# SIP Endpoint SDK Deployment Guide

SIP Endpoint SDK 8.5.2OSX

2/11/2022

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# Deployment Guide

> **Important**
>
> The following features are not supported:
>
> - Video
> - IPv6
> - NAT, ICE, TURN, STUN
> - SIP Cluster
> - SIP Proxy

## Installation

This deployment guide describes how to install SIP Endpoint SDK for OS X and verify the installation. It includes the following information:

- Deployment Information—Details related to the SIP Endpoint SDK installation, including prerequisites and links to related information. Genesys recommends reading this page before beginning your installation, to ensure that your system meets the minimum requirements for the SIP Endpoint SDK.
- Installation procedures
- Verification procedures—This includes tasks for walking through the installation process and verifying components were installed correctly.

## Next Steps

After you have successfully installed the SIP Endpoint SDK, you might want to do the following:

- Review the pages on using the included OS X QuickStart application.
- Find out more about how to configure SIP Endpoint SDK for OS X.
- Read the SIP Endpoint SDK API Reference for detailed information about the SIP Endpoint SDK.

# SIP Endpoint SDK for OS X Deployment Information

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## Introduction

With Release 8.5.2, the SIP Endpoint SDK for OS X allows you to develop applications for OS X El Capitan (10.11.4).

To assist you with development, the SIP Endpoint SDK is packaged with an API Reference, which is located in the `Doc/html` folder.

For your convenience, the SIP Endpoint SDK also includes a QuickStart application that can help you get up and running during early application development.

## What You Should Know

This guide is written for software developers and application architects who have already developed an understanding of the Genesys platform and the basics of SIP telephony.

In addition, the following document can be useful in understanding the Genesys SIP server environment:

- Framework 8.1 SIP Server Deployment Guide

## Environment Prerequisites

To work with the SIP Endpoint SDK for OS X, you must ensure that your system meets the software requirements established in the Genesys Supported Operating Environment Reference Manual, as well as meeting the following minimum software requirements:

- Genesys SIP Server 8.0.2 or higher
- OS X El Capitan 10.11 or higher
- Xcode version 7.3 or higher

## Related Resources

- SIP Endpoint SDK Overview
- SIP Endpoint SDK Developer's Guide

# Installing SIP Endpoint SDK for OS X

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> The following features are not supported:
>
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> - NAT, ICE, TURN, STUN
> - SIP Cluster
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## Prerequisites

- Before installing SIP Endpoint SDK, check the list of environment prerequisites.

## Procedure

**Start of procedure**

1. Copy the zip archive containing the SIP Endpoint SDK for OS X from your product CD to your desired installation location.
2. Unzip the archive.

**End of procedure**

**Next Steps**

- To review the installation of your SIP Endpoint SDK files, continue by verifying the installed components.
- To get started with the SDK, see the QuickStart application

# Verifying Installed SIP Endpoint SDK for OS X Components

> **Important**
> The following features are not:
>
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> - SIP Cluster
> - SIP Proxy

## Prerequisites

- You must first complete the procedure that is found at Installing for Apple OS.

## Verify SIP Endpoint SDK for OS X Installation

1. Use the Finder to locate the folder that you unzipped during the SIP Endpoint SDK installation.
2. Confirm that the SIP Endpoint SDK folder contains the following folders:

| Folder | Contents |
|---|---|
| /Bin | This directory contains the pre-build QuickStart application. |
| /Doc | The `html` folder inside this directory contains the SIP Endpoint SDK API Reference, which has detailed information about the structure and usage of the SIP Endpoint SDK for OS X. |
| /QuickStart | Contains the source code for the QuickStart application. For more information about the sample application included with this release, see SIP Endpoint SDK OS X QuickStart Application. |

# 8.1.2 Migration Guide

This guide helps you migrate from SIP Endpoint SDK for OS X 8.1.2 to SIP Endpoint SDK for OS X 8.5.2 by noting differences in the following:

- Configuration Settings
- API
- Start Procedure

## Migrating Configuration Settings

The following section helps you update your SIP Endpoint SDK for OS X 8.1.2 configuration settings for use with SIP Endpoint SDK for OS X 8.5.2.

