

Support Technical Exchange: Maximo Calibration Features and Upgrade

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Introduction

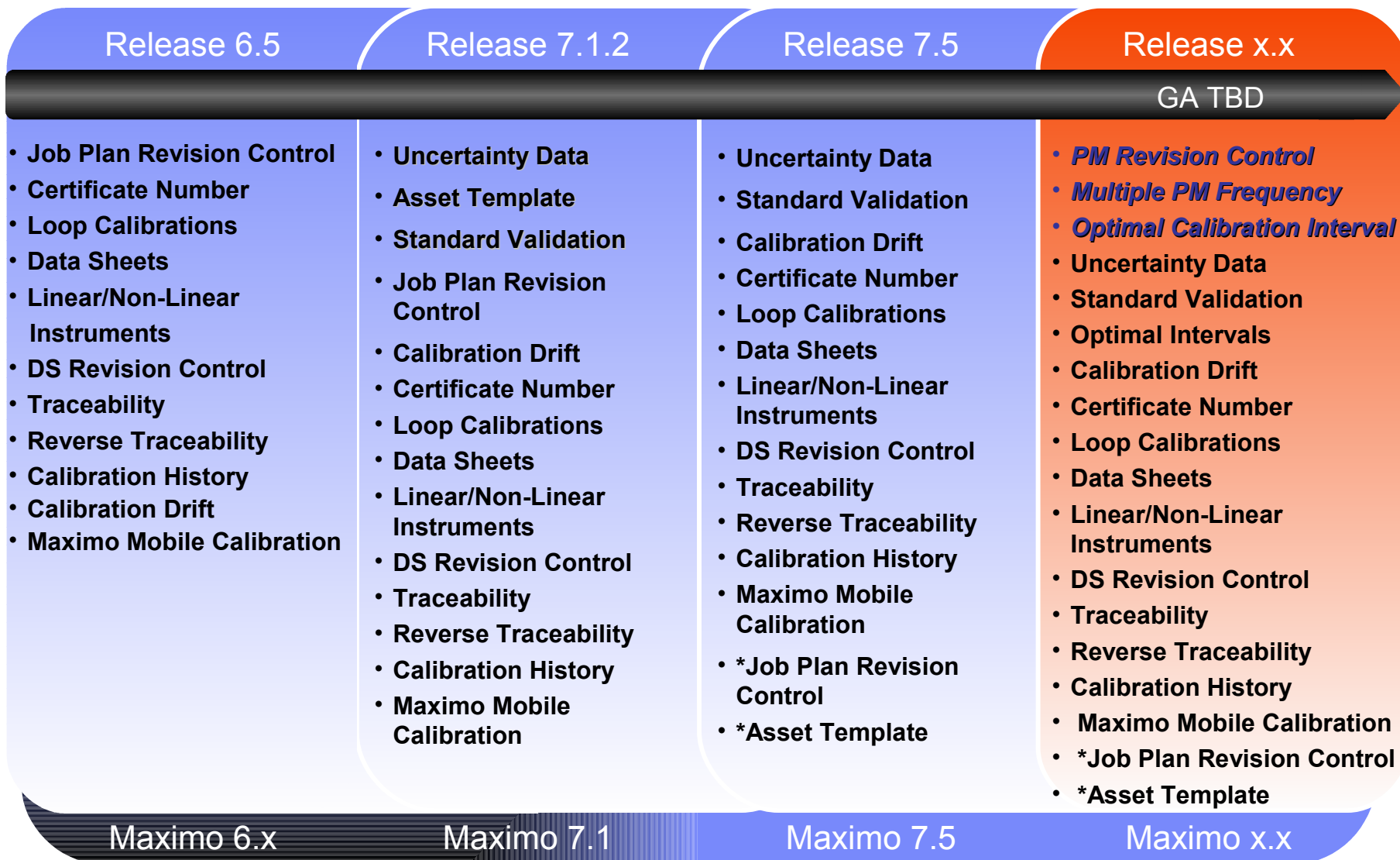
Abstract:

- This presentation is on Calibration features along with the upgrade of Calibration products from the 6.x to the 7.x platform.

