SAM Monthly Best Practices Webinars

Session 8: Customizing FNMS On Prem / Flexera One ITAM

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May 5th, 2022

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Agenda

- Last session pointers and answers to questions
- News
- Customizing FNMS on Prem and Flexera One ITAM
  - Context
  - Extending fields (custom properties) (On Prem / Cloud)
  - Creating Automations (On Prem / Cloud, different approaches)
  - Customizing Inventory Imports (On Prem / Cloud, Different approaches)
  - Creating Custom SQL Reports (On Prem)
  - Creating custom web reporting objects (On prem)

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Last Session: Managing Hybrid Applications with ITAM / FSM

- Useful pointers
  - Recording and PowerPoint: here
- Answers to questions:
  - No question except: “Will the recording be available and “are you going to cover M365 collected by the FlexNet Manager Beacon
  - Answers are: “Yes” and “Yes”!

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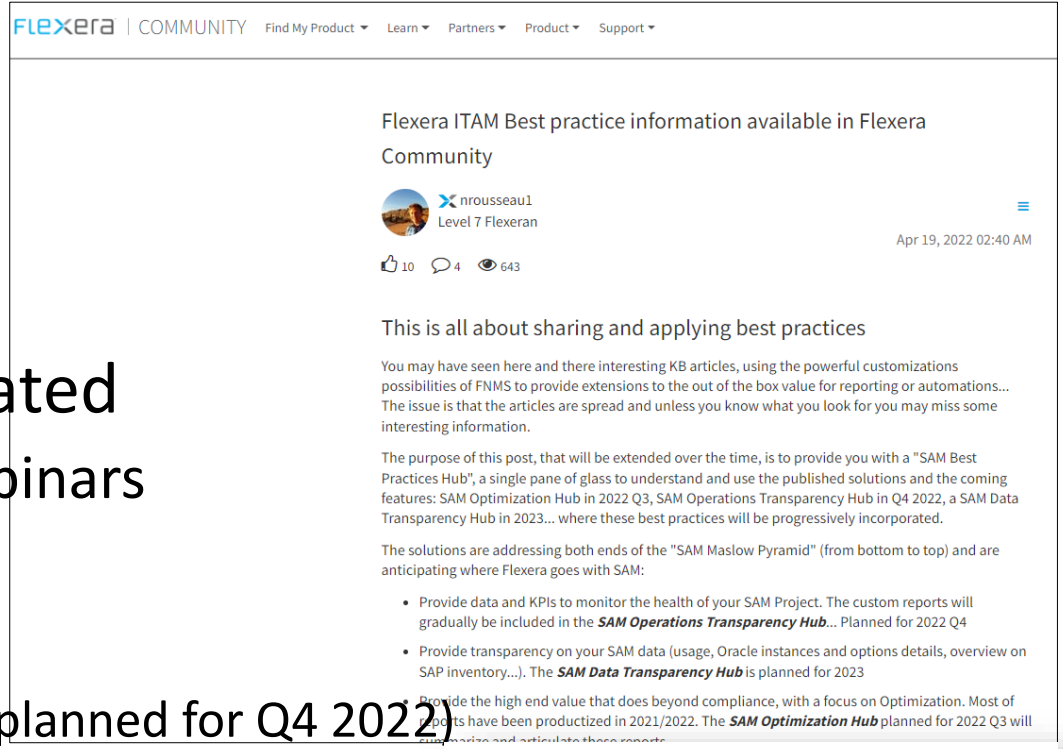
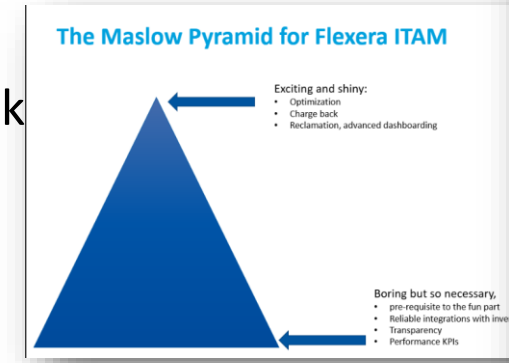
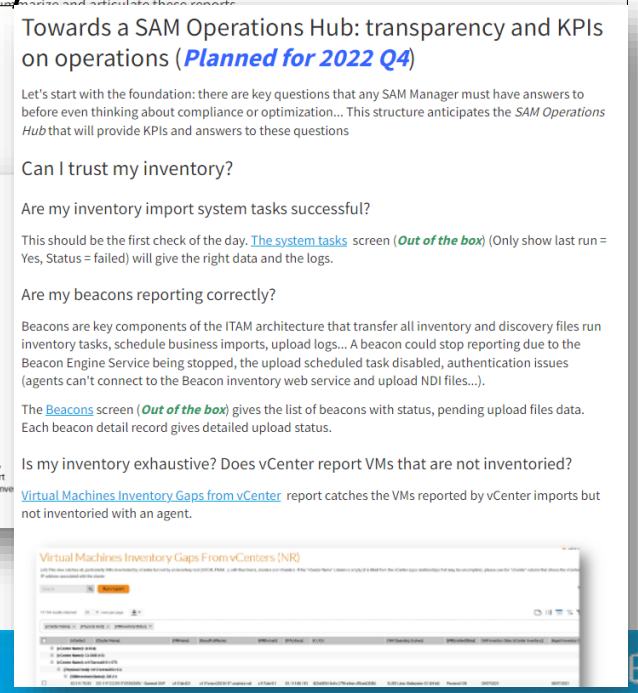
News

- A "Best practice Hub" has been created
  - Pointers to all SAM Best Practices Webinars
  - Pointer to many published solutions
  - In the perspective of
    - The SAM Operations Transparency Hub (planned for Q4 2022)
    - The SAM Data Transparency Hub (planned for 2023)
    - The SAM Optimization Hub (Planned for Q3 2022)
  - Many reports
    - Can be implemented on prem in a click
    - Will be productized in ITAM / FNMS







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Customizing FlexNet Manager / ITAM: Context