| v8.1.2 | v8.5.2 | |
|---|---|---|
| Sip EP Sample.plist (dictionary) | SipEndpoint.config (xml) | |
| Root:endpoint:basic:connection | | |
| user | <Connectivity user ="dn" server="SipServer:5060" protocol="tcp"/> | |
| server | <Connectivity user ="dn" server="SipServer:5060" protocol="udp"/> | |
| transport | <Connectivity user ="dn" server="SipServer:5060" protocol="tls"/> | |
| registrationTimeout | <setting name="reg_timeout" value="1800"/> | |
| regInterval | <setting name="reg_interval" value="3"/> | |
| password | <setting name="password" value="password"/> | |
| | | |
| Root:endpoint:basic:connection:mailbox | | |
| user | <setting name="user" value="mailboxUser"/> | |
| password | <setting name="password" value="mailboxPassword"/> | |
| server | <setting name="server" value="SipServer:5060"/> | |
| transport | <setting name="transport" value="udp"/> | |

| v8.1.2 | v8.5.2 | |
|---|---|---|
| timeout | <setting name="timeout" value="800"/> | |
| Root:endpoint:basic:connection:nat | | |
| iceEnabled | <setting name="ice_enabled" value="0"/> | |
| stunServer | <setting name="stun_server" value="StunServer.com"/> | |
| stunServerPort | <setting name="stun_server_port" value="3478"/> | |
| turnServer | <setting name="turn_server" value="TurnServer.com"/> | |
| turnServerPort | <setting name="turn_server_port" value="3478"/> | |
| turnUserName | <setting name="turn_user_name" value="turnUser"/> | |
| turnPassword | <setting name="turn_password" value="turnPassword"/> | |
| turnRelayType | <setting name="turn_relay_type" value="0"/> | |
| Root:endpoint:GSDefaultDevicePolicy | | |
| use_headset | <setting name="use_headset" value="0"/> | |
| audio_in_device | <setting name="audio_in_device" value="MicName"/> | |
| audio_out_device | <setting name="audio_out_device" value="SpeakerName"/> | |
| Root:endpoint:GSDefaultEndpointPolicy | | |
| public_address | <setting name="public_address" value=""/> | |
| ip_version | <setting name="ip_versions" value="ipv4"/> | |
| signalingQos | <setting name="signaling_qos" value="0"/> | |
| secureSignalingQos | | |
| audioQos | <setting name="audio_qos" value="0"/> | |
| videoQos | <setting name="video_qos" value="0"/> | |

| v8.1.2 | v8.5.2 | |
|---|---|---|
| includeOSVersionInUserAgentHeader | <setting name="include_os_version_in_user_agent_header" value="1"/> | |
| rtpPortMax | <setting name="rtp_port_max" value="9000"/> | |
| rtpPortMin | <setting name="rtp_port_min" value="8000"/> | |
| sipPortMax | <setting name="sip_port_max" value="5080"/> | |
| sipPortMin | <setting name="sip_port_min" value="5060"/> | |
| rtpInactivityTimeout | <setting name="rtp_inactivity_timeout" value="30"/> | |
| Root:endpoint:GSDefaultSessionPolicy | | |
| agc_mode | <setting name="agc_mode" value="1"/> | |
| dtx_mode | <setting name="dtx_mode" value="0"/> | |
| vad_level | <setting name="vad_level" value="1"/> | |
| reject_session_when_headset_na | <setting name="reject_session_when_headset_na" value="0"/> | |
| sip_code_when_headset_na | <setting name="sip_code_when_headset_na" value="480"/> | |
| auto_answer | <setting name="auto_answer" value="0"/> | |
| auto_accept_video | <setting name="auto_accept_video" value="0"/> | |
| dtmf_method | <setting name="dtmf_method" value="InbandRtp"/> | |
| Root:endpoint:GSDefaultSessionPolicy:codecs | | |
| vp8 | | |
| g722/8000 | | |
| g722/1600 | <section name="G722/16000"><br><setting name="payload_type" value="9"/> </section> | |
| isac/32000 | <section name="iSAC/32000"><br><setting name="payload_type" value="104"/> </section> | |

| v8.1.2 | v8.5.2 | |
|---|---|---|
| isac/1600 | | |
| iLBC/8000/1 | <section name="iLBC/8000"><br><setting name="payload_type" value="102"/> </section> | |
| speex/32000/1 | | |
| speex/8000/1 | | |
| speex/16000/1 | | |
| i420 | | |
| PCMU/8000/1 | <section name="PCMU/8000"><br><setting name="payload_type" value="0"/> </section> | |
| PCMA/8000/1 | <section name="PCMA/8000"><br><setting name="payload_type" value="8"/> </section> | |
| GSM/8000/1 | | |
| | | |
| Root:endpoint:system | | |
| Root:endpoint:system:diagnostics | | |
| logger_type | <setting name="logger_type" value="external"/> | |
| log_file | <setting name="log_file" value="SipEndpoint"/> | |
| enable_logging | <setting name="enable_logging" value="1"/> | |
| log_level | <setting name="log_level" value="4"/> | |
| log_options_provider | <setting name="log_options_provider" value="gsip=2, webrtc=(error)"/> | |
| log_options_endpoint | <setting name="log_options_endpoint" value="2"/> | |
| | | |
| Root:endpoint:system:security | | |
| ca_list_file | <setting name="ca_list_file" value="CertificateAuthorityListFile"/> | |
| cert_file | <setting name="cert_file" value="CertificateFile"/> | |
| ciphers | | |
| method | | |
| password | | |