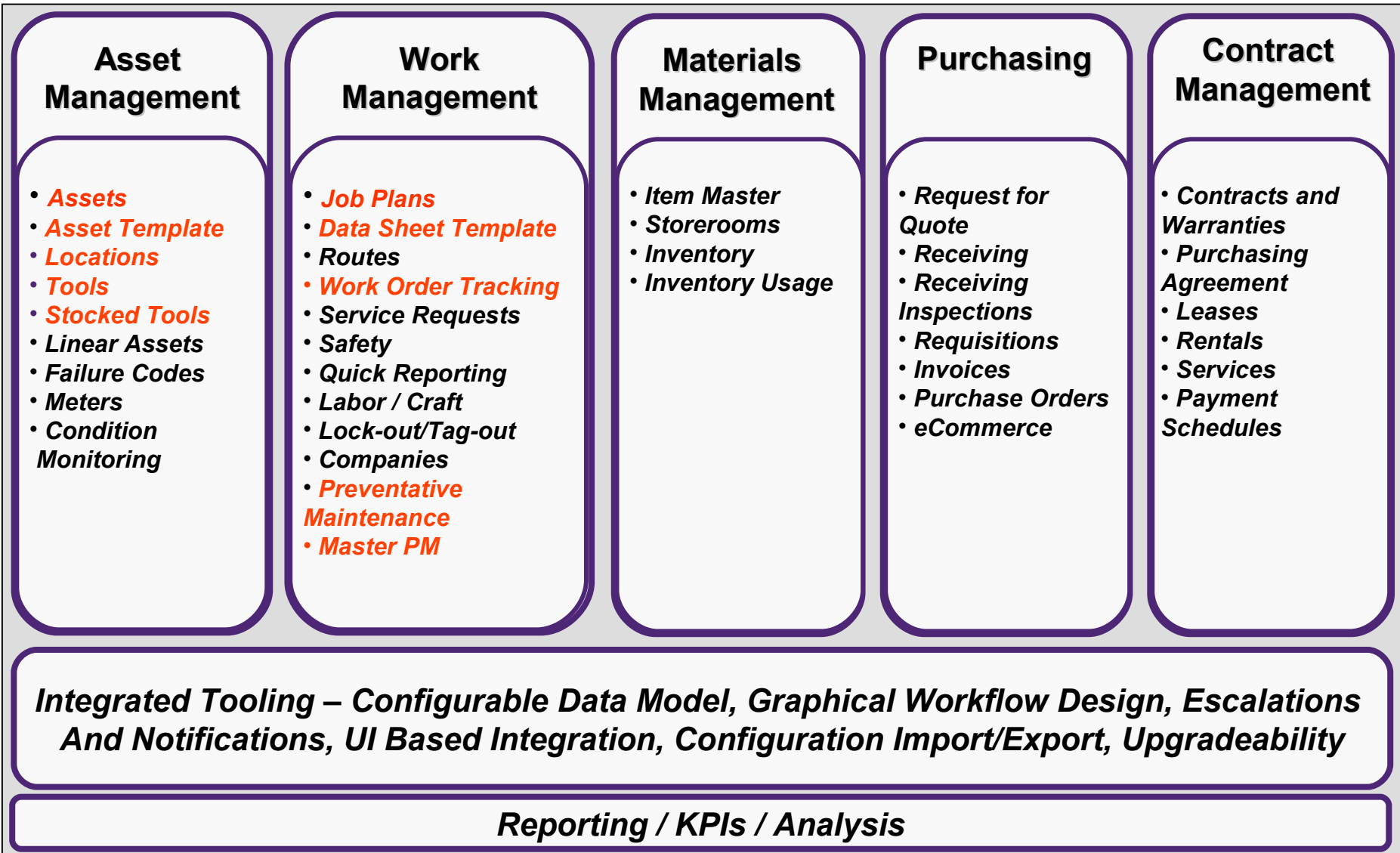
Objectives:

- Overview of the Calibration functionality.
- How to Upgrade your current Calibration product to the 7.5 platform.
- Ability to troubleshoot issues that may arise.

