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# Simplifying Safety Equipment Inspection and Maintenance with AVEVA™ Mobile Operator

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**AVEVA**



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# Parco Refinery simplifies the inspection and enhances reliability of equipment

## Challenge

- The company faces the task of inspecting 1500 fire extinguishers regularly, with specific inspection frequencies based on different parameters (Hydro years, Annual, 5-year, 6-year, 12-year).
- Field inspectors are required to carry the knowledge of these parameters while conducting inspections, relying on information such as Serial Numbers, Date of Manufacturer, Extinguisher type (CO2, ABC, etc) and last known inspection dates.

## Solution

- The implementation leverages the ***Dynamic Asset, Expression Editor & Asset Detail Manager (ADM)*** of AVEVA Mobile Operator to include Attached Asset Properties and Values, covering critical information like Hydro year, Serial Numbers & Date of Manufacturer.

## Results

- **Engineered an optimized safety inspection protocol, enhancing operational efficiency**
  - Drives cost-effectiveness through precision, mitigating technician reliance on conjecture
- **Enhanced Regulatory Adherence through proactive audit readiness measures**
- **Entire process is completed in 3-4 days through an external firm/vendor**



# Imagine the extra effort you need to perform a periodic inspection?

UNIT	SINCLAIR#		LOCATION	SERIAL #	BRAND	TYPE	MODEL #	SIZE	POWDER	PURCHASE	CLASS
Boilerhouse		FE	South west of #5 generator	AC 431142	Amerex	Stored pressure	333, 334	100	CO2	2013	20BC
Boilerhouse		FE	South east corner of #5 generator	AC-431150	Amerex	Stored pressure	333, 334	100	CO2	2013	20BC
Boilerhouse		FE	West of middle generator	AC-56238-39	Amerex	Stored pressure	333, 334	100	CO2	2012	20BC
Boilerhouse		FE	West side of east generator	AC-56304-05	Amerex	Stored pressure	333, 334	100	CO2	2012	20BC
Boilerhouse		FE	North boilerhouse pump room, North east wall	AF-75401	Amerex	Stored pressure	580	20	Purple K	2011	40BC
Boilerhouse		FE	North of fuel gas analyzer building	AJ-15113	Amerex	Stored pressure	490	125	Purple K	2011	320BC
Boilerhouse		FE	between boilerhouse and #5 generator	AJ-15114	Amerex	Stored pressure	490	125	Purple K	2011	320BC
Boilerhouse		FE	North west of storage room under 40 block valve sign	AS-140475	Amerex	Stored pressure	580	20	Purple K	2011	40BC
Boilerhouse		FE	Second level west end	BZ-352026	Amerex	Stored pressure	580	20	Purple K	2013	40BC
Boilerhouse		FE	Second level south end	BU-70258	Amerex	Stored pressure	580	20	Purple K	2013	40BC
Boilerhouse		FE	Second level east end	NW-153976	Amerex	Stored pressure	566	20	Purple K	2000	120 BC
Boilerhouse		FE	North west corner of #3 boiler	CC-68037	Amerex	Stored pressure	580	20	Purple K	2014	40BC
Boilerhouse		FE	West of tank 687	BP-77164	Amerex	Stored pressure	580	20	Purple K	2013	40BC
Boilerhouse		FE	North east of boiler control room	NW-153968	Amerex	Stored pressure	566	20	Purple K	2000	120BC
Boilerhouse		FE	North side of fire shack	RT-621264	Amerex	Stored pressure	566	20	Purple K	2002	120BC
Boilerhouse		FE	South west side of #5 generator	SN-542100	Amerex	Stored pressure	566	20	Purple K	2001	120BC
Boilerhouse		FE	West of tank 40 column 51	SN-542102	Amerex	Stored pressure	566	20	Purple K	2001	120BC
Boilerhouse		FE	South east exit of boilerhouse	SN-542104	Amerex	Stored pressure	566	20	Purple K	2001	120BC
Boilerhouse		FE	North west entrance to powerhouse	TF-129030	Amerex	Stored pressure	580	20	Purple K	2002	40BC
Boilerhouse		FE	North east side of environmental TDC	V-612106	Amerex	Stored pressure	580	20	Purple K	2010	40BC
Boilerhouse		FE	North entrance to boiler #12	BC-82131	Amerex	Stored pressure	580	20	Purple K	2012	40BC
Boilerhouse		FE	South west double doors	Y-317407	Amerex	Stored pressure	397	11	Halotron	2012	1A 10BC
Boilerhouse		FE	South west end, north of boiler feed water pump	Y-317416	Amerex	Stored pressure	397	11	Halotron	2012	1A 10BC
Boilerhouse		FE	South East Of Control Room	Y-374809	Amerex	Stored pressure	397	11	Halotron	2013	1A 10BC
Boilerhouse		FE	Boilerhouse south of control room.	Y-41480	Amerex	Stored pressure	397	11	Halotron	2011	1A 10BC

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# Asset Detail Manager

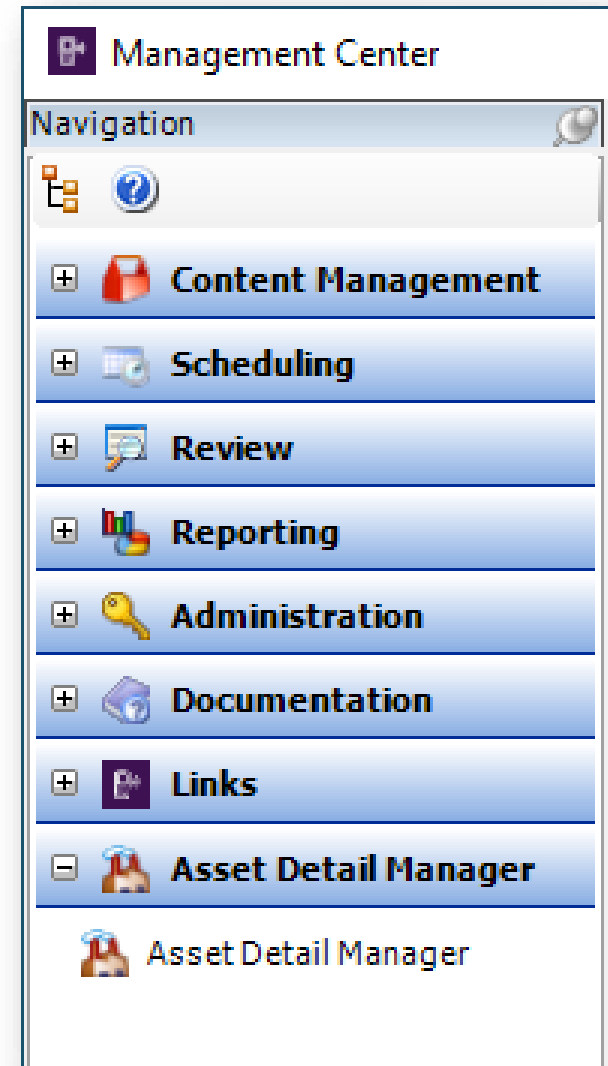
Mobile Operator 2020

**AVEVA**

# Asset Detail Manager (ADM)

## Where can I find ADM?

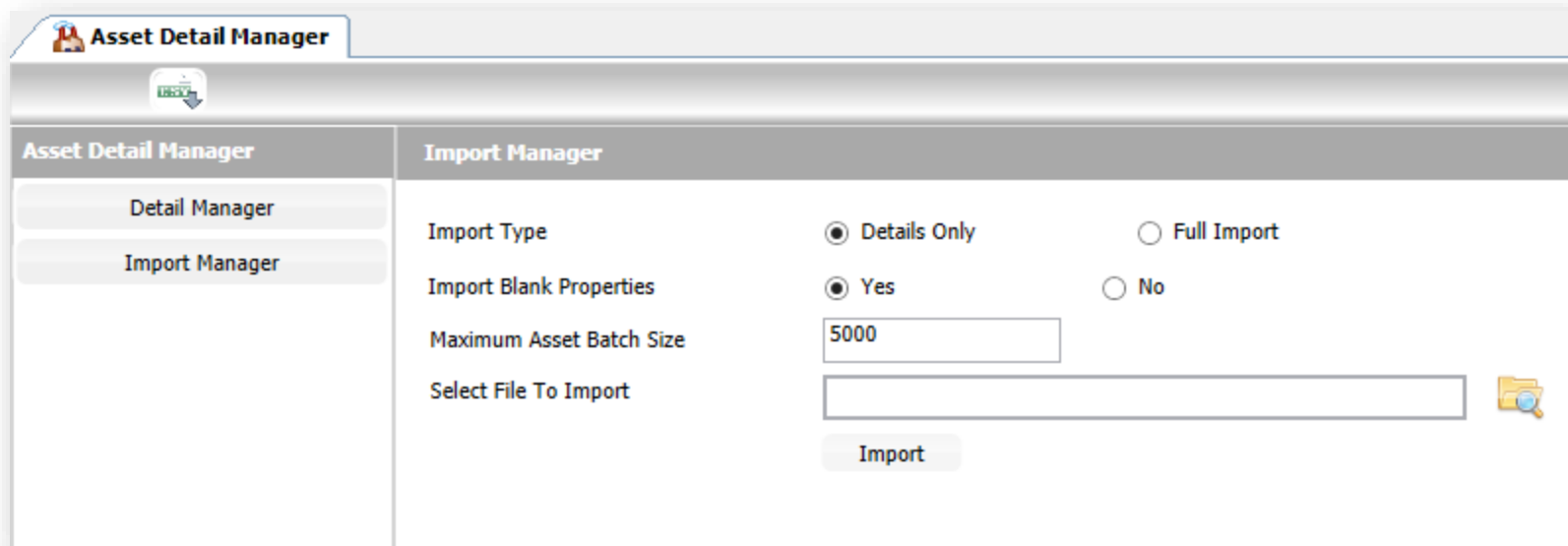
- Part of the core installation since IntelTrac 2017 SP2 (5.1 SP2)
- Located in the last group of Management Center's Navigation group panel
- Opened as a snap-in similar to other MC applications like Procedure Builder and AuditorPlus



# Asset Detail Manager (ADM)

What is it? What is the benefit?

- The purpose of Mobile Operator Asset Detail Manager is to **Import** and **Export** Assets, Asset Types and its Attached Properties in Mobile Operator.



The screenshot displays the 'Asset Detail Manager' application window. The title bar reads 'Asset Detail Manager'. Below the title bar, there is a navigation pane on the left with two buttons: 'Detail Manager' and 'Import Manager'. The 'Import Manager' button is selected. The main content area is titled 'Import Manager' and contains the following fields and controls:

- Import Type:** Two radio buttons are present: 'Details Only' (selected) and 'Full Import'.
- Import Blank Properties:** Two radio buttons are present: 'Yes' (selected) and 'No'.
- Maximum Asset Batch Size:** A text input field containing the value '5000'.
- Select File To Import:** A text input field with a folder icon to its right.
- Import:** A button located below the file selection field.

# Asset Detail Manager (ADM)

What is it? What is the benefit?