| v8.1.2 | v8.5.2 | |
|---|---|---|
| privkey_file | <setting name="priv_key_file" value="PrivateKeyFile"/> | |
| require_client_cert | | |
| server_name | | |
| srtp_secure_signaling | | |
| timeout | | |
| tls_enabled | <setting name="tls_enabled" value="0"/> | |
| use_srtp | <setting name="use_srtp" value="disabled"/> | |
| verify_client | | |
| verify_server | | |

## Changes to the API

The table below shows parts of the API which were discontinued, changed, or added. For more information on the new SIP Endpoint for OS X API see the HTML formatted API document.

| v8.1.2 | v8.5.2 | |
|---|---|---|
| <GSAudioDevice> Protocol | Functions discontinued:<br>• routeMicSignalFrom:<br>• routeSpeakerSignalTo:<br>• supportCapabilityForInput:<br>• supportCapabilityForOutput:<br>Properties discontinued:<br>• micRoute<br>• speakerRoute | |
| <GSAudioStream> Protocol | Discontinued | |
| <GSConnection> Protocol | Added new property:<br>• @property (nonatomic, readonly) int configId; | |
| <GSConnectionManager> Protocol | Functions discontinued:<br>• addConnectionForUser:server:transport:<br>• connectionForUser:toServer:withTransport:<br>• connectionForUser:toServer: | |

| v8.1.2 | v8.5.2 | |
|---|---|---|
| | • connectionToServer:<br>• connectionToServer:withTransport:<br>Properties discontinued:<br>• videoStreamNotificationDelegate<br>• videoStreamPolicyDelegate | |
| <GSConnectionPolicyDelegate> Protocol | Discontinued | |
| GSDefaultLogger Class | Functions discontinued:<br>• initWithName:<br>• initWithName:logFile:logLevel<br>• setupEnabledLogLevels<br>Properties discontinued:<br>• name<br>• logFile<br>• isDebugLevel<br>• isInfoLevel<br>• isWarningLevel<br>• isErrorLevel<br>• isFatalErrorLevel | |
| <GSDevice> Protocol | Discontinued | |
| <GSDeviceManager> Protocol | Functions discontinued:<br>• activeInputDevicesForMedia:<br>• activeOutputDevicesForMedia:<br>• useInputDevice:forMedia:<br>• useOutputDevice:forMedia:<br>• systemDevices<br>• systemDevicesForMedia:<br>• systemDevicesForMedia:forInput:forOutput:<br>Properties discontinued:<br>• headsetInAvailable<br>• headsetOutAvailable | |

| v8.1.2 | v8.5.2 |
| --- | --- |
| <GSDeviceNotificationDelegate> Protocol | Notifications discontinued:<br>• deviceWasConnected:forMedia:<br>• deviceWasDisconnected:forMedia: |
| <GSDevicePolicyDelegate> Protocol | Functions changed to ones without GSMedia:<br>• chooseActiveInputDeviceFromList:forMedia:<br>• chooseActiveOutputDeviceFromList:forMedia:<br>Function discontinued:<br>• useHeadset |
| <GSEndpoint> Protocol | Function discontinued:<br>• configureWithDictionary:<br>Properties discontinued:<br>• endpointId |
| GSEndpointFactory Class | Functions discontinued:<br>• sipEndpointWithLogFile:logLevel:<br>• sipEndpointWithLogLevel: |
| <GSEndpointPolicyDelegate> Protocol | Individual queries replaced with following function:<br>• endpointPolicyByQuery: |
| <GSLogger> Protocol | Functions discontinued:<br>• getLogLevel<br>• createChildLogger:<br>• createChildLogger:logLevel:<br>• isDebugEnabled<br>• isInfoEnabled<br>• isWarningEnabled<br>• isErrorEnabled<br>• isFatalErrorEnabled |
| GSMedia Class | Discontinued |
| GSMediaReport Class | Discontinued |
| GSMessageWaitingIndicationMessageSummary | Discontinued |