- ITAM is not a “Build it yourself” platform but a content-oriented solution
- However, areas of customizations
  - UI / available fields
  - The way data is managed (automations)
  - The way data is imported
  - Reports
- Two situations
  - Cloud: a lot can be done but no direct access to the database
  - On Premise: more possibilities but more “supportability” risks

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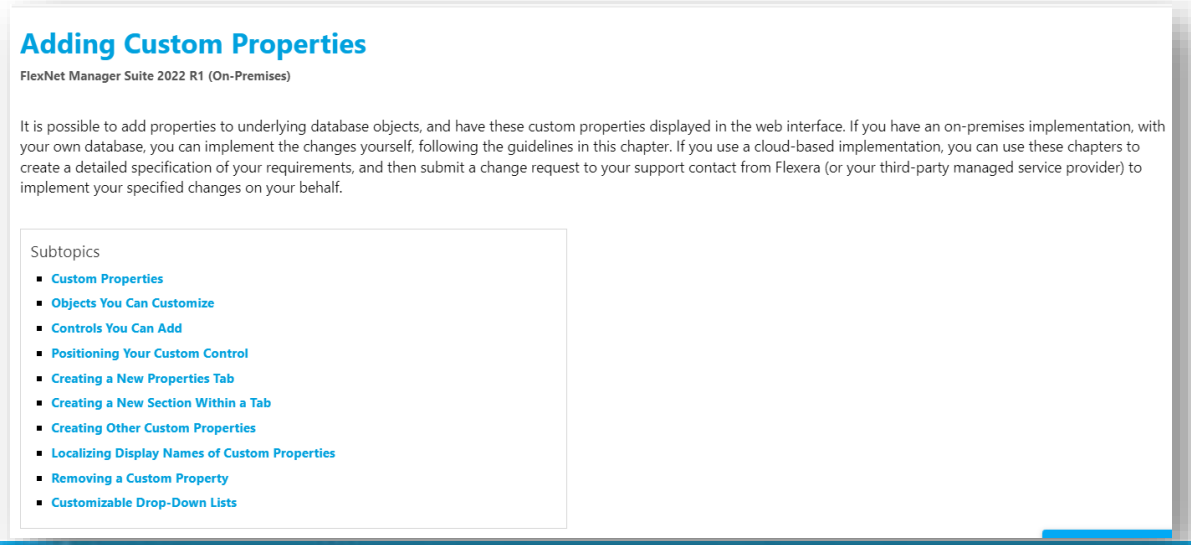
Extending UI / creating fields

- Custom properties are supported on Premise and For cloud
  - Cloud instance: open a ticket
  - On Premise: check the System Reference Guide
- More details
  - Objects can have customer properties (devices, assets, contracts, applications…)
  - A custom property is of a special type (text, drop down, numerical, date, check box)
  - You can position it in a screen, in a tab
  - The custom property will available
    - In the details
    - In the list
    - I the reporting object
    - In the Business Adapter Studio as an attribute



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Script example for custom properties creation

- A “Mainframe” tab in contracts

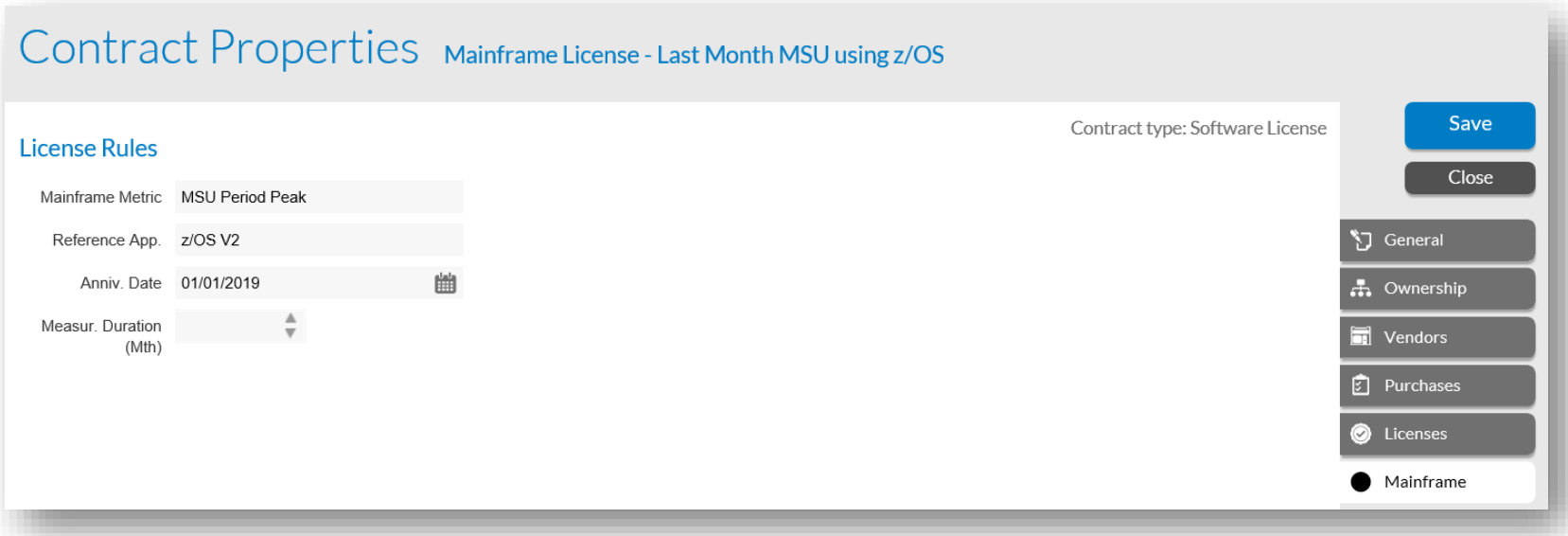
```
EXEC dbo.AddTabToWebUIPropertiesPage
@TargetTypeID = 10, --Contracts
@ExcludeTargetSubTypeIDs = '2,3',--All contract types will have this tab except lease and maintenance and support
@Name = 'Tab_CustMainframe',
@CultureType = 'en-US',
@DisplayNameInPage = 'Mainframe',
@UIInsertTypeID = 2,
@RelativeTabName = 'Tab_Licenses'-- Under the license tab. The screen and tabs names are in the System Reference Guide
```

