Welcome to Decision Support

Version 21.1 [Feb 2021]

Welcome

Bently Nevada is pleased to present System 1 Decision Support v21.1. This release delivers new features and functions designed to advance the Rule Deployment experience for applying and managing analytic solutions. In addition, several customer-requested usability and productivity enhancements have been added to improve the product experience. For an overview of the System 1 Analytic solutions platform, please visit the System 1 Website.

Thank you,

Your System 1 Decision Support Leadership and Development Teams

Table of Contents

1. DECISION SUPPORT V21.1 FEATURE OVERVIEW

In addition to numerous bug fixes and performance optimizations, the following new capabilities are featured in Decision Support v21.1

Decision Support v21.1 – New Features

Decision Support v21.1		
Features		
Smart Deploy	In Deploy, a Rule Deployment can be copied and pasted to additional asset(s). When pasting to similar assets, the system interprets the asset model and automatically maps input measurements.	4.1
Tunable Scalar Input	A new input step type – the Tunable Scalar Input – allows the Rule builder to define a constant that can be customized in each Deployment of that Rule. A default value can also be specified.	4.2
New Trigonometric Steps	Seven new trigonometric math steps have been added to the Math Steps palette.	4.3
Utilization Improvements	To improve integration with the System 1 platform solution, new functions: drive data capture on DS point alarm, persist certain calculation steps through service restarts, update Data Source connection details in the event of changes.	4.4
Usability Enhancements	In response to user feedback, a number of new user interactions have been introduced to improve the user experience and make workflows more efficient.	4.5

2. VERSION SUPPORT & OPERATING SYSTEM COMPATIBILITY

System 1 Decision Support follows a semi-annual release cadence. Versions are fully supported for a minimum of two years from the published date of availability (see below).

System 1 Compatibility

- Decision Support is designed to work with System 1 version 20.1 and newer, utilizing PostgreSQL for Historical Database (Proficy not supported)

New Versions of System 1 Decision Support Benefit from:

- Compatibility with the latest Microsoft Client & Server Operating Systems
- Client backwards compatibility to previous versions under support (21.1 Client to 20.1 Server DB)
- Database upgrade from previous versions released within last 2 years (20.1→21.1)
- Security patch & update testing for the latest available version
- Bug fixes included in the latest available version
- Standard technical support with escalation to engineering as required

Versions no longer supported:

- Standard support is provided for common FAQ type questions, but users are encouraged to update software to latest version to benefit from new features, OS compatibility, and bug fixes.

Version Support & OS Compatibility Matrix

Decision Support Versions & Support			Windows Server OS				Windows Client OS (64bit)	
Version	Available	End of Support	2019	2016	2012 R2	2012	10**	8.1 U1
21.1	Feb 2021	Feb 2023	✓	✓	✓	✓	✓	✓
20.1	Aug 2020	Aug 2022	✓	✓	✓	✓	✓	✓

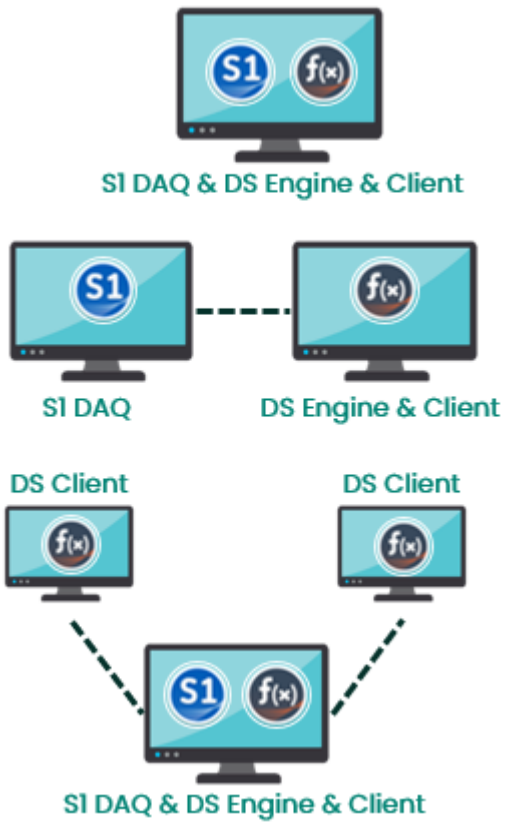
**Windows 10 version compatibility will track Microsoft's published release and support model. The latest version of Decision Support will be tested and supported on all versions of Windows 10 under support as published on their website based on the Decision Support version's published date of availability.

