/- Absolute	m
<input type="checkbox"/> Load	10.0	+/- Absolute	N
<input type="checkbox"/> Load Length	10.0	+/- Absolute	m
<input type="checkbox"/> Material	Chrome Vanadium	Chrome Vanadium	
<input type="checkbox"/> Max Load	0.0	+/- Absolute	kg
<input type="checkbox"/> Name	Part_COMPRESSION		
<input type="checkbox"/> Number	0000000021		
<input type="checkbox"/> Obtained Safety Standard	UL/CSA	UL/CSA	
<input type="checkbox"/> Outside Diameter	0.0	+/- Absolute	m
<input type="checkbox"/> Pitch	10.0	+/- Absolute	m
<input type="checkbox"/> Shaft Diameter	10.0	+/- Absolute	m
<input type="checkbox"/> Solid Height	10.0	+/- Absolute	m
<input type="checkbox"/> Spring Rate	1.25	+/- Absolute	kg/s**2
<input type="checkbox"/> Weight	0.045	+/- Absolute	kg
<input type="checkbox"/> Wire Diameter	2.0	+/- Absolute	m

(2 objects selected)

Find Similar Search Results : COMPRESSION Find Similar View (1 objects)

Number	Name	Context	Version	State	Last M
0000000021	Part_COMPRESSION	avdProd	1.3 (Design)	Design	2015-0

(0 objects selected)

- Example, user needs Compression type springs with left hand coil direction from the Aerospace application industry.
- User selects the attributes “Application Industry” and “Coil Direction”, enters the value of these attributes to get the exact “Compression” part.

Auto name generation of a classified part

- When viewing a product structure, names should have more meaning. Without a standard naming convention, most product structures will have names like, bracket, bolt, engine, bearing, etc. This makes it very difficult for a user to understand what parts are in the structure without clicking into the details.
- When passing the part information to another system (Like ERP) , standard naming conventions add intelligence to part names, which improves searching in the other system. Since many other systems do not have classification search, having the name include attributes is a significant benefit.
- PDMLink users generally use only name and number for part searches. Adding some intelligence to the part name will help users identify differences in parts based on searching only for name. For example, a search for bearing will give results that a user can easily differentiate. If all the bearing parts were named “bearing”, the results would be meaningless. By having a company standard for names enforced through a business rule or software will also prevent errors when entering part names. The classic example of a user entering an abbreviation or misspelling a name such as “BR” (abbreviation for bearing) or *bearing*.

AUTO NAMING - USER FLOW



1

New Part

New Part

Set Attributes Set Security Labels

Product: Beagleboard

* Type: Part

* Organization ID: OEM

* Create as End Item: No

Part Attributes

Number: (Generated)

Name: (Generated)

* Assembly Mode: Separable

* Source: Make

View: []

* Default Trace Code: Untraced

* Default Unit: each

* Gathering Part: No

* Phantom Manufacturing Part: No

* Life Cycle Template: (Generated)

Team Template: (Generated)

* Location: Autoselect Folder Select Folder

Service Kit: []

Serviceable: []

* Classification: []

Create CAD Document
 Keep checked out after checkin

* Indicates required fields.

Back Next Finish Cancel

Name locked

Classification Required

2

Set Classification Attributes

New Part

Set Attributes Set Classification Attributes Set Security Labels

THRUST

Classification Group

Weight: 0.0 kg

General Description: 0

Application Industry: Automotive

Obtained Safety Standard: UL/CSA

Preview Name

Name Preview

4

Preview Name

Name: THRUST BEARING 1.0 m

Override Name

Override

AUTO NAME GENERATION OF A CLASSIFIED PART



Define the naming rule per classification node

- Name can contain:
 - Classification node
 - Attribute values
 - Text
 - Calculated attributes