Maximo Calibration Versions



Applications with Calibration Functionality



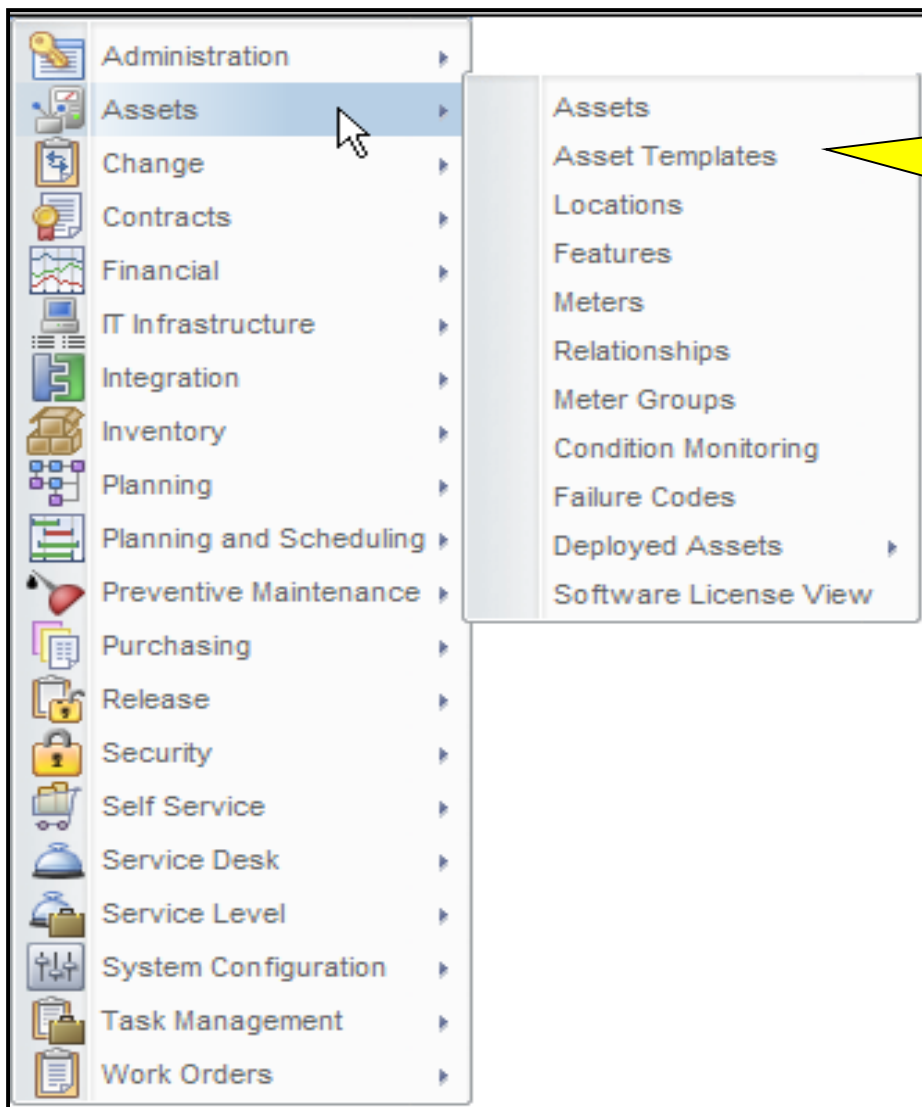
What is different in Maximo Calibration 7.5 ?

- No longer any (CAL) applications
- Maximo Calibration part of the core EAM Install
- Calibration fields and functionality are enabled via the license key and Conditional UI.
- Calibration Fix Packs are now part of the core EAM Fix Pack schedule

Application Changes:

- Asset Template application is a new application for EAM
- Job Plan Revision Control is core EAM functionality

Go To Menus



Removal of (Cal) applications
i.e. Assets (Cal)

Organization – Calibration Options

The screenshot shows a software window titled "Preventive Maintenance" with a sub-section "Work Order Tracking".