Decision Support v21.1 (Windows 10 v1903, 1809, 1803)

Decision Support v20.1 (Windows 10 v1903, 1809, 1803)

3. SUPPORTED ARCHITECTURES

System 1 Decision Support can be deployed as part of your condition monitoring solution in multiple arrangements to support IT infrastructure design, accessibility, and loading distribution.



Single Computer Setup (most common) – Decision Support is installed and utilized on the same server as System 1.

Dedicated DS Server – If the System 1 server is already planned to be loaded in excess of 70% it is highly recommended to specify a separate server for Decision Support.

Client Installs – Decision Support can be installed on workstation(s) as client-only and connect to the Decision Support Server database/engine for Rule building and Deployment management.

For more information or to inquire about proposed architectures, please contact your Bently Nevada Sales Representative.

4.DECISON SUPPORT V21.1 FEATURES

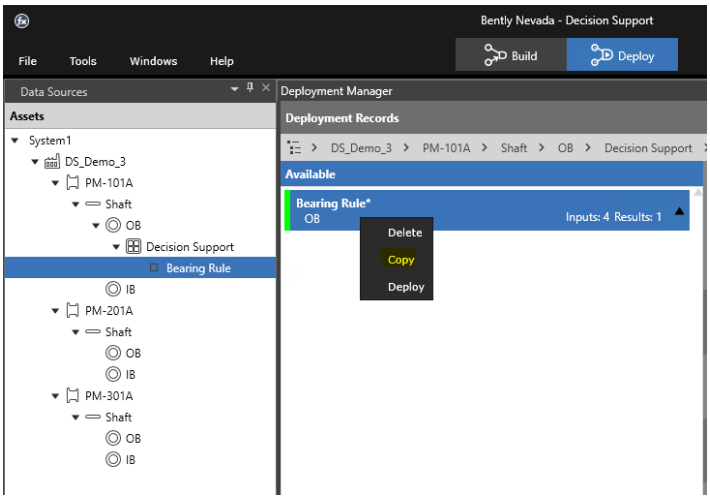
4.1 Smart Deploy

Decision Support v21.1 introduces an exciting new feature called Smart Deploy. This function leverages the robust System 1 Asset Model to automate Rule Deployment to similar asset types. We estimate this capability can reduce overall Rule Deployment time by as much as half, depending on the nature of the analytics being implemented.

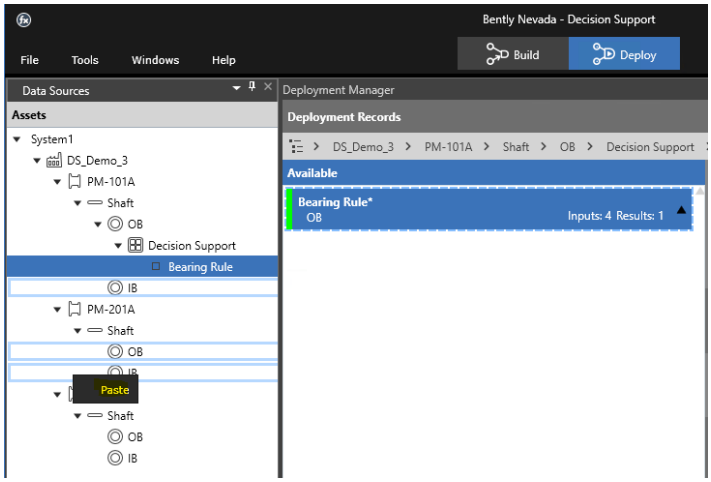
Smart Deploy allows the user to copy an existing Deployment Record and paste it to one or many additional assets. The best use case is to copy a fully configured/mapped deployment and paste it to similar assets.

The system will not prevent you from pasting deployments to dissimilar Assets. In the event that the Asset model is not similar and/or input measurements are custom or mapped from other parts of the Enterprise, the paste action will leave them unmapped. Incomplete Rule Deployments are indicated by a red status bar to alert the user to finish configuring them manually.