| v8.1.2 | v8.5.2 | |
|---|---|---|
| Class | | |
| <GSMessageWaitingIndicationNotificationDelegate> Protocol | Name changed:<br>• <GSMwiNotificationDelegate> Protocol | |
| <GSMessageWaitingIndicationService> Protocol | Name changed:<br>• <GSMwiService> Protocol | |
| GSMessageWaitingIndicationState Class | Discontinued | |
| GSMessageWaitingIndicationSubscription Class | Name changed:<br>• <GSMwiSubscription> Class | |
| <GSPolicyDelegate> Protocol | Discontinued | |
| <GSSession> Protocol | Function discontinued:<br>• supportMedia: | |
| <GSSessionControlService> Protocol | Name changed:<br>• < GSSessionService > Protocol | |
| <GSSessionPolicyDelegate> Protocol | Individual queries replaced with function:<br>• sessionPolicyByQuery: | |
| <GSVideoCaptureDevice> Protocol | Discontinued | |
| GSVideoStreamConfiguration Class | Name changed:<br>• GSVideoStream Class | |
| <GSVideoStreamNotificationDelegate> Protocol | Discontinued | |
| <GSVideoStreamPolicyDelegate> Protocol | Discontinued | |

## Changes to Start Procedure

This section describes change you should make to your application before running. Additional details about using the SIP Endpoing SDK can be found in the QuickStart app shipped along with the SDK or in the HTML formatted API document.

## Set SIP Connectivity

Before running the endpoint application, you must update the following settings in your configuration file:

```
<Container name ="Basic">
  <Connectivity user ="dn0" server="SipServer:5060" protocol="udp"/>
</Container>
```

You must update each setting from the template default to an actual SIP connectivity settings. You must have at least one `Connectivity` setting with attributes `user` (DN) , `server` (FQDN or IP with SIP port), and `protocol` (udp, tcp or tls).

## Application Implementation with External Logger

Your application should implement the following steps to create and run SIP Endpoint SDK with an external logger:

```
// Initialize application main instance
self = [super init];

// Set up full path to xml configuration file
NSString * configFileName = < configuration file name with full path >

if (self) {

// Read endpoint xml configuration file
NSData *configData = [[NSData alloc] initWithContentsOfFile:configFileName
options:NSDataReadingMappedIfSafe error:&error];

// Get log file name setting with or without path from configuration
NSString *lFile = [[[[GSXmlParser alloc] init] loggingSettingsFromData:configData]
objectForKey:@"log_file"];

// Create fully qualified log file name with full path
NSString *logFileFqn = < create full path by using NSFileManager and NSBundle interfaces >

 // Open log file for external logger
newStderr = freopen([logFileFqn cStringUsingEncoding:NSASCIIStringEncoding], "w", stderr);

// Get log level from configuration
NSString *lLevel = [[[[GSXmlParser alloc] init] loggingSettingsFromData:configData]
objectForKey:@"log_level"];

// Create external logger
id<GSLogger> logger = [[ExternalLogger alloc] initWithName:@"ext" logLevel:lLevel];

// Initialize SIP Endpoint with configuration data and external logger
self.ep = [GSEndpointFactory initSipEndpoint:configData logger:logger];

 // Configure and activate endpoint
 [self.ep configure];
 [self.ep activate];
}
```

## Obtaining SDK Notifications

Include the following protocols in your application to get notifications from the SDK:

```
@interface SipEndpointController : NSWindowController <GSEndpointNotificationDelegate,
                                                        GSConnectionNotificationDelegate,
                                                        GSSessionNotificationDelegate,
                                                        GSMwiNotificationDelegate,
                                                        GSStatisticsNotificationDelegate,
                                                        GSDeviceNotificationDelegate>
```

After including the protocols above, the following notifications will be available:

### GSEndpointNotificationDelegate

- (void) endpointStateDidChangeNotification;

### GSConnectionNotificationDelegate

- (void) connectionStateDidChangeNotification:(id<GSConnection>)connection;

### GSSessionNotificationDelegate

- (void) sessionStateDidChangeNotification:(id<GSSession>) session;

### GSMwiNotificationDelegate

- (void) subscriptionStateDidChangeNotification:(GSMwiSubscription*) subscription;

### GSStatisticsNotificationDelegate

- (void) audioStatisticsReceivedNotification:(GSStatistics*) statistics forSession:(id<GSSession>) session;

### GSDeviceNotificationDelegate

- (void) deviceDidChangeNotification:(GSDeviceAction) action deviceType:(GSDeviceType) type;
- (void) activeAudioInputDeviceDidChangeNotification:(id<GSAudioDevice>) device;
- (void) activeAudioOutputDeviceDidChangeNotification:(id<GSAudioDevice>) device;
- (void) activeCaptureDeviceDidChangeNotification:(id<GSCaptureDevice>) device