Preventive Maintenance

Default Amount Allocated to Extend Date in PM Application:

Work Order Tracking

Tolerance Warning for exceeding limits :

Validate once per save
 Validate upon tabbing from Output field
 Never validate

Qualified Technician:

No validation between Tool and Technician
 Validate but with warning message
 Enforce validation between Tool and Technician

Validation of Tools on Work Orders:

No validation Between Tools and Status of CLOSED or COMP
 Validate but with warning message
 Enforce validation between Tools and Status of CLOSED or COMP

Validation of Rotating Asset on Work Orders:

No validation between Rotating Asset and Asset calibrated
 Validate but with warning message
 Enforce validation between Rotating Asset and Asset calibrated

Automatically Approve Tool Transactions?

Warning Message for Work Order Data Sheet Changes?

Prevent past due tools from being entered?

Automatically set the As Found and As Left Status on WO?

Options

- Set options based on your business processes.
- Set up to validate, not validate or warn the user

Tools

List **Tool** Storerooms Vendors Specifications

Tool: STDPG >> Standard Pressure Gauge

Commodity Group:

Commodity Code:

Meter Group: >>

Meter: >>

Item Set: SET1

Status: ACTIVE

Lot Type: NOLOT

Issue Unit:

MSDS:

Receipt Tolerance %:

Attachments

Capitalized?

Rotating?

Outside?

Inspect on Receipt?

Tax Exempt?

Crew?

Click to see image in its actual size

Calibration Details

You can identify a tool as the standard used for measuring and testing equipment. [More information](#)

Is M&TE?

M&TE Classification: PRIMARY

Buffer Solution?

Internal Calibration?

Alternate Tools Filter > 0 - 0 of 0

Required Qualifications Filter > 1 - 1 of 1

Qualification	Description	Organization
CALTECH >>	Calibration Technician	EAGLENA

- Rotating flag enabled to define specific Assets.
- Calibration Details further defines whether the tool is a Measuring and Testing Equipment (M&TE), Buffer Solution or an in-house calibration.
- Required Qualifications can be associated to a Tool and used for Technician Validation on a Work Order in Tools Actual tab.

Assets

New Calibration?
field

Asset: CAL200 CAL200 Site: BEDFORD Attachments

Status: ACTIVE Type: Moved?

Linear? Asset Template: Calibration? Returned To Vendor?

Details

Address Information

Calibration Details

Create calibration asset records to define your instruments, measurement and test equipment (M&TE), and standards. [More information](#)

Loop Location: LOOP1 Calibration Loop 1

Physical Location: PT200

Is M&TE?

M&TE Classification: Model Number:

Is Contaminated? Loop Number:

Is Contaminated Description: Accuracy EU +: 1

Buffer Solution? %Span +:

Internal Calibration? %URV +:

Calibration Vendor: %Reading:

Next Calibration Due Date: 6/15/11 12:00 AM

Due Date Extended? Asset Department: Plant Floor

- For Standards/M&TE – Rotating Item must be added with ITEMTYPE=TOOL.
- Calibration Details are displayed when Calibration? Field is enabled.
 - Further defines whether the tool or asset is a M&TE, Buffer Solution, in-house calibration, operating range, accuracy, department, next calibration due date and whether the PM Extend Date is populated.
- Next Calibration Due Date is calculated every time you access the asset record via the application or report.

Next Calibration Due Date Calculated?

Calibration Next Due Date (Asset/Work Order Tracking) is determined by the following:

- Search All Work Orders where
 - ASSET.ASSETNUM = WORKORDER.ASSETNUM
 - WORKORDER.STATUS <> 'CLOSED', 'COMPLETED' or 'CANCELED'
 - WORKORDER.WORKTYPE = 'CAL' (worktype.type = 'CAL')
 - Determine which WORKORDER.TARGSTARTDATE from All Work Orders searched has the earliest date.
 - ASSET.PLUSCDUEDATE = earliest date