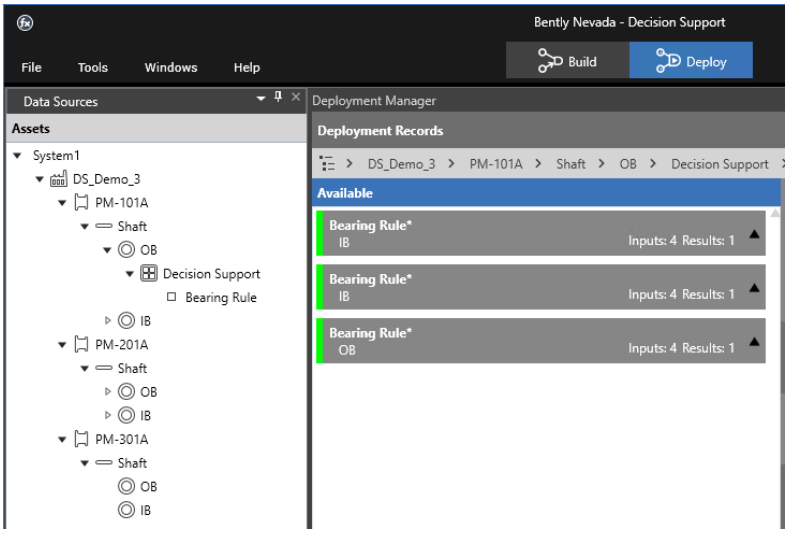
In the example below, a Rule had been deployed to a bearing and fully mapped. This deployment is then copied - by right-click menu – and pasted to another bearing. Notice that in the resulting new Deployments, the measurement inputs have been automatically mapped. The automated input mapping means the new Deployment is instantly ready to deploy and activate in System 1. As this action is scaled up, the overall time savings grows.