- A License rule section

```
EXEC dbo.AddSectionToWebUIPropertiesPage
@TargetTypeID = 10,
@ExcludeTargetSubTypeIDs = @ExcludedIDs,
@Name = 'LicensingRules',
@CultureType = 'en-US',
@DisplayNameInPage = 'License Rules',
@TabName = 'Tab_CustMainframe',
@UIInsertTypeID = 3,
@RelativePositionTo = 'Tab_CustMainframe'
```

- A Mainframe metric text field

```
EXEC dbo.AddPropertyToWebUIPropertiesPage
@TargetTypeID = 10,
@ExcludeTargetSubTypeIDs = @ExcludedIDs,
@Name = 'MainframeMetric',
@CultureType = 'en-US',
@DisplayNameInPage = 'Mainframe Metric',
@TabName = 'Tab_CustMainframe',
@DisplayNameInReport = 'Mainframe Metric',
@UIFieldTypeID = 4, --This is the text type
@UIInsertTypeID = 2,
@RelativePositionTo = 'LicensingRules',
@Position = 1,
@Width = 1
```



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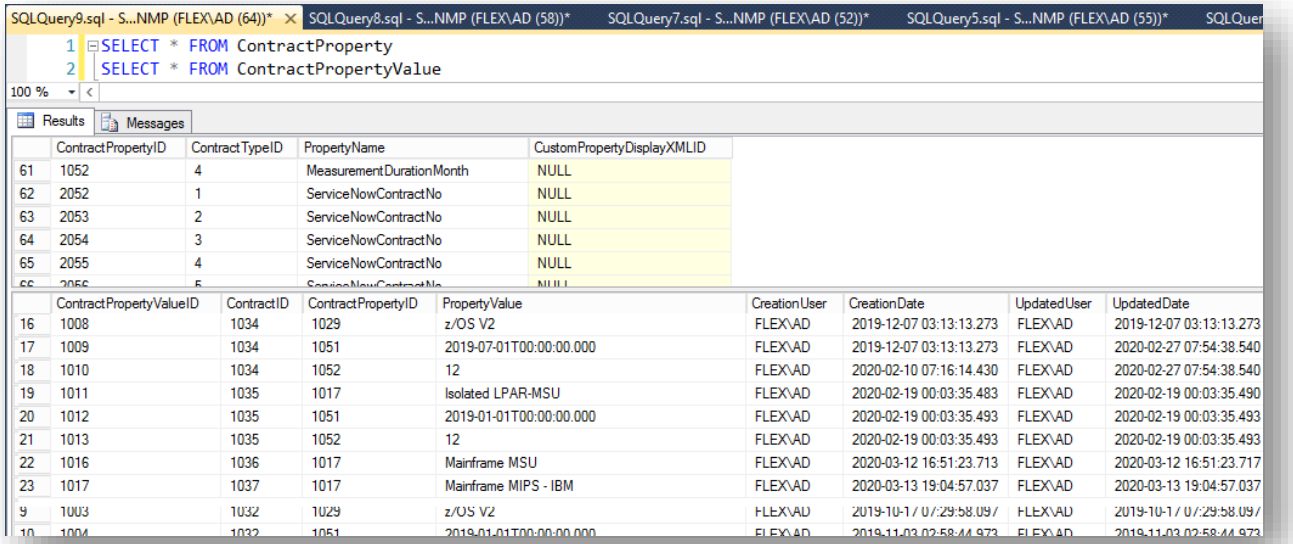
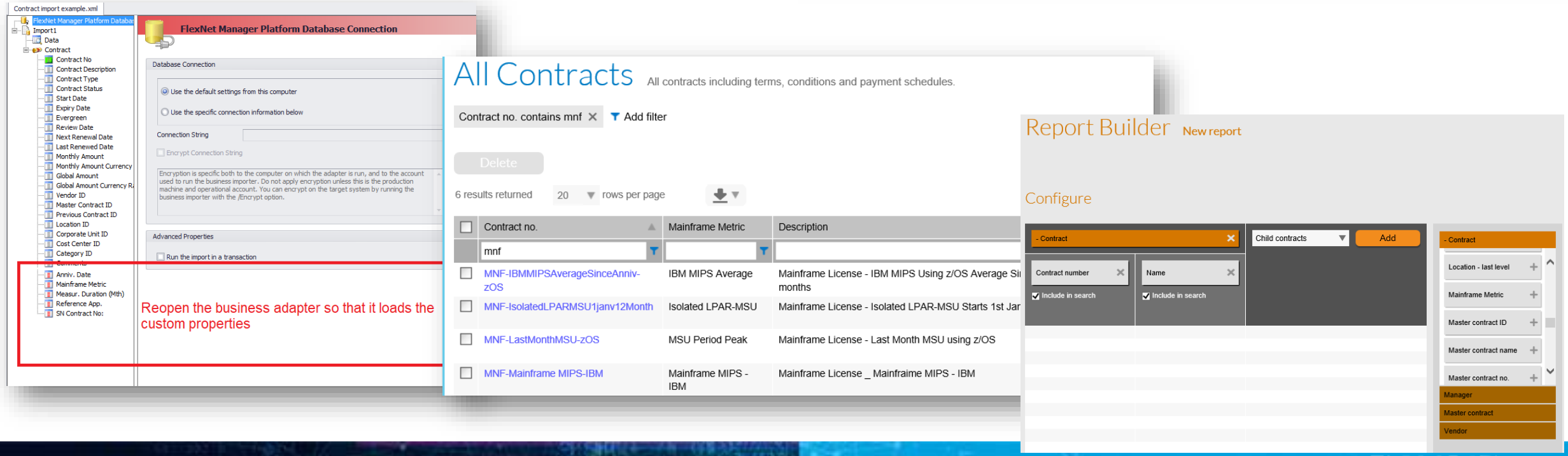
Custom Properties