**Detail Manager**

Bulk Attached Property Deletion  Yes  No

Asset Type

Asset / DisplayName

**Properties**

Property Name	Value
<input checked="" type="checkbox"/> Class	10A 120BC
<input type="checkbox"/> Powder	ABC
<input type="checkbox"/> Type	Stored pressure
<input type="checkbox"/> Hydro	2030
<input type="checkbox"/> Actual_Last_Insp_Date	11/6/2022
<input type="checkbox"/> Serial_Number	E-73419530
<input type="checkbox"/> Unit	WASH PAD
<input type="checkbox"/> Purchase	2018
<input type="checkbox"/> Inspection	4/2022
<input type="checkbox"/> Sinclair_Number	
<input type="checkbox"/> Model_Number	423
<input type="checkbox"/> Size	20
<input type="checkbox"/> Brand	Amerex

- It is also used to Add, Edit, Update, delete and save Attached Properties and values of Assets into Mobile Operator.
- Can be applied to individual Assets or in bulk with the Import Manager

**Asset Detail Manager**

Asset Detail Manager

Import Manager

Import Type  Details Only  Full Import

Import Blank Properties  Yes  No

Maximum Asset Batch Size

Select File To Import

Import



# Asset Detail Manager (ADM)

## What is an Attached Asset Property?

Asset / DisplayName [REDACTED] /28P1 [REDACTED]

**Properties**

Property Name	Value
<input checked="" type="checkbox"/> CatalogProfile	PUMP
<input type="checkbox"/> Lube_Type	Summit Mist Oil 100
<input type="checkbox"/> Freq_Month	2
<input type="checkbox"/> Lube_Method	Oil Mist
<input type="checkbox"/> AssetName	28P1 [REDACTED]
<input type="checkbox"/> Relube_Last_Insp_Date	2/27/2023
<input type="checkbox"/> Relube_Next_Inspection	04/2023
<input type="checkbox"/> Status	Operating
<input type="checkbox"/> Unit	Coker
<input type="checkbox"/> Sub_Unit	Coker Unit
<input type="checkbox"/> Model_Number	423
<input type="checkbox"/> Size	20
<input type="checkbox"/> Brand	Amerex

- Additional elements or properties associated to a specific asset / piece of equipment
- For Fire Extinguishers:
  - Type
  - Hydro Year
  - Serial Number
  - Purchase Date (can also be year of manufacture)
- For Pump
  - Lubrication Type, Method and Frequency
  - Unit
  - EPA Leak Concentration limit (for LDAR)

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# Configuring the Fire Extinguisher Procedure