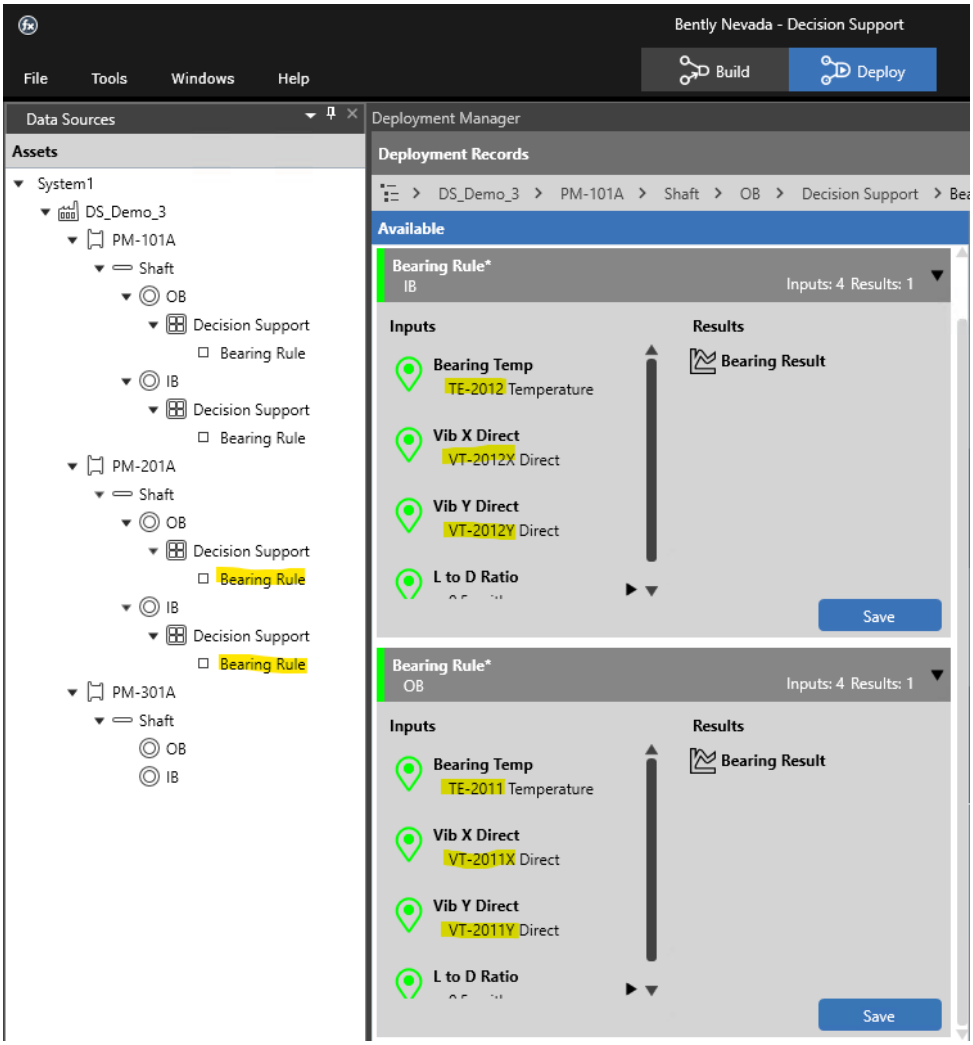
Step 1: Select the Deployment to Copy



Step 2: Three bearings selected to paste to.



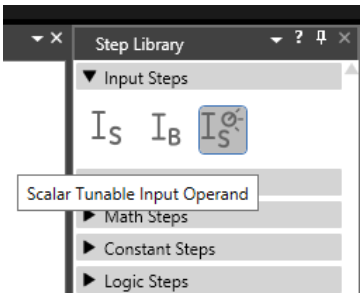
Step 3: The view filters to the resulting new Deployments, in case any of the new Deployments require validation or additional configuration.



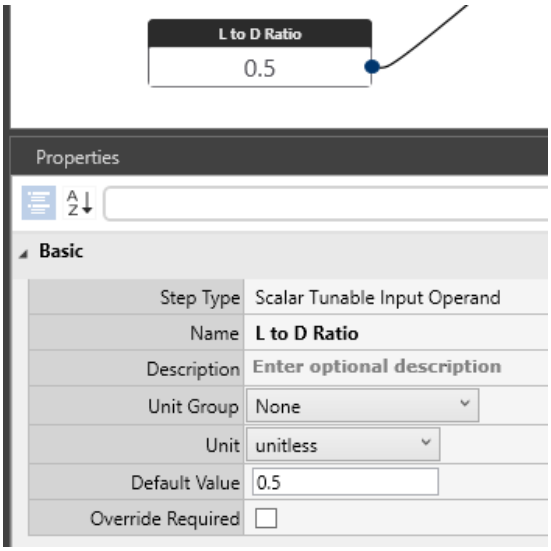
Note: The new Deployments are created and the appropriate measurements from each bearing are automatically mapped.

4.2 Tunable Scalar Input

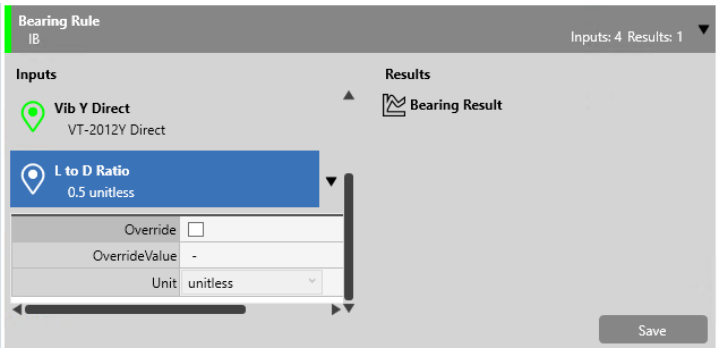
Decision Support v21.1 introduces a new Input Step type – the Tunable Scalar Input. This Input Step is essentially a hybrid of a Scalar Constant and an Input.