- Preview and Override options
 - Override controlled with profiles

- API for report on overridden names
 - ClassificationReportGenerator

Actions Class - ALUMI - SOLID

Properties Layouts Attributes **Autonaming Rule**

Autonaming Properties

Autonaming Rule: CSM_NODE_NAME+xj714

Rule Measurement System: USCS

Enforce Autonaming Rule: Yes

New Part

1 Set Attributes 2 Set Classification Attributes

ALUMI - SOLID

Classification Group

Preview Name

New Part

1 Set Attributes 2 Set Classification Attributes

Part Attributes

Number: (Generated)

Name: (Generated)

CLASSIFICATION: ALUMI - SOLID

* Source: Make

View: Design

Preview Name

Name: ALUMI - SOLID120 V

Override Name

CLASSIFICATION STRUCTURE LOADER



Classification Structure Loader (from file)

- Ability to build a new classification structure in a spreadsheet (in a given format) and load that to the system.
- We now have a utility to transform a classification structure in a CSV file to loadable XML file


- Customers can move their classification structure from legacy systems into PartsLink
- PDMLink customers planning to use PartsLink for the very first time can create and load their own classification structure

Utility:

- The utility takes CSV as input
- Command to generate classification structure XML file is **Windchill com.ptc.windchill.csm.csvtoxml.CSVToXMLGenerator d:\ClassificationStructure.csv**
- Command takes -verbose optional parameter also, used particularly for debugging purpose **Windchill com.ptc.windchill.csm.csvtoxml.CSVToXMLGenerator d:\ClassificationStructure.csv -verbose**
- Classification structure XML file is generated at same location where CSV file is present and with the same name as the CSV.
- This utility is not access controlled.

Pre-requisites:

- Global attributes and Quantity of Measures (QoMs) should be available on the target server before loading the structure.
- The Command should be run only from the Windchill shell.
- Windchill is not required to be UP and running while executing the command.
- CSV column value containing comma in it should be wrapped inside double quote.



Is there a simple way to build the classification structure from scratch?

AGENDA

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- Administration**
 - **Indexing Status Report**

- Roadmap
 - Windchill 11.0 M010

STATUS REPORT FOR INDEXED OBJECTS

Status Report for indexed objects

1. A UI level capability that shows indexed objects in a table, sortable by columns
2. Ability for the user to understand the reason for failure
3. Ability to have specific table views for all indexed objects vs only the failed objects

Object Type	Processed	Remaining	No Policy	Failed	Content Failure	Object Type Total
EPM Document	841	0	0	0	0	841
Part	458	0	0	0	0	458
Report Template	55	0	0	0	0	55
Choice	13	0	0	0	0	13
Document	7	0	0	0	0	7
Product	5	0	0	0	0	5
Option	4	0	0	0	0	4
Exclude Rule	3	0	0	0	0	3
Variant Specification	2	0	0	0	0	2
Enable Rule	1	0	0	0	0	1
Include Rule	1	0	0	0	0	1
Option Set	1	0	0	0	0	1
Plan Template	1	0	0	0	0	1
Abstract Specification	0	0	0	0	0	0
Action Item	0	0	0	0	0	0
Agreement	0	0	0	0	0	0
Analysis Activity	0	0	0	0	0	0
Annotation Set	0	0	0	0	0	0
Bookmark	0	0	0	0	0	0
Change Directive	0	0	0	0	0	0
Change Investigation	0	0	0	0	0	0

Site → Utilities

Workflow Template Administration	Create and manage workflow temp
Workflow Process Administration	Search for workflow processes and
WVS Job Monitor	View the status of WVS Jobs.
WVS Job Scheduler Administration	Create and execute WVS jobs.
Indexing Administration	View the indexing status

Table views

AGENDA

- Improvements To Search
 - Advanced Search Page, Nested Queries, Related Object Search, Search History & Saved Searches

