



Screen Recording Admin Quick Reference



1. Screen Recording Introduction

This guide describes the procedures that may be completed by Administrators (as required) for the optional (\$) add-on Call Recording screen recording application.

2. How it works

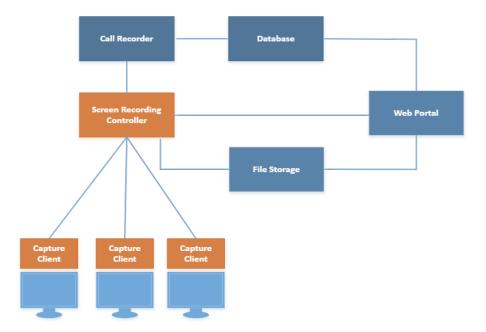
2.1 Architecture

Call Recording solution relies on Screen Recording Client running on agent desktops to perform screen captures during a call.

The controller application is responsible for the authentication of clients and initiating the capture process when the agent handles a new call.

The following diagram illustrates a high-level architecture of the Call Recording screen recording solution.

The next chapters cover the architecture in more detail.



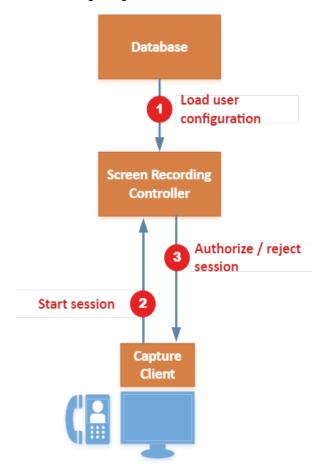
Components:

- The Screen Recording Client runs on the Agent's workstations as a Windows Service.
- The Screen Recording Controller authenticates all clients and controls a recording process, i.e. starts/stops screen capturing when agents receive/make calls.
- When the call ends, the Client uploads the video file to the server for storage and playback.

2.2 Authorization phase

When the Client application is deployed on a new computer, it has to be authorized first by the system administrator (menu Screen recording -> Screen recording workstations).

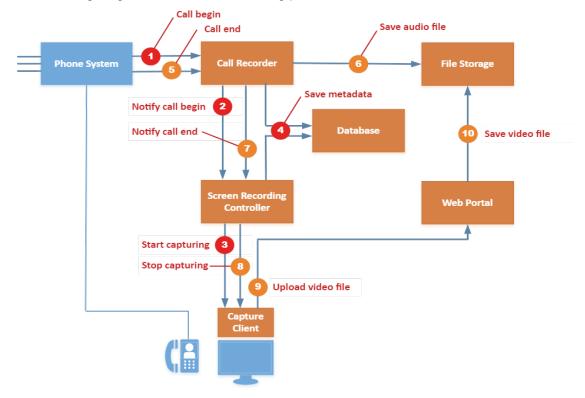
The following diagram illustrates the authorization phase:



2.3 Recording phase

Once the Screen Capture Client is authorized and associated with the corresponding agent profile, it automatically starts screen recording when the agent receives/makes calls.

The following diagram illustrates a recording process in detail:



- 1. The Call Recording Call Recorder detects a new call from the Phone System.
- 2. The **Call Recorder** notifies the **Screen Recording Controller** about the particular agent has a new call
- 3. The Screen Recording Controller locates the active session for that agent and sends Start capturing command to the Capture Client
- 4. Both **Call Recorder** and **Screen Recording Controller** save metadata in **Database**, so users can playback audio and video recordings using the **Web Portal**.
- 5. The Call Recorder detects the call end event.
- 6. The Call Recorder saves the recorded audio file to the File Storage.
- 7. The Call Recorder notifies the Screen Recording Controller about the call end.
- 8. The **Screen Recording Controller** sends **Start capturing** command to the **Capture Client**. If wrapup recording is enabled, then the screen capturing process continues for a pre-defined amount of time, usually for a couple of minutes. Otherwise, a screen capturing is completed immediately.
- 9. The Capture Client uploads the recorded video file to the Web portal.
- 10. The Web Portal service stores the file in the File Storage

3. Installation

3.1 Configure licensing

3.1.1 Assign licenses to users

Navigate to Administration -> User Management -> Users. On user profiles, check the Screen recording seat license for each of the eligible users.