Mobile Operator 2020

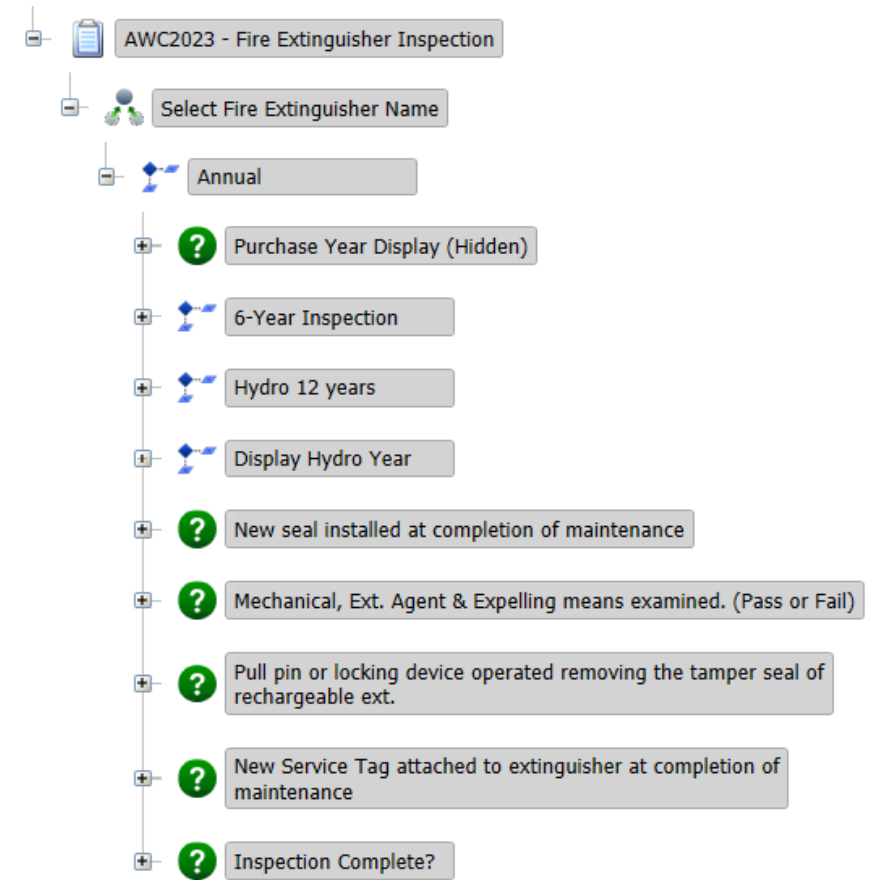
**AVEVA**



# Streamlining the frontend requires diligent backend efforts

## AMO Features Used

- Procedure on Demand
- Dynamic Asset
- Expression Editor
  - Conditional Based Decisions
- Asset Detail Manager (ADM)



# Streamlining the frontend requires diligent backend efforts

## Procedures on Demand

- As needed
- Not Scheduled
- Technicians will have a custom report showing which extinguishers to inspect

AWC2023 - Fire Extinguisher Inspection

Select Fire Extinguisher Name

Annual

Purchase Year Display (Hidden)

5-Year Inspection

Home > reports > CustomReports > FireExtinguisherInspection

Plant(s) PARCO Unit (s) Boilerhouse

Status Overdue (late), Due current month

1 of 2 100% Find | Next

### Fire Extinguisher Inspection Report

10/2/2023 9:42:54 AM

Unit Name	Fire Extinguisher	Hydro Year	Status	Last Inspection Date
Boilerhouse	00FEXT-TEST01-1987	2023	Completed	09/2023
Boilerhouse	00FEXT-TEST01-1993	2029	Due current month	10/2022
Boilerhouse	00FEXT-TEST01-2000	2012	Upcoming	12/2022
Boilerhouse	00FEXT-TEST01-2014	2026	Overdue (late)	08/2022

# Streamlining the frontend requires diligent backend efforts

## Dynamic Asset Selection

- Single Task Group with Dynamic Asset attribute

The image shows a mobile application interface for a task group. The main screen displays a task group titled "Select Fire Extinguisher Name" under the category "Annual". Below this, there is a list of tasks, including "Purchase Year Display (Hidden)", "6-Year Inspection", "Hydro 12 years", "Display Hydro Year", "New seal installed at completion of maintenance", "Mechanical, Ext. Agent & E...", "Pull pin or locking device operation rechargeable ext.", "New Service Tag attached to extinguisher maintenance", and "Inspection Complete?".