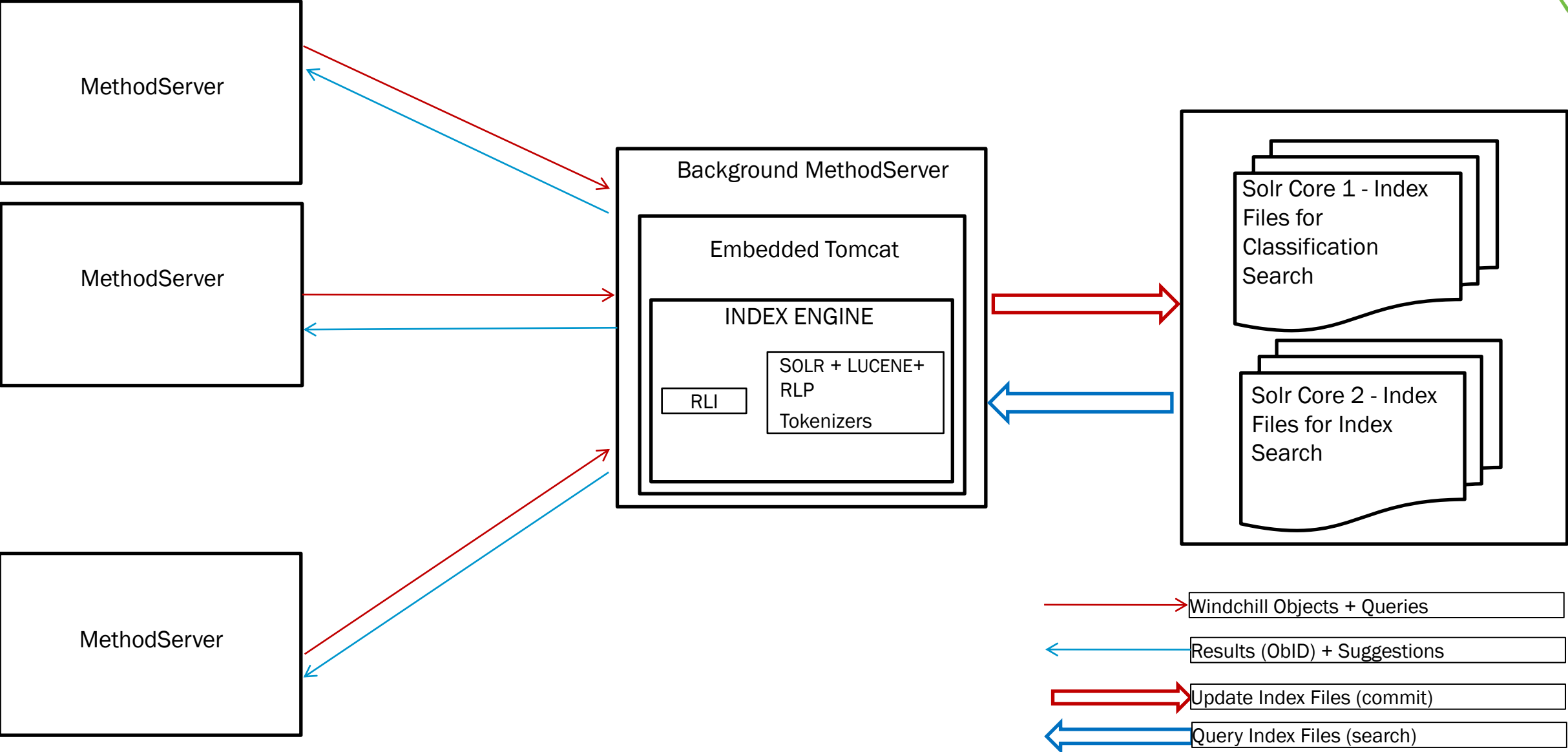
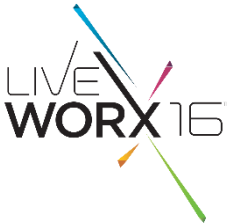
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- Improvements To Classification Search
 - Classification Explorer, Auto Name Generation, Classification Structure loader

