

## Synchronize Users against an AD/LDAP Sources

All the applications included in the UC Suite share the same users list. This list can be edited manually through the web interface, adding users one by one, or automatically, importing the user list from a CSV file. If you have a large number of users, you might want to keep the user list in sync with an external directory.

The Synchronization Service lets you import users from an external source such as Active Directory, a database or the PBX. Once synchronization is enabled, the service will align the list of users **once a day**. When a new user is added to the external source it is inserted into the UC Suite users list. When the properties of a user are updated, the changes are written to UC Suite user data. Data transfer is optimized and only the differences are written to the database.

You could also use the synchronization service to import users once, then disable it and adjust the list manually.

### Supported operations and matching criteria

The user synchronization service can perform three types of operation:

- Insert, i.e. adding a new user
- Update, i.e. changing one or more properties of an existing user
- Delete, i.e. removing the user from the list

An UC Suite User list is considered to be the same as an Active Directory User when the "Active directory username" field combined with the "Domain" field value matches the Active directory account. E.g.

- **Active directory account** = John.Smith@yourdomain.com
- **Active directory username** field in User Management = John.Smith
- **Domain** field in User Management = yourdomain.com

By default users which are deleted from the external source are automatically removed from the UC Suite. This is the main difference between importing users from CSV and synchronization. CSV import does not remove users, while the synchronization does.

If you want to create additional local users which will not be deleted when the sync operation is performed, make sure that the fields used as synchronization key (Active directory username and Domain) are blank.

### How to enable Users Synchronization

You can access user synchronization through the web interface by selecting "User Management", then clicking the link "Synchronize users with an external data source" on the top of the page.

On the Welcome screen press the "Begin" button. This will enable the service.

To properly configure user synchronization, you have to:

- Setup the connection to the data source
- Configure the import rules
- Enable alarms (optional)

### Configuring the Data Source connection

Click the "Configure Data Source" link and **select the type of external directory** from which you want to import users. These may vary depending on your telephony system. Active Directory is available for all platforms.

### Active Directory Connection Configuration

Enter a name for the source, e.g. MyCompanyDC, and press the "Add new source" button. The name must be unique, at least

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three characters long, and must contain no blanks.

Fill the form fields with these values:

- **Server:** the DNS Name or IP address of the Active Directory server. If you use the DNS name, the Application Suite server must be able to resolve it
- **LDAP object path:** the subtree from which the accounts user will be imported. [Basics of LDAP queries](#) can be found on Microsoft web site.
- **Username:** you must enter the credentials of a domain user. This does not need to be an Administrator; any domain user can access the Active Directory
- **Password:** tick the checkbox to the right to show or hide the password characters



Note: If you leave the "LDAP object path" field blank, the "Users" branch will be queried.

Press "Add" and "Back". When the new source has been added, enable it through the checkbox. Once enabled, the service will test the connection parameters.

SELECT DATA SOURCE TYPE

Active Directory (Active) ▾  
Active Directory (Active)  
LDAP  
CuCM  
Cisco Webex

SOURCE CONFIGURE DELETE

imagiclead (Active Directory)  

ADD NEW SOURCE

Name  Add



**Refresh status**

## Active Directory Secure Connection

As of March 2020, Microsoft is updating security requirements for LDAP connections to Active Directory. After this update, Secure LDAP (LDAPS) will become mandatory for all LDAP connections to Active Directory. LDAP connections to Active Directory will not work unless Secure LDAP is configured.

Starting from Spring 2020 release and above, Imagicle follows above Microsoft statement and, for new IAS installations, Secure LDAP using SSL on port 636 is automatically enabled for both authentication and users' synchronization.

If you are upgrading an existing IAS to Spring 2020 or above, the connection is automatically migrated to Secure LDAP and a test is performed to verify AD server reachability. If reachability is granted, then it means Microsoft statement has been respected. If AD can't be reached, then we just leave the connection as it is.