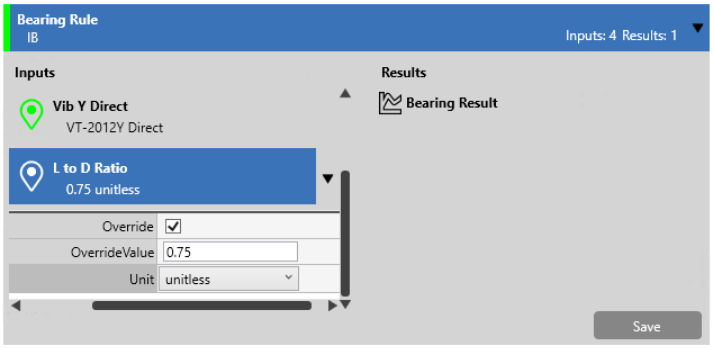
In the Build canvas this step looks very much like a Scalar Constant Step, but it has additional properties. The Tunable Input should be given a custom Name and have units selected. Additionally, a Default Value for the input can be set here. Alternatively, the user can select "Override Required' to require a value to be entered at the time of Deployment.



The Deploy workspace is where the utility of the Tunable Scalar Input is put into practice. Here, the constant value is listed among the inputs. The default value assigned in Build may be used, or, at the point of Deployment, the user may override this value to customize the Rule Deployment to the unique conditions of the asset/process at hand.



Tunable Input using the Default Value 0.5



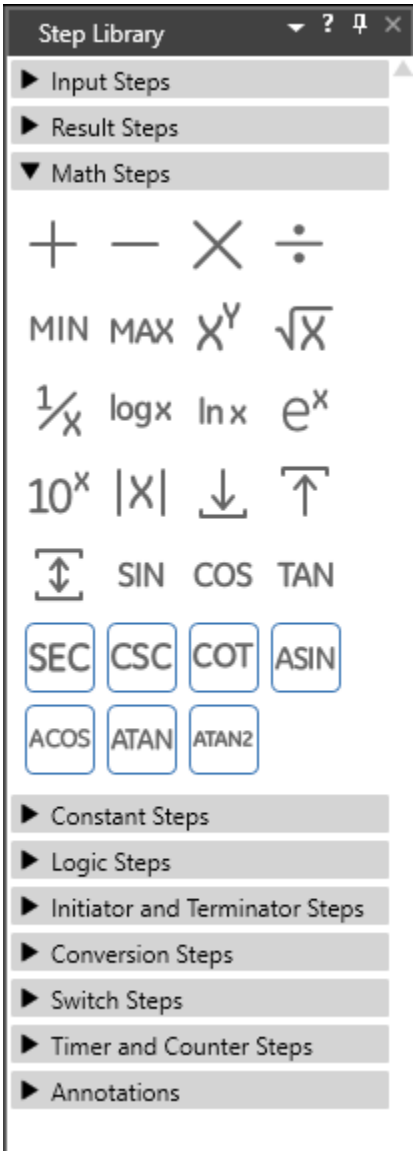
Tunable Input using the Override Value 0.75

If the Deploy user specifies a different Unit in the Override their entry will be converted for use in the Rule calculation. The Unit Group specified by the Rule Builder ensures that only a compatible unit can be entered as an override value. This can be useful to allow the Deploy user to enter their value in the units they have available.

Thoughtful application of the Tunable Scalar Input in an analytic solution means fewer source rules have to be maintained and Rule Deployments can be customized to specific conditions. This versatile Input can be applied to adjust mathematical constants, input custom machinery characterstics, and even to drive the mathematical and logical execution of a Rule by defining a running state, mechanical property, selecting a predefined equation set, or more.

4.3 New Trigonometric Math Steps

The addition of new Trigonometric math steps makes it possible for diagnostic Rule Builders to do additional vector analyses and mathematical operations. The steps being added in this release are: secant, cosecant, arcsine, arccosine, cotangent, arctangent, and arctangent2.

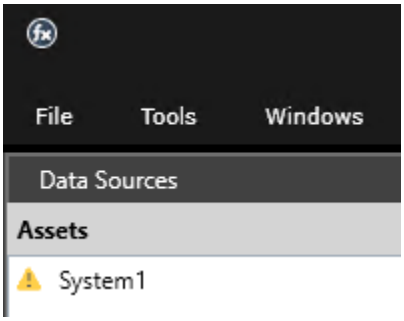


4.4 Utilization Improvements

Decision Support v21.1 introduces a number of new capabilities to better integrate with System 1 and platform-wide use cases.