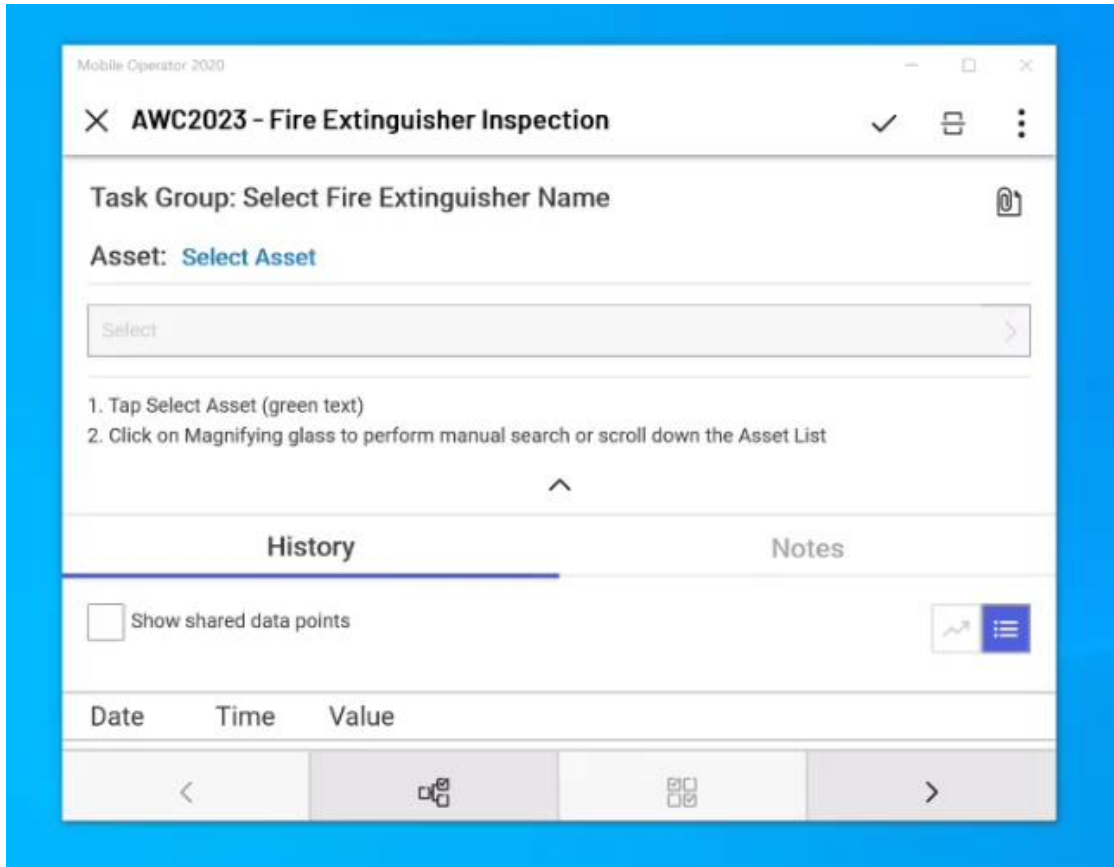
A callout window titled "Task Group" is shown, detailing the configuration for the "Select Fire Extinguisher Name" task group. The configuration includes:

- Title:** Select Fire Extinguisher Name
- Description:** 1. Tap Select Asset (green text)  
2. Click on Magnifying glass to perform manual search or scroll down the Asset List
- Asset Type:** FEXT
- Asset Type Property:** (Empty field)
- Mobile History:** Default
- Asset Selection Options:**  Static Asset,  Dynamic Asset,  Inherit Asset
- Allow Sub-Types:**