- Think twice before creating one
  - Does the attribute exist?
  - Could an existing unused attribute be used?
- The data is stored in specific table (XXProperty / XXPropertyValue) tricky to query in SQL
- The data is available



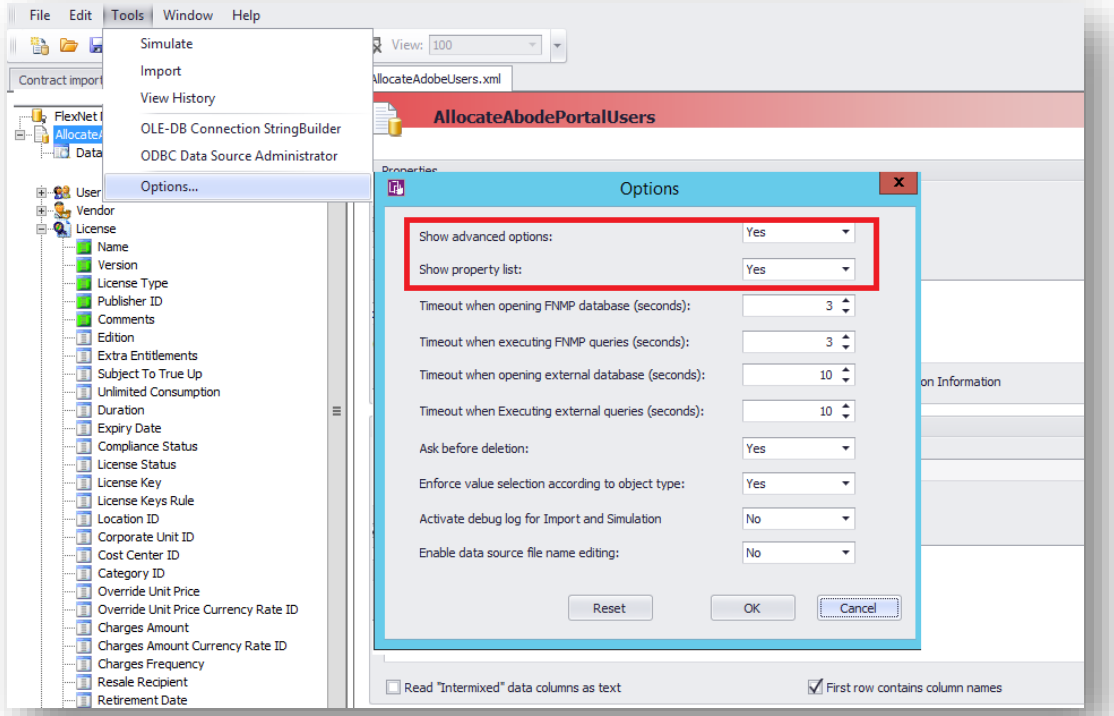
	ContractPropertyID	ContractTypeID	PropertyName	CustomPropertyDisplayXMLID
61	1052	4	MeasurementDurationMonth	NULL
62	2052	1	ServiceNowContractNo	NULL
63	2053	2	ServiceNowContractNo	NULL
64	2054	3	ServiceNowContractNo	NULL
65	2055	4	ServiceNowContractNo	NULL

	ContractPropertyValueID	ContractID	ContractPropertyID	PropertyValue	CreationUser	CreationDate	UpdatedUser	UpdatedDate
16	1008	1034	1029	z/OS V2	FLEX\AD	2019-12-07 03:13:13.273	FLEX\AD	2019-12-07 03:13:13.273
17	1009	1034	1051	2019-07-01T00:00:00.000	FLEX\AD	2019-12-07 03:13:13.273	FLEX\AD	2020-02-27 07:54:38.540
18	1010	1034	1052	12	FLEX\AD	2020-02-10 07:16:14.430	FLEX\AD	2020-02-27 07:54:38.540
19	1011	1035	1017	Isolated LPAR-MSU	FLEX\AD	2020-02-19 00:03:35.483	FLEX\AD	2020-02-19 00:03:35.490
20	1012	1035	1051	2019-01-01T00:00:00.000	FLEX\AD	2020-02-19 00:03:35.493	FLEX\AD	2020-02-19 00:03:35.493
21	1013	1035	1052	12	FLEX\AD	2020-02-19 00:03:35.493	FLEX\AD	2020-02-19 00:03:35.493
22	1016	1036	1017	Mainframe MSU	FLEX\AD	2020-03-12 16:51:23.713	FLEX\AD	2020-03-12 16:51:23.717
23	1017	1037	1017	Mainframe MIPS - IBM	FLEX\AD	2020-03-13 19:04:57.037	FLEX\AD	2020-03-13 19:04:57.037



Automations

- Goal: avoid manual tasks in UI (set location, set status, allocate)
- When Possible: Business Adapter to update “exposed” objects
  - Reading a third-party source
  - Reading FNMS / ITAM directly
    - Through SQL connection
    - Web Service (or PowerShell)
- Otherwise, Script
  - ITAM Cloud:
    - Read data in a source (incl. ITAM) / Perform complex scripts locally / Update exposed objects
  - On Premise:
    - Custom step of inventory import calling a stored procedure (preferred)
    - Business Adapter full version “Custom SQL”
    - SQL Agent