- If there are no Work Orders
 - Search All PMs where PM.ASSETNUM = ASSET.ASSETNUM
 - PM.STATUS = ACTIVE
 - PM.WORKTYPE = 'CAL' (worktype.type = 'CAL')
 - Determine which PM.NEXTDATE / PM.EXTDATE from all the PMs searched has the earliest date.
 - ASSET.PLUSCDUEDATE = earliest date

Upgrade Process to Populate 'Calibration?' Field in 7.5

- For existing clients new update scripts provided - manually run to determine which of the following impact your environment:
 - (1) If any Calibration detail fields are populated in the Asset application.
 - (2) If the Asset is associated to a Data Sheet.
 - (3) If the asset has a PM against it with a work type of 'CAL'.
 - (4) If a Work Order was generated against this asset with a work type of 'CAL'.

- Scripts are part of Install documentation.

Locations – Loop Calibrations

List Location Assets History Safety Meters Specifications Service Address Map

Location: Calibration Loop 1

Site:

Attachments

Type:

Priority:

Status:

Rotating Item:

Failure Class:

Address:

Meter Group:

GL Account:

Bill to Address:

Calendar:

Internal Labor Account:

Ship to Address:

Shift:

Address Information

Calibration Details

A loop is a set of instruments that are grouped and calibrated together. You can identify the location as pa

Loop Calibration?

Location: Calibration Loop 1

Assets Filter > 1 - 3 of 3

	Asset	Description
	<input type="text" value="CAL100"/>	CAL100
	<input type="text" value="CAL200"/>	CAL200
	<input type="text" value="CAL300"/>	CAL300

- A Loop is defined as a set of instruments that when grouped together and calibrated the Input and Output of the whole group determines the Pass or Fail of the Calibration.

User Defined Data Sheets

Calibration Test Points, Function Checks and Dynamic Checks

Asset Function	Description	Type	Calibration Points	Function Checks	Dynamic Checks	Input Units	Output Units
1	Pressure Transmitter	ANALOG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	psi	mA

Asset Function

Asset Function: 1 Pressure Transmitter Type: ANALOG Technician can Insert Points?

Calibration Point? Repeatable? Manual?

Check Point? Non-Linear?

Check Point? No Adjustment Limit?

Information

Tolerance on Input? Input Limits Clipped? Tolerance on Output? Output Limits Clipped?

Min Field Resolution: 2 Range Limit From: -5.00 Min Field Resolution: 3 Square Root of Input?

Input Range From: 100.00 To: 5.00 Output Range From: 4.000 Reverse Flow?

Units: psi As: EU To: 20.000 Process Units:

Units: mA Scaling Factor:

Point 1

Description: Adjust to Improve Summed EU +: Guardband Tolerance From:

Single From: -1.00 %Span +: To:

To: 1.00 %URV +: Applied As:

As: EU %Reading:

Status when Exceeded: ADJTOMP Applied As:

Point 2

Description: Failure Summed EU +: Guardband Tolerance From:

Single From: -2.00 %Span +: To:

To: 2.00 %URV +: Applied As:

As: EU %Reading:

Status when Exceeded: FAIL Applied As:

Configuration Tab

Linear & Non-Linear Instruments

Analog & Discrete Test Points

EU, %SPAN, %URV, %READING

Tolerance on Input or Output

Limits Clipped on Input or Output

Squared or Squared Root

Repeatable Test Points

Average & Standard Deviation

Manual Test Points

Data Sheet - Configuration Tab

List | Data Sheet | Work Assets | Configuration

Data Sheet: DS101 | PG100300420EU | Organization: | Status: APPR

Revision: 0 | Site: |

Truncate Groups

Desired Output Truncate?

Range Limits Truncate?

Asset and Process Error

Asset and Process Error:

Expressed in Output Resolution plus 'n' places

Express in maximum resolution actually entered for Input or Output

Plus 'n' Places:

Truncate?

Tolerance Limits and Error

Tolerance Limit and Error:

Expressed in Output Resolution plus 'n' places

Express in maximum resolution actually entered for Input or Output + 1

Plus 'n' Places:

Truncate?