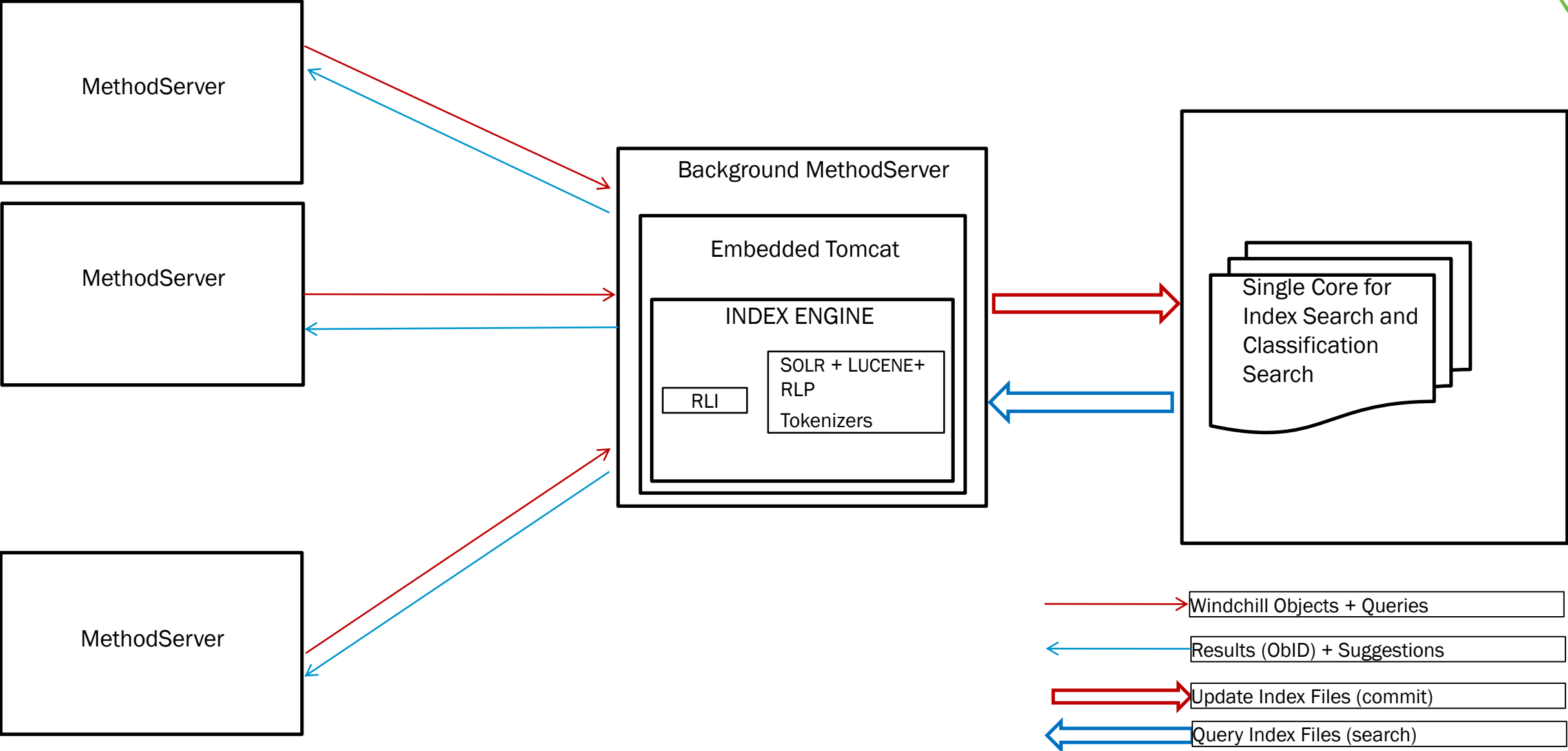
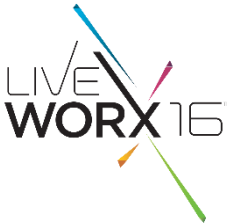
- Administration
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 - Windchill 11.0 M010