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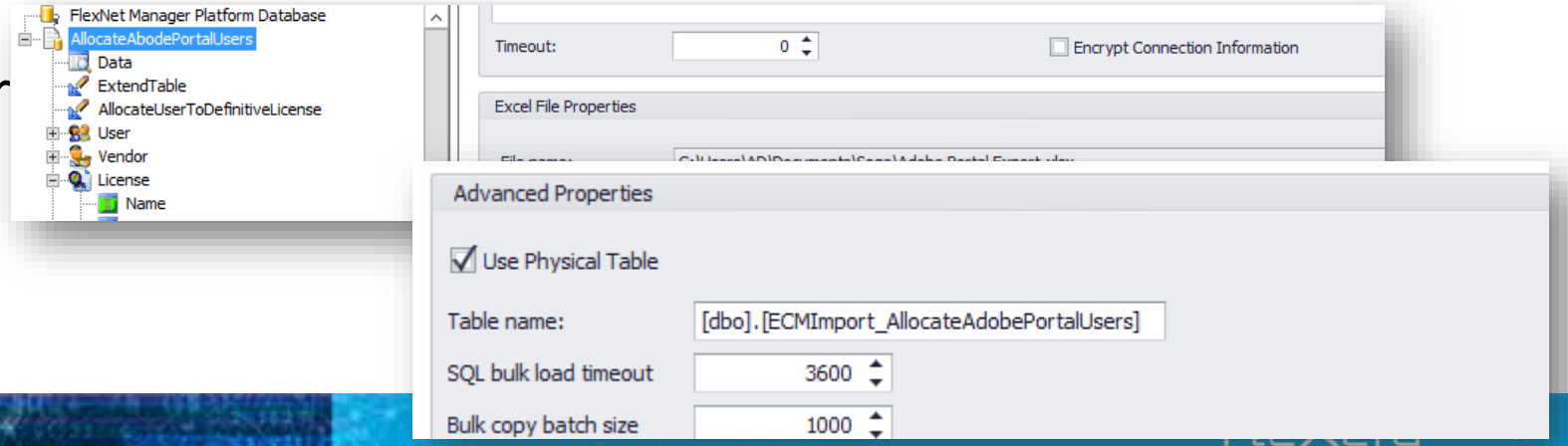
Automations / Business Adapter

- From the beacon
  - Pro:
    - Logging in Web UI
    - Compatible with ITAM Cloud
    - Scheduling UI
  - Cons: no access to the database (no deletion, can only update exposed objects)
- Full Version
  - Activate “advanced options” and “show property list”
  - Use Physical table
  - Custom Query superpower



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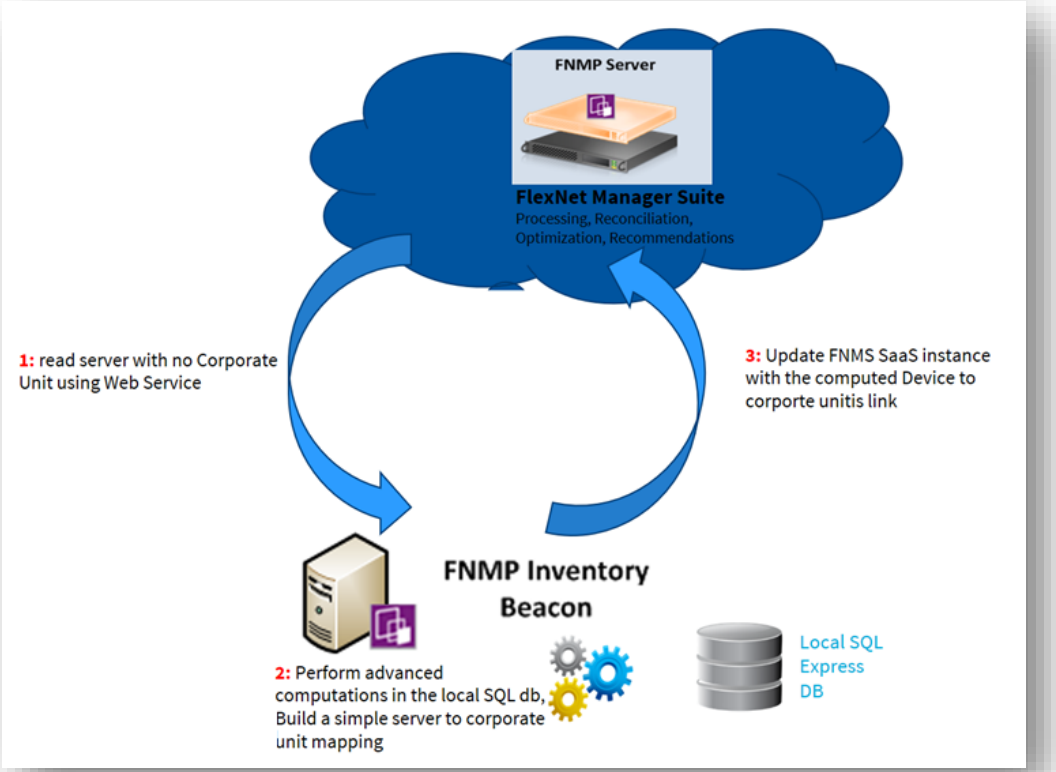
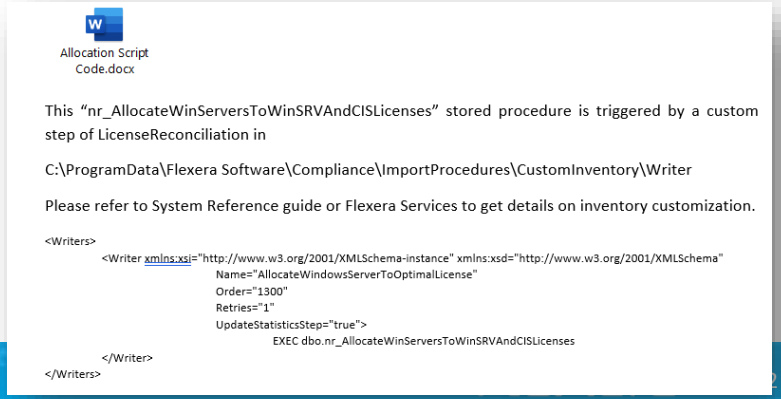
Automations / Business Adapter + local SQL instance

- Check this post
  - Allocation Automation Example for FNMS Cloud
- Provides the pre-requisites (SOAP API activation)
- Use The Or the REST APIs (generic API for Q2 / Q3 for any report result)
- Full version of the Business Adapter
  - Reads the data (SOAP API (GetCustomViewResult) REST APIs (generic API for Q2 / Q3 for any report result)
  - Stores data in a local SQL Database
  - Magics happen with SQL scripting (performed from the Custom SQL objects of the full Business Adapter)
- The simple version of the Beacon:
  - Reads in the SQL database
  - Updates ITAM for exposed objects (device status, device entity…)
- In the end, without the ability, without a direct access to the database, to apply complex SQL logic!