Repeatability

Standard Deviation:

N

N - 1

Repeat Value:

- Configuration Tab is data sheet specific so each data sheet can be configured differently.
- Use the configuration tab so that calibration results can be displayed in a particular numeric format on the Work Order Data Sheet tab.
- Defines the format for Desired Output, Asset Error, Process Error, Tolerance Limits, Tolerance Error and Repeatable Points

Preventive Maintenance – Override Extend Date

Time Based Frequency | Meter Based Frequency

* Frequency: 120 Alert Lead (Days): 0 Extended Date:

* Frequency Units: DAYS Estimated Next Due Date: 6/15/11

Extend Date Comment

Enter a comment for extending the date. Click OK when finished.

PM: 1009

Comment:

OK Cancel

Extend Date Override

To extend the due date of the PM, enter a date in the future. [More information](#)

Extend Date Details Filter 1 - 1 of 1 Download

PM	Master PM	Extend Date	Previous Extend Date	Changed By	Changed Date	Comments
1032			9/13/12	WILSON	9/13/12 5:03 PM	

Extend Date

Previous Extend Date: * New Extend Date: Comment:

OK Cancel

Extend Date Validation

- Comment Field is Now Required – Explains **Why** the Date needs to be Extended.
- Default Allocated Amount for Extending a Date is 1 then date becomes read-only.

After Default Amount is used the Override Extend Date Option must be used - Security Access in Action Menus

Work Order Tracking

List Work Order Plans Assignments Related Records Actuals Safety Plan Log **Data Sheet** Failure Reporting Specifications Service Address Map

You must enter the results of the as-found and as-left data before you can close a work order. [More information](#)

Work Order: 1258 Calibration Loop 1 Site: BEDFORD Status: WAPPR

Parent WO: >>

Associated Data Sheets Filter > 1 - 4 of 4 Download

Data Sheet	Description	Asset	Location	Tag Location	As Found Status	As Left Status	Required?
DSLOOP1	Loop 1 Data Sheet		LOOP1				<input checked="" type="checkbox"/>
DS101	PG100300420EU	CAL100	LOOP1	PT100			<input type="checkbox"/>
DS102	PT050420SPAN	CAL200	LOOP1	PT200			<input type="checkbox"/>
DS103	TT0100420READING	CAL300	LOOP1	PT300			<input type="checkbox"/>

New Row

- Data Sheet Tab is where you enter all As Found/ As Left calibration data.
 - Work Order must be in at least APPR status for Data Sheet fields to be editable.
- Data Sheet status of Pass/Fail is automatically calculated based on the readings enter.
- Can associate multiple data sheets but only 1 needs to be required.
 - If you start entering readings on an optional data sheet then they become required.
- All As Found and As Left data must be entered for Required Data Sheets before a Work Order can be set to Complete or Closed Status.
 - Only the Data Sheet statuses of 'Missing' or 'Broken' allows you to circumvent this rule.

Uncertainty Data

Uncertainty Data

System ID:	12	Uncertainty Sidekick	Guardband Method:	Guardband Analysis Plot
k-Factor:	2.000		Guardband Factor:	1
Confidence Level:	95.45		Certification Interval:	3
			Units:	MONTHS

- Ability to enter Uncertainty Data manually or automatically via the Integration Framework.
- Integration Framework Configuration:
 - Create object structures for uncertainty – Data Sheet and Work Order Data Sheet.
 - Create a publish channel for each uncertainty object structure.
 - Create an enterprise service for each object structure.
 - Configure the external system to transfer the uncertainty data.

***Whitepaper on the Uncertainty Data Configuration will be part of the documentation for this release.

View Calibration History

View Calibration History

To find Data Sheets during a specific date range, enter dates in the Date From: and Date To: fields. To refine your search, enter filter criteria for the column(s) and press Enter or click the icon.

