

Grouper Custom UI example to analyze O365 accounts

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Note: The Azure user query is available in 2.5.30+

The requirements for this screen are:

1. Admins will use this screen to look at users and their O365 attributes and state
2. Show PennGroups which affect if and how the account is provisioned
3. Show sync status and state in Azure

Screenshot



PennO365 enrollment analysis

Search for a person to analyze their O365 status

Person name or ID:
Enter an entity name or ID[Select user](#)

The table below shows the state of the user with regards to PennO365.

User environment

Environment	Result	Description
Person	Ka [REDACTED]son (k [REDACTED]485) (active) Staff - Isc-applications & Information Services - Business Systems Analyst Senior	Query: select description from PCADMIN.computed_person cp where cp.char_PENN_ID = ?
O365 ready	YES: User is PennO365 ready	Query: select o365_ready from PCADMIN.PROJECT_O365_REPORT_V porv where PORV.PENN_ID = ?
Has exchange account	Yes	Expression from Azure data: \$(userFound && accountEnabled && grouperUtil.collectionContains(assignedPlans, 'exchange') && grouperUtil.collectionContains(provisionedPlans, 'EXCHANGE'))
Error finding exchange account	No	
Azure sync summary	Last sync date: 2020-07-01 12:03:17, adds: 321, modifies: 432, deletes: 543, total: 7654321	Query: select last_sync_summary from pacman.adconnect_prd_v
Primary affiliation	Staff	Query: select primary_affiliation from pacman.o365_custom_ui_primary_affil_v where penn_id = ?
All active affiliations	STAF	Query: select all_active_affiliations FROM pacman.penn_o365 po where penn_id = ?
Flags	Active: A, Conceal penn privacy: N, Student override: N	Query: SELECT 'Active: ' PO.ACTIVE_CODE ', Conceal penn privacy: ' PO.CONCEAL_USER_PENN_FLAG ', Student override: ' PO.IS_STU_OVERRIDE as flags FROM pacman.penn_o365 po where penn_id = ?
ID's	Kite UPN: k [REDACTED]@kite.upenn.edu, PennID: [REDACTED]85, PennKey: [REDACTED]p, Banner GUID: 28C [REDACTED]ADCEE053AC142671FF9E	Query: SELECT 'Kite UPN: ' PO.kite_upn ', PennID: ' po.penn_id ', PennKey: ' po.kerberos_principal ', Banner GUID: ' po.banner_guid as ids FROM pacman.penn_o365 po where penn_id = ?
School / center	Center: 91, Center name: Information Systems and Computing, Dept: ISC-Applications & Information Services, Home center: 91, Home center name: Information Systems and Computing, Home org: 9142,	Query: SELECT school_center FROM pacman.o365_custom_ui_sch_cen_v where penn_id = ?
Two-Step Verification	Yes	Member of group twoStepUsers
In PennGroup for Two-Step Verification for PennO365 (required or self-enrolled)	No	Member of group o365_two_step_prod (policy)
Emeritus	No	Member of group emeritusFaculty
Student override	No	Member of group o365StudentOverride
Account block	No	Member of group o365AccountBlock
Azure summary	accountEnabled: true, assignedPlans(AADPremiumService, Adallom, CRM, Deskless, EduAnalytics, Homeroom, MicrosoftCommunicationsOnline, MicrosoftKaizala, MicrosoftOffice, MicrosoftStream, OfficeForms, PowerAppsService, ProcessSimple, ProjectProgramsAndPortfolios, ProjectWorkManagement, RMSOnline, SharePoint, Sway, TeamspaceAPI, To-Do, WhiteboardServices, YammerEnterprise, exchange), mail: k [REDACTED]@isc.upenn.edu, onPremisesImmutableId: [REDACTED]85, onPremisesLastSyncDateTime: 2019-12-23T22:46:09Z, onPremisesSamAccountName: k [REDACTED] proxyAddresses: (k [REDACTED]@PennO365.mail.onmicrosoft.com, [REDACTED]@PennO365.onmicrosoft.com, k [REDACTED]@isc.upenn.edu, k [REDACTED]@upenn.edu), showInAddressList: true, userPrincipalName: k [REDACTED]@upenn.edu, userType: Member, provisionedPlans: CRM, EXCHANGE, MicrosoftCommunicationsOnline, MicrosoftOffice, SharePoint	Expression from Azure data: \${summary}
Azure summary error	No	

Configuration

grouper.properties

```
#####
## Azure connector
## specify the azure connection with user, pass, endpoint etc
## the string after "db." is the name of the connection, and it should not have
## spaces or other special chars in it
#####

# login endpoint to get a token
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.loginEndpoint$"}
# grouper.azureConnector.myAzure.loginEndpoint = https://login.microsoftonline.com

# azure directory id
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.DirectoryID$"}
# grouper.azureConnector.myAzure.DirectoryID = 6c4dxxx0d

# client id
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.client_id$"}
# grouper.azureConnector.myAzure.client_id = fd805xxxxdfb

# client secret
# {valueType: "password", sensitive: true, regex: "^db\\.([^.]+)\\.client_secret$"}
#grouper.azureConnector.myAzure.client_secret = *****

# resource. generally same as graph endpoint
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.resource$"}
# grouper.azureConnector.myAzure.resource = https://graph.microsoft.com

# graph endpoint
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.graphEndpoint$"}
# grouper.azureConnector.myAzure.graphEndpoint = https://graph.microsoft.com

# graph version
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.graphVersion$"}
# grouper.azureConnector.myAzure.graphVersion = v1.0

# group lookup attribute
# {valueType: "string", required: true, regex: "^grouper\\.azureConnector\\.([^.]+)\\.groupLookupAttribute$"}
# grouper.azureConnector.myAzure.groupLookupAttribute = displayName
```

JSON configs to configure the variables and text

These attributes are on the "custom UI" group and look like this


o365analysis

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MembersPrivilegesMore ▾

Attribute assignments

+

Assign attribute

The following table lists all attributes assigned to this group

Assignment type	Attribute name	Enabled?	Assignment values
Direct assignment	 customUi	enabled	
Metadata on assignment	 customUiTextConfigBeans	enabled	{ "endIfMatches":true,"customUiTextType":"enrollmentLabel","index":10,"defaultText":true,"text":"\${textContainer.text}" } { "endIfMatches":true,"customUiTextType":"header","index":10,"defaultText":true,"text":"\${textContainer.text}" } { "endIfMatches":true,"customUiTextType":"managerInstructions","index":10,"defaultText":true,"text":"\${textContainer.text}" } { "endIfMatches":true,"customUiTextType":"enrollButtonShow","index":0,"text":"false" }
Metadata on assignment	 customUiUserQueryConfigBeans	enabled	{ "variableToAssign":"cu_o365ready","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_o365primaryAffiliation","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_o365allActiveAffiliations","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_o365flags","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_o365ids","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_o365schoolCenter","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_o365emeritus","fieldNames":"members","userQueryType":"group","variableType":"string" } { "variableToAssign":"cu_o365studentOverride","fieldNames":"members","userQueryType":"group","variableType":"string" } { "variableToAssign":"cu_o365accountBlock","fieldNames":"members","userQueryType":"group","variableType":"string" } { "variableToAssign":"cu_azureSummary","userQueryType":"azure","variableType":"string","configId":"penn_o365_summary" } { "variableToAssign":"cu_o365syncSummary","userQueryType":"sql","variableType":"string","configId":"penn_o365_syncSummary" } { "variableToAssign":"cu_o365personDescription","bindVar0":"\${subject.id}","userQueryType":"sql","variableType":"string" } { "variableToAssign":"cu_twoStepUsers","fieldNames":"members","userQueryType":"group","variableType":"string" } { "variableToAssign":"cu_o365twoStepEnrolled","fieldNames":"members","userQueryType":"group","variableType":"string" } { "variableToAssign":"cu_azureExchangeAccount","userQueryType":"azure","variableType":"boolean","configId":"penn_o365_exchangeAccount" }

Page text "do not show enroll button"

This is a customUiTextConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. This JSON is formatted, but in the attribute value is all in one line

endIfMatches is not important since there are not multiple configurations for "enrollButtonShow". Index doesnt matter either. The value is "false"

```
{
  "endIfMatches":true,
  "customUiTextType":"enrollButtonShow",
  "index":0,
  "text":"false"
}
```

Page text "header"

This is a customUiTextConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. This JSON is formatted, but in the attribute value is all in one line

endIfMatches, index and defaultText are not important since there are not multiple configurations for "header". The value is externalized from key "penn_o365_header"

```
{
  "endIfMatches":true,
  "customUiTextType":"header",
  "index":10,
  "defaultText":true,
  "text":"${textContainer.text['penn_o365_header']}"
}
```

[grouper.text.en.us.properties](#)

```
penn_o365_header = <h1>Penn0365 enrollment analysis</h1>
```

Page text "manager instructions"

This is a customUiTextConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. This JSON is formatted, but in the attribute value is all in one line

endIfMatches, index and defaultText are not important since there are not multiple configurations for "managerInstructions". The value is externalized from key "penn_o365_managerInstructions"

```
{
  "endIfMatches":true,
  "customUiTextType":"managerInstructions",
  "index":10,
  "defaultText":true,
  "text":"${textContainer.text['penn_o365_managerInstructions']}"
}
```

[grouper.text.en.us.properties](#)

```
penn_o365_managerInstructions = Search for a person to analyze their 0365 status
```

Page text "enrollment label"

This is a customUiTextConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. This JSON is formatted, but in the attribute value is all in one line

endIfMatches, index and defaultText are not important since there are not multiple configurations for "managerInstructions". The value is externalized from key "penn_o365_helpText"

```
{
  "endIfMatches":true,
  "customUiTextType":"enrollmentLabel",
  "index":10,
  "defaultText":true,
  "text":"${textContainer.text['penn_o365_helpText']}"
}
```

[grouper.text.en.us.properties](#)

```
penn_o365_helpText = The table below shows the state of the user with regards to Penn0365.
```

Variable for "Person" (SQL example)

This is a customUiUserQueryConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. Since we are not using the variables to show dynamic text, the variableToAssign is not important. This JSON is formatted below, but in the attribute value is all in one line

The order of 5 is less than other query orders so this is first.

This is a sql query, using the subject id, to look up a person description. The database config id in grouper-loader.properties is "pennCommunity".

The label is externalized text

```
{
  "variableToAssign": "cu_o365personDescription",
  "bindVar0": "${subject.id}",
  "userQueryType": "sql",
  "variableType": "string",
  "configId": "pennCommunity",
  "bindVar0type": "string",
  "query": "select description from PCADMIN.computed_person cp where cp.char_PENN_ID = ?",
  "label": "${textContainer.text[ 'penn_o365_cu_o365personDescription' ]}",
  "order": 5
}
```

[grouper.text.en.us.properties](#)

```
penn_o365_cu_o365personDescription = Person
```

Note the other SQL queries are similar

Variable for "Person" (Azure web service example)

This is a customUiUserQueryConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. Since we are not using the variables to show dynamic text, the variableToAssign and variableToAssignOnError are not important. This JSON is formatted below, but in the attribute value is all in one line

The order of 20 is the order on the screen which is third (two have a lower order number)

This will find the "pennAzure" configuration in the grouper.properties file and run a query using the subject which is being analyzed. The Azure query sets a bunch of variables that can be used in the "script" as shown below. This expression sees if the user was found in Azure, if the O365 account is enabled, if exchange is in the assigned and enabled plans, and if exchange is in the provisioned plans. If all those are true then the user has exchange.

The error handling is just to see if Grouper can connect to Azure and run the query successfully.

The object model for the Azure user object is as follows (note, [here are some microsoft docs](#) about these variables, and not all are returned, just these)

Variable	Example	Description
userFound	true	If user found in Azure
accountEnabled	true	
assignedPlans	AADPremiumService, Adallom, Deskless, EduAnalytics, Homeroom, MicrosoftCommunicationsOnline, MicrosoftKaizala, MicrosoftOffice, MicrosoftStream, OfficeForms, PowerAppsService, ProcessSimple, ProjectWorkManagement, RMSOnline, SharePoint, Sway, TeamspaceAPI, To-Do, WhiteboardServices, YammerEnterprise, exchange	This is a "Set" object that can do simple operations
assignedPlansString	AADPremiumService, Adallom, Deskless, EduAnalytics, Homeroom, MicrosoftCommunicationsOnline, MicrosoftKaizala, MicrosoftOffice, MicrosoftStream, OfficeForms, PowerAppsService, ProcessSimple, ProjectWorkManagement, RMSOnline, SharePoint, Sway, TeamspaceAPI, To-Do, WhiteboardServices, YammerEnterprise, exchange	This is a string that is easy for printing
mail	mchyzer@isc.upenn.edu	
onPremiseImmutableId	10021368	Maybe this is your subject ID

onPremisesLastSyncDateTime	2020-04-03T15:52:41Z	
onPremisesSamAccountName	mchyzer	
proxyAddresses	mchyzer@PennO365.mail.onmicrosoft.com, mchyzer@PennO365.onmicrosoft.com, mchyzer@isc.upenn.edu, mchyzer@nursing.upenn.edu, mchyzer@pobox.upenn.edu, mchyzer@upenn.edu, mchyzer@wharton.upenn.edu	This is a "Set" object that can do simple operations
proxyAddressesString	mchyzer@PennO365.mail.onmicrosoft.com, mchyzer@PennO365.onmicrosoft.com, mchyzer@isc.upenn.edu, mchyzer@nursing.upenn.edu, mchyzer@pobox.upenn.edu, mchyzer@upenn.edu, mchyzer@wharton.upenn.edu	This is a string that is easy for printing
showInAddressList	true	
userPrincipalName	mchyzer@upenn.edu	
userType	Member	
provisionedPlans	EXCHANGE, MicrosoftCommunicationsOnline, MicrosoftOffice, SharePoint	This is a "Set" object that can do simple operations
provisionedPlansString	EXCHANGE, MicrosoftCommunicationsOnline, MicrosoftOffice, SharePoint	This is a string that is easy for printing
summary	accountEnabled: true, mail: mchyzer@isc.upenn.edu, onPremisesImmutableId: 10021368, onPremisesLastSyncDateTime: 2019-12-23T22:46:09Z, onPremisesSamAccountName: mchyzer, ...	Print out all Azure variables in one string

The label is externalized text

```
{
  "variableToAssign": "cu_azureExchangeAccount",
  "userQueryType": "azure",
  "variableType": "boolean",
  "configId": "pennAzure",
  "script": "${userFound && accountEnabled && grouperUtil.collectionContains(assignedPlans, 'exchange') && grouperUtil.collectionContains(provisionedPlans, 'EXCHANGE')}",
  "label": "${textContainer.text['penn_o365_cu_azureExchangeAccount']}",
  "errorLabel": "${textContainer.text['penn_o365_cu_azureExchangeAccountError']}",
  "order": 20,
  "variableToAssignOnError": "cu_azureExchangeAccountError"
}
```

[grouper.text.en.us.properties](#)

```
penn_o365_cu_azureExchangeAccount = Has exchange account
penn_o365_cu_azureExchangeAccountError = Error finding exchange account
```

Note the "summary" Azure query is similar. Also note that only one Azure call is made per page view no matter how many variables are configured to use Azure.

Variable for "Two-step in O365" (Grouper group example)

This is a customUiUserQueryConfigBeans attribute value, assigned on the assignment of the marker attribute customUi on the group. Since we are not using the variables to show dynamic text, the variableToAssign is not important. This JSON is formatted below, but in the attribute value is all in one line

The order of 77 brings this query toward the bottom of the table

This is a sql query, using the subject id, to look up a person description. The database config id in grouper-loader.properties is "pennCommunity".

The label is externalized text

```
{
  "variableToAssign": "cu_o365twoStepEnrolled",
  "fieldNames": "members",
  "userQueryType": "grouper",
  "variableType": "boolean",
  "groupName": "penn:isc:ait:apps:0365:twoStepProd:o365_two_step_prod",
  "label": "${textContainer.text['penn_o365twoStep_cu_o365twoStepEnrolled']}",
  "order": 77
}
```

[grouper.text.en.us.properties](#)

```
penn_o365twoStep_cu_o365twoStepEnrolled = In PennGroup for Two-Step Verification for Penn0365 (required or self-enrolled)
```

Note the other Grouper queries are similar