# Streamlining the frontend requires diligent backend efforts

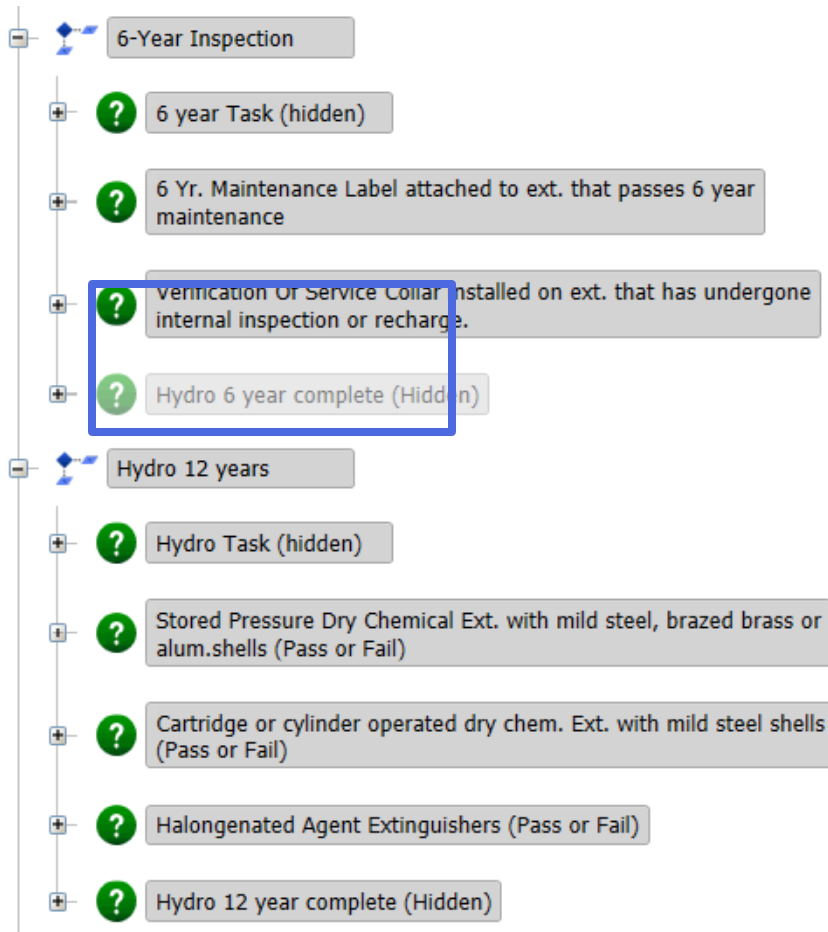
## Dynamic Asset Selection

- Operators make asset selections in real-time during Procedure execution, facilitating the development of reusable procedures for multiple assets and eliminating the need for redundant Task Groups and Tasks



# Streamlining the frontend requires diligent backend efforts

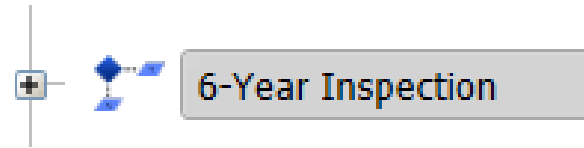
## Expression Editor



- **Decisions** for each frequency inspection
- Engineered an expression for continuous monitoring to determine whether the current year aligns with the 6-year or 12-year inspection cycle, referencing the year of purchase

# Streamlining the frontend requires diligent backend efforts

## Expression Editor – 6 Year Frequency

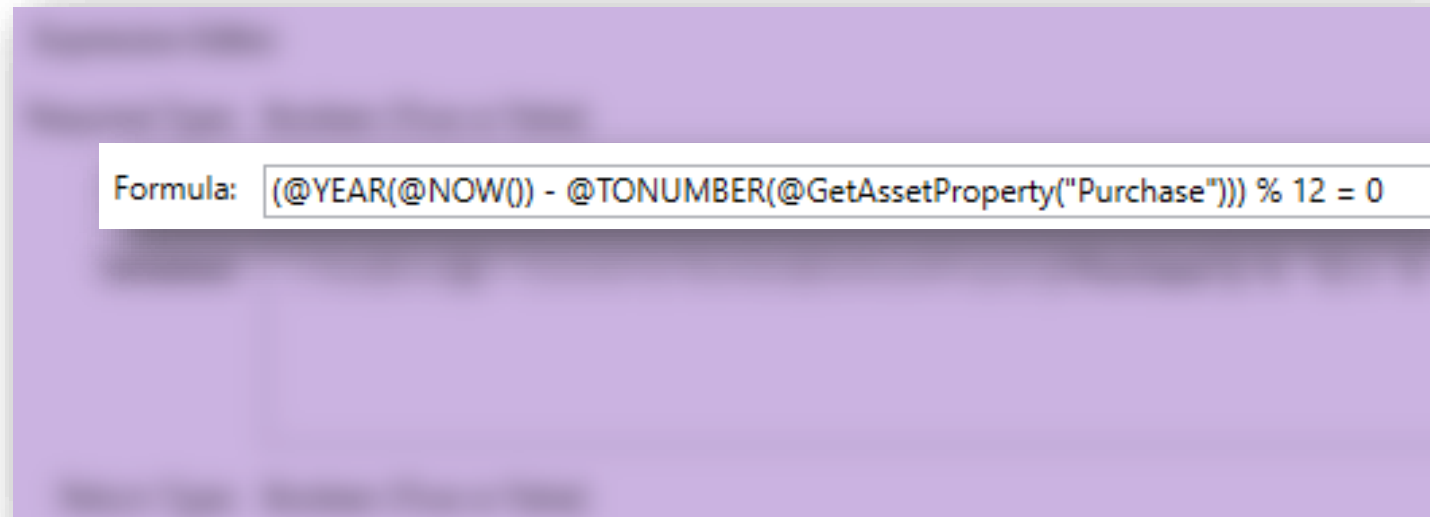
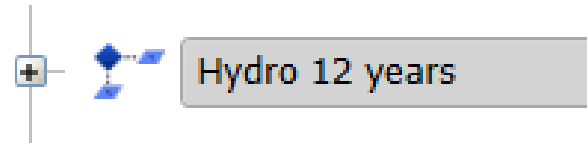