WINDCHILL 10.2 INDEX SEARCH ARCHITECTURE



WINDCHILL 11.0 INDEX SEARCH ARCHITECTURE



11.0 M010 CHANGES

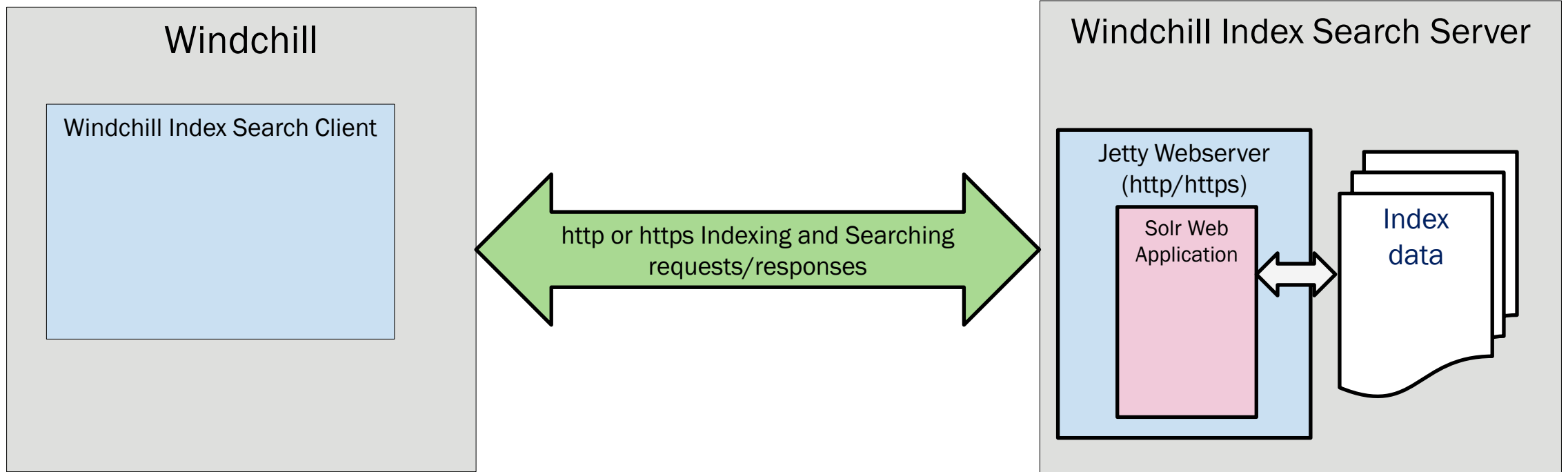


- Windchill Index Search Client
 - Installed within Windchill Load point
 - Installs the artifacts and properties required for connecting to Solr Index Engine
- Windchill Index Search Server
 - Installed outside of Windchill load point (preferably on a separate machine)
 - Has two flavors
 - **Solr Standalone** (similar to older Solr index engine embedded within BGMS)
 - **SolrCloud** (can have multiple solr nodes configured in Cloud)
 - Installs Solr and Zookeeper specific artifacts and properties.