4.4.1 Data Source Connection Repair.

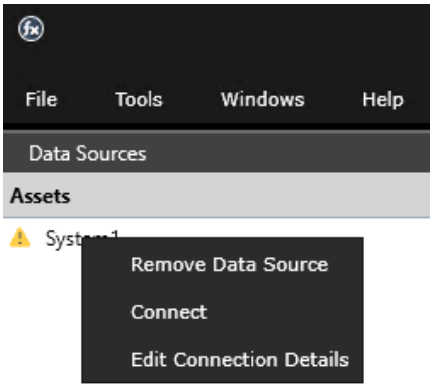
In the event that a known System 1 Data Source connection is broken, the Decision Support application indicates a connection error.



There are a number of conditions that can result in a connection error, including broken network connections, firewall restrictions, System 1 service not running, incorrect user permissions, or a computer name change on the System 1 computer.

Right-clicking on the connection provides the user options to

- Remove the Data Source, if it is no longer needed
- Connect, to retry the connection
- Edit Connection Details, to update the connection parameters (Computer Name or IP Address) if they have changed. This also is useful if restoring a backup that was created on a different computer.



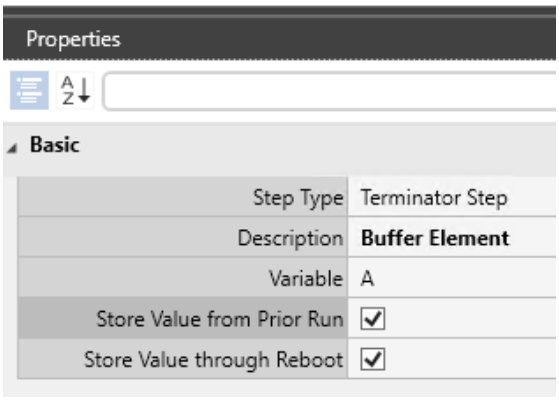
This new ability to edit/update the connection details for the Data Source is intended to repair/restore the connection to a known Data Source. It is not intended to change over to a new and different Data Source; in that case the user should remove the old Data Source and add a new one. (Multiple Data Sources are not currently supported.)

4.4.2 Value Persistence for Selected Calculations.

The Rule Engine has been enhanced to preserve certain values despite interruptions from Engine optimization or service restarts. This preserves calculated values through scheduled server maintenance (reboots). This behavior is specific to the Counter, Timer, and Terminator Steps.

The Counter and Timer Steps will maintain their values as described. It should be noted that these Steps do have properties and optional reset triggers that allow the Rule builder to define when and how their accumulated values should reset.

New for Decision Support v21.1, the Terminator step can now optionally be set to persist at the Rule builder's discretion. This feature is primarily used when Terminator and Initiator Steps are used to construct data buffers. By storing the value from the prior run, it ensures that the buffer will not have be reconstructed due to unexpected interruptions to data collection. By default these options are not checked, since they may not be required in other scenarios.



4.4.3 System 1 Data Capture Triggered by DS Point in Alarm.

In Decision Support v21.1 we have enhanced how Decision Support points are structured in System 1, implementing the references necessary for the point to follow Collection Group behavior like other points in System 1. This means that a Decision Support diagnostic alarm will now drive storage of high-resolution data in System 1 similar to what is done on other data alarms. This is significant because many Decision Support analytics will identify a malfunction or pending anomaly before any individual sensor on the machine goes into alarm. Now the user will have a rich dataset to evaluate the condition identified by Decision Support.

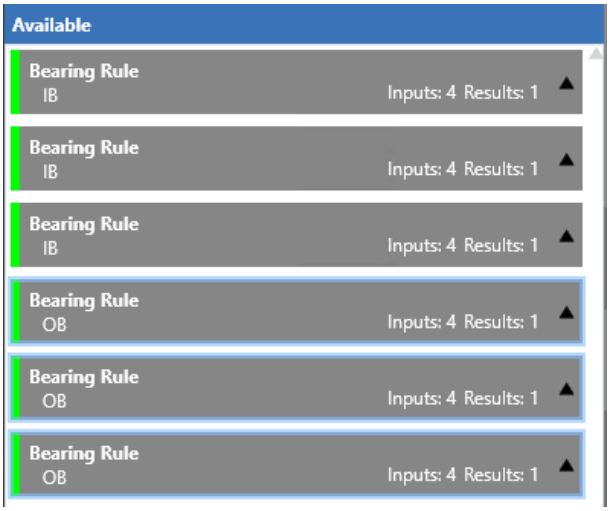
4.5 Usability Enhancements

In response to feedback from internal and external users, we have taken the opportunity to enhance certain workflows with new capabilities, particularly to expedite the Rule Deployment experience.