It is also possible to change manually the LDAP authentication settings:

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- access to Imagicle server via RDP and edit file C:\Program Files (x86)\StonevoiceAS\Apps\Fw\Settings\FW.Profile.Api.config.xml
- add a new line, or update the existing one, for the preference Authentication.UseSecureLDAPConnection (see image below)

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  ...
  <preference key="Authentication.UseSecureLDAPConnection" value="SecureThenUnsecure" />
  <!-- OR -->
  <preference key="Authentication.UseSecureLDAPConnection" value="SecureOnly" />
  <!-- OR -->
  <preference key="Authentication.UseSecureLDAPConnection" value="UnSecureOnly" />
  ...
</configuration>
```

- possible values are:
  - ◆ **SecureThenUnsecure**: authentication is tried to be granted using Secure LDAP (LDAPS), if connection fails, authentication is tried again using unsecure LDAP;
  - ◆ **SecureOnly**: authentication is tried to be granted using ONLY Secure LDAP (LDAPS);
  - ◆ **UnSecureOnly**: authentication is tried to be granted using ONLY unsecure LDAP

## Configuring Synchronization Rules

The external directory will not contain all the information needed to fill the Users profile properties. You have to provide the missing values through the web interface.

On the top of this page, select the type of source you want to configure the rules for (Active Directory).

For each field you have the various choices including the following.

- **Only when adding a new user set this value (followed by a textbox)**: this option applies only to **insert** operations. You can specify a default value for the field, which you could modify later from the User Management page, since it will not be overwritten if the user already exists.

User PIN  Only when adding, set this value

- **Only when adding a new user set this value (followed by a checkbox)**: the same as the previous option for boolean fields. Boolean fields can only be set to true (checked) or false (unchecked).

Enable billing for first extension number  Only when adding, set this value

- **Import every time from source**: applies both to insert and update operations. You decided to manage this property from the remote data source, so the value will be synchronized at each cycle.

First Name  Import every time from source

- **Keep existing value**: the property will not be synchronized. You'll manage the value from the IAS web interface. When the user is created (**insert** operation) the field will be set to blank. During next cycles (**update** operation) the value will remain unchanged.

User address  Import every time from source  Keep existing value

Other options may involve specifying a prefix to be added to another field value. For instance the First extension number may be imported from the Telephone Number or IP Phone or Skype for Business SIP URI Active Directory fields.

First extension number  Import every time  +  Use Microsoft Skype for Business  Keep existing value

**Warning:** not all the choices may be available for all the fields. E.g. there is no point in assigning the same default value to a



user's personal address.

### Save the changes

The **Apply** button saves the changes. The **Reload** button undoes the changes. The **Default** button resets to the default values.

Press "Next" or "Back" to continue.

### Synchronizing Users against Active Directory - Supported Attributes List

This table list the Active Directory user attributes and shows the UC Suite fields they are mapped to.

- **Active Directory Display Name:** label displayed in the Active Directory user interface
- **LDAP Attribute Name:** name to be used in LDAP queries, reported for reference but not required to configure UC Suite
- **UC Suite Field:** Label displayed in the adapter's rule configuration UC Suite web page
- **UC Suite Database name:** this is never displayed to the user

<b>General Tab</b>				
<b>Active Directory Display Name</b>	<b>LDAP Attribute Name</b>	<b>UC Suite Label</b>	<b>UCSuite Database name</b>	<b>Example Value</b>
First Name	givenName	First Name	user_nome	John
Initials	initials	-	-	JS
Last Name	sn	Last Name	user_cognome	Smith