WINDCHILL 11.0 M010 WITH STANDALONE SOLR



Indexing and Search Request Flow

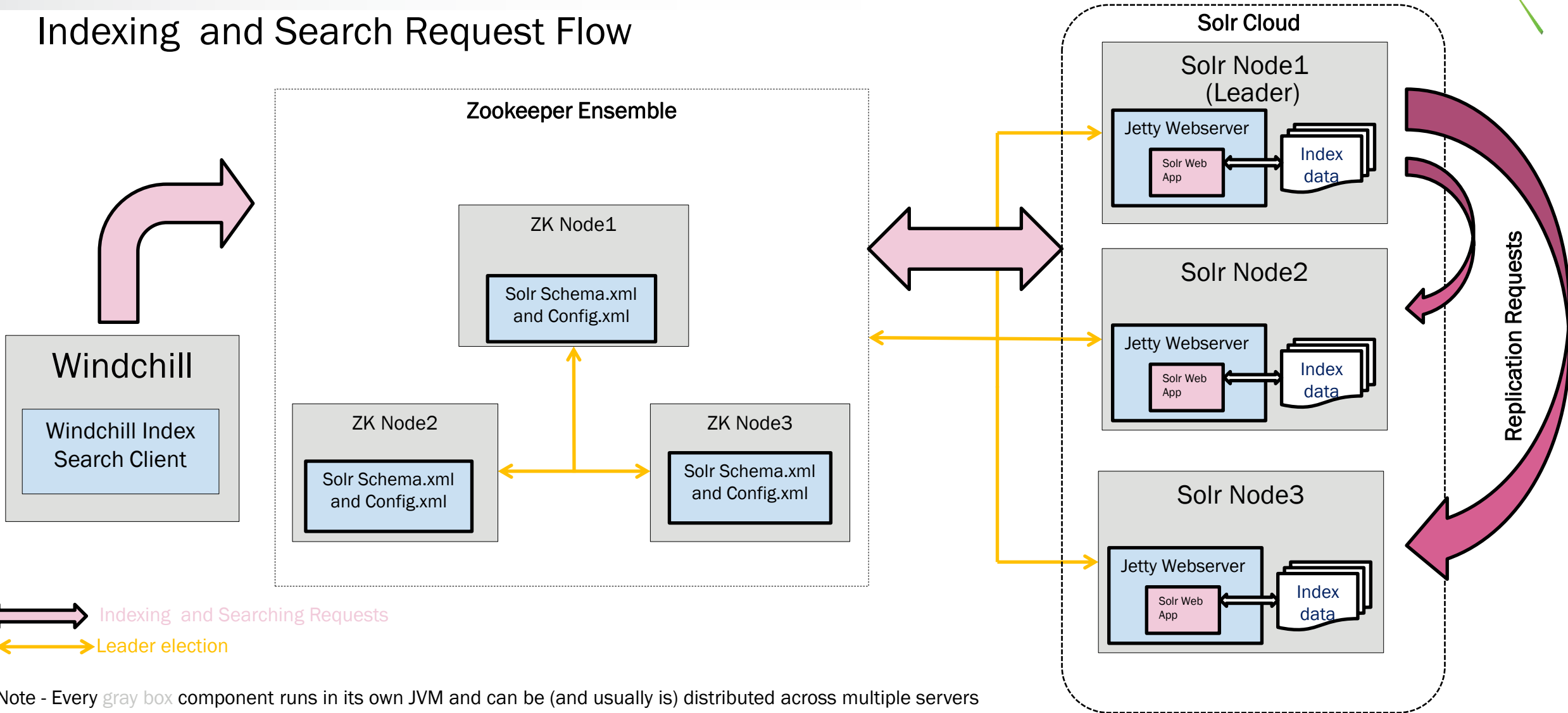


Note - Every gray box component runs in its own JVM and can be (and usually is) distributed across multiple servers