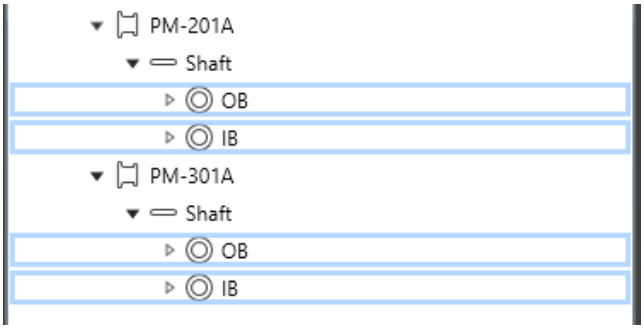
4.5.1 Multi-Select Capabilties

In the Deploy workspace, Decision Support v21.1 introduces new multi-select capabilities so actions can be applied to more than one element. Specifically, multi-select is now allowed for System 1 Assets in the Data Source Asset Hierarchy, to support Smart Deploy. Multi-select is also enabled for Deployment Record tiles in the main workspace. In order to perform a multiselect, hold down the Ctrl button while clicking on items. Shift-Click and the Ctrl-A hotkey will also work for Rule Deployment selections. To clear selections press Esc or single select a new item.

Primary selections in Decision Support drive filtered views and the Properties pane contents, so there is a different visual indication for multi-selected items as compared to the primary selection. Where the primary selection is a dark blue highlight, multi-selected items will be indicated by a blue outline around the item.



The bottom three Deployments are selected



The motor bearings are selected

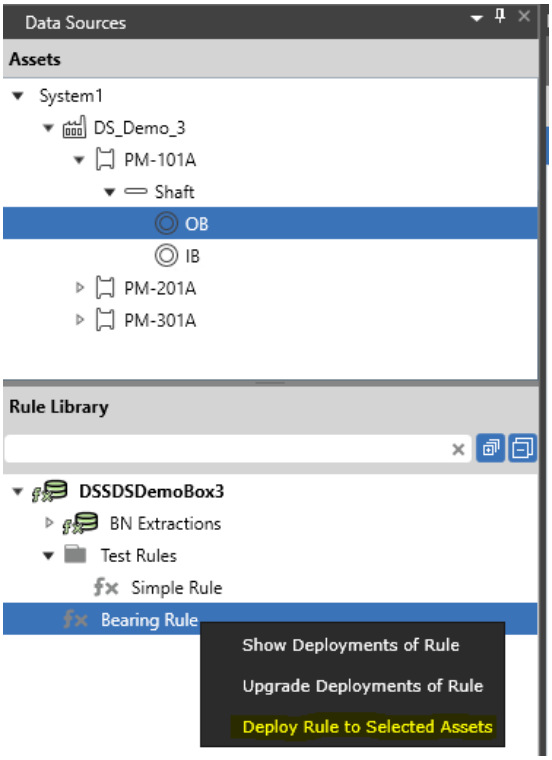
4.5.2 Full Item Path Display

In the Deploy workspace, Decision Support v21.1 now features more information about your deployments in the Properties pane.

- When a Rule Deployment is selected, the Properties pane will now show the full path to the System 1 Asset the Rule Deployment is assigned to.
- When a Rule Input is selected, the Properties pane will now show the full path to the System 1 measurement that is mapped to that Input.