Display Name	displayName	-	-	"John, Smith"
Description	description	-	-	Sales Manager
Office	physicalDeliveryOfficeName	-	user_office_location	London Office
Telephone Number	telephoneNumber	First Extension Number*	user_telnum, user_amnum	0123 456 789
Telephone Number (Other)	otherTelephone	-	-	0123 4457 89
Email	mail	Email, "Voicemail Address", "Fax to Email Address", "Single Sign-on Id"	user_mail, user_voicemailaddr, user_pref_fax_mailinaddr, ssoId	JSmith@domain.com
Web Page	wWWHomePage	-	-	www.johnsmith.com
Web Page (Other)	url	-	-	www.John.net,www.John.org
Password	password	-	-	JohnsPass321
Destination OU	destinationOU	-	-	OU=Sales,DC=Domain,DC=Com
Common Name	CN	-	-	John Smith or %lastname% %firstname%
Modify User if already exists	Modify	-	-	True or False
Delete User	Delete	-	-	True or False
<b>Address Tab</b>				
	<b>LDAP Attribute Name</b>	<b>UCSuite Label</b>	<b>UCSuite Database name</b>	<b>Example Value</b>

Active Directory Display Name				
Street	streetAddress	User address	user_address	10 Downing St;London (Use a semi-colon for carriage return)
PO Box	postOfficeBox	-	-	Po Box 1
City	l ( <i>Lowercase L</i> )	-	-	London
State/Province	st	-	-	New York
Zip/Postal Code	postalCode	-	-	20013
Country	c	-	-	GB

### Account Tab

Active Directory Display Name	LDAP Attribute Name	UCSuite Label	UCSuite Database name	Example Value
User Logon Name	userPrincipalName	Active Directory username, Domain, Single Sign-on Id***	userPrincipalName, user_ad (without domain), user_domain (without the username), user_authname, ssoId	JSmith@domain.com
User Logon Name (Pre W2K)	sAMAccountName	PBX username	user_ccmname	JSmith
User Logon Name	sAMAccountName	Screen recording agent username	user_ScreenRecordingUserId	JSmith
User Logon Name	Mail, userPrincipalName,Uid	Conversational AI username	user_ConvAiUserId	JSmith@domain.com

### Telephones Tab

Active Directory Display Name	LDAP Attribute Name	UCSuite Label	UCSuite Database name	Example Value
Home	homePhone	Home phone	user_telcasa	123 123 123
Home (Other)	otherHomePhone	-	-	0123 123 123
Pager	pager	-	-	1234
Pager (Other)	otherPager	-	-	123
Mobile	mobile	Mobile business number	user_mobileBusinessNumber	123 456 789
Mobile (Other)	otherMobile	-	-	123 456 789
Fax	facsimileTelephoneNumber	Fax number	user_faxNumber	123 456 789
Fax (Other)	otherFacsimileTelephoneNumber	-	-	0123 456 789
IP Phone	ipPhone	First Extension Number*	user_telnum, user_amnum	750
IP Phone (Other)	otherIpPhone	-	-	330750
Notes	info	-	-	General information (Use a semi-colon for carriage return)
User Logon Name	userPrincipalName	Cdr User ID	CdrUserId	JSmith

## Organization Tab

Active Directory Display Name	LDAP Attribute Name	UCSuite Label	UCSuite Database name	Example Value
Title	title	-	-	Manager
Department	department	Department	user_department	Sales
Company	company	-	-	Big Corp
Manager	manager	-	-	CN=Ste Jobs,OU=Managers,DC=Domain,DC=Com
Employee ID	employeeID	-	-	
Employee Type	employeeType	-	-	
Employee Number	employeeNumber	-	-	
Car License	carLicense	-	-	
Division	division	-	-	
Middle Name	middleName	-	-	
Room Number	roomNumber	-	-	
Assistant	assistant	-	-	CN=Joe Blog,OU=Managers,DC=Domain,DC=Com
<u>User permissions</u>	Multiple custom attributes	-	Permission levels are saved in SQL DB	from level (1) up to level (10)
<u>User's Picture</u>	jpegPhoto / thumbnailPhoto	-	Pictures are saved in SQL DB	JPEG pictures supported. Max 200KB size
Recording Group name	<ul style="list-style-type: none"> <li>department</li> <li>company</li> <li>physicalDeliveryOfficeName</li> </ul>	Recording Group name	-	Sales

\* Either telephoneNumber or ipPhone attributes can be imported based on synch rules configuration

\*\*\* Single Sign-On feature, based on SAML or OpenID Connect protocols, is supported from Imagicle 2022.Winter.1 release.

## User permissions

You can import user permissions from different string-type custom attributes by application, to be manually added in your AD server. Please find below the custom attributes list, with possible privilege values:

Att Name	Description	Priv name
privMai	Users management default users' permission	Default
privMai	No access to users management	BasicUser
privMai	Access to department users list	DepartmentUsersSupervisor