Formula: `(@YEAR(@NOW()) - @TONUMBER(@GetAssetProperty("Purchase"))) % 6 = 0 AND (@YEAR(@NOW()) - @TONUMBER(@GetAssetProperty("Purchase"))) % 12 <> 0`



# Streamlining the frontend requires diligent backend efforts

## Expression Editor – 12 Year Frequency



# Custom Report for Quick Status Identification

The screenshot displays the HollyFrontier software interface for generating a custom report. The breadcrumb trail is: Home > reports > CustomReports > FireExtinguisherInspection. The filter criteria are: Plant(s) PARCO, Unit(s) Boilerhouse, and Status Overdue (late), Due current month. A dropdown menu for the status filter is open, showing options: (Select All), Overdue (late), Due current month, Due next month, Upcoming, and Completed. The report title is "Fire Extinguisher Inspection Report" with a timestamp of 10/2/2023 9:42:54 AM. The table below shows the inspection data.

Fire Extinguisher	Hydro Year	Status	Last Inspection Date
00FEXT-TEST01-1987	2023	Completed	09/2023
00FEXT-TEST01-1993	2029	Due current month	10/2022
00FEXT-TEST01-2000	2012	Upcoming	12/2022
00FEXT-TEST01-2014	2026	Overdue (late)	08/2022
01FEXT0001	2018	Completed	1/2023

# Asset Detail Manager + Expression Editor + Custom Reporting

Empowering Operator's Mobility and Simplicity

The image displays three overlapping software windows. The background window is the 'Asset Detail Manager' for asset '00FEXT-TEST01-1987'. It shows a 'Properties' table with various attributes like Class, Powder, Type, and Purchase Year. The middle window is the 'Expression Editor' for 'AWC2023 - Fire Extinguisher Inspection', showing a list of inspection items such as 'Annual', 'Purchase Year Display (Hidden)', and '6-Year Inspection'. The foreground window is a 'Custom Report' titled 'Fire Extinguisher Inspection Report' for 'PARCO' plant and 'Boilerhouse' unit, showing a table of inspection records.

Property Name	Value	Send To Mobile	Application Name
Class	20BC	<input checked="" type="checkbox"/>	General
Powder	CO2	<input checked="" type="checkbox"/>	General
Procedure_Name	Documentum Test-Discharge		
Type	Stored pressure		
Hydro	2023		
Actual_Last_Insp_Date	9/29/2023		
Serial_Number	AC 431142		
Unit	Boilerhouse		
Purchase	1987		
Inspection	09/2023		
Sinclair_Number	SIN1-999		
Model_Number	333, 334		
Size	100		
Brand	Amerex		

Unit Name	Fire Extinguisher	Hydro Year	Status	Last Inspection Date
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Boilerhouse	01FEXT0001	2018	Completed	1/2023

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## Results

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  - Drives cost-effectiveness through precision, mitigating technician reliance on conjecture
- **Enhanced Regulatory Adherence through proactive audit readiness measures**



# Questions?

Please wait for the microphone.  
State your name and company.



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# Thank you!

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Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

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