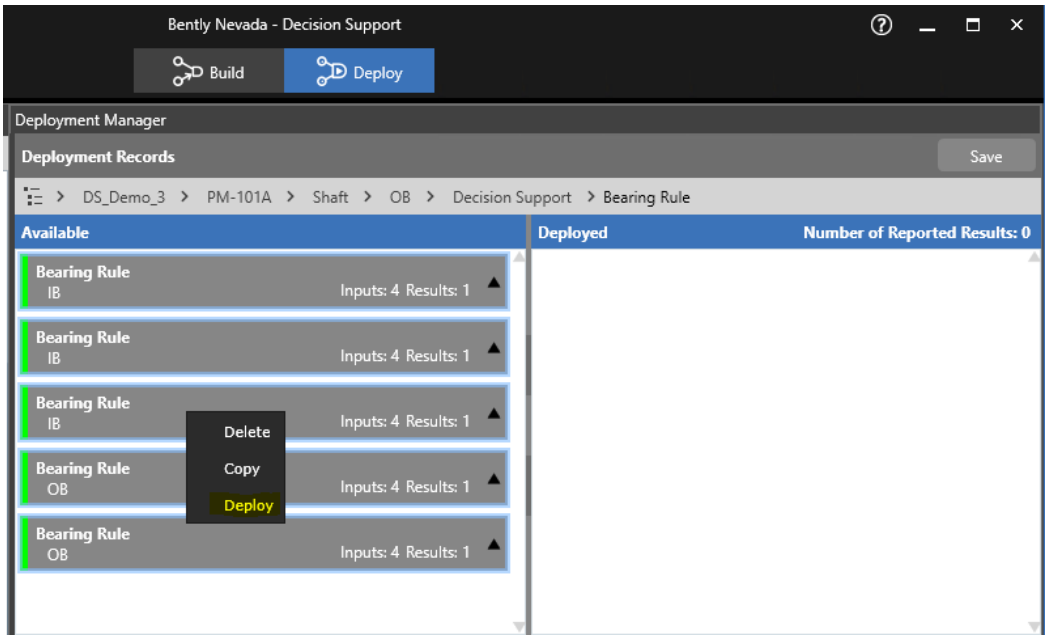
4.5.3 Right-click Deploy

A new option has been added to the right-click menu on a Rule selection when in the Deploy workspace. “Deploy Rule to Selected Assets” will create a Rule Deployment(s) for valid selected Asset(s). This provides a quicker alternative to clicking and dragging a Rule onto an Asset.



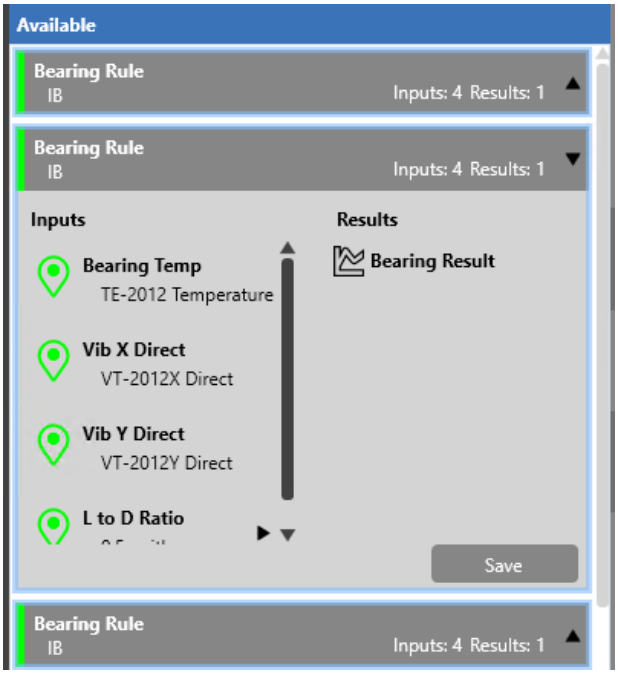
4.5.4 Right-click Commit

A new option has been added in the right-click menu for a Rule Deployment record/tile. In addition to being able to copy or delete a Rule Deployment, you can now Deploy a selected valid Rule Deployment(s) to make it active in System 1. Similarly, you can remove Deployment(s) from System 1. This provides an alternative to clicking and dragging Rule Deployments to move them between the Available and Deployed states.



4.5.5 Double-click to Expand Deployment Record

A new shortcut for Decision Support v21.1, in order to expand or collapse a Deployment Record tile you can now double-click on the tile as an alternative to clicking on the expansion arrow.



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