privMai	Access to department users management	DepartmentUsersManager
privMai	Complete users management	CompleteUsersManagement
privMai	System admin	Administrator
Att Name	Description	Priv name
privBib	Call Analytics default users' permission	Default
privBib	No access to Call Analytics data	NoAccess
privBib	Call Analytics access to own data only	BasicUser
privBib	Call Analytics access to whole own dept. data	DepartmentSupervisor
privBib	Call Analytics access to whole own Cost Center data	CostCenterSupervisor

privBib	Call Analytics access to whole own Office Location data	OfficeLocationSupervisor
privBib	Call Analytics access to whole Call Accounting data	GlobalSupervisor
privBib	Call Analytics Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privBdg	Budget Control default users' permission	Default
privBdg	No access to Budget Control data	NoAccess
privBdg	Budget Control access to own budget data	BasicUser
privBdg	Budget Control access to whole own dept. budgets	DepartmentManager
privBdg	Budget Control access to whole own Cost Center budgets	CostCenterManager
privBdg	Budget Control Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privSlo	Phone Lock default users' permission	Default
privSlo	No access to Phone Lock line	NoAccess
privSlo	Phone Lock access to own phone line	BasicUser
privSlo	Phone Lock access to all phone lines associated to own dept.	DepartmentManager
privSlo	Phone Lock Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privSfx	Digital Fax default users' permission	Default
privSfx	No access to Digital Fax documents	NoAccess
privSfx	Digital Fax access to own fax documents	BasicUser
privSfx	Digital Fax access to all fax documents associated to own dept.	DepartmentManager
privSfx	Digital Fax Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Description</b>
privSpd	Contact Manager default users' permission	Default
privSpd	No access to Contact Manager directories	NoAccess
privSpd	Contact Manager access to own directories	BasicUser
privSpd	Contact Manager access to all directories associated to own dept.	DepartmentManager
privSpd	Contact Manager access to all directories	DirectoryManager
privSpd	Contact Manager Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privlvr	Auto Attendant default users' permission	Default
privlvr	No access to Auto Attendant services	NoAccess
privlvr	Access to Auto Attendant services, only if assigned as AutoAtt Manager	BasicUser
privlvr	Auto Attendant Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privQme	Advanced Queuing default users' permission	Default
privQme	No access to Advanced Queuing queues	NoAccess
privQme	Access to Advanced Queuing queues, only if assigned as queue Supervisor or Advanced supervisor	BasicUser
privQme	Access to Advanced Queuing queues as Supervisor	Supervisor
privQme	Access to Advanced Queuing queues as Advanced Supervisor	AdvancedSupervisor
privQme	Advanced Queuing Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privlvy	IVR Manager default users' access	Default
privlvy	No access to IVR Manager scripts	NoAccess
privlvy	IVR Manager Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>

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privRec	Call Recording default users' permission	Default
privRec	No access to Call Recording data	NoAccess
privRec	Call Recording access to own data only	BasicUser
privRec	Call Analytics access to whole own recording group data	GroupSupervisor
privRec	Call Recording Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privHtl	Hotel Services default users' access	Default
privHtl	No access to Hotel Services panel and configurations	NoAccess
privHtl	Hotel Services Administrator	Administrator
<b>Att Name</b>	<b>Description</b>	<b>Priv name</b>
privCx	Conversational AI default permission	Default
privCx	No access to Conversational AI	NoAccess
privCx	System admin	Administrator

## Extension Number Alias Synchronization

This field is by default left empty, If required, you can synch this user's field from the following attributes:

- Active Directory:
  - ◆ otherTelephone
  - ◆ otherIpPhone
  - ◆ telephoneNumber
  - ◆ ipPhone
  - ◆ UserPrincipalName

First extension number Alias

Enable billing for first extension number