Date From: Date To:

[Refresh](#)

[Asset Calibrations](#) [Loop Calibrations](#)

Data Sheets Filter > 1 - 1 of 1 [Download](#)

Work Order	Actual Finish	Data Sheet	Asset	Location	As Found Status	No Adj. Made?	As Left Status	Required?
1158	9/14/12 4:04 PM	DS101	CAL101		PASS	<input type="checkbox"/>	PASS	<input checked="" type="checkbox"/>

Asset Functions Filter > 1 - 1 of 1 [Download](#)

Asset Function	Description	Type	Input Units	Output Units	Process Units	No Adj. Made	As Found Status	As Left Status	As Found Errors	As Left Errors
1	Pressure Gauge	ANALOG	psi	mA			PASS	PASS	0	0

[Calibration Points](#) [Function Checks](#) [Dynamic Checks](#)

Calibration Points Filter > 1 - 3 of 3 [Download](#)

Calibration Point	Nominal Input	Desired Output	As Found Input	As Found Output	As Left Input	As Left Output	Set Point	As Found Set Point	As Left Set Point	As Found Errors?	As Left Errors?
1	100.00	4.00	100.00	4.00	100.00	4.00				<input type="checkbox"/>	<input type="checkbox"/>
2	200.00	12.00	200.00	12.00	200.00	12.00				<input type="checkbox"/>	<input type="checkbox"/>
3	300.00	20.00	300.00	20.00	300.00	20.00				<input type="checkbox"/>	<input type="checkbox"/>

Select Action Menu > Assets and Locations

- View past calibration Work Order results for the asset or location once the work order status is set to Complete or Closed.

View Tool Usage

View Tool Usage

? To find Workorders during a specific date range, enter the dates in the Date From: and Date To: fields. To refine your search, enter filter criteria for the column(s) and press Enter or click the icon.

From Date:
 To Date:






Filter > 1 - 1 of 1 Download

<u>Work Order</u>	<u>Description</u>	<u>Actual Finish</u>	<u>Asset</u>	<u>Location</u>
1158	Calibration 101	9/14/12 4:04 PM	CAL101	

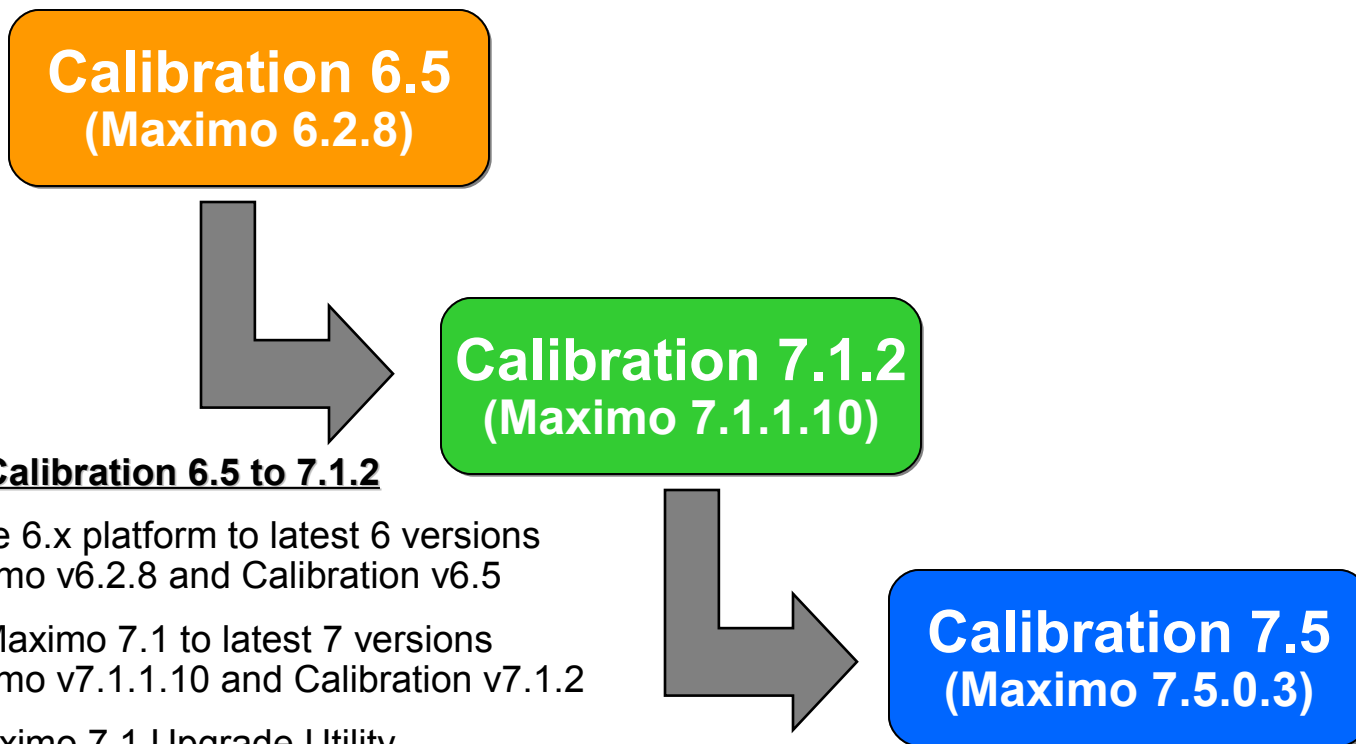
Select Action Menu > Assets

- View past Calibration Work Order where the Tool was used to Calibrate the Instrument.

Calibration Functionality

						Features
	Assets	Assets defined as Calibration instruments	Tools defined as M&TE	Asset Templates	Locations as Tag Ids	Loop Calibration set-up
	Data Sheets	Customer defined resolution configurations	Linear and Non-Linear Instruments	Repeatable Test Points	EU, %SPAN, %URV, %READING	Function and Dynamic Checks
	Job Plans And PMs	Revision Control	Calibration Tasks	Planned Labor, Materials and Tools	Associated Data Sheets	Calibration Specific Intervals
	Work Orders	Workflow enabled	Overdue Standard Validation	Out-of-Tolerance Notifications	Ability to enter Uncertainty Data	Maximo Mobile with Calibration
	History and Reports	Calibration History	Tool Usage	Calibration Drift	Calibration Errors	Overdue Calibrations

Example Calibration Upgrade Path



Upgrade Calibration 6.5 to 7.1.2

- Upgrade 6.x platform to latest 6 versions
 - Maximo v6.2.8 and Calibration v6.5
- Install Maximo 7.1 to latest 7 versions
 - Maximo v7.1.1.10 and Calibration v7.1.2
- Run Maximo 7.1 Upgrade Utility

Upgrade Calibration 7.1.2 to 7.5

- Upgrade 7.1.x platform to latest 7.1 version
- Maximo v7.1.1.10 and Calibration v7.1.2
 - Install Maximo 7.5 to latest 7.5 versions
 - Maximo v7.5.0.3 and Calibration v7.5 license
 - Run Maximo 7.5 Upgrade Utility

Areas to Watch for when Upgrading to 7.5 ...

In Maximo Calibration 7.5 there are no longer any (CAL) applications
– everything has been moved to core applications

Problem

- None of the Calibration related bookmarks were saved after upgrade.

Problem

- Maximo groups loses its permissions to Calibration applications after Upgrade.

Problem

- All customization made on 6.2 applications are being dismissed when upgrading to 7.5

Note: Tech Note released and resolutions outlined in latest release of Upgrade Guide

References

- **Asset Management Information Center**

- <http://pic.dhe.ibm.com/infocenter/tivihelp/v49r1/index.jsp?topic=/com.ibm.mam.doc/welcome.html>

- **Maximo 7.5 What's New**

- <http://pic.dhe.ibm.com/infocenter/tivihelp/v49r1/index.jsp?topic=/com.ibm.mam.doc/overview/whatsnewmam75.html>

- **System Requirements**

- <http://www.ibm.com/developerworks/wikis/display/maximo/System+Requirements+for+Version+7.5+Maximo+Products>

- **Upgrade Resources**

- <http://www-304.ibm.com/support/docview.wss?uid=swg21266217>

- **Upgrade Webcast**

- <http://maximotimes.com/maximo/webcast-upgrading-maximo-6-or-7-1-to-maximo-7-5/>

Thank you...

