

# AppSuite Deployment

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# AppSuite Deployment

## Introduction

Imagicle offers a complete suite of applications for Unified Communications.

The **Imagicle Application Suite for Skype for Business** is a single package including a set of these applications integrated in a web based environment for both administration and user access.

This guide will lead you through the simple process of configuring the applications bundled in the Application Suite.

The Administration Guide is constantly updated and applies to the latest version of the package.

## Installation Task List

The Application Suite can be properly set up by these simple tasks:

- Download and install the latest Application Suite package. The installation program will take care of the Operating System setup and of the software prerequisites
- Run Windows Update, then disable it
- Install the TAPI TSP or CTI driver
- Configure your company email server

These operations can take from one to four hours.

Installation should be performed by personnel skilled in both system administration and telephony system configuration, after reading the appropriate release notes and updated technical documentation.

### Persons to involve in the installation process

To finalize the configuration, you may need to involve other people who are in charge of the customer's telephony and IT infrastructure:

- **IT Department:** Changing Domain Controller security policies, editing AD users, creating dedicated email accounts
- **Network / Voice Department:** Configuring the PBX, changing network firewall settings
- **Security Department:** Configuring antivirus

## Installation Requirements

Imagicle UCX Suite is a software-only product which you can download from Imagicle web site. The UCX Suite is a server product and requires a dedicated virtual machine/physical server connected to the network. No additional hardware (e.g. cards or adapters) is needed.

The deployment can be either:

- A fully automatic setup package to install (around 1.5GB) on a MS Windows Server 64 bit physical or virtual machine. The Imagicle Suite runs in 30 days evaluation while installed and can be permanently activated by purchasing the app licenses. Warning - The UCX Suite cannot be installed on a domain controller.
- An out of the box Virtual Appliance (about 15 GB) including MS Windows Server 2019 or 2016 and the Imagicle Suite, to deploy in less than 10 minutes in a VMware ESX/ESXi environment (ex: Cisco UCS or BE6K or better). ESX/ESXi version 5.0 or higher is required. Both Microsoft Windows OS and Imagicle UCX Suite run in 30 days evaluation and can be permanently activated by purchasing the respective licenses. More info on virtual appliance [here](#).

The deployment of the Imagicle UCX Suite can be performed directly on a Cisco UCS appliance (B or C series) and on Cisco BE6K in full co-residency, to provide the lower TCO and the maximum integration. Please find more details [here](#).

## OS Version

If you need to activate an Imagicle application leveraging CTI/TAPI monitoring (Advanced Queuing, Attendant Console, Phone Lock, Call Recording), you need to run a Windows version supported by Cisco TSP plugin you are running. The Cisco compatibility matrix can be found at [this link](#).

Please, contact Imagicle for any doubt or if you need to run the Imagicle UCX Suite on Windows 2016/2019 and your CUCM version is not compatible with such OS.

## Windows license

About Windows Server operating system licensing options, both Volume licenses and OEM licenses are supported for both the setup package and virtual appliance deployment options.

Please see [here](#) for more info on the most suitable licensing option.

Imagicle UCX Suite also requires an e-mail server to send and receive faxes through email, to send voicemail messages, reports, and administrative alerts. You can configure a dedicated account for POP3/EWS/SMTP/OAuth2 on your e-mail server.

The UCX Suite supports several PBX versions: an up-to-date list of hardware, software, and operating system requirements and compatible platforms is available on the Imagicle website.

## Users credentials and rights

The Imagicle services use the following Windows users in order to run:

- **Local System:** a Windows standard user
- **Network Service:** a Windows standard user

"Local System" and "Network Service" are standard users, their properties and rights are not changed by Imagicle package installer.

## Local Security Policies

Following the security and system policies needed to run properly the Imagicle services. These settings are automatically set by UCX Suite installation package, so you don't need to set them manually.

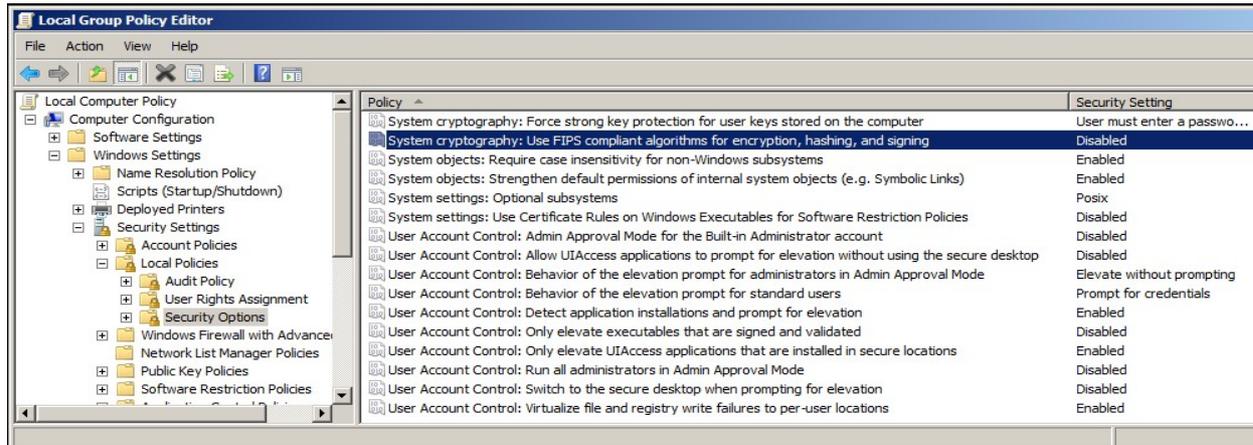
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When the server is joined to a domain, the local security policies are override by domain policies. Please double check the local security policies while joining the UCX Suite server to a domain (see below). In a Windows domain, a domain administrator right might be required to change them.

The security policies here described can be changed using the Group Policy Editor (*gpedit.msc* snap-in).

The following policy should be **disabled** on any Windows Server version:

- Local Computer Policy, Computer Configuration, Windows Settings, Security Settings, Security Options:  
**"System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing"**



## Other operating system requirements

- The local Windows Firewall should be turned off. If your security policy requires the firewall to be kept on, please consult our [network settings](#) article to learn more about used ports/protocol for each Imagicle application.
- Windows Defender should be turned off. Please consult relevant [KB article](#) for further details.
- The Windows DEP (Data Execution Prevention) must be turned off

## Joining Imagicle UCX Suite server to an Active Directory Domain

The Imagicle server can be joined to an Active Directory domain (before or after the installation). Please ensure that, after joining the domain, the policies and user settings described in the previous paragraph are still accomplished. Domain policies should not impact on the described Local Security policies, user rights, neither to Local System or Network Service user properties.

## Windows Automatic Updates

Installation of Windows updates is highly suggested by Imagicle and could be requested by our support in case of issues attributable to a not updated Windows Server installation.

Imagicle is not responsible for OS updates, this means that you need to supervise the update procedure in order to avoid server reboots out of maintenance windows.

## Supported browsers

The web interface can be best used with the following browsers:

### Desktop browsers

- Mozilla Firefox (latest version)
- Chrome (latest version) **recommended**

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- Microsoft Edge (latest version)
- Safari (latest version)

Internet Explorer 6, 7, 8, 9, 10 and 11 are no longer supported.

## Mobile browsers

- Safari (latest version)
- Chrome (latest version) **recommended**

## Other best practices

Please consult [this KB](#), describing additional practices to be kept into account while administering an Imagicle UCX Suite.

## UC Suite IPv6 Support

Starting from 2022.Spring.1 release, you can configure Imagicle UC Suite with an IPv6 address, with the option of seamlessly support both IPv4 and IPv6 (dual stack).

### Configuration steps

1. Enable and configure IPv6 (and optionally IPv4) address on the UC Suite network interface
2. Database:
  - ◆ if the UC Suite points to a remote database, this must be configured with IPv6 using the **Imagicle Database Configuration Tool**
  - ◆ if the database is local, no modification is needed
3. Stop UC Suite services from relevant "Services" control panel
4. If Imagicle UC Suite is interfaced to a Cisco UCM calling platform:
  - ◆ Configure the Cisco TSP Notifier by adding CTI Manager configuration to point to a CCM using IPv6 address. See [here](#).
  - ◆ Start IIS (World Wide Web Publishing Service)
5. Configure the UC Suite PBX configuration using its IPv6 address. See [here](#).
6. Call Analytics: follow the steps described [here](#) and [here](#).
7. Cluster creation: read [here](#) and [here](#). Remember you can't mix nodes within same cluster, using different IP version.
8. Restart UC Suite services

### Attendant Console

Attendant Console must point to UC Suite through IPv6 address. See [here](#).

## SQL Server Requirements

This section describes the requirements to leverage a Microsoft SQL Server instance different than the embedded SQL Server Express, to host the UC Suite database.

If you plan to use your own MS-SQL Server installation and license, co-located inside Imagicle UC Suite VM, please make sure to install it AFTER Imagicle UC Suite deployment.

**IMPORTANT:** Starting from Imagicle 2023.Spring.1 release, MS-SQL Server 2008/2008R2 is supported only for updating an existing installation to Spring 2023, but you can't deploy a new Imagicle instance with such old MS-SQL version. Starting from 2023.Summer.1 release, MS-SQL 2008/2008R2 is not supported anymore and therefore a MS-SQL update is mandatory.

### MS SQL user permissions

This paragraph describes the minimum permissions required by the user used by UC Suite to connect to SQL Server instance, in order to grant that all operations performed by UC Suite work as expected.

The following roles and grant are the minimum required by the current version of the UC suite, including regular working operations, software updates and maintenance operations performed by Imagicle tools.

Since we're committed to take care of the whole life cycle of the database used by UC Suite, please, be aware that:

- the database must be created by (and only by) the UC Suite DB configuration tool, in order to ensure it matches exactly all the required properties as well as avoiding any unexpected property (that could lead to unpredictable issues in the future);
- the database content and schema can be modified by (and only by) the UC Suite, in order to ensure a proper working of the current release and a forward compatibility with next releases.

### Required roles and permissions

Permission/Role	Type	Allows to	Operations and functionalities requiring the permission
<b>db_owner</b>	Database Role	Perform all configurations, maintenance and data manipulation activities on the specific database.  Nothing is allowed on other databases of the same SQL Server instance.  See <a href="#">here</a> for further details.	<ul style="list-style-type: none"> <li>• Regular data manipulation (insert, update, delete)</li> <li>• DDL operations (DB schema changes)</li> <li>• Cluster operations</li> <li>• Maintenance operations</li> </ul>
<b>CREATE ANY DATABASE</b>	Server Permission	Create new databases in the same SQL Server instance.  See <a href="#">here</a> for further details.	<ul style="list-style-type: none"> <li>• UC Suite new installation</li> <li>• UC Suite database (re)configuration</li> <li>• Join of a UC Suite node to an existing cluster</li> <li>• UC Suite backup</li> <li>• UC Suite restore</li> </ul>
<b>VIEW ANY DATABASE</b>	Server Permission	List the databases hosted in the same SQL instance.  This grant doesn't allow to see the contents of DBs, it just allows to list the names of all DBs defined inside the same SQL Server instance.  See <a href="#">here</a> for further details.	<ul style="list-style-type: none"> <li>• UC Suite new installation</li> <li>• UC Suite database (re)configuration</li> <li>• Join of a UC Suite node to an existing cluster</li> <li>• UC Suite backup</li> <li>• UC Suite restore</li> </ul>

## SQL user creation

You can create a SQL login with the permissions listed above using the script included in [this page](#).

## Question and Answers

### **Q: Can the database be created manually and then have UC Suite use such database?**

**A:** No, this is not supported. This is to guarantee all UC Suite applications and workflows work as expected and to avoid unexpected and unpredictable issues (such as the ones occurring during UC Suite upgrade or restore operations, which are quite critical and can cause service disruption).

### **Q: Can I modify the database schema created by the Suite?**

**A:** No, this is not supported. Any schema modification can create conditions and objects not expected by the UC Suite applications, hence leading to unpredictable behavior or unfortunate issues.

### **Q: Why creating a UC Suite backup requires CREATE ANY DATABASE Server permission?**

**A:** There's nothing less useful than a corrupted backup. When a backup has been done by the UC suite Backup&Restore tool, to guarantee the integrity of the saved data, the tool creates a temporary database basing on the backup information and ensures the resulting backup can be restored without errors in the current or in a next suite release.

### **Q: Why restoring a UC Suite backup requires CREATE ANY DATABASE Server permission?**

**A:** During restore procedure, the UC Suite Backup&Restore tool creates a new database with a temporary name into which the backup content is inserted. Once the procedure completes successfully, such temporary database gets renamed and becomes the new production database (replacing the old one). In case of failure, instead, an error is raised, the temporary DB gets deleted and the previous production database remains operative.

### **Q: Why does the suite require to access the data of all the databases?**

**A:** It doesn't. In facts, the VIEW ANY DATABASE grant doesn't allow to see the contents of the listed DBs.

## Database creation

As stated in the previous paragraph, the UC Suite database cannot be created manually. It must be created by the Database Configuration tool included in the UC Suite and described in the [Deployment](#) page.

## Network Setup

### Interaction with the company infrastructure

The following protocols and connections can be used to interact with the customer IT infrastructure. Such protocols and ports must be Allowed in the customer firewall or NAT system.

Protocol	Direction (From Imagicle UC Suite Perspective)	TCP-IP Ports (Remote peer)	TCP-IP Ports (Imagicle Server)	Usage	Imagicle Applications
LDAP	OUT	TCP 389	Any (TCP)	The LDAP connection is optionally used to collect information from the customer LDAP or Active Directory server in order to populate the users list.	All
SMTP (SSL/TLS)	OUT	TCP 25 TCP 465 (SSL)	Any (TCP)	Used to send email notifications to advise about alarms, fax notifications, voicemail notifications, scheduled reports. Can be used with or without SSL/TLS support.	All
IMAP4	OUT	TCP 143 TCP 993 (SSL/TLS)	Any (TCP)	Used by Stonefax to retrieve email messages from the company mail server to allow the mail2fax feature. This is alternative to the POP3 protocol	Digital Fax
POP3	OUT	TCP 110 TCP 995 (SSL/TLS)	Any (TCP)	Used by Stonefax to retrieve email messages from the company mail server to allow the mail2fax feature. This is alternative to the IMAP4 protocol.	Digital Fax
EWS	OUT	TCP 443	Any (TCP)	Used by Stonefax to retrieve email messages from the company MS-Exchange email server to allow the mail2fax feature. This protocol can be also implemented to connect to MS-Office365 cloud-based email service	Digital Fax
Microsoft Sharing Protocol	IN/OUT	UDP 137 UDP 138 TCP 139 TCP 445 UDP 445	Any (TCP)	Optionally used to access customer's network shared folders for backup purposes (IAS backup, fax backup).	All
PMS Link	IN/OUT	TCP nnn	TCP nnn	Specific ports may be used by Hotel Link to connect to customer's PMS, depending on the PMS model/version. Please contact Imagicle for further details.	Hotel Link

### Interactions between Imagicle Attendant Console Clients and the UC Suite

Following protocols and connections are used between Attendant Console clients and UC Suite server(s). These connections are used by following clients:

- Attendant Console Professional
- Attendant Console Enterprise
- Desktop CTI

Protocol	Direction (From Imagicle Server Perspective)	TCP-IP Ports (Remote peer)	TCP-IP Ports (Imagicle Server)	Usage	Imagicle Applications
Legacy	IN	Any (TCP)	TCP 51234	Client-Server plain communications between Attendant Console clients and Imagicle CTI Server.	AC Enterprise, Professional, Desktop CTI
Legacy	IN	Any (TCP)	TCP 51235	Client-Server TLS 1.2 encrypted communications between Attendant Console clients and Imagicle CTI Server.	AC Enterprise, Professional, Desktop CTI

Legacy (Microsoft only)	IN	Any (TCP)	TCP 21050	Client-Server plain communications between One Desktop for Microsoft UC and Imagicle CTI Server (Mondago GoConnect).	AC Enterprise, Professional
HTTP	IN	Any (TCP)	TCP 80	Optionally used for Centralized Live Update system	AC Enterprise, Professional, Desktop CTI

## Interactions with the PBX

The following protocols are used to interact with any PBX. Such protocols and ports must be allowed in the customer firewall or NAT system.

Protocol	Direction (From Imagicle UC Suite Perspective)	TCP-IP Ports (Remote peer)	TCP-IP Ports (Imagicle Server)	Usage	Imagicle Applications
AXL(Cisco specific)	OUT	TCP 8443,8080	Any (TCP)	Secure protocol to retrieve configuration information from Cisco CallManager (phone status, users list, CallManager Version).	All
TAPI	IN/OUT	TCP 2748	Any (TCP)	TAPI (CTI) Protocol	All
SIP	IN/OUT	UDP 5060	UDP 5060	SIP communications to establish outgoing and incoming calls from/to Imagicle Stonefax (fax server)	Digital Fax
SIP	IN/OUT	UDP 5062 TCP 5062	UDP 5062 TCP 5062	SIP communications to establish outgoing and incoming calls from/to Imagicle ACD and IVR services.	Advanced Queuing
SIP	IN/OUT	TLS 5063	TLS 5063	Secure SIP communications to establish encrypted outgoing and incoming calls from/to Imagicle queuing and auto attendant services	Advanced Queuing
SIP	IN/OUT	UDP 5064	UDP 5064	SIP communications for presence notifications	Advanced Queuing Attendant Console Ent./Pro.
SIP	IN/OUT	UDP 5066	UDP 5066	SIP communications for Hotel Link voice services calls (incoming and outgoing voice calls)	Hotel Link
SIP	IN/OUT	UDP 5070 TCP 5070	UDP 5070 TCP 5070	SIP communications for Call Recording (incoming voice calls)	Call Recording
SIP	IN/OUT	TLS 5071	TLS 5071	Secure SIP communications for Imagicle Call Recording (incoming voice calls)	Call Recording
SIP	IN/OUT	UDP 5060	UDP 5060	SIP Communication to Imagicle Manager Assistant instance	Manager Assistant
SIP	IN/OUT	TLS 5061	TLS 5061	Secure SIP Communication to Imagicle Manager Assistance instance	Manager Assistant
H.323	IN/OUT	TCP 1720	TCP 1720	H.323 communications to establish outgoing and incoming calls from/to Imagicle voice/fax applications, depending on the version of Imagicle UC Suite.	Digital Fax VoiceMail
H.323	IN/OUT	TCP 1721	TCP 1720 TCP 1721	H.323 communications to establish outgoing and incoming calls from/to Imagicle UC Suite.	Digital Fax
RTP/T.38	IN/OUT	UDP > 1024*	UDP 5000-5999	Real-time voice streams. Real-time data streams for T.38 fax relay.	Digital Fax, Advanced Queuing, VoiceMail, Call Recording, Hotel Link
	IN	Any (TCP)	TCP 80		

HTTP (Cisco specific)				CURRI invocation for External Call Control (Cisco UCM specific)	Contact Manager, Phone Lock
FTP	IN	Any (TCP)	TCP 21 TCP 22	(S)FTP CDR upload	Call Analytics

\* Cisco devices normally work in the 16384-32766 UDP port range.

### Interactions with IP Phones and other voice devices

Following protocols are used to interact with the IP phones, ATA devices, Voice Gateways and Session Border Controllers. Such protocols and ports must be allowed in the customer firewall or NAT system.

Protocol	Direction (From Imagicle Server Perspective)	TCP-IP Ports (Remote peer)	TCP-IP Ports (Imagicle Server)	Usage	Imagicle Applications
HTTP (Cisco specific)	IN	Any (TCP)	TCP 80	XML services, accessed by IP Phones	Contact Manager Phone Lock IVR Manager
HTTP (Cisco specific)	OUT	TCP 80	Any (TCP)	XML notifications to Cisco IP Phones	Contact Manager Phone Lock
RTP/T.38	IN/OUT	UDP > 1024*	UDP 5000-5999	Real-time voice streams. Real-time data streams for T.38 fax relay.	Digital Fax Advanced Queuing VoiceMail Call Recording Hotel Link

\* Cisco devices normally work in the 16384-32766 UDP port range.

### Interactions among Imagicle UC Suite nodes in a cluster

Following protocols are used for inter-node communications between two joined nodes in the same Imagicle High Availability cluster. If HA environment involves a Disaster Recovery scenario, below protocols and ports must be allowed among different Data Centers, over a WAN.

Protocol	TCP/UDP Ports (from/to Imagicle Nodes)	Usage
Microsoft Share Protocol	UDP 137	Various file sharing
	UDP 138	
	UDP 445	
	TCP 139	
	TCP 445	
HTTP	TCP 80	Various IIS activities
	TCP 443	
SQL	TCP 1433*	Database updates
	UDP 1434	
RDP	TCP 3389	Remote Desktop transactions
IPC	TCP 52000-52999 (range)	Inter process communications
	TCP 4369	

TCP 5672	
TCP 15672	
TCP 25672	

\*SQL Server listens to inbound communications using a random TCP port. To force a specific port (TCP 1433), please follow the procedure available here: <https://docs.microsoft.com/en-us/sql/database-engine/configure-windows/configure-a-server-to-listen-on-a-specific-tcp-port>

**Note:** Maximum allowed latency (RTT) for inter-nodal communications is 100msec.

### Other network communication

Following protocols and connections can be used to interact with the customer IT infrastructure. Such protocols and ports must be Allowed in the customer firewall or NAT system.

Protocol	From	To	Usage
HTTP	Management workstation Users workstations  (Any TCP port)	UC Suite and Manager Assistant  TCP port 80	Application administration. WEB access to Imagicle applications for end-users.
HTTPS	Management workstation Users workstations  (Any TCP port)	UC Suite and Manager Assistant  TCP port 443	As above, using secure HTTP connections.
ANY	UC Suite (Any TCP/UDP port)	UC Suite (Any TCP/UDP port)	In the case of <b>High Availability</b> configurations that involve multiple UC Suite nodes, <b>full connectivity</b> must be available between UC Suite servers (no firewall or NAT) to allow content synchronizations between multiple nodes.

### Communications with Internet services

There are a number of external Internet-based services that should be reachable from IAS Server. These include Imagicle Online Cloud Licensing Server and Internet email services, like Office365 and Google Mail.

Protocol	From	To	Usage
HTTPS	UC Suite  TCP Port 443, 8080, others	<a href="https://*.imagicle.com">https://*.imagicle.com</a> , Google Mail, MS-Office365, etc.	Imagicle Online Cloud Licensing Server and Internet email services

Starting from Imagicle UC Suite rel. 2019.Summer.1, Imagicle UC Suite allows to configure a proxy server to reach above Internet services. More info are available in [this KB](#).

### Single Sign On (SSO)

To leverage the Single Sign On authentication, the user PC should be able to reach some cloud services. Please refer at [this page](#) for the details.

### Traffic requirements

In addition to the network connections described above and related firewall rules, following considerations and requirements must be considered in a deployment scenario.

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- SIP / H.323 / T.38:  
Voice and fax streams with real time requirements:
  - ◆ Low Latency (maximum 80 ms RTT)
  - ◆ Wide Bandwidth (up to 80 Kbps for each simultaneous call, depending on the adopted voice codec)
- TAPI / JTAPI  
Call Control with real time requirements:
  - ◆ Low Latency (maximum 80 ms RTT)
  - ◆ Lightweight protocol (no need for wide bandwidth)
- (S)FTP
  - ◆ Basically file transfer with no real-time requirements
  - ◆ Used bandwidth depends on the actual traffic figure
- AXL
  - ◆ Medium Latency (up to 150 ms RTT)
  - ◆ Low Bandwidth
- ECC CURRI (HTTP)
  - ◆ Low Latency (maximum 80 ms RTT)

### Additional Server requirements

The Internet Options of the Imagicle Application Suite server should have the **proxy settings disabled**. Configuring a proxy may impact on service-to-service communications with the PBX or with other UC Suite nodes.

## Antivirus Setup

Imagicle UC Suite installation folder, as well as all its subfolders, and Imagicle services/applications must be excluded from the antivirus scan and agents activity, otherwise applications could not work properly, unexpected behaviours could occur and a general system slowness might severely impact the operation.

### Imagicle Folders

The default Imagicle UC Suite installation path is "C:\Program Files (x86)\StonevoiceAS", but it can be changed during installation procedure. If you are not sure about actual installation path, you can read it on Imagicle admin web portal, click on Admin & Support & Main Info tab & "Installation Path:" (see below screenshot):



If local SQL Server Express is in use, Microsoft SQL Server installation folder should be excluded too; the default folder, in this case, is C:\Program Files\Microsoft SQL Server.

### Windows Defender Configuration

Imagicle UC Suite installation path **MUST BE** excluded from Windows Defender antivirus/antimalware. You can double check this exclusion by running a Windows **Powershell** with admin privileges ("Run as administrator") and entering the following command:

```
Get-MpPreference
```

The output of such command should include UC Suite installation folder into "ExclusionPath". See below sample:



If the folder is not displayed, please issue the following PowerShell command (it requires local administration privileges):

```
Add-MpPreference -ExclusionPath "C:\Program Files (x86)\StonevoiceAS\"
```

Alternatively, you can exclude, one by one, the processes specified in the next paragraph using the option *-ExclusionProcess*. For instance:

```
Add-MpPreference -ExclusionProcess "C:\Program Files (x86)\StonevoiceAS\Apps\Attendant\Component\Assembly\Attendant.Core.ConsoleServerService.exe"
```



## Imagicle Services and Applications

The following services and applications must be excluded from antivirus scan and agents activity, to avoid interfering their performances or stop applications' processes. <IAS\_PATH> is the Imagicle ApplicationSuite installation path, as explained in previous paragraph.

Display Name	Service Name	Path to executable	Imagicle Applications
Imagicle Attendant Console	SvAttConsoleServerService	<IAS_PATH>\Apps\Attendant\Component\Assembly\ Attendant.Core.ConsoleServerService.exe	Attendant Console (Ent./Pro.)
Imagicle AXL Client (Cisco specific)	SPDAL	<IAS_PATH>\Apps\Speedy\Server\System\ SPDAL.exe <IAS_PATH>\Apps\ApplicationSuite\Component\Native\ SvSasAXL.exe	All
Imagicle Budget Control	SvBDGControlService	<IAS_PATH>\Apps\BudgetControl\Component\Assembly\ BudgetControl.core.Service.exe	Budget Control
Imagicle Call Recording	Recorder.Service	<IAS_PATH>\Apps\Recorder\Component\Assembly\ Recorder.Service.exe	Call Recorder
Imagicle Hotel Link	Hotellink	<IAS_PATH>\Apps\Hotellink\Component\Assembly\ Hotellink.Core.Service.exe	Hotel Services
Imagicle Hotel Link WakeUp	HotellinkMedia	<IAS_PATH>\Apps\Hotellink\Component\Assembly\ Hotellink.Media.Service.exe	Hotel Services
Imagicle Licensing	SvSasProtectionComService	<IAS_PATH>\Apps\ApplicationSuite\Component\Assembly\ ApplicationSuite.Protection.ComService.exe	All
Imagicle Monitoring service	SvSasWatchdogService	<IAS_PATH>\Apps\FW\Component\Assembly\ FW.Watchdog.Service.exe	All
Imagicle Phone Control	SvSasPhoneControlService	<IAS_PATH>\Apps\ApplicationSuite\Component\Assembly\ ApplicationSuite.Phone.ControlService.exe	All
Imagicle PMSLink 2	PMSLink2	<IAS_PATH>\Apps\PMSLink2\Bin\ PMSLink.Core.Service.exe <IAS_PATH>\Apps\PMSLink2\ServiceMonitor\ PMSLink.ServiceMonitor.exe	Hotel Services
Imagicle Presence Server	SvPresenceServerService	<IAS_PATH>\Apps\Presence\Component\Assembly\ Presence.Server.Service.exe	Attendant Console (Ent./Pro.)
Imagicle Presence SIP/SIMPLE Connector	SvPresenceSipConnectorService	<IAS_PATH>\Apps\Presence\Component\Assembly\ Presence.SipConnector.Service.exe	Attendant Console (Ent./Pro.) Advanced Queuing
Imagicle Presence Skype	SvPresenceLyncConnectorService	<IAS_PATH>\Apps\Presence\Component\Assembly\ Presence.LyncConnector.Service.exe	Attendant Console

For Business Connector (Microsoft only)		Presence.Lync.Connector.Service.exe	(Ent./Pro.) Advanced Queuing
Imgacle Queue Manager Enterprise	SvQmeCoreService	<IAS_PATH>\Apps\QME\Component\Assembly\ QME.Core.Service.exe	Advanced Queuing
Imgacle Queue Manager Enterprise UCMA Gateway (Microsoft only)	OPAL Server	<IAS_PATH>\Apps\QME\Component\OpalServer\ opalservice.exe	Advanced Queuing
Imgacle Replication Service	Replication.Service	<IAS_PATH>\Apps\Replication\Component\Assembly\ Replication.Service.exe	All
Imgacle Service Host	SvSasService	<IAS_PATH>\Apps\ApplicationSuite\Component\Assembly\ ApplicationSuite.Core.Service.exe	All
Imgacle Speedy Synchronizer	SvSpdSyncService	<IAS_PATH>\Apps\Speedy\Component\Assembly\ Speedy.Sync.Service.exe	Contact Manager
Imgacle SSAM Shutdown	SSAMSS	<IAS_PATH>\System\ srvany.exe	VoiceMail
Imgacle SSAM Startup	SSAMAL	<IAS_PATH>\Apps\SSAM\Server\System\ am.exe Linemon.exe mwi.exe SvSamAngel.exe SvSamStart.exe SvSamStop.exe STapiOFF.exe STapiON.exe  <IAS_PATH>\Apps\SSAM\Component\Assembly\ SSAM.Core.Tools.exe	VoiceMail
Imgacle StoneFax	SvSfxCoreService	<IAS_PATH>\Apps\StoneFax\Component\Assembly\ StoneFax.Core.Service.exe StoneFax.Print.Utility.exe	Digital Fax
Imgacle StoneFax Startup	SFXAL	<IAS_PATH>\Apps\StoneFax\Server\System\ SFXAL.exe sfxAngel.exe AddModem.exe EnumSer.exe t38FaxEngine.exe	Digital Fax
Imgacle Phone Lock	SvStoneLockCoreLockService	<IAS_PATH>\Apps\StoneLock\Component\Assembly\ StoneLock.Core.LockService.exe	Call Analytics Enterprise
Imgacle Phone Lock	SvSloCoreService	<IAS_PATH>\Apps\StoneLock\Component\Assembly\ StoneLock.Core.Service.exe	Call Analytics Enterprise
Imgacle Synchronizer	SvSasSyncService	<IAS_PATH>\Apps\Fw\Component\Assembly\ FW.Sync.Service.exe	All

Imagicle Call Analytics	Blue's Service Host	<IAS_PATH>\Apps\BillyBlues\Engine\ BluesServiceHost.exe BillyBlues.Data.CallImport.exe CiscoConfigConverter.exe ReimportDiscardedCalls.exe WinReport.exe BluesScheduler.exe BRecPro.exe BLProc.exe BluesAlarms.exe PbxConnection.exe BluesPro.exe Bminer.exe	Call Analytics
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Standalone Applications:

Application Name	Path to executable	Imagicle Applications
Backup and Restore	<IAS_PATH>\System\ BackupRestore.exe	All
Erlang	<IAS_PATH>\Lib\RabbitMQ\ Erlang21.2\erts-10.2\bin\erl.exe	All
Unison	<IAS_PATH>\Lib\Unison\ unison.exe	All
paexec	<IAS_PATH>\Lib\Paexec\ paexec.exe	All
Billy Blue's Core wizard	<IAS_PATH>\Apps\BillyBlues\Component\Assembly BillyBlues.Core.Wizard.exe	All
Reset Admin credentials	<IAS_PATH>\Apps\ApplicationSuite\Component\Assembly\ ResetAdminCredentials.exe	All
Preupgrade tool	<IAS_PATH>\Apps\ApplicationSuite\Component\PreUpgradeTool\ ApplicationSuite.PreUpgradeTool\bin\Standard\ ApplicationSuite.PreUpgradeTool.exe	All
Preupgrade tool	<IAS_PATH>\Apps\ApplicationSuite\Component\PreUpgradeTool\ ApplicationSuite.RabbitPreUpgradeTool\bin\Standard\ ApplicationSuite.RabbitPreUpgradeTool.exe	All
Preupgrade tool	<IAS_PATH>\Apps\ApplicationSuite\Component\PreUpgradeTool\ ApplicationSuite.RabbitQueuesManager\bin\Standard\ RabbitQueuesManager.exe	All
Guided Config	<IAS_PATH>\Apps\BillyBlues\Engine\ guided configuration.exe	All
Node Removal Tool	<IAS_PATH>\Apps\Replication\Component\Assembly\ Replication.NodeRemovalTool.exe	Replication Service
HA Tool	<IAS_PATH>\Apps\Fw\Componenet\Assembly\	Replication Service

**imagicle**

	FW.HighAvailability.Tool.exe	
Replication Upgrade Tool	<IAS_PATH>\Apps\Replication\Component\Assembly\Replication.UpgradeTool.exe	Replication Service

## UC Suite Security Features

### Introduction

Imagicle has spent a lot of efforts and developments to achieve a high grade of security in its applications included in the UC Suite. All services, libraries and interfaces to external appliances have been secured and encrypted, thus avoiding any undesired data sniffing.

You can consult our [Release Notes](#) to understand all security improvements we added in the past years. Please subscribe to our Newsletter from same web page, to be updated about any enhancement we are introducing in Imagicle UC Suite.

In the following paragraphs, we are listing several security features and best practices to achieve a secure environment.

### Microsoft Windows OS vulnerabilities

Microsoft is taking good care about its OS vulnerabilities and Microsoft issues several updates and service packs each year to solve security breaches encountered by customers or caused by viruses or malwares. This includes "IIS", which is heavily used by Imagicle as embedded web server for its web portal, mobile apps and clients' gadgets.

That's why we are recommending our customers to run Windows Updates on a regular base, as explained in our [Installation Requirements](#).

### Other Microsoft applications and components

Imagicle US Suite embeds a MS-SQL Server Express instance and we always make sure that security updates are always included in our Virtual Appliances and software packages. Consequently, we more and more recommend our partners and customers to keep their Imagicle UC Suite updated to latest software release, to make sure that proper SQL and runtime libraries updates (.NET, C++, ASP, others) are in place.

### Imagicle Web Portal and APIs

These are the most risky interfaces that we open to the outside world. Through the web portal and web APIs, there are a number of security breaches which might really cause a lot of damage to customers. For example, you can enter some Javascript commands into a web portal's field, and those Java instructions might cause undesired data sniffing from SQL or even passwords retrieval.

Imagicle has identified a no-profit foundation called "Open Web Application Security Project" (OWASP) that works mainly to improve the software security. Thousands of OWASP members (including Imagicle) are sharing web-related security issues encountered in their software and, thanks to all contributors, OWASP has compiled a list of the TOP TEN web security breaches which are affecting most of the web accesses worldwide. The list is available [here](#).

Imagicle provides a default Admin account to access UC Suite web portal. We STRONGLY suggest to immediately change the default password to a complex one, by following directions included in [this KB](#) article.

### Antivirus

Installing an antivirus in Imagicle UC Suite server is indeed a good practice and it prevents malwares to hit operating systems and Imagicle applications. We have described how to configure your antivirus application to protect Imagicle server, without interfering with Imagicle apps performances, in [this KB](#).

### Data encryption at rest

As dictated by several worldwide regulations related to data security and privacy, Imagicle offers the possibility to leverage Microsoft BitLocker to encrypt the content of Imagicle UC Suite hard drive.

# imagicle

BitLocker is Microsoft's encryption program that provides full-disk encryption of the hard drives. By utilizing the latest encryption algorithms and leveraging the power and efficiency of modern CPUs, the entire contents of the startup disk are encrypted, preventing unauthorized access to the data stored on the disk, except for those with either the login account to decrypt the disk, or those owning the recovery key.

By enabling BitLocker's whole-disk encryption, data is secured from prying eyes. All attempts to access HD data, physically or over the network, are stopped with either a prompt to authenticate or error messages stating the data cannot be accessed, even when attempting to access data backups, as BitLocker encrypts those too. Please find extensive instructions about how to enable BitLocker in this [article](#).

As an alternative to Microsoft BitLocker, customers can also leverage [VMware own disk encryption](#).

## TLS 1.2 Protocol

TLS 1.2 grants a high level of security and encryption to all communications involving web portal and email systems. A detailed article is available [here](#), explaining how to enable such protocol within Imagicle UC Suite.

A specific article is also available to enable secure TLS connection to MS-SQL server. Please read [here](#).

## HTTPS Protocol and relevant Digital Certificate

Imagicle can implement HTTPS protocol to access own web portal, XML Phone Services, ECC-Curri web service and other https-based accesses hosted by IIS. You can decide to leverage the existing self-signed Digital Certificate or the certificate issued by your own Domain Controller or a certificate issued by a well-known Certificate Authority. All those cases are fully explained in [this article](#).

Once updated Digital Certificate is in place, you can leverage it to enable encrypted https/XML transactions between Imagicle UC Suite and Cisco Call Manager:

- Imagicle External Call Control (CURRI ECC) for Phone Lock and Contact Manager's Caller ID. See [here](#).
- Imagicle Phone Services for Phone Lock, Contact Manager, Call Recording. See [here](#).

## Email Server Secure Connections

Imagicle can provide email notifications to user and administrators, related to scheduled reports and alerts generated by Imagicle Monitoring service. Imagicle UC Suite routes email notifications to an existing customer's email server using SMTP protocol, with automatic SSL or TLS negotiation on any TCP port (465, 587, others). See relevant KB [here](#).

Imagicle Digital Fax application supports fax handling through user's email client, allowing email-to-fax and fax-to-email transactions. To enable this feature, Digital Fax leverages above secure SMTP connection to send fax-related email notifications. To send faxes, Digital Fax connects to customer's email server using one of the following protocols, with automatic protocol negotiation:

- SSL/TLS POP3 on TCP port 995 (or any other)
- SSL/TLS IMAP4 on TCP port 993 (or any other)
- EWS using HTTPS on TCP port 443, with Proxy support

EWS basic and Oauth2 authentications are both supported. See relevant articles [here](#) and [here](#).

## Imagicle Secure Call Recording

Imagicle Call Recording application allows to record encrypted calls, leveraging Secure SIP and TLS audio streams coming from Cisco UCM. To enable Secure Call Recording, you can use the existing, self-signed Certificate included in Imagicle UC Suite server. Please consult [this article](#), explaining how to download the Digital certificate and upload it in CUCM.

Secure SIP configuration for Call Recording is fully explained in [this article](#).

## Imagicle Secure Advanced Queuing

Imagicle Advanced Queuing application allows to enable encrypted calls between Cisco UCM and Imagicle server, leveraging Secure SIP and TLS audio streams. To enable Secure Advanced Queuing calls, you can use the existing, self-signed Certificate included in Imagicle UC Suite server. Please consult [this article](#), explaining how to download the Digital certificate and upload it in CUCM.

Secure SIP configuration for Advanced Queuing is fully explained in [this article](#).

## Active Directory Secure Connection

As of March 2020, Microsoft has updated security requirements for LDAP connections to Active Directory. So now Secure LDAP (LDAPS) has become mandatory for all LDAP connections to Active Directory. LDAP connections to Active Directory will not work unless Secure LDAP is configured.

Imagicle follows above Microsoft statement and therefore Secure LDAP using SSL on port 636 is automatically enabled for both authentication and users' synchronization. If required, you can still configure non-secure LDAP on port 389, but obviously this is not recommended.

More info are available in [this article](#).

## Attendant Console Secure Connection

Starting from 2021.Winter.1 release, Attendant Console connects to UC Suite through a secure, TLS 1.2 encrypted TCP session on port 51235. If required, you can still leverage previous non-secure connection on TCP port 51234.

More info are available in [this article](#).

## FTP/SFTP Server

If you are running Windows Server 2019 or later but you are not using application that involves SFTP server usage (like Call Analytics or Hotel Pack) you can stop and disable the OpenSSH server or any alternative SFTP server running on the Imagicle virtual machine, that will prevent attacks on TCP port 22.

If Imagicle Call Analytics application is not used within Imagicle UC Suite, you can completely disable FTP server feature from Windows IIS control panel, to prevent attacks on TCP port 21.

## Embedded MS-SQL Server Express Database Instance

Imagicle UC Suite includes its own SQL Server Express database, which provides an admin access using a local "sa" account and a complex password. You can change admin credentials or create a new account by following the directions available in [this KB](#).

## UC Suite Virtual Machine Best Practices

### Virtual Hardware Considerations

If you install Imagicle UC Suite on a Virtual Machine, you must allocate the amount of RAM, CPU power and disk space stated in our [Deployment](#) article. The virtual hardware resources (CPU and RAM) must be **reserved**, that is, they must not be shared with other virtual machines. CPU Limit must **never be set** (see image below).

### CPU

- If hyperthreading is enabled on the hypervisor (physical host), the number of vCPUs indicated above must be doubled (Imagicle requirements are expressed supposing hyperthreading disabled).
- In order to optimize the CPU usage, please follow the indications given above in terms of sockets/cores distribution. Avoid to allocate multiple sockets having 1 core each, because MS-SQL Server can just leverage 1 socket, thus leading to a substantial performances loss.
- CPU Limit must **never be set** (see image below)

▼ CPU	2	<i>i</i>
Cores per Socket	2	Sockets: 1
CPU Hot Plug	<input type="checkbox"/> Enable CPU Hot Add	
Reservation	6000	MHz
Limit	Unlimited	MHz
Shares	Normal	1000
Hardware virtualization	<input type="checkbox"/> Expose hardware assisted virtualization to the guest OS <i>i</i>	
Performance counters	<input type="checkbox"/> Enable virtualized CPU performance counters	
Scheduling Affinity	Hyperthreading Status: Not active Available CPUs: 4 (Logical CPUs) 0, 2, 4-7 <i>i</i>	
CPU/MMU Virtualization	Automatic <i>i</i>	
▼ Memory		
RAM	4096	MB
Reservation	8192	MB
	<input type="checkbox"/> Reserve all guest memory (All locked)	
Limit	Unlimited	MB

Save Cancel

### HDD

No overprovisioning. Required HD provisioning is **Thick Provisioned - Eager Zeroed**.

### Network interface

While selecting network interface type on Windows Server 2012 deployments, please remember to select "VMXNET3" type. Other interface type, like "E1000" or "E1000e", might cause problems with some Imagicle apps, as explained [here](#).

# imagicle

If you are experiencing packet loss or voice quality degradation, please follow the suggestions included in [this KB](#).

## Mass-deployment of multiple Imagicle instances

If you are a Service Provider or if you need to deploy multiple Imagicle nodes in your datacenter, we recommend to save the Imagicle instance as a template, to avoid downloading again the Virtual Appliance and without losing 30 days evaluation period.

Moreover, cloning or creating a template from a VM that has been already booted, brings to licensing problems for the newly created virtual machine.

The template must be created at the end of deployment wizard, before booting up the server. In this way, you can easily deploy another Imagicle VM in few minutes and correctly assign it to a new IP address/FQDN.

Cloning an existing VM is not allowed.

## Precautions when creating VMware Snapshots

When you create a snapshot using relevant VMware feature, the original disk image is "frozen" in a consistent state, and all write accesses from then on will go to a new differential image. Even worse, as explained [here](#) and [here](#), the differential image has the form of a change log, that records every change made to a file since the snapshot was taken. This means that read accesses would have to read not only one file, but also all difference data (the original data plus every change made to the original data). The number increases even more when you cascade snapshots.

Overall effect is a significant performances loss, which can strongly impact on Imagicle applications and services.

To avoid this critical side effect, please leverage Imagicle [Backup/Restore tool](#) instead. If you still want to take the snapshot, please do it with powered-off Imagicle VM and, when possible, please delete it.

## Deployment

### Operating System Updates and Server migration (how to move Application Suite in a new server)

If your Imagicle Application Suite is installed into an actual/virtual server equipped with an outdated OS version (like Windows Server 2008 or 2012), you might need to update the operating system to a recent Windows Server 2016/2019/2022.

You can't simply perform the Windows Server update procedure on top of your existing installation, because this is going to change several system files and eventually corrupt Imagicle Suite installation and relevant licenses.

The correct procedure for Windows operating system update implies deploying a **new server from scratch, with new OS, in place update is not allow**.

#### Update procedure

The update to a new Windows Server OS version is accomplished through the following steps:

- if Imagicle installation is **stand-alone** (only one independent machine):
  - ◆ if the new server is going to have the **same IP** of the old one:
    - ◇ deploy a new server, with an Imagicle Suite version equal or greater than the old server: you can follow our guide [here](#), in case of a new actual server appliance. Otherwise, if you have a virtualized environment, you can deploy a new VM by following our guide [here](#)
    - ◇ assign a temporary IP to the new Imagicle server
    - ◇ if required, remember to install also the Cisco TSP plugin and to configure it, you can follow our guide [here](#)
    - ◇ stop all Imagicle services on old Imagicle server
    - ◇ perform a backup of the old Imagicle installation, with the [Backup and Restore tool](#)\*
    - ◇ copy the backup on the new Imagicle installation
    - ◇ take note of old Imagicle server's IP address and then shut it down
    - ◇ change IP address on new Imagicle server's network card to above noted IP
    - ◇ perform a restore on new Imagicle installation, with the [Backup and Restore tool](#)
    - ◇ verify that all data have been moved to new Imagicle server
    - ◇ re-activate your Imagicle licenses on new appliance, from [Imagicle activation portal](#)
    - ◇ reboot new Imagicle server
    - ◇ end
  - ◆ if the new server is going to have a **different IP**:
    - ◇ deploy a new server, with an Imagicle Suite version equal or greater than the old server: you can follow our guide [here](#), in case of a new actual server appliance. Otherwise, if you have a virtualized environment, you can deploy a new VM by following our guide [here](#)
    - ◇ assign the IP to the new Imagicle server
    - ◇ if required, remember to install also the Cisco TSP plugin and to configure it, you can follow our guide [here](#)
    - ◇ stop all Imagicle services on old Imagicle server
    - ◇ perform a backup of the old Imagicle installation, with the [Backup and Restore tool](#)\*
    - ◇ copy the backup on the new Imagicle installation
    - ◇ perform a restore on new Imagicle installation, with the [Backup and Restore tool](#)
    - ◇ verify that all data have been moved to new Imagicle server
    - ◇ re-activate your Imagicle licenses on new appliance, from [Imagicle activation portal](#)
    - ◇ reboot new Imagicle server
    - ◇ update the new Imagicle server's IP accordingly, where it is required (e.g. PBX, Attendant Console clients, etc.)
    - ◇ end
- if Imagicle installation is a **cluster** (set of two or more Imagicle installations that have been configured to work together):
  - ◆ **â** if the new servers are going to have the **same IP** of the old ones:
    - ◇ deploy the new servers, with an Imagicle Suite version equal or greater than the old servers: you can follow our guide [here](#), in case of a new actual server appliance. Otherwise, if you have a virtualized environment, you can deploy a new VM by following our guide [here](#)

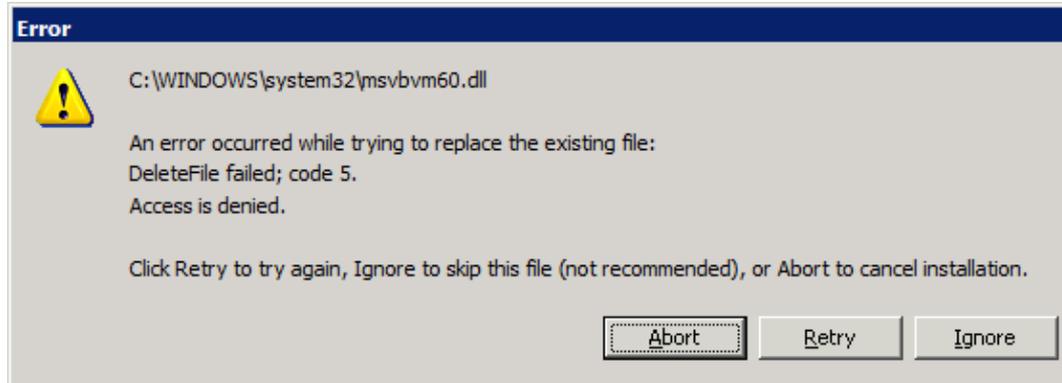
- ◇ assign temporary IPs to all new Imagicle servers
- ◇ don't create the cluster at this point
- ◇ if required, remember to install also the Cisco TSP plugin on all servers and to configure it, you can follow our guide [here](#)
- ◇ stop all Imagicle services on old Imagicle primary node server
- ◇ perform a backup of the old Imagicle primary node installation, with the [Backup and Restore tool](#)\*
- ◇ copy the backup on the new Imagicle primary node installation
- ◇ take note of old Imagicle servers' IP addresses and then shut them down
- ◇ change IP addresses on new Imagicle servers' network cards to above noted IPs
- ◇ perform a restore on the new Imagicle primary node installation, with the [Backup and Restore tool](#)
- ◇ verify that all data have been moved to new Imagicle primary node server
- ◇ re-activate your Imagicle licenses on all new Imagicle appliances, from [Imagicle activation portal](#)
- ◇ reboot new Imagicle primary node server
- ◇ create the new cluster, following the guide [here](#)
- ◇ end
- ◆ if the new servers are going to have **different IPs**:
  - ◇ deploy the new servers, with an Imagicle Suite version equal or greater than the old servers: you can follow our guide [here](#), in case of a new actual server appliance. Otherwise, if you have a virtualized environment, you can deploy a new VM by following our guide [here](#)
  - ◇ assign IPs to all new Imagicle servers
  - ◇ don't create the cluster at this point
  - ◇ if required, remember to install also the Cisco TSP plugin on all servers and to configure it, you can follow our guide [here](#)
  - ◇ stop all Imagicle services on old Imagicle primary node server
  - ◇ perform a backup of the old Imagicle primary node installation, with the [Backup and Restore tool](#)\*
  - ◇ copy the backup on the new Imagicle primary node installation
  - ◇ perform a restore on the new Imagicle primary node installation, with the [Backup and Restore tool](#)
  - ◇ verify that all data have been moved to new Imagicle primary node server
  - ◇ re-activate your Imagicle licenses on all new Imagicle appliances, from [Imagicle activation portal](#)
  - ◇ reboot new Imagicle primary node server
  - ◇ create the new cluster, following the guide [here](#)
  - ◇ update the new Imagicle servers' IPs accordingly, where it is required (e.g. PBX, Attendant Console clients, etc.)
  - ◇ end

\* Backups are forward - compatible since Imagicle 2012.2.1 release. E.g. if you have the backup of a 2012.2.1 configuration, you will be able to restore it over a new 2020.1.1 installation. If you have older Imagicle versions, please contact Imagicle Tech Support for additional details.

## Installation Troubleshooting

### Error Copying Files

Should a message similar to this one pop up:

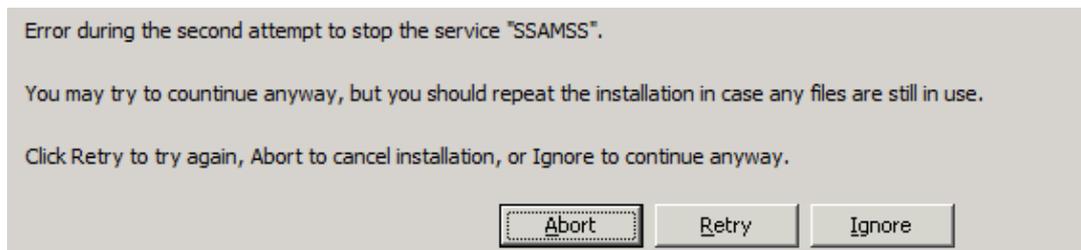


to correctly install the Application Suite, try the following solutions in order:

1. Close all the other running applications and click *Retry*.
2. Use the Task Manager to terminate the running Imagicle processes (if any) and click *Retry*.
3. If the filename is msvbvm60.dll, you may click *Ignore*. For other files, you should click *Abort*.

### Error Stopping Services

The following message box may be displayed before the file copy step of the installation:



This error is common when a Imagicle service is partially uninstalled, either because the uninstall program was interrupted or because the system was not restarted after uninstallation. To correctly install the Application Suite, try the following solutions in order:

1. Run iisreset
2. Stop IIS from the IIS Manager (remember to restart it when the installation is completed)
3. In Windows Service Manager, check that all the Imagicle services are stopped
4. Reboot the machine and repeat the installation.
5. Click *Ignore*. In this case, some files may still be in use. See also Error Copying Files.

### Error Running the Backup Utility

The following message box may be displayed when you click the *Run Backup Utility Now* button of the *Backup Data* wizard page:

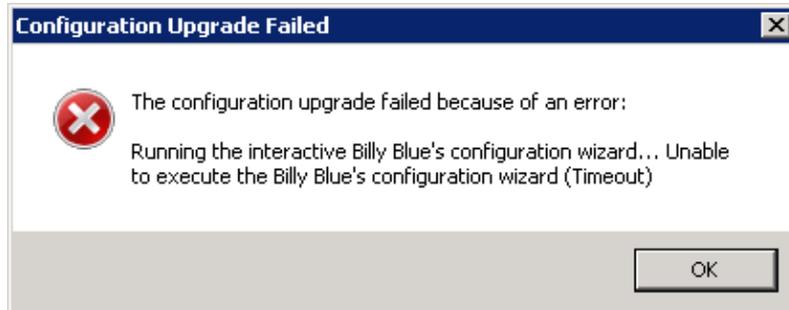
Unable to execute the Stonevoice Backup Utility: The directory name is invalid.

OK

This error may appear if your home directory is on a network drive that is not accessible. If this message appears, launch the *Backup and Restore* utility from the Start Menu.

## Database Creation Timeout

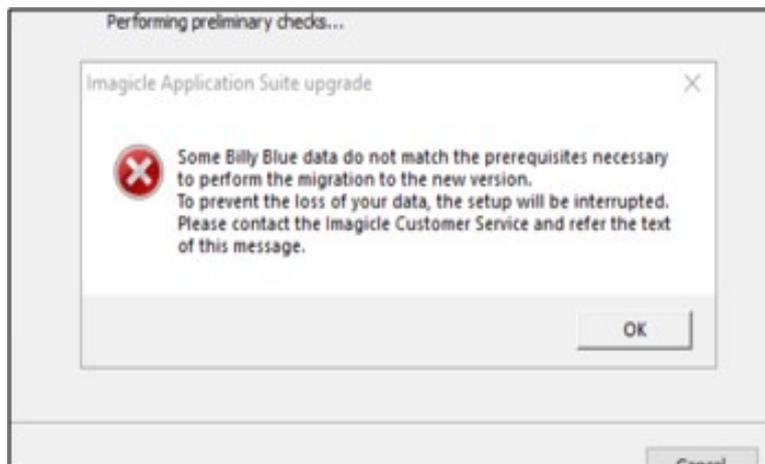
This message might appear on slow systems, if certain phases take too long to complete:



To recover wait for the User Synchronization to complete, press **OK**, then press **Retry**, then configure the database with the same credentials pressing **Next** twice.

## Failure during billing data migration, while upgrading to 2020.Spring.1 release or newer

While upgrading IAS from 2020.Winter.1 or older to 2020.Spring.1 or newer, a billing data migration to a new SQL data warehouse is automatically triggered. If, during the migration, the routine encounters spurious records in "Chiamate" and "ChiamateInterne" DB tables, the process is stopped with the following message:



Please contact Imagicle Support for details about solving this issue.

## Installation log files

The installation program creates a log file during setup. It can be useful to tell if all the files were correctly copied, ole dll registered, services installed...

The file location on Windows 2008 is:

# imagicle

C:\Users\\AppData\Local\Temp\2

where username is the account which started the setup program.

The log file names are like this "Setup Log <current date> #001.txt". E.g.:

Setup Log 2011-01-21 #001.txt

Setup Log 2011-01-21 #002.txt

....

Analysing log files is a complex task which may be delegated to Imagicle Technical Support Team.

## Problem with data execution prevention

If this message is displayed on the server, please check that Data execution prevention is disabled.





## Imagicle UC Suite Updates

Upgrading to the latest version requires: performing a full backup, installing the latest installation package over the existing installation, and checking the configuration. Detailed procedures follow. Before updating, please ensure you have downloaded the right package and that it is covered by a maintenance agreement (see below).

### Version Numbers and Version Compatibility

The UC Suite has a main version number that applies to the whole installation package.

The version number is the one you may find in the filename of the installation package. It is composed by four parts: Major Version, Release season, Build and Hotfix.

For instance, version **2020.1.1.h2** means **UC Suite version 2020 Winter build #1, hotfix 2**.

You may always upgrade to the latest version, even when Major version is not the same. E.g. you can install 2020.3.1 over 2015.1.1. In any case, all the applications are backwards compatible.

**Imagicle requires the specific applications being upgraded to be covered by a Maintenance Agreement.** Please refer to the official [website](#) for more information about available ImagicleCare plans.

**IMPORTANT:** Starting from Imagicle 2023.Spring.1 release, MS-SQL Server 2008/2008R2 is supported only for updating an existing installation to Spring 2023, but you can't deploy a new Imagicle instance with such old MS-SQL version. Starting from 2023.Summer.1 release, MS-SQL 2008/2008R2 is not supported anymore and therefore a MS-SQL update is mandatory.

### Update procedure

To update an existing installation to the latest build:

- Perform a Backup with the Backup and Restore tool
- Install the new package over the existing one, on the same machine
- Choose the same installation folder
- Reboot the server

Upgrading Imagicle Call Analytics also requires to fully run the Configuration Wizard to the last step.

Cluster installations require a slightly different procedure, detailed in the High Availability section.

### Upgrading Digital Fax to version 2012.12.x or later from a previous version

Upgrading Digital Fax will cause all the faxes to disappear from the user's Inbox and Outbox. This is because they are now managed through a different process. To make old faxes available to the users, go to the Digital Fax Manage Service web page and click on the "Import Old Faxes" button. If there is no such button, no fax needs to be imported. Before importing the faxes, please make sure the user's list is correctly configured.

### Upgrading from a Stonevoice Application Suite for CallManager Express

The CME suite no longer exists and has been replaced by the generic Imagicle UC Suite for Cisco UC. You can upgrade your Stonevoice Application Suite for CallManager Express to this edition being aware that:

1. SSAM Professional will be replaced by the VoiceMail. The upgrade does not require reconfiguration, except for the MWI pattern on CME. Please check the relevant section of this guide for details
2. Call Analytics does not require reconfiguration
3. Digital Fax does not require reconfiguration
4. Speedy, will be replaced by Contact Manager. The upgrade does not require reconfiguration
5. IVR Manager will be replaced by the IVR Manager 4 gateways. The upgrade does not require reconfiguration

6. Concerto is no longer available in the new suite, upgrading *will result in the program being removed from your system*
7. Queue Manager Professional will be replaced by the more powerful Advanced Queuing with 4 channels, but will require a full reconfiguration.

After upgrading, you need to re-activate the license of every application you were using: you can get a new license at no additional cost for each application you have a **valid maintenance contract** for. Please contact imagicle Sales Team ([sales@imagicle.com](mailto:sales@imagicle.com)) to renew or learn more.

If you are still running the old Billy, please contact imagicle sales to purchase the upgrade to Call Analytics.

If you don't want to go through the upgrade process, the latest downloadable version of Imagicle Application Suite for CME is Spring 2013 (2013.3.3). Please check [www.imagicle.com/go/eol](http://www.imagicle.com/go/eol) for end of support info.

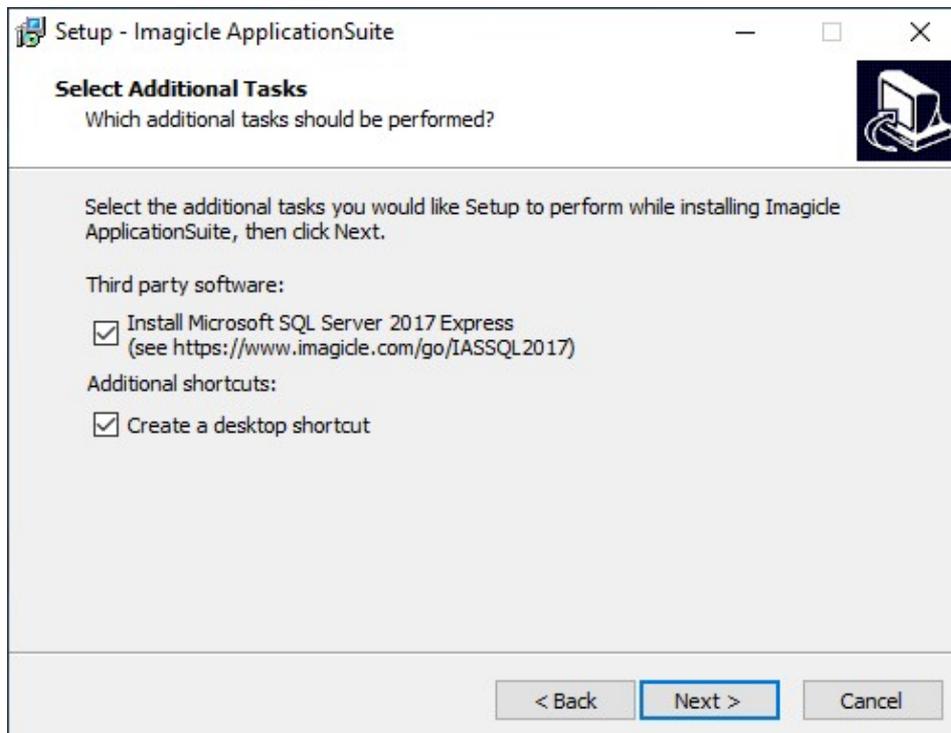
## Special recommendations when upgrading to 2020.Spring.1 release or above

### SQL Server Express instance update

When upgrading from release 2020.Winter.1 or older to 2020.Spring.1 or above, setup package prompts you to install a local MS-SQL Server 2017 Express Edition instance, if not yet available. This is highly recommended, because SQL Server 2008 Express is no longer compatible with most recent Windows Server OS versions. You can accept the installation or you can keep existing internal/external SQL Server instance by unchecking relevant SQL install option.

**IMPORTANT:** Starting from Imagicle 2023.Spring.1 release, MS-SQL Server Express/Standard update is MANDATORY, because MS-SQL 2008/2008R2 is temporarily supported for updating an existing installation only. Starting from 2023.Summer.1 release, MS-SQL 2008/2008R2 is not supported anymore!

See below screenshot:

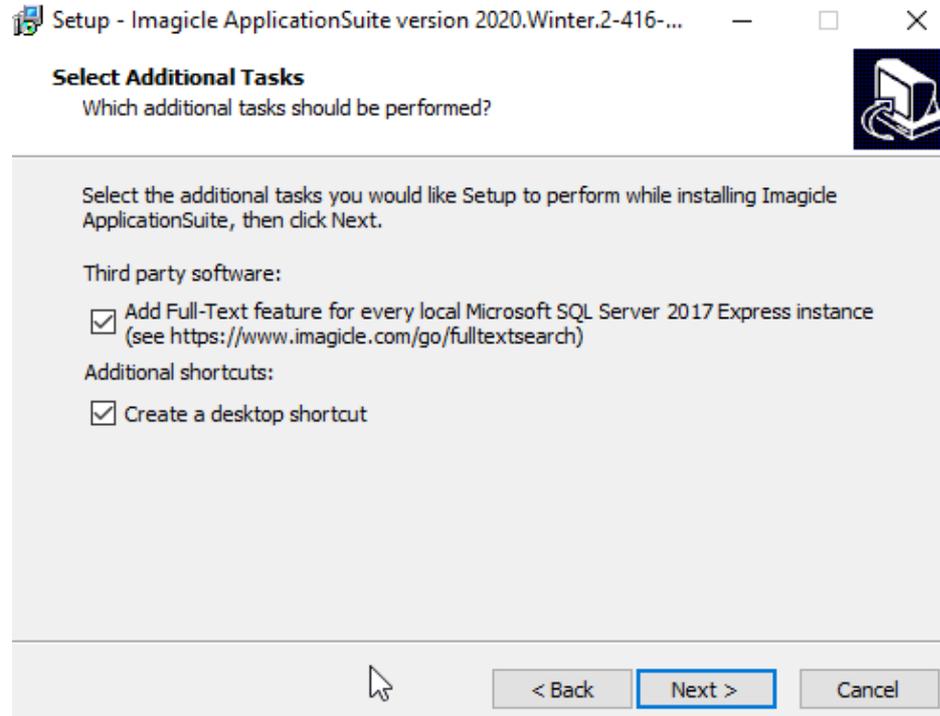


If new SQL Server 2017 installation is chosen, please keep in mind that Imagicle UC Suite keeps using the old SQL 2008 instance. See [here](#) how to move data from old to new SQL instance. You can do that later, at the end of update wizard.

### SQL Server Full-Text Search service

# imagicle

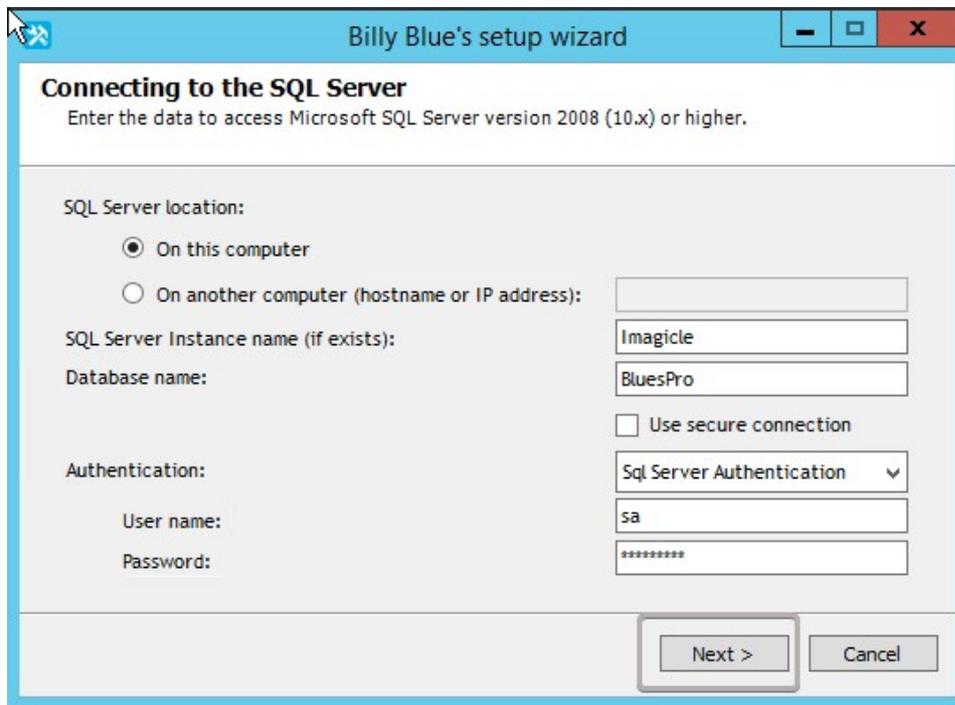
If a local MS-SQL Server 2017 Express Edition instance is already installed in your UC Suite, and it does not include Full-Text Search service, you have the possibility (mandatory from Spring 2021 and above) to add this very important indexing service, which allows a much quicker contact search across multiple Contact Manager directories, even involving millions of contact, without having to wait several seconds to get a response. In this case, the following window appears:



## Database check

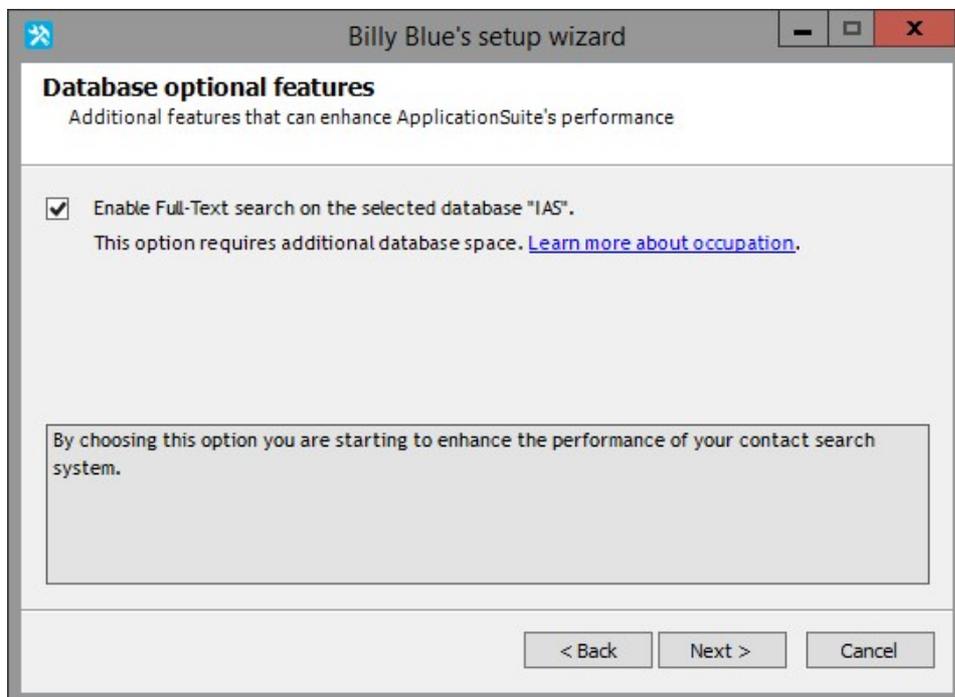
Going forward with update wizard, depending on starting Imagicle release, it might be requested to perform several server reboots, to allow the installation of additional Microsoft components. Always reboot as required.

During setup wizard, you will be prompted to check SQL instance configuration. Just confirm existing parameters by click Next. See below screenshot sample:



### Installing SQL Full-Text Search service

If a local SQL Server 2017 Express instance is already installed and "Full-Text search" feature is not available yet (Spring 2020 release or above), you are prompted to perform the installation of this feature. See below screenshot:

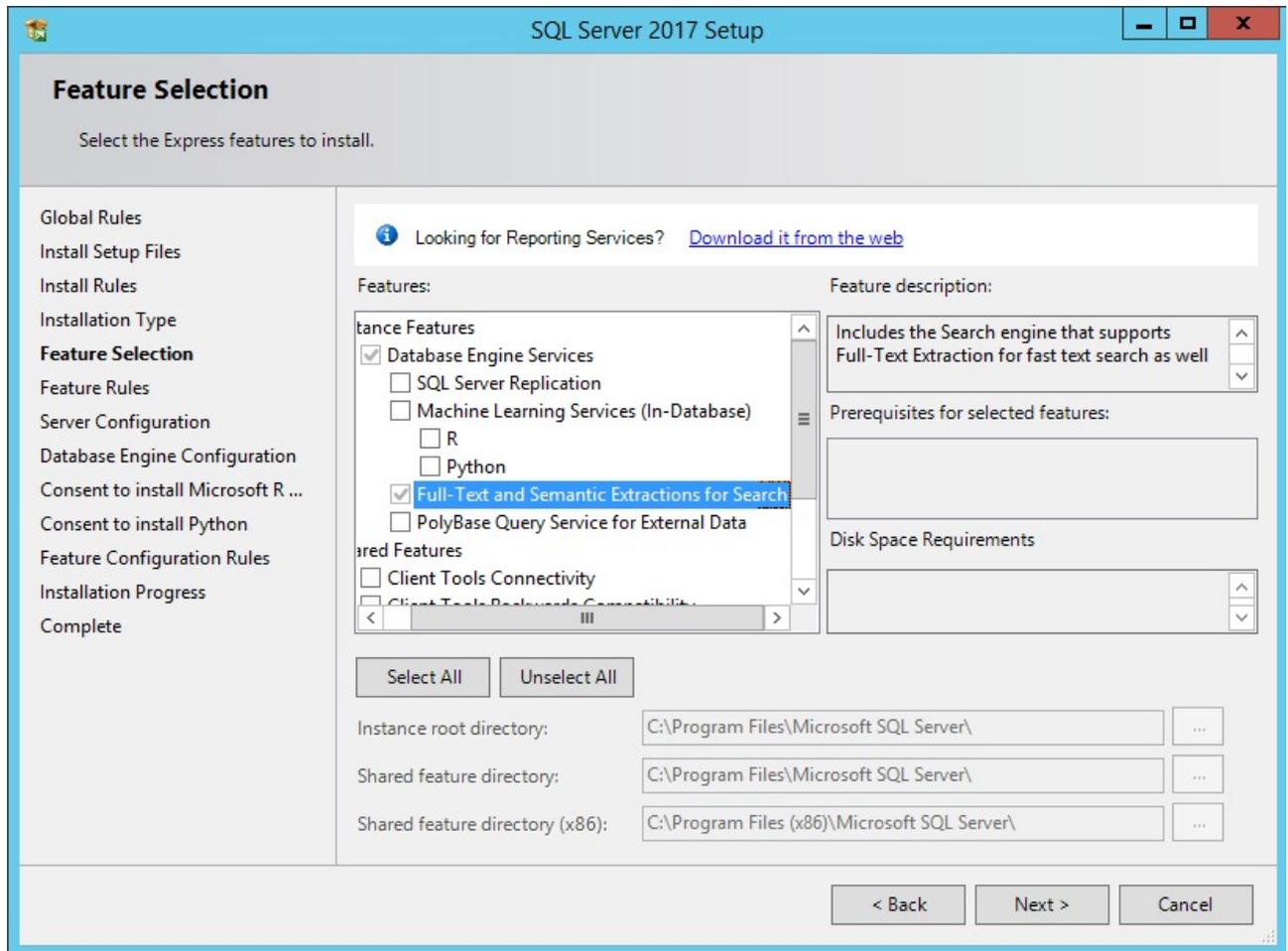


This Feature, implemented since Spring.2020.1 release, allows to speed-up contacts search across millions of entries included into Contact Manager directories.

### Manual installation of Full-Text Search service on SQL Server versions other than 2017

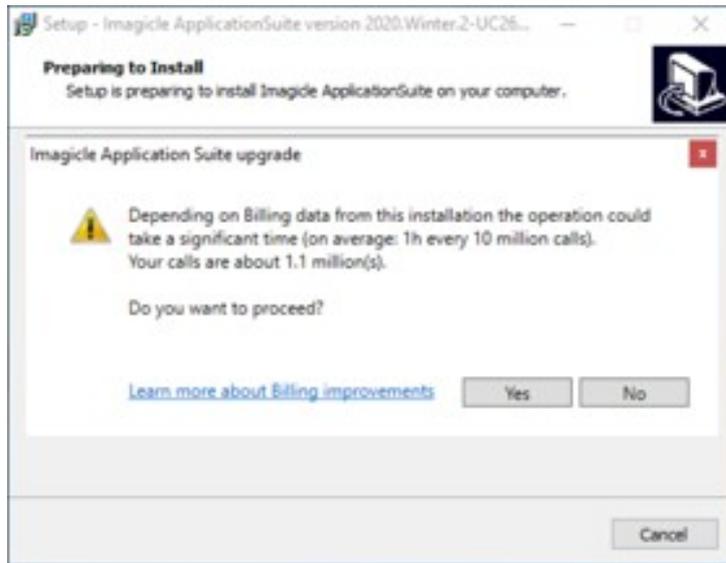
When local SQL server version is different than 2017 Express or you are dealing with an external SQL Server instance, you can manually install the Full-Text service.

To add Full-Text Search feature into your existing SQL instance, you must run SQL Server installer, paying attention to use "Express Advanced" package and not "Express Core" package (only in case of SQL Server Express). Please add **Full-Text and Semantic Extractions for Search** feature to chosen instance. See below sample:



## Billing data migration

When upgrading from release 2020.Winter.1 or older to 2020.Spring.1 or above, setup package automatically migrates all billing data from old to new data warehouse within SQL database. For this reason, you get a message about possible delays in migrating CDRs. See below:



When an Imagicle cluster with replicated DB is in place, above migration is performed in master node only (regardless the order nodes are updated), so above message is not displayed in subsequent nodes. When using a shared DB, migration happens during first node update.

### Required Migration Time

Please see below table to get an idea of required time for migrating call accounting data to new data warehouse:

Migration Time	Sample #1: ~38M calls	Sample #2: ~1M calls
Data shrink	00:10:00	00:00:17
Time to populate Call Analytics tables	01:30:00	00:00:13
Index creation	00:20:00	00:00:12
<b>Total</b>	<b>~02:00:00</b>	<b>00:02:36</b>

Please be aware that migration process temporarily stops call accounting data acquisition. Once migration is accomplished, data acquisition automatically restarts and all buffered CDRs are processed without any data loss.

### Call Analytics DB usage

Call Accounting data occupancy	Sample #1	Sample #2
Before migration	~58 GB	~2 GB
After migration	~20 GB	~1 GB
<b>Occupancy Reduction</b>	<b>-65%</b>	<b>-50%</b>

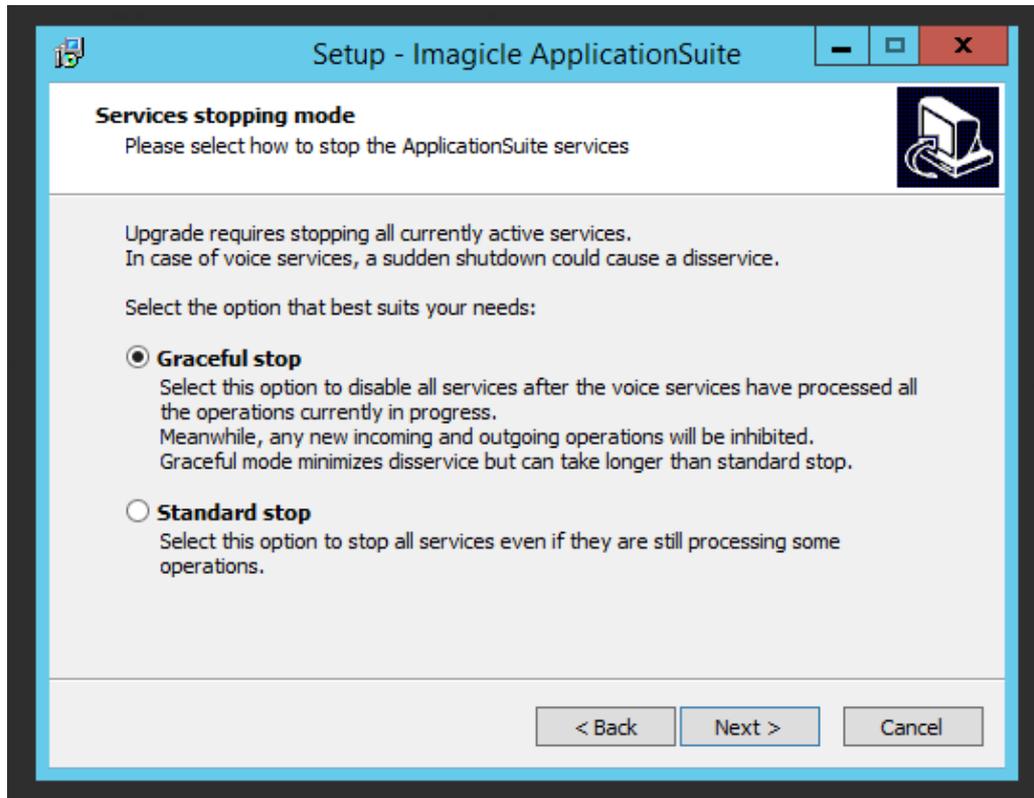
### Performances Increase after migration

Call Analytics data migration not only optimizes database usage: it also enhance user's experience while accessing to Call Analytics web portal to retrieve call accounting data.

Required time to display Home page, Report filters panel and reports execution are substantially reduced on an average of 50% less and even more.

### Special recommendations when upgrading to 2021.Winter.1 release or above

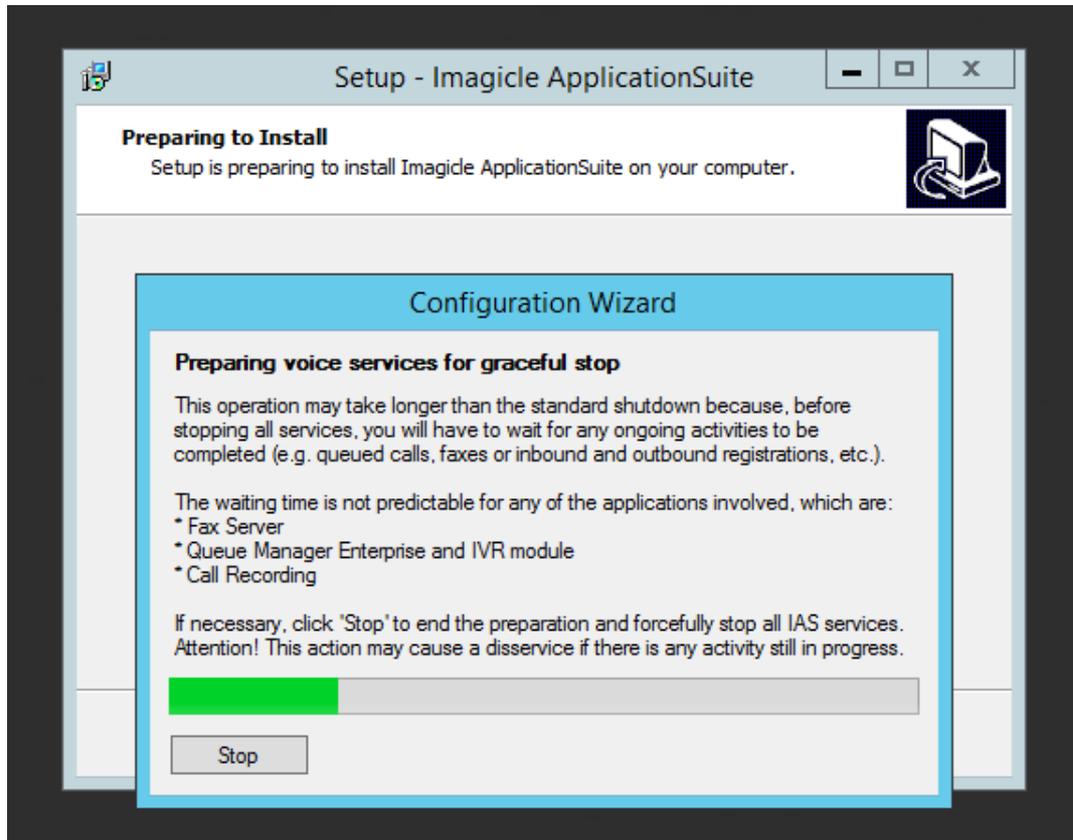
While updating an Imagicle UC Suite from 2020.Summer.2 or above, to 2021.Winter.1 release or above, you are prompted to choose how to turn off Imagicle services:



If "Standard stop" option is chosen, Imagicle services are suddenly stopped as usual, without caring about ongoing calls, fax, recordings.

If "Graceful Stop" option is chosen (default), Imagicle services are stopped when all ongoing calls are accomplished.

Once the installation process starts, a new window pops-up, informing that you need to wait for all calls to be accomplished. If you don't want to wait a long time, you can still decide to force Imagicle services to stop, by hitting relevant button:



While waiting for all calls to be completed, all new inbound/outbound calls are rejected by the node subjected to update. Other HA nodes, if included in an Imagicle cluster, can still handle calls.

Once graceful stop process is over (or after having hitted "Stop" button), UC Suite update proceeds with all usual steps.

### Repairing an existing installation

To repair an existing installation, install the same package (i.e. same version number) over the existing one just like in the case of a minor upgrade.

### Repairing Digital Fax installation

During the update, the Setup program could ask you if you want to repair the existing *Digital Fax* installation. This means creating the virtual serial ports and the virtual modems again.

If *Digital Fax* is already correctly installed and running, **do not select the repair option**. Repairing a working installation may cause problems and need an actual repair later.

### Changing the default language

To change the default language for the UC Suite, perform a Repair Installation and make a different choice.

The default language affects the web interface, the Attendant Console interface and the audio files of the users for whom the "user language" field in the User Management is blank.

Note - Users' welcome messages for the *VoiceMail* application will remain in the old language even if installing a complete UC Suite package in a different language.

## License status and configuration after the update

Once an application is registered on a machine, the registration is persistent among different versions even after uninstalling and reinstallation. There is no need to register again if you perform an upgrade of the UC Suite package on the same machine.

Imagicle might releases new applications when a new UC Suite package is issued. New applications might **replace** the old ones. Old applications may also be **discontinued** but not replaced.

On the technical side, an application is considered **new** when it has brand new features which dramatically improve the user experience. On the commercial side, a new application has a different commercial code and different license string or activation token. New and replaced applications require a new license.

## Deployment Options

You can freely download the Application Suite from Imagicle web site. The creation of an account with a valid email address might be required.

There are two deployment options:

1. Through Imagicle Virtual Appliance, which is easier and faster
2. Downloading the setup package and installing it on a Windows server

Both the Virtual appliance and the Setup package include SQL Server Express edition, which is free and suitable for small and medium business deployments. To deploy using an external SQL server database, see below.

### Deploying ApplicationSuite through Virtual Appliance

The Imagicle Virtual Appliance (VAI) is a fully functional and ready-to-go **VMware** OVA including both Windows Server 2019 Standard or Windows Server 2012 R2 Standard OS and Imagicle ApplicationSuite, together with MS-SQL Server 2017 Express Edition.

Windows OS runs in evaluation mode for 180 days. A suitable Windows Server license, not provided by Imagicle, must be bought and activated on the server within that time.

To setup the VAI, follow these steps:

- Download the OVA file (approx. 15 GBytes)
- Deploy it on the VMware host. The procedure depends on the VMware version you are using. Please refer to VMware documentation.
- When you deploy the OVA, VMWare will ask you to accept VMWare Eula
- If you are running an ESX environment, you'll be asked which **preset profile** you want to use for the virtual machine (see below)
- Once deployment is over, before boot up the server, please save the VM as a template. This allows you to easily deploy another Imagicle VM in few minutes, including full 30 days evaluation period.
- Start the VM
- Windows first time bootstrap prompts you to choose the OS language, time zone and keyboard setting. Please note that if you want to run Imagicle Application Suite with Arabic interface, you have to select the English language.
- You are subsequently logged in as "**Administrator**" user (Local Administrator). The password is "**ImagicleVAI**".
- A welcome web page tells you what to do next, then you'll be redirected to the web administration login page
- Check that VMware Tools notification icon appears on bottom-right of your screen (taskbar). If outdated, please update it from your virtualization console.

All Imagicle applications run with full features for 30 days.

After the VAI deployment, you must go through the AppSuite common configuration steps, then configure the single applications, as described in the product configuration guides.

**Note:** If you plan to use your own MS-SQL Server installation and license, co-located inside Imagicle UC Suite VM, please make sure to install it **AFTER** Imagicle UC Suite deployment.

### Imagicle OVA profiles

Note: preset profiles do not apply to a deployment within VMware Workstation.

#### AX Server

- Imagicle VAI configuration that supports up to 3 Apps (Medium business)
- Imagicle VAI configuration that supports up to 5 Apps (Small business)

Details:

## imgicle

- CPU: 2 vCPU (1 socket with 2 cores) with 2.5Ghz reservation
- Memory: 6.0 GB with 6.0 GB reservation
- Disk: 1 - 80 GB disk

### BX Server

- Imagicl VAI configuration that supports up to 3 Apps (Large business)
- Imagicl VAI configuration that supports up to 5 Apps (Medium business)
- Imagicl VAI configuration that supports up to 7 Apps (Small business)

Details:

- CPU: 4 vCPU (1 socket with 4 cores) with 4.8 GHz reservation
- Memory: 8.0 GB with 8.0 GB reservation
- Disk: 1 - 80 GB disk

### CX Server

- Imagicl VAI configuration that supports up to 5 Apps (Large business)
- Imagicl VAI configuration that supports up to 7 Apps (Medium business)
- Imagicl VAI configuration that supports up to 11 Apps (Small business)

Details:

- CPU: 6 vCPU (1 socket with 6 cores) with 6.9 GHz reservation
- Memory: 12.0 GB with 12.0 GB reservation
- Disk: 1 - 120 GB disk

### DX Server

- Imagicl VAI configuration that supports up to 7 Apps (Large business)
- Imagicl VAI configuration that supports up to 11 Apps (Medium business)

Details:

- CPU: 8 vCPU (2 sockets with 4 cores each one) with 8.9 GHz reservation
- Memory: 16.0 GB with 16.0 GB reservation
- Disk: 1 - 120 GB disk

## Deploying ApplicationSuite through the Setup Package

Download the latest package released for your telephony system from Imagicl web site, and run the installer.

**Note:** Please remember that current supported Microsoft operating systems are: Windows Server 2022-2019-2016-2012 Standard/Data Center/Essentials Edition.

### Setup Wizard Details

This section describes the operations performed by the setup utility and the information you'll be asked.

Network installation is supported, meaning that you can execute the setup program from a network share.

When the package starts, you are prompted to choose a language. The language of the Setup user interface is always English. The language selection dictates default web portal language.

## Prerequisites Verification and Installation

The operating system requirements and prerequisites verification is automatically executed before the main installation wizard starts. Compatibility with other Imagicle Products installed on the machine is also checked. Should a requirement fail, the setup package will try to install it automatically.

**Warning:** please reboot the server each time the setup asks you to do so!



## License Agreement

You are required to accept the terms of the License Agreement to install the Application Suite. The main License Agreement for the package covers the entire IAS version being installed.

## Information about Antiviral Software

If an antivirus is installed on the target machine, it must be disabled at least for the duration of the Application Suite installation. When the installation is finished, we recommend configuring the antivirus to exclude the folder where IAS has been installed to. More info are available [here](#).

More over:

- Remember to enable the Microsoft Windows DEP (Data Execution Prevention) only for Windows programs and services
- Disabling Windows Defender is mandatory

## Backup Data

This page is displayed only when you are reinstalling over an existing IAS installation. Click the button to launch the [Backup and Restore](#) utility of the installed IAS version. If the *Backup and Restore* utility does not start, see the troubleshooting section below.

## Select Destination Location

If you are installing the IAS for the first time on the target machine, you may select any folder you wish.

Note - The file system of the volume you are installing the IAS on must be **NTFS**. You cannot install the IAS on FAT file systems.

If you uninstalled the IAS from the target machine previously, you should install the IAS in the same folder where the previous package was installed.

## Create Imagicle Web Administration Account

This page allows you to modify the default username and password that the Imagicle Application Suite administrator will use to log on to the IAS web interface. This page also allows you to recover from a lost username or password because it will overwrite existing credentials.

**Setup - Stonevoice Application Suite**

**Create Stonevoice Administrator Account**  
What username and password would you like to use?

Choose a username and a password for the Stonevoice administrator account. You will use this account to access the Stonevoice web interface.

Use a default username and password  
 Use a custom username and password

Username:  
admin

Password:  
admin

< Back   Next >   Cancel

The IAS administrator is a *super user* which always has full permissions on all the applications, and is allowed to configure the system and create other users with limited or extended permissions. This user cannot be deleted.

If you choose to accept the default value, the administrator will be able to access the IAS using the following default credentials:

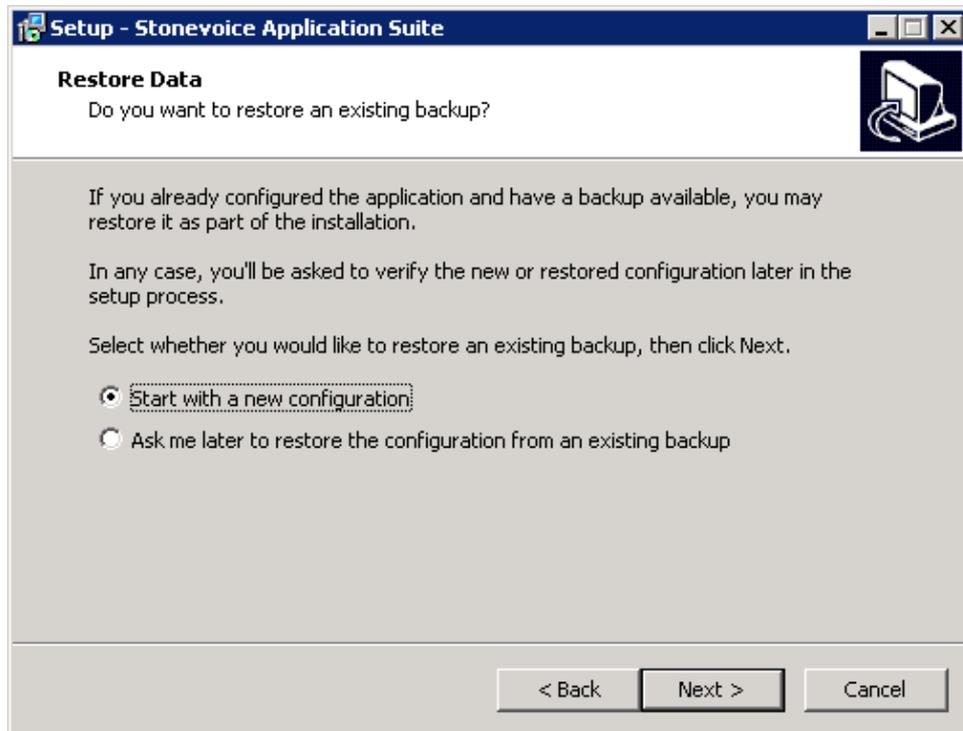
Username: **admin**

Password: **admin**

These credentials may be modified later from within the IAS web interface.

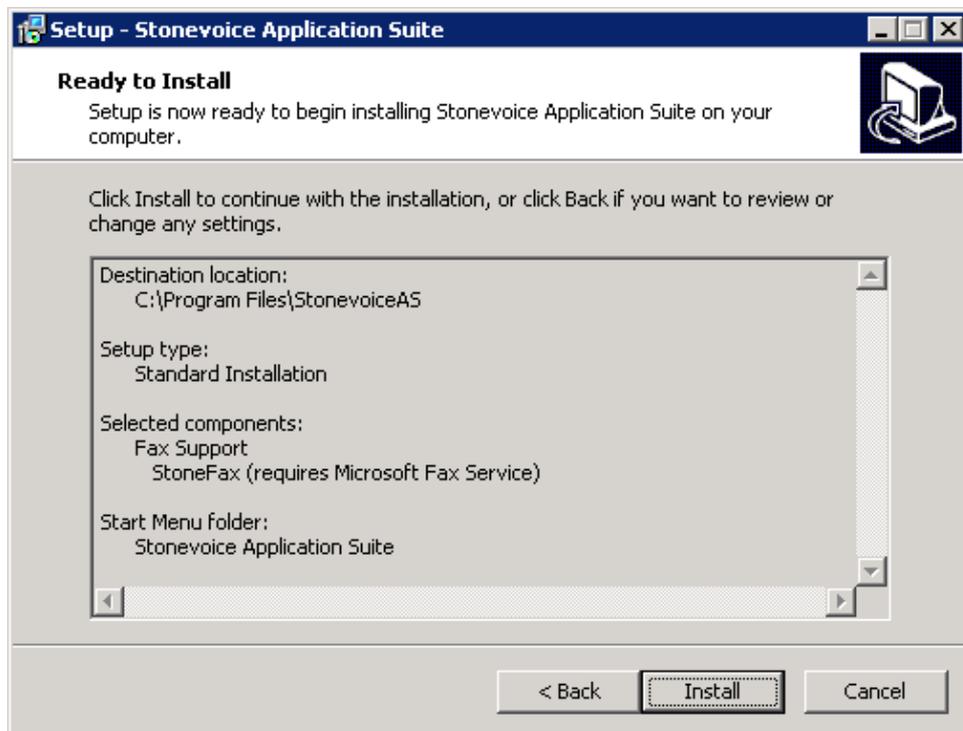
## Choose between clean setup and upgrade

If you are making a fresh installation, select "start with a new configuration". If you are performing an upgrade or a migration, select the other option. In this case the Setup program will launch the Restore tool when appropriate, asking for the location of the backup files.



### Begin installation

Review the information and press the "Install" button to start copying files and installing services.



### Installing 2020.Spring.1 release or newer

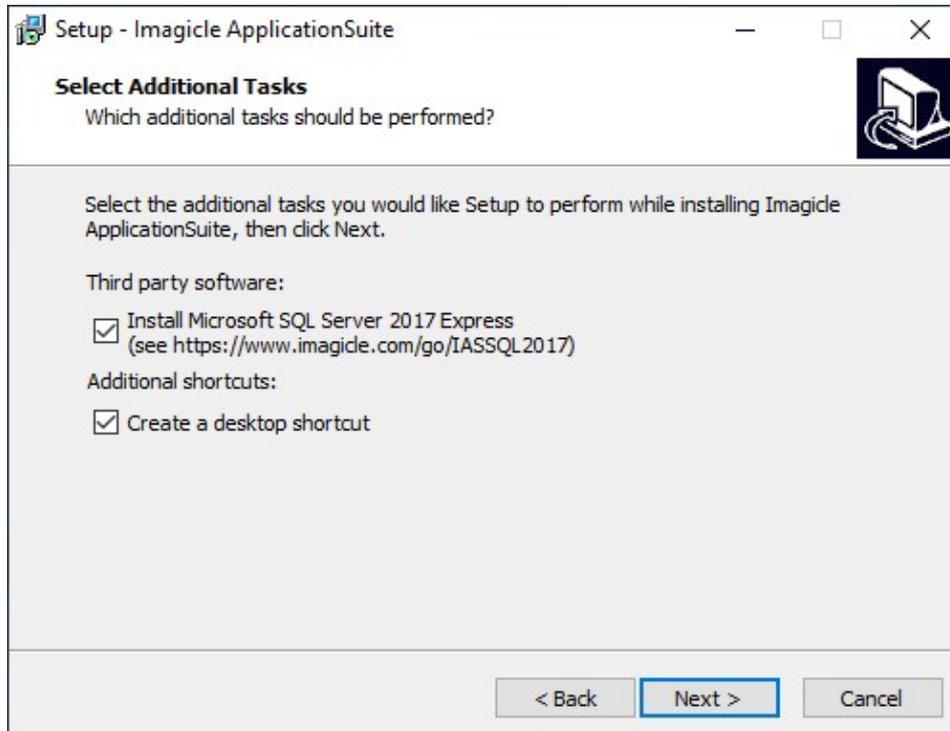
# imagicle

Starting from Spring 2020 release, the installation package embeds MS-SQL Server 2017 Express Edition, including Full-Text Search Service. This optional SQL service (mandatory from Spring 2021 release and above) allows a much quicker contact search across multiple Speedy directories, even involving millions of contact, without having to wait several seconds to get a response. You can also decide to avoid the installation of this service at a later wizard stage, even if it's not recommended.

Installation package prompts you to proceed with SQL 2017 installation. If you are going to leverage an existing, external SQL Server instance, you can uncheck relevant installation.

**IMPORTANT:** Starting from Imagicle 2023.Spring.1 release, MS-SQL Server 2008/2008R2 is supported only for updating an existing installation to Spring 2023, but you can't deploy a new Imagicle instance with such old MS-SQL version. Starting from 2023.Summer.1 release, MS-SQL 2008/2008R2 is not supported anymore and therefore a MS-SQL update is mandatory.

See below sample:



## Post-copy installation steps

Once the application files are installed, additional configuration is required.

## Local Area Code and Other Location Information

The following message is displayed when installing *StoneFax*.

Now the "Phone and Modem Options" Control Panel applet will show to set the local area code. This operation is mandatory to send faxes.

OK

Choose your country and your local area code. Press OK. twice to close the control panel windows. Setup will resume when you press ok.

## Driver installation

The following alert is displayed when installing *StoneFax*. Press Yes / Install this Driver Anyway.

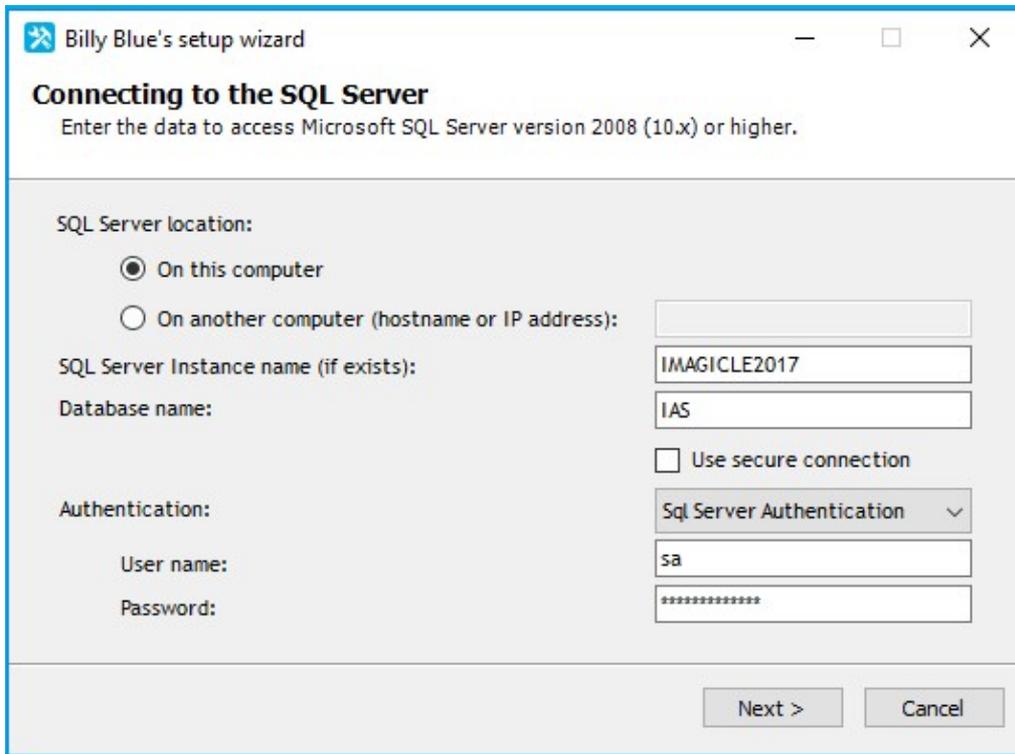


## Database connection

When installing the ApplicationSuite for the first time, by default, the IAS setup package installs a Microsoft SQL Express 2017 instance on the machine, to store configuration and data.

Here are the default settings for the local SQL server:

- SQL server instance: **IMAGICLE2017**
- Database name: **IAS**
- Username: **sa**
- Password: **SvBillyBlues\$** (case sensitive)



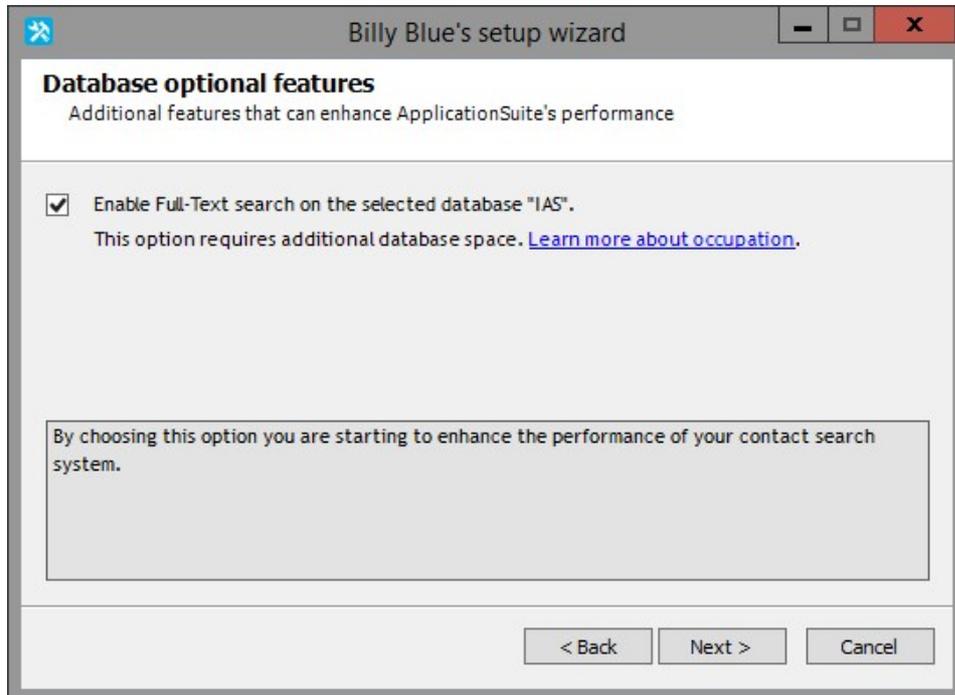
Accessing the database through **Windows Authentication** is supported, see [this page](#) for the required configurations to enable it.

Optionally, you can use a secure connection to an external, trusted, SQL Server.

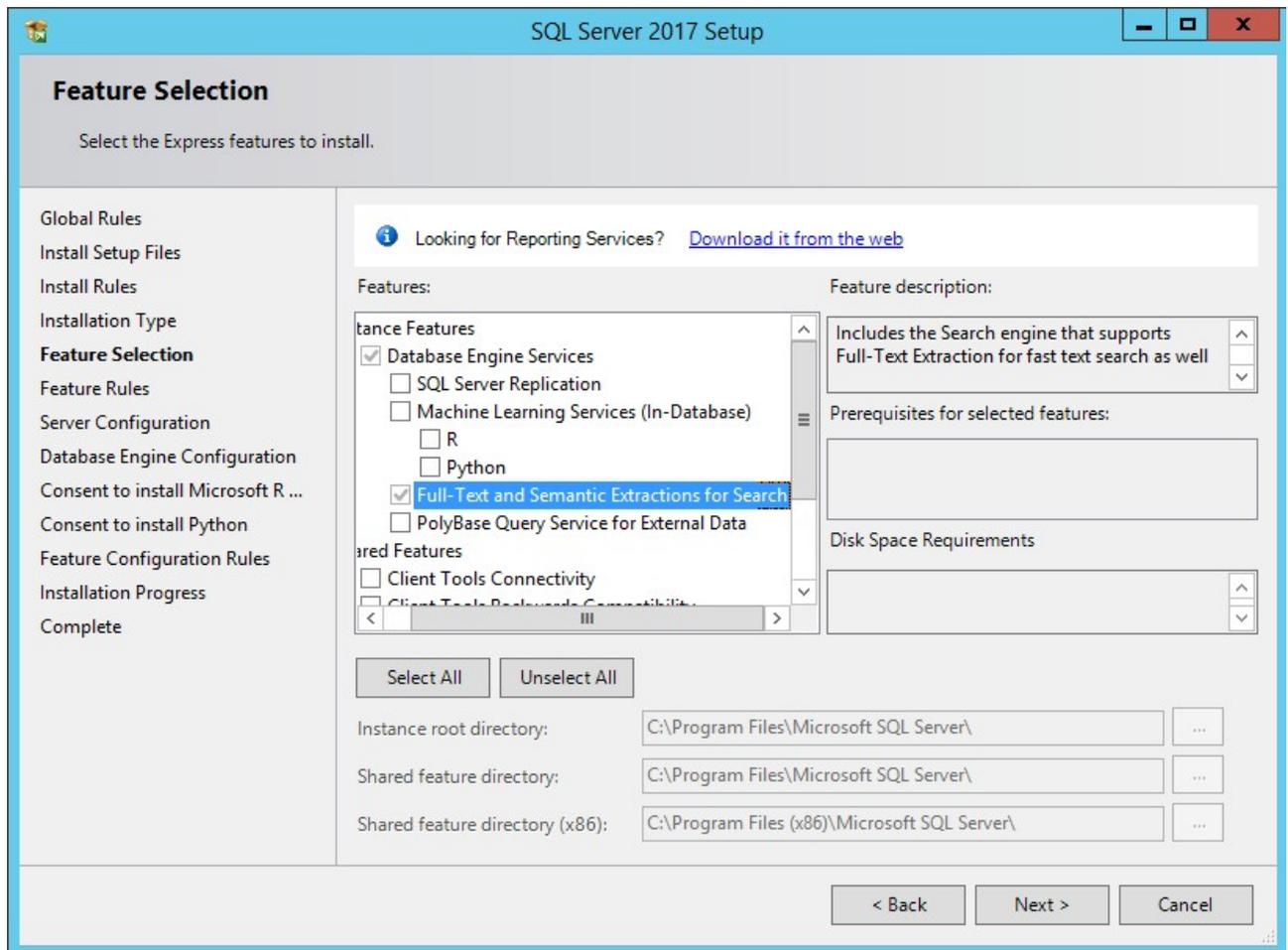
You may test the connection by pressing the "Connection test" button.

### Full-Text Search SQL Indexing Service

**On Imagicle 2020.Spring.1 release and above**, when you press "Next", the installation package prompts you to confirm the installation of Full-Text Search SQL indexing service (mandatory from Spring 2021 release and above). See below screenshot:



This window also appears if you have chosen another external SQL Server 2017 instance. If the alternative instance is from a different SQL version (MS-SQL Server 2012 or above), then you are prompted to manually install Full-Text service by running relevant SQL Server setup and install **Full-Text and Semantic Extractions for Search** feature. See below screenshot:



When you hit "Next", the **IAS** database will be added or updated (if already existing).

## Using an external SQL Server

As mentioned above, the Imagicle Application Suite can install a SQL Express 2017 instance to store configuration and data. However, you can leverage your own SQL Server instance, which can be installed on the same server or running on an external server.

In this case:

- Please, don't need create the database in advance: the database will be automatically created with by the setup procedure or running the DB configuration wizard of the application Suite.
- A SQL user must be created using the script and the password constraints specified at [this page](#). Alternatively, you can leverage the Windows authentication mechanism, applying the configurations described in the same page.

During the setup, in the setup DB wizard form, provide:

- the SQL server hostname/IP Address and, if different from standard, the port number (comma separated, for instance "172.10.54.22,1435")
- the SQL instance name
- the database name
- the user credentials of the user created at the previous point (if SQL authentication has been chosen).

When you press "Next", the IAS database will be added or updated.

## High availability notes

## imagicle

If leveraging an external SQL server, both the *AlwaysOn Failover Cluster Instances* and the *AlwaysOn Availability Groups* SQL server configurations are supported for high availability scopes.

If the AlwaysOn Availability Group configuration is used, a limitation applies to the restore mechanism: in such case, please, contact Imagicle to obtain the procedure needed to restore an Imagicle backup.

### **Server Restart**

Restart may be required when installing StoneFax. After restart you will have to wait while virtual hardware (modem) is created. This step might take some minutes to complete. After that, if required by the setup program, reboot a second time.

### **Setup Imagicle Billing (Billy Blue's or Blue's Enterprise)**

You'll be asked if you want to configure Billing call acquisition at the end of setup. You can safely skip this operation if you do not plan to evaluate or use that application. Blue's configuration wizard can be run later, if needed, from the start menu.

### **Evaluation grace period**

When the IAS is installed for the first time on a server appliance, all the applications are available in evaluation mode and they will expire after 30 days, if not registered.

### **Server timezone change**

After changing the server timezone, you need to restart the server in order to apply the change to all running Imagicle services.

## Microsoft Windows OS Activation on Imagicle Virtual Appliance

### Imagicle Virtual Appliance's Windows Evaluation period

Imagicle VA comes with Windows Server OS preinstalled and running in evaluation mode. If server can access Internet, evaluation period is **180 days**; otherwise, evaluation period is just **10 days**.

**Once evaluation period is ended, Imagicle VA automatically shuts down after one hour, without notice.**

The evaluation period can be re-armed (for additional 10 days) for maximum 6 times using the following command line from PowerShell with admin privileges: `s1mgr /rearm`

### Windows OS Activation

This chapter explains how to activate your Microsoft Windows OS on an Imagicle Virtual Appliance, by converting its version from "Evaluation" to "Standard" or "Datacenter" Edition, depending on purchased license.

### Requirements

- A valid Windows Server 2016 or 2019 Standard/Datacenter license
- Provide a temporary Internet access to Imagicle VA, to ease the activation.

### Procedure

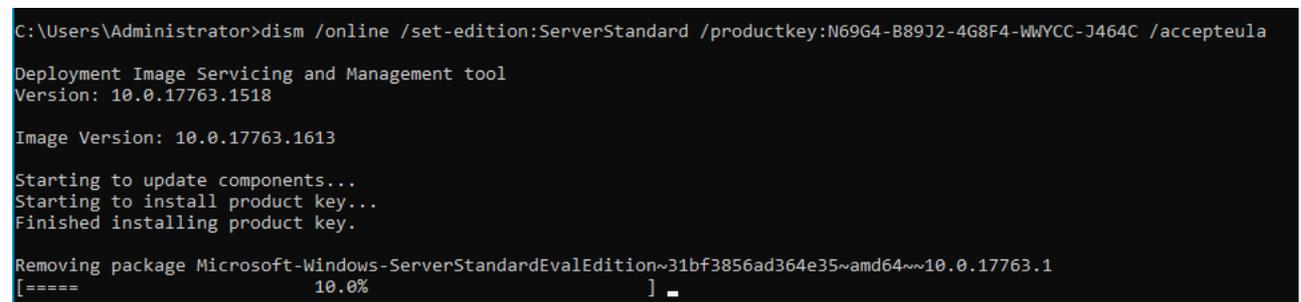
- If you have Windows Server 2016 or 2019 Standard Edition license, you can leverage existing "Activate Windows" batch file available in server's desktop or you can launch PowerShell as Administrator from Start menu and enter the license in the following command line, replacing red code:

```
dism /online /set-edition:ServerStandard  
/productkey:XXXXX-YYYYY-HHHHH-ZZZZZ-KKKKK /accepteula
```

- If you have Windows Server 2016 or 2019 Datacenter Edition license, enter it in the following PowerShell command line, replacing red code:

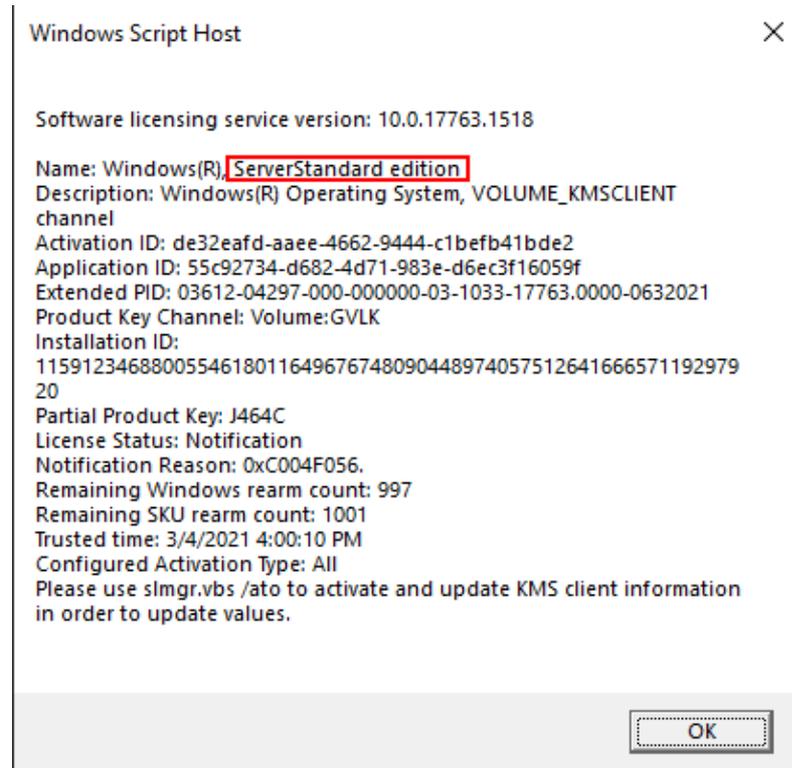
```
dism /online  
/set-edition:ServerDatacenter /productkey:XXXXX-YYYYY-HHHHH-ZZZZZ-KKKKK /accepteula
```

- Please wait several minutes for Windows license to be properly installed and activated.



```
C:\Users\Administrator>dism /online /set-edition:ServerStandard /productkey:N69G4-B89J2-4G8F4-WWYCC-J464C /accepteula  
Deployment Image Servicing and Management tool  
Version: 10.0.17763.1518  
  
Image Version: 10.0.17763.1613  
  
Starting to update components...  
Starting to install product key...  
Finished installing product key.  
  
Removing package Microsoft-Windows-ServerStandardEvalEdition~31bf3856ad364e35~amd64~~10.0.17763.1  
[==== 10.0% ]
```

- ⚠ ⚠ If the command is success, please reboot Imagicle VM.
- After reboot, check Windows edition information by issuing the following command from PowerShell: `s1mgr /dlv`
- Expected result should be similar to below screenshot:



- If Imgicle VM can reach Internet, the license is automatically activated without any further action.

### Alternative procedure

- If above procedure failed, you can repeat license installation by issuing same PowerShell command, replacing actual purchased Windows license with a temporary *KMS* (Key Manager System) Windows license available [here](#).
- Once KMS Windows license has been applied and server has been rebooted, you can apply the actual purchased license by entering it (red code) in the following PowerShell command line:

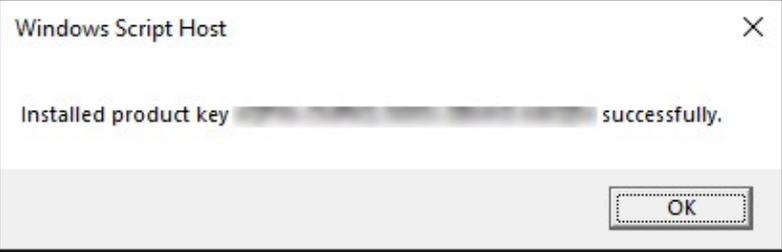
```
slmgr /ipk XXXXX-YYYYY-HHHHH-ZZZZZ-KKKKK
```

- See below command output sample:

# imagicle

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.17763.1613]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>slmgr /dlv
C:\Users\Administrator>slmgr /ipk 4Q7Y6-C7P6Q-34933-28996-84204
C:\Users\Administrator>
```



- If Imagicle VM can reach Internet, the license is automatically activated without any further action. Otherwise, you need to perform the offline activation by calling your local [Microsoft Activation Center](#).

# Activation

## Windows

Edition	Windows Server 2019 Standard
Activation	Windows is not activated
Product ID	00429-10027-33493-AAOEM
Product Key	XXXXX-XXXXX-XXXXX-XXXXX-MKQD4

We can't activate Windows on this device as our activation servers aren't available right now. Make sure you're connected to the Internet and we'll automatically try to activate Windows when the service becomes available. Error code: 0x80072EE7

If you're having problems with activation, select Troubleshoot to try and fix the problem.

 [Troubleshoot](#)

## Activate Windows now

Running a non-genuine copy of Windows can put you at greater risk for viruses and other security threats.

To get genuine Windows, enter a different product key. If you don't have one, contact your system administrator.

 [Change product key](#)

 [Activate by phone](#)

## ← Call and provide your installation ID

Call one of these numbers. The automated phone system will ask for your installation ID (IID). Some charges may be applied by local operators for toll-free numbers in certain countries or regions.

**Toll free:**  
(800) 531 042

**Toll:**  
(39) (02) 3604 6340

**Installation ID:**

1 2 3 4 5 6 7 8 9

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[Read our privacy statement](#)

Enter confirmation ID

Cancel