Call recording seat license
😪 Screen recording seat license
Monitoring seat license (as agent)
 Evaluation seat license (as agent)

3.2 Configure storage

Navigate to menu **Administration -> Storage -> Storage Targets**. Click **Add** to create a storage target for screen recording files (*.mp4). Files can be stored:

- Locally on the same server as the Call Recording web application
- Remotely on FTP, SFTP server
- Remotely in Amazon S3 bucket

The following screenshot demonstrates configuration of local storage in directory /var/Call Recording/screen_recordings.

Storage Target Name *	Local /var/miarec/screen_recordings	
Tenant	System	
Storage Target Type	Local Filesystem	
OCAL FILE SYSTEM S	ETTINGS	

On Linux system, configure folder permissions.

For local storage target, configure permissions for the directory. This directory should be writable by Apache web server process. On Centos 6/7, execute the command:

chown -R apache:apache /var/Call Recording/screen_recordings

On Ubuntu:

chown -R www-data:www-data /var/Call Recording/screen_recordings

On Windows, there is no need to configure permissions for folder.

3.3 Configure screen recording settings

Navigate to menu Administration -> Screen Recordings -> Screen Recording Settings. Configure the following settings:

- Storage Target (created in the previous steps)
- Capture frame rate (how often to capture screen per second)
- Bit-rate (compression level)
- Maximum screen recording duration (limits maximum size of video file).
- Maximum width/height of the captured image. Call Recording automatically resizes the image. This setting is per-monitor, i.e. in multi-monitor configuration, the picture is downsized only when either of monitors has larger resolution.
- Multi-monitor recording. Record a primary monitor only or all monitors.

Administration > Screen Recording > Screen Recording Settings

TORAGE SETTINGS			
Storage Host URL	http://192.168.88.30		
	URL of the storage server for screen recordings (it should be accessible from outside clients). The clients automatically upload the recorded video files to that server. In a server setup, it should be the same as the web portal. In a multi-server setup, it is pordedicated server the file upload traffic. Format examples: http://miarec.example.cor https://10.0.0.5:8443	single- ossible to a	a
Storage Target *	Local /var/miarec/screen_recordings (Local Filesystem)	×	Ŧ
Video file name format *	%{start-time#%Y%m%d}/%{start-time#%Y%m%d%H%M%S}-%{recording-id}.mp4		
	Parameterized file name format		
ECORDING SETTINGS	2.0 (two frames per second)		Ŧ
ECORDING SETTINGS Capture rate (fps) * Wrap-up time (seconds)		second	¥ 5
Capture rate (fps) *	2.0 (two frames per second)		₹ S
Capture rate (fps) * Wrap-up time (seconds) Max recording duration	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice intervoice intervoice.		
Capture rate (fps) * Wrap-up time (seconds)	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice inte completes	eraction second	s
Capture rate (fps) * Wrap-up time (seconds) Max recording duration (seconds) Max file duration	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice inte completes 14400 The recording is automatically terminated after the the specified amount of time particular	eraction second	S
Capture rate (fps) * Wrap-up time (seconds) Max recording duration (seconds)	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice intercompletes 14400 The recording is automatically terminated after the the specified amount of time parvalue should be at least as large as the longest call.	second second sses. This	S
Capture rate (fps) * Wrap-up time (seconds) Max recording duration (seconds) Max file duration	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice intercompletes 14400 The recording is automatically terminated after the the specified amount of time parvalue should be at least as large as the longest call. 14400 The recording session may consits of multiple smaller files. This option specifies the	second second sses. This	S
Capture rate (fps) * Wrap-up time (seconds) Max recording duration (seconds) Max file duration (seconds)	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice intercompletes 14400 The recording is automatically terminated after the the specified amount of time parvalue should be at least as large as the longest call. 14400 The recording session may consits of multiple smaller files. This option specifies the duration of individual file.	second second sses. This	S
Capture rate (fps) * Wrap-up time (seconds) Max recording duration (seconds) Max file duration (seconds)	2.0 (two frames per second) 0 The screen recording continues for the specified amount of time after the voice intercompletes 14400 The recording is automatically terminated after the the specified amount of time pervalue should be at least as large as the longest call. 14400 The recording session may consits of multiple smaller files. This option specifies the duration of individual file. • Record primary monitor only	second second sses. This	s s m

Maximum height of the captured screