Synchronize Users against Azure AD Source

Starting from December 2022, you can provision Imagicle users from an Azure AD source. To enable such users' synch, you must involve Imagicle Technical Support and provide them some data about your geographic area.

Before illustrating the whole procedure, let us highlight the **requirements**:

- Imagicle UC Cloud Suite must be in place, or a Cloud-connected on-prem/hosted UC Suite, reaching "imagicle.cloud" domain on both TCP ports 443 and 1636.
- The customer's delegate, in charge to apply the configuration, should have administrative access to Azure portal.

Moreover, consider the following limitations, coming from Azure AD:

- disabled users are not provisioned;
- users belonging to nested groups are not provisioned: to include them you need to explicitly add the nested groups to the provisioning scope (see here for more details).
- Null/empty user fields are not provisioned by Azure AD (see <u>here</u>). This means that if a synchronized user property is cleared on Azure, the change will not reflect automatically on Imagicle suite.

Request to Imagicle Technical Support

If above requirements are satisfied, please proceed by contacting Imagicle Support team to provide the following information:

- Customer name
- Optionally: a short nickname to identify the customer, with no spaces inside, like "ACME-INC". max 35 chars length. If not provided, Imagicle invents one.
- Geographical macro-area where customer is located. I.e. Europe, Americas, middle-east, etc.

Imagicle Support applies an internal configuration in our Cloud, to enable a LDAP interface. This might requires few days. Once done, they are going to return you the following:

- Az_client_creds.json: A script text file including Azure AD token.
- Suite_ldap_creds.txt: this is a text file including all details and credentials to manually configure the LDAP synch connector in Imagicle UCX Suite, as explained at the bottom of this KB.

How to enable Users Synchronization on Azure

Please download the Windows executable to automatically apply Azure configuration (attached to this KB article) and save it in a local folder (for instance C:\Temp).

Copy into the same folder the configuration json file provided by Imagicle.

Open a Command Prompt window (CMD) as administrator and move to the same folder:

cd \Temp

Then type the following command:

ImagicleUserCloudSync Az_client_creds.json --disable-autostart --app-name "Imagicle Users Synch"

(supposing the json file provided by Imagicle is named Az_client_creds.json).

Once you execute above command, a pop-up window appears prompting you to enter your Microsoft admin credentials. Once done, you can close the pop-up window.

After few seconds, the process completes and you can track the configuration steps as below sample:

2022-11-21 17:31:14,986 INFO	**************************************
2022-11-21 17:31:14,987 INFO	I* Welcome to Imagicle - Azure application creation procedure. *
2022-11-21 17:31:14,987 INFO	
2022-11-21 17:31:14,988 INFO	You need to authenticate to continue
2022-11-21 17:31:21,454 INFO	ICreation of application Imagicle User Sync in progress. (It may take a while)
2022-11-21 17:31:43,716 INFO	ICreation of application Imagicle User Sync completed. Configuring
2022-11-21 17:32:06,743 INFO	The Imagicle user sync enterprice application is configured
2022-11-21 17:32:08,874 INFO	The sync will start soon
2022-11-21 17:32:08,875/INFO	Process completed correctly
+ AzCloudSync	

The Imagicle script automatically creates an Azure **Enterprise** Application. You can view it from Azure web portal, as below sample:

=	Microsoft Azure	P Search resource	es, services, and docs (G+/)			
Hom	e > Enterprise applications					
	Enterprise application	ations All applic	ations			
Overv	ňew	« + New application	🕐 Refresh 🞍 Download (Export) I Preview info I E Columns	Dereview features	feedback?
0 0	Verview	View, filter, and search	applications in your organization that	are set up to use your Azure AD tenant as their	Identity Provider.	
× c	biagnose and solve problems	The list of applications	that are maintained by your organizat	on are in application registrations.		
Mana	ge	Search by application	on name or object ID Appl	cation type == Enterprise Applications \times	Application ID starts with $ imes$	+ Add filters
III A	Il applications	14 applications found				
🐻 A	pplication proxy	Name	↑↓ Object ID	Application ID	Homepage URL	Created on
@ U	lser settings	IU Imagicle Users	Sync df0f52c2-2c41	957ac1a5-b40b	https://account.activedirector	y.wi 11/21/2022
		US Usersynciann	15f12b97_35cf_444a_0	897_81904 8915c08a_e82h_4792_89ce_89h	0 https://account.activedirector	u wi 11/18/2022

This script applies a default field mapping according to below screenshot:

Home > Enterprise applications | All applications > Synch | Provisioning > Synch | Overview > Provisioning >

Attribute Mapping

🖫 Save 🗙 Discard

Attribute Mappings

Attribute mappings define how attributes are synchronized between Microsoft Entra ID and customappsso

customappsso Attribute	Microsoft Entra ID Attribute
userName	objectId
active	Switch([IsSoftDeleted], , "False", "True", "True", "False")
displayName	displayName
emails[type eq "work"].value	mail
preferredLanguage	preferredLanguage
name.givenName	givenName
name.familyName	surname
addresses[type eq "work"].streetAddress	streetAddress
addresses[type eq "work"].locality	city
addresses[type eq "work"].region	state
addresses[type eq "work"].postalCode	postalCode
addresses[type eq "work"].country	country
phoneNumbers[type eq "work"].value	telephoneNumber
phoneNumbers[type eq "mobile"].value	mobile
phoneNumbers[type eq "fax"].value	facsimileTelephoneNumber
nickName	userPrincipalName
urn:ietf:params:scim:schemas:extension:enterprise:2.0:User:department	department
Add New Mapping	

Show advanced options

If you click on the Imagicle application, you can access the "Provisioning" menu and trigger a users' synch by hitting "Restart provisioning" button. If the synch is correctly accomplished, you get the number of imported users (33 in below sample):



Interval between each users' synch can't be below 40 minutes.

How to apply filters to provisioned users

By default, above configuration imports ALL users available in Azure AD. You can limit the amount of data by applying either a filter based on users/groups or based on attributes content. Both filtering methods are explained in the following paragraphs.

Filter based on Users/Groups list

Within the Imagicle Enterprise Application, please click on left panel's "Users and groups" menu option and browse/search for users/groups you wish to import from Azure AD. Just tick the box besides each user or group to enable the import. See below sample:

■ Microsoft Azure	rces, services, and docs (G+/)			Ŗ	¢ 👳	@ &
Home > Imagicle Users Synch Users and grv Add Assignment	Users and g	roups					
Imagicie spa Users and groups None Selected	 Try changing or Search 	adding filters if you don't see wha	t you're looking for.			Selected Reset	(0)
Select a role User	All Users Grou	ups				No items s	electeu
	Na	ame	Туре	Email	Î		
	🗆 🎎 A4	AD DC Administrators	Group				
	🗆 🎎 Ac	dvanced Services Team	Group	pedServiceam@imagicle.onmic	crosof		
	🗆 🎎 Ac	dvanced Services Team	Group	ah@imagicle.com			
		l Company	Group	All 3396251.lwngyepd@imagio	cle.onr		
	AS	5 Team	Group	Am@imagicle.onmicrosoft.com			
	🗆 🎎 Bla	ackbelt	Group	t@imagicle.com	•		
	4				•		
Assign	Select						

Filter based on Azure AD attributes

Within the Imagicle Enterprise Application, please click on left panel's "Provisioning" and make sure that "Provision Azure Active Directory Groups" is disabled. See below sample:

\equiv Microsoft Azure	${\cal P}$ Search resources, services, and docs (G+/)	
Home > Enterprise applications All app	lications > Imagicle Users Synch Provisioning > Imagicle Users Synch	
Imagicle Users Synch	Provisioning	
« Overview	☐ Save X Discard	
$ ho_{\!\!\!\mathcal{B}}$ Provision on demand	Provisioning Mode	
Manage	Automatic V]
Provisioning	Use Microsoft Entra to manage the creation and synchronization of user accounts in Imagicle Users Synch based on user	
 Users and groups Expression builder 	and group assignment.	
Monitor	✓ Admin Credentials	
 Provisioning logs Audit logs 	∧ Mappings	
💡 Insights	Mappings	
Troubleshoot	Mappings allow you to define how data should flow between Azure Active Directory and customappsso.	
2 New support request	Name Enabled Provision Azure Active Directory Groups No	
	Provision Azure Active Directory Users Yes	
	Restore default mappings	

Click on "Provision Azure Active Directory Users" to access the Attribute Mapping page:

■ Microsoft Azure P Search resources, services, and docs (G+/)	
Home > Enterprise applications All applications > Imagicle Users Synch Provisioning > Imagicle Users Synch F	Provisioning >
Attribute Mapping	
🔚 Save 🗙 Discard	
Name	
Provision Azure Active Directory Users	
Enabled	
Yes No	
Source Object	
User	
Source Object Scope	
All records	
Source Object	
urn:ietf:params:scim:schemas:extension:enterprise:2.0:User	
Target Object Actions	
✓ Create	
V Delete	
Attribute Mannings	
Attribute mappings Attribute mappings define how attributes are synchronized between Azure Active Directory and customappsso	
Azure Active Directory Attribute	customappsso Attribute

Click on Source Object Scope \hat{a} \quad All records. See below:



Click on "Add scoping filter" to invoke the filter editor. See below:

■ Microsoft Azure		s, services, and docs (G+/)			2 G	L.	§ (7)	전 and IMA
Home > Enterprise applications	All applications > Imagicle	Users Synch Provisioning > Ima	gicle Users Synch Provision	ing >				
Add Scoping Filter								
Define which users are in scope for p	provisioning. Only objects that	meet the criteria below will be synch	hronized.					
Target Attribute	1	Operator	ſ	Value	F	dd/Remo	/e	
No scoping filters found					_			
userPrincipalName	\sim	REGEX MATCH	\sim	."\@domain.com		Add New	Scoping C	Clause
Scoping Filter Title *								
f multiple scoping clauses are p	present, they are evaluated using	"AND" logic.						

From this page, you can add multiple filters, based on different Azure AD attributes available within "Target Attribute" pull-down menu. "Operator" column decides how to match the filter entered within "Value" column. Once the row is properly compiled, you can click on rightmost button to add the rule and create another row for additional filtering.

Limitations

- Multiple filtering rules are applied with "AND" operator
- "IsMemberOf" filter is currently not supported.
- The members attribute on a group is currently not supported.
- Filtering is not supported for multi-valued attributes.
- Scoping filters returns "false" if the value is null/empty.

More details are available within this Microsoft web page.

How to import custom fields

Imagicle Users' database supports 10 custom fields, to be mapped with **ExternalID** attribute in Azure during the provisioning. Please find below the procedure:

Access to Azure web portal and select "Imagicle Users Synch" Enterprise Application. From the "Overview", please click on "Provisioning":

Microsoft Azure	
ome > Enterprise applications	All applications >
Enterprise Application	ynch Overview
Overview	Properties
Deployment Plan	Name 🛈
K Diagnose and solve problems	Imagicle User Synch
Manade	Application ID 🕠
	1f3c02f8-4cbd-4f5d-b290-2 🗈
Properties	Object ID
Owners	b51a0d63-03f4-4faf-a1f3-8 🗈
Roles and administrators	Carling Charles I
Users and groups	Getting Started
Single sign-on	
Provisioning	1. Assign users and groups
Application proxy	Provide specific users and groups access to the applications
Self-service	Assign users and groups

Home > Enterprise applications All ap	plications > Test Imagicle Users Synch 2 Provisionin Synch 2 Overview	g> X
Overview	▶ Start provisioning □ Stop provisioning <	Restart provisioning \swarrow Edit provisioning \aleph Provision on demand $\begin{tabular}{c} \diamondsuit$ Refresh $\begin{tabular}{c} \cdots \end{array}$
$\mathcal{P}_{\!\!\!\mathcal{B}}$ Provision on demand	Current cycle status	Statistics to date
Manage	Incremental cycle stopped. 0% complete	✓ View provisioning details
Users and groups Expression builder	View provisioning logs	 View technical information
Monitor Provisioning logs Audit logs Insights	Manage provisioning Update credentials Edit attribute mappings Add scoping filters Provision on demand	

Expand "Mapping" section and click on "Provision Entra ID Users":

=	Microsoft Azure	
Hom	e > Enterprise applications All applications > Imagicle User Synch Provisioning > Imagicle User Synch	h Overview >
Pro	ovisioning	
	Save X Discard	
Provi	sioning Mode	
Aut	omatic	\sim
Use N and c	ficrosoft Entra to manage the creation and synchronization of user accounts in Imagicle User Synch based on use roup assignment.	ïr
\sim	Admin Credentials	
^	Mappings	
	Mappings	
	Mappings allow you to define how data should flow between Microsoft Entra ID and customappsso.	
	Name Enabled	
	Provision Microsoft Entra ID Groups Yes	
	Provision Microsoft Entra ID Users Yes	
	Restore default mappings	
	2.4	
\sim	Settings	
Provis	sioning Status 🕕	
	on Off	

In "Attribute Mapping" section, please hit "Add new mapping" at the bottom of the screen:

Home > Enterprise applications | All applications > Test Imagicle Users Synch 2 | Provisioning > Test Imagicle Users Synch 2 | Overview > Provisioning >

Attribute Mapping

🖫 Save 🗙 Discard			
addresses[type eq "work"].locality	city	Edit	Delete
addresses[type eq "work"].region	state	Edit	Delete
addresses[type eq "work"].postalCode	postalCode	Edit	Delete
addresses[type eq "work"].country	country	Edit	Delete
phoneNumbers[type eq "work"].value	telephoneNumber	Edit	Delete
phoneNumbers[type eq "mobile"].value	mobile	Edit	Delete
phoneNumbers[type eq "fax"].value	facsimileTelephoneNumber	Edit	Delete
nickName	userPrincipalName	Edit	Delete
urn:ietf:params:scim:schemas:extension:enterprise:2.0:	department	Edit	Delete
Add New Mapping <			

Show advanced options

In "Edit Attribute", please choose the following options:

- "Mapping type" = **Expression**
- "Target attribute" = ExternalID
- "Expression" = see sample in below picture.

Home > Enterprise applications | All applications > Test Imagicle Users Synch 2 | Provisioning > Test Imagicle Users Synch 2 | Overview > Provisioning >

Edit Attribute

A mapping lets you define how the attributes in one class of Microsoft Entra object (e.g. Users) should flow to and from this application.

Expression	~
Expression ①	
Join("\$\$\$", "ImagicleCustomFields", Append("custom1=", [city]), Append("custom2=", [jobTitle]))	
The expression was correctly parsed.	
Default value if null (optional) 🛈	
Jse the expression builder	
externalld	V
externalld Natch objects using this attribute	~

Expression syntax

Custom fields and relevant values are mapped through a dedicated "Expression" whose syntax follows Azure Entra ID attribute mapping rules. See here for more details.

Х

Imagicle feature implies that custom fields are mapped as "**CustomX=**", [Attribute] for each custom field to be enabled, where each custom field is separated from the next one by adding "\$\$\$" separator. See below a typical expression sample:

```
Join("$$$",
Append("customX=", [Microsoft Entra ID Attribute1]),
Append("customY=", [Microsoft Entra ID Attribute2])
)
```

where "Microsoft Entra ID Attribute" corresponds to the actual Azure AD field to be mapped.

If the expression syntax is correct, by clicking outside of expression box, you should read the message "The expression was correctly parsed.".

Final check

Once above configuration has been applied, you can manually launch a new provisioning by following below steps:

- 1. Stop provisioning (set to "pause")
- 2. Restart provisioning (cancella current provisioning, if already running)
- 3. Start provisioning. This is triggering a new provisioning from scratch. This should display an "initial cycle" message.

Current limitations

- 1. Custom fields can include max 256 alphanumeric characters
- 2. Custom fields content should NOT include "\$\$\$" string, already used as expressions separator.
- 3. If a custom field mapping rule is removed, custom field already populated by the last synchronization is not blanked.
- 4. If the expression is entered with a wrong syntax or field length is greater than 256 chars or content includes above mentioned separator, Azure returns a generic "Error 500" with no details.

To check what Azure actually sends as External ID attribute value, you can perform a manual provisioning of s single user and then access to Dataflow section. See below:

≡ Microsoft Azu	re \mathcal{P} Search resources, services,	and docs (G+/)	2 Q		0	ন্দ
Home > Test Imagicle	Perform action					
Provision on						
	∧ externalId					
🛈 Learn More 🛛 📒						
	Attribute mapping					
User	Expression	Join("\$\$\$", "ImagicleCustomFields", Append("Custom1=", [city]), Append	("Custom	2=", [joł)(Title	
demo demo@imagiclef	Source parameters					
	Constant	Custom2=				
1. Import user This step shows the ι	Source attribute value					
properties of the user ir	SourceAttributeValue	Join("\$\$\$", "ImagicleCustomFields", Append("Custom1=", [city]), Append	("Custom	2=", [joł	oTitle]))	
Success View det:	Target attribute values					
2. Determine if user is i	New Value	ImagicleCustomFields\$\$\$Custom1=\$\$\$Custom2=R&D Manager				
This step shows the sc	Old Value					
Retry Provi	✓ nickName					

Configurations on Imagicle UC Suite

Please login to Imagicle UC Suite web portal as administrator and go to Administration \hat{a} Synchronize users with an external data source \hat{A} » Configure Data Sources >>

Select LDAP from pull-down menu and add a new source, with a name of your choice:

Administration	User Management	System Parameters	Licenses	SI
----------------	-----------------	-------------------	----------	----

<< Back

SELECT DATA SOURCE TYPE

LDAP

There is no adapter yet

ADD NEW SOURCE	
Name	Add
Azure_AD_Connector	0

×

Refresh status

LDAP connector should be configured as per the **Suite_Idap_creds.txt** file provided by Imagicle support. See below sample:

NAME	Azure_AD_Connector (LdapAdapter)	
LDAP ADAPTER CONNECTION SETTINGS		ETTINGS
Server (DNS name or IP address)		usersynch-Idap-imagicle.cloud
Server Port (389 for standard AD/LDAP, 636 for secure LDAP)		1636
Use secure connection		
LDAP Obje	ect Path	ou=people,o=imagicle,dc=imagicl
LDAP Filte	r	(objectClass=inetOrgPerson)
Username	@domain	uid=suite,ou=admin,o=imagicle,C
Password		•••••

Add	Cancel	

You can manually run the users' synch straight away or just wait for automatic synch performed during night time (midnight, by default).

LDAP Synch Rules

1) In the Users' synch rules select "Use local IAS authentication" as Users authentication mode.

2) While we import data from Azure AD into our Cloud LDAP and, in turns, into Imagicle UC Suite, we are applying the following standard fields mapping;

Azure label	Azure attribute	LDAP attribute	UCX Suite field
Object ID	objectid	uid	UCX Suite Login Username
	displayName or	displayName or	
	uid or	uid or	
Display Name	cn (commonName) or	cn (commonName) or	PBX username
	dn (distinguishedName) or	dn (distinguishedName) or	
	mail	mail	
Email	mail	mail	Single Sign-on id Email
First Name	givenName	givenName	First Name
Last Name	surname	sn	Last Name
Preferred language	preferredLanguage	preferredLanguage	Preferred language
Business phone	telephoneNumber	telephoneNumber	First Extension Number
Department	department	departmentNumber	Department
Mobile phone	mobile	mobile	Mobile business number
Street address	streetAddress		
City	city]	
State or province	state	sireei	User Address
ZIP or postal code	postalCode		
Country or region	country		
Fax number	facsimileTelephoneNumber	facsimileTelephoneNumber	Fax Number
Soft-Delete	active	enabled	
UserPrincipalName	UserPrincipalName	displayName	SSO username

Some mapping can be manually changed by selecting "Synch Rules" menu option. See below sample for PBX username, mapped to email address to support MS-Teams Call Recording:

AS USER PARAMETER NAME CONFIGURE RULE			
Users authentication mode	Enable users authentication against source LDAP server Ouse local IAS authentication		
IAS Login Username	Import every time from LDAP field uid		
PBX username	Order Streep Existing Value Import every time from LDAP field [cn (commonName) ▼ Uid]		
Single Sign-On Id	OImport every time from LDAP field Keep existing value Cn (commonName) dn (distinguishedName) mail		
Conversational AI Username	Import every time from LDAP field		