Automations On Prem

- Any complex SQL logic can be stored as a stored procedure in the database
  - Be careful to prefix the SP name (“nr_” for instance) so that it does not get overwritten by an upgrade
- This Stored procedure can be called
  - By a SQL agent
  - By a custom step in the Custom Inventory
    - Preferred approach because avoids risk for locks with existing import process
    - Example in FNMS - Windows Server and SQL Server Optimization reports (on Premise)
    - P12 of documentation attached to KB article. For allocations.
      - C:\ProgramData\Flexera Software\Compliance\ImportProcedures\CustomInventory\Writer
      - Need to create a CustomInventory folder. Importer will assess a diff of out of the box and custom


Allocation Script Code.docx

This “nr_AllocateWinServersToWinSRVAndCISLicenses” stored procedure is triggered by a custom step of LicenseReconciliation in

C:\ProgramData\Flexera Software\Compliance\ImportProcedures\CustomInventory\Writer

Please refer to System Reference guide or Flexera Services to get details on inventory customization.

```
<Writers>
        <Writer xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
                Name="AllocateWindowsServerToOptimalLicense"
                Order="1300"
                Retries="1"
                UpdateStatisticsStep="true">
                        EXEC dbo.nr_AllocateWinServersToWinSRVAndCISLicenses
        </Writer>
</Writers>
```

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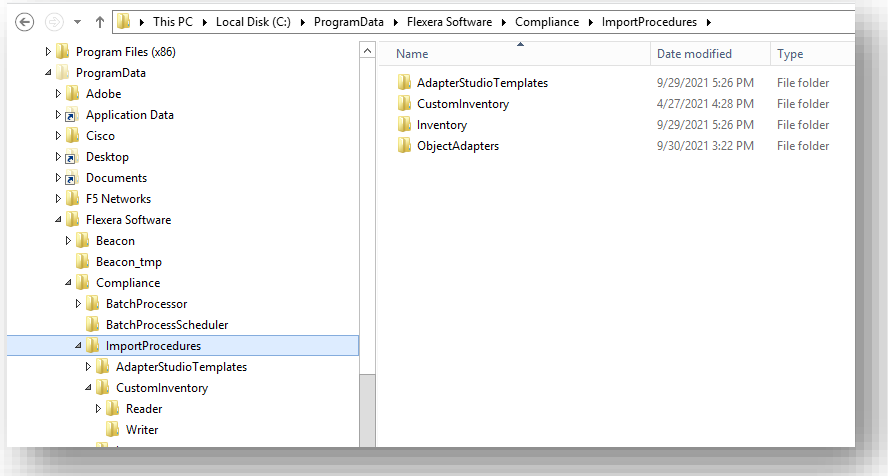
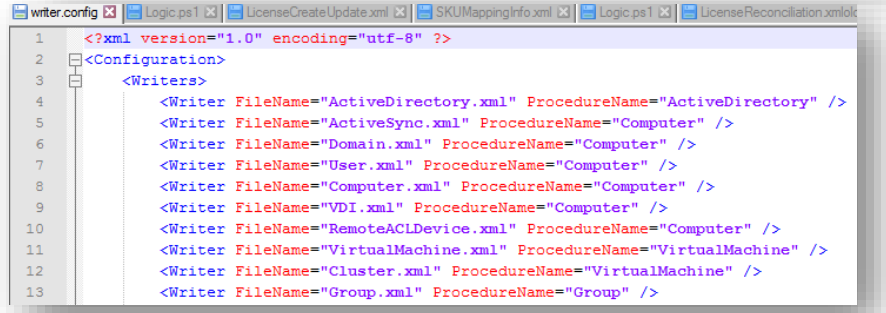
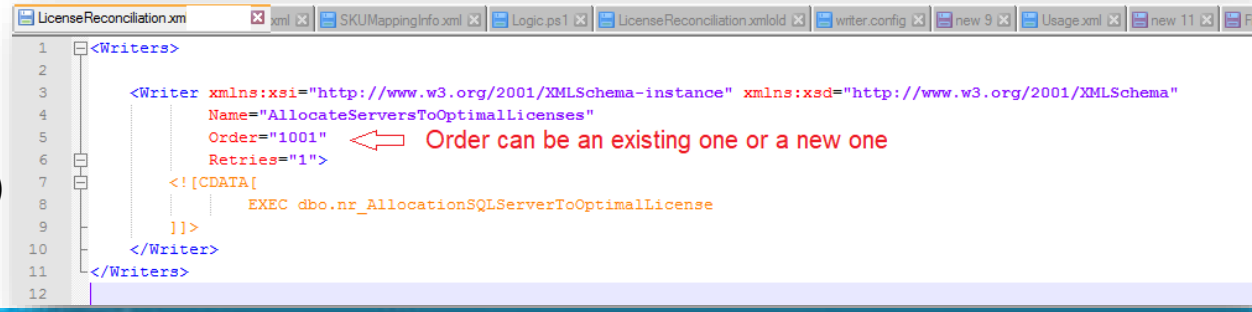
Customizing “readers” or “writers” (on Prem)

- FNMS has a mature customization logic
  - On batch processor (central) and beacons (copy)
- The out of the box import
  - Checks anything in C:\ProgramData\Flexera Software\Compliance\ImportProcedures\CustomInventory\
  - If a step has been added to the logic, it inserts it in the OOTB logic
  - If a step has been modified, it runs the custom one only
- Important files
  - Importer.xml
    - C:\ProgramData\Flexera Software\Compliance\ImportProcedures\Inventory\
    - Contains sequence of import procedures
    - Must be duplicated in the CustomInventory folder
  - Writer.config
    - C:\ProgramData\Flexera Software\Compliance\ImportProcedures\Inventory\writer
    - Sequence of files that will be processed
  - *WriterOrReaderFile*.xml
    - This is the file that will be copied from the OOTB import
    - Just keep the modified or added steps + comment (traceability)
- Migration: recheck and report into new logic!