WINDCHILL 11.0 M010 WITH SOLR CLOUD

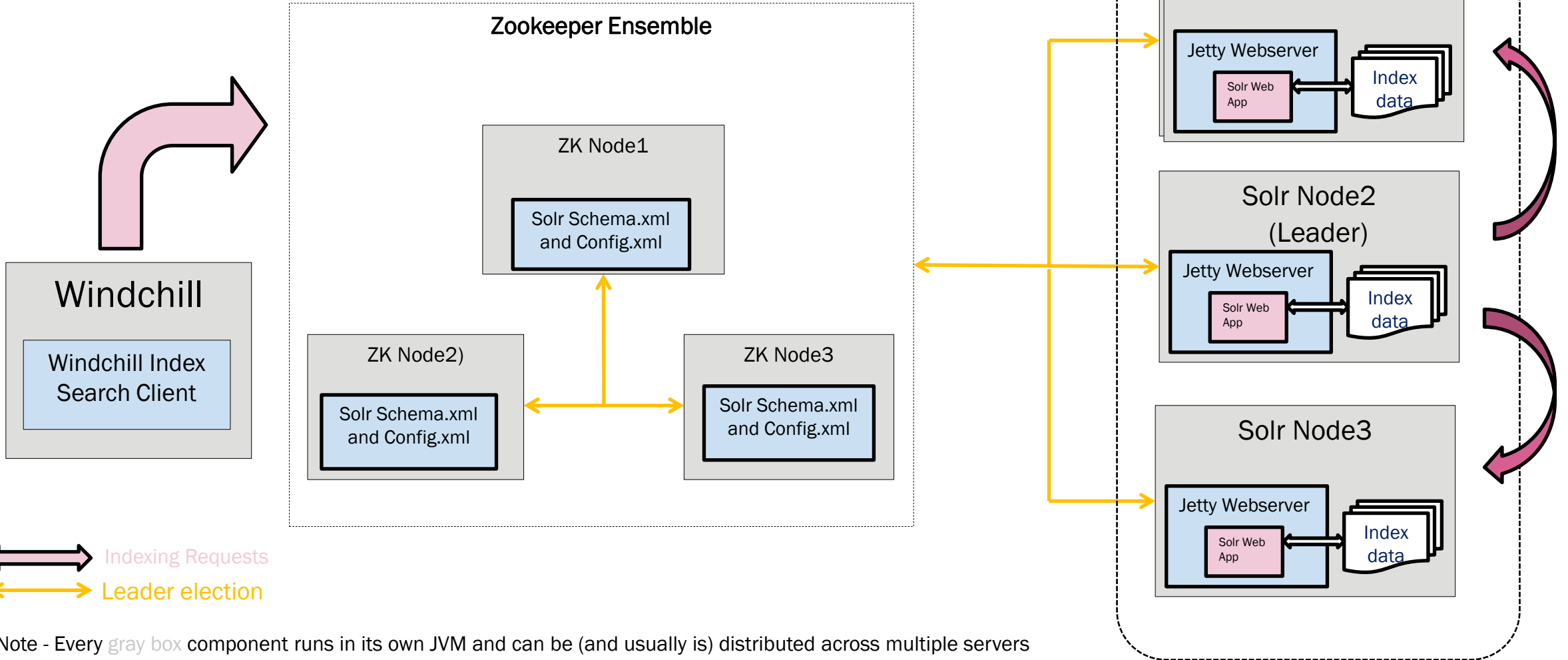


Indexing and Search Request Flow



ATHENS - WINDCHILL WITH SOLR CLOUD

High Availability



WINDCHILL SEARCH



Key Takeaways

- Improved Productivity of end users by reducing time to retrieve and access information
- Ability to Build detailed and focused queries that find precise data at the first attempt
- Formulate queries to get information based on associated data
- Filter down large data sets to get the exact result by using user friendly widely accepted filtering methodologies
- Increase confidence in search results by exposing the exact information that justifies the accuracy of the returned results
- Sneak peek into the content of the search results
- Browse and select with no need to formulate a search query
- Advanced and convenient utilities to build large data with ease
- Promote Reuse & elimination of redundant work
- Security - Protect corporate intellectual property by access control



CONTACT INFORMATION

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- Vikram Sinha: vsinha@ptc.com

The image features several colorful, angular geometric shapes scattered across the white background. On the right side, there is a large, multi-colored triangular shape composed of various shades of blue, green, yellow, and purple. Several thin, elongated triangular shapes in blue, pink, orange, and green are positioned around the central text.

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