VoiceMail number

Import every time from AD field  
 Use Microsoft URI (see below)  
 Keep existing value

Only when adding, set this value  
 Import every time - add prefix

Other Telephone Number

Other Telephone Number

Other Ip Phone

telephoneNumber

IP Phone

userPrincipalName

- LDAP:
  - ◆ Telex Number
  - ◆ telephoneNumber
  - ◆ pager
  - ◆ mail

First extension number Alias

PBX Partition

Import every time from LDAP field  
 Use Microsoft URI (see below)  
 Keep existing value

Import every time from LDAP field  
 Only when adding, set this value

Telex Number

Telex Number

telephoneNumber

pager

mail

## Site Name synchronization

Starting from Imagicle UC Suite Summer 2021, we can import Site Name from Active Directory or LDAP, to enable overlapping dial plan across multiple gateways or PBXs.

Depending on the users repository source, the Site Name can be synchronized from one of the following attributes (selectable in the synch rules page):

- Active Directory:
  - ◆ department (default)
  - ◆ physicalDeliveryOfficeName
  - ◆ company



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- LDAP:
  - ◆ departmentNumber (default)
  - ◆ o
  - ◆ ou
  - ◆ l

## Users' pictures synchronization

Starting from Imagicle UC Suite Winter 2020, users' pictures can be synchronized with Active Directory LDAP, to enable two UC Suite features:

- Viewing the user photo in the 'Colleagues' tab of the Imagicle Attendant Console.
- Providing a users' picture repository for Cisco Jabber clients. Please see [here](#).

Depending on the users repository source, the picture can be synchronized from one of the following attributes (selectable in the synch rules page):

- Active Directory:
  - ◆ jpegPhoto
  - ◆ thumbnailPhoto
- LDAP:
  - ◆ jpegPhoto

The default maximum picture size is **200 KB**, bigger pictures will be discarded. If you need to adjust such size threshold, please contact Imagicle Support.

Pictures are saved in the Imagicle database.

## Alarms

The Synchronization service is able to send alarms and warnings should a problem occur during or after synchronization. A brief report is included. The options are pretty self-explanatory. The global SMTP settings are used.

CONFIGURE ALARMS	
Send alarms	<input checked="" type="checkbox"/>
Administrator email address	<input type="text" value="it.manager@yourdomain"/>
ANOMALOUS CONDITIONS NOTIFICATION	
Send warning for skipped users	<input checked="" type="checkbox"/>
Send warning for deleted users	<input checked="" type="checkbox"/>
EVENT NOTIFICATION	
Send when aborted	<input checked="" type="checkbox"/>
Send on error	<input checked="" type="checkbox"/>
Send for success	<input type="checkbox"/>

## Testing user Synchronization

Once the configuration is complete, you can test it live by pressing the "Run now" button.

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Warning: the synchronization process can take a long time if you have a large number of users, depending on the data source type.

To setup the daily schedule, use the "Enable Auto mode" checkbox. Set the hour of the day when you want the service to run, and press save the changes. A countdown will tell you the time left to the beginning of the process.

## Reports

Every time the synchronization process is completed, a text report is generated. You can download the report through the web interface. Reports older than 15 days will be automatically removed.

If the synchronization operation is successful, the report contains only statistics. If a user is skipped, details are included so you can edit the user in the data source and try again.

```
-----  
|                               Report                               |  
|  Users Data Synchronization with an External Source  |  
-----
```

```
Start Time: 04/04/2011 17.58.24  
Stop Time: 04/04/2011 17.58.24  
Result: Completed
```

```
-----  
Statistics:
```

```
Number of Inserted Users: 5  
Number of Updated Users: 30  
Number of Deleted Users: 2  
Number of Skipped Users: 0  
Number of Users in DataBase after sync: 35  
-----
```

Should an unexpected error be raised, debug information is included in the report. In this case, please send the file to Imagicle Support.