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Imports customization for ITAM Cloud

- No access to the central server => no customization of writers
  - Ran from the central server
- Even reader files cannot be customized
  - Because files are copied from Application servers to beacon
  - However, here is a trick on how to “derive” an out of the box reader into a custom one: https://community.flexera.com/t5/FlexNet-Manager-Knowledge-Base/Office-365-import-is-failing-during-the-Usage-step-Usage-xml/ta-p/5767
  - Principle:
    - Create a local copy of the files
    - Reference them in the configuration files of your new inventory type that will be available from the beacon UI

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Creating Custom SQL Report (On Premise)

```
Use FNMP
IF OBJECT_ID ('dbo.MyCustProcedure', 'P') IS NOT NULL
DROP PROCEDURE dbo.MyCustProcedure -- drop Stored Procedure if it exists
GO
CREATE PROCEDURE dbo.MyCustProcedure AS
--Do whatever query you which here to select data

SELECT
cc.ComputerName as 'Computer Name'
, cc.ProcessorType as 'Processor Type'
, cu.UserName as 'Main User'
, cu.Email as 'Main User email'


FROM ComplianceComputer cc
INNER JOIN ComplianceComputerCurrentUserScoped cc2 on cc2.ComplianceComputerID = cc.ComplianceComputerID -- scope the data
LEFT JOIN ComplianceUser cu on cu.ComplianceUserID = cc.PrimaryComplianceUserID

GO

DECLARE @ViewName nvarchar(64), @tenant int
SET @ViewName = 'MyCustView'-- Unique Name you want to display for object
SET @tenant = 1                    -- Tenant for which this view applies
EXEC ComplianceCustomViewRegister
       @TenantID = @tenant ,
       @ComplianceSavedSearchSystemID = NULL,
       @SearchName = @ViewName,
      @SearchNameResourceName = NULL,
       @Description = 'v1: This is a sample of custom SQL Report',
       @DescriptionResourceName = NULL,
       @SearchGridLayout = NULL,
       @SearchXML = NULL,
       @SearchSQL = 'EXEC dbo.MyCustProcedure',
       @SearchSQLConnection = 'Live',
       @SearchMapping = NULL,
       @ComplianceSearchType = 'Custom',
       @ComplianceSearchFolderSystemID = -17,--will create the view at the root folder. Pick up the folder ID you wish
       @CanDelete = 1,
       @CanChangeMasterObject = 0
```

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Creating Custom Web Reporting Objects

- This is one level higher in term of complexity
  - Objects are stored as “ComplianceSearchType” and Objects as “ComplianceSerachTypeColumn”
  - Create a new: “Days since last inventory” attribute in inventory

```
EXEC dbo.ComplianceCustomViewColumnRegister
        @TenantID = 1,              -- REQUIRED - set Tenant
        @ComplianceSearchType = 'Computer', --REQUIRED - links to object
      @ColumnName = 'DaysSinceLastInventory_c', -- column name displayed in GUI
      @ColumnNameResourceName = NULL,
      @SelectName = 'DateDiff (Day, CAST (InventoryDate as date), GetDate())',  -- view\column from query
      @WhereClause = 'DateDiff (Day, CAST (InventoryDate as date), GetDate())', -- view\column from query
      @FilterGroupType = 1, -- do not change
      @DefaultFilterType = 1, -- do not change
      @SelectByDefault = 0 -- 1 = box is checked for view; 0 = box is not checked for view
```

  - Create a New: “vCenter IP Address” attribute for cluster object

```
EXEC dbo.ComplianceCustomViewColumnRegister
        @TenantID = 1,              -- REQUIRED - set Tenant
        @ComplianceSearchType = 'Cluster', --REQUIRED - links to object
      @ColumnName = 'vCenter_c', -- column name displayed in GUI
      @ColumnNameResourceName = NULL,
      @SelectName = 'SUBSTRING (ExternalName, 1, CHARINDEX (''|'',ExternalName + ''|'') -1)',  -- view\column from query
      @WhereClause = 'SUBSTRING (ExternalName, 1, CHARINDEX (''|'',ExternalName + ''|'') -1)', -- view\column from query
      @FilterGroupType = 1, -- do not change
      @DefaultFilterType = 1, -- do not change
      @SelectByDefault = 0 -- 1 = box is checked for view; 0 = box is not checked for view
```

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Creating a new Object with columns and linking to others

- Example: computer license consumption
- Higher complexity. Experts only
- Steps
  - Create a view (with the right prefix!)
  - Declare Strings, Translate (make sure no conflict with existing strings)
  - Create the Object (ComplianceSearchType)
  - Link to other existing Objects
  - Create Columns (ComplianceSearchTypeColumn)

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Answers to questions

- How can I get a copy of the demo slides?/Are the previous sessions recorded? If so, where can they be found/Can you provide the link to the previously covered material?
  - In the Community Hub, Web Practices Webinars are announced and recordings / presentation are shared
- Are you covering any capabilities of the rest api access? i have tried to access flexera one API with limited success in Q4 2021
  - There is a section in this presentation on the REST APIs and a link to the documentation
  - A PowerShell example was just released in this Community KB article that queries one by one the licenses for their consumption results and goes through pages of the output
- Will the roadmaps of what's upcoming/planned be available in the same style?
  - The question was on Best Practice Hub. The post shows the vision on the coming three hubs. There will be other pointers two what is coming. The full roadmap presentation is unfortunately not public.
- Is there a long-term goal to make this customization "mainframe view" available to ITAM Cloud customers?
  - Honestly, this was a super heavy customization (SCRT file parsing, data historization)… but coming support of zOS (TADz will no longer be necessary) and some interest with our customers could help us prioritize. No planned feature yet.
- How can we add custom properties to the adapters for ITAM Cloud customers?
  - The custom properties are loaded from the beacon schema files that are loaded from the central instance
- The scripts for custom properties creation are for on-prem /cloud?
  - On prem only… but these are the scripts Support will run to create the custom properties in the cloud environments too

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Answers to questions (2)

- We use the BAS to stage data into FNMSstaging, then the BeaconUI to load into the Cloud. We have an automation package to load data into the staging database, but must use the BeaconUI to schedule. This is not always optimal. Will we be able to initiate externally the process normally launched by the beaconUI scheduler?
  - I am not aware of any Beacon command line
- Can you pass parameters to the SOAP API?
  - The GetCustomViewResult API has a unique parameter that is the customViewID. You can use a PowerShell or a former version of the Business Adapter (2016R1).

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
 <soap:Body>
  <GetCustomView xmlns="http://tempuri.org/">
   <customViewID>29249</customViewID>
   <searchString></searchString>
   <rowLimit>100000</rowLimit>
   <tenantUID>77UNZFNKQKC64UVY</tenantUID>
  </GetCustomView>
 </soap:Body>
</soap:Envelope>
```

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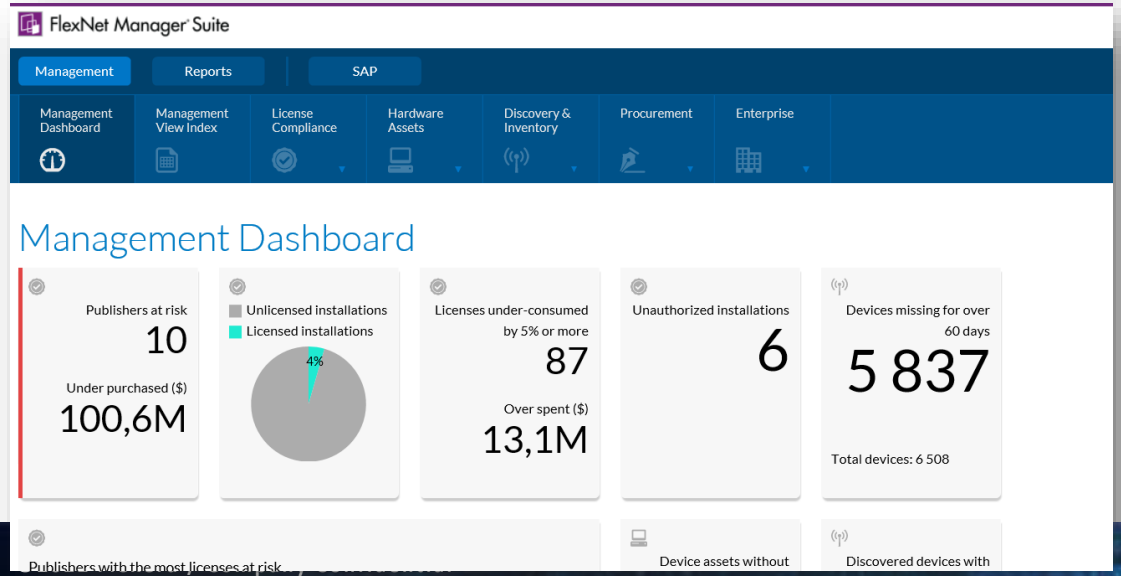
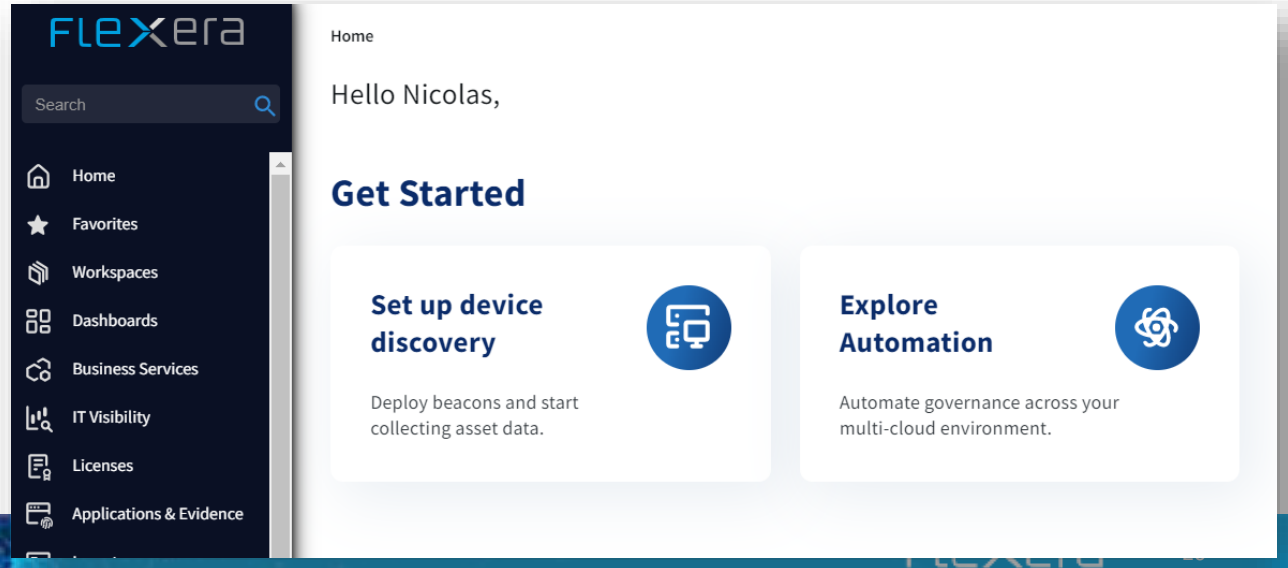
Answers to questions (3)

- If we are doing migration from on prem to cloud, will existing customization will be affected? Regards.
  - The on premise to Cloud migration is based on a database Backup / Migrate / Transform / Restore
  - Some customizations
    - Will be kept (Custom Properties)
    - Will need to be redeveloped (Business adapters using SQL queries, SQL agents)
    - Will not be ported to the cloud (Custom SQL Reports, Additional Web Reporting Objects, writer customizations, Stored Procedures…)
  - That said:
    - Most of shared reports have been or will be productized
- Since I'm new to Flexera, how can I tell if we have the 'on-prem' version or not?
  - If you are new, you are likely to be a Cloud customer. Left screen shot is on prem, right is Cloud





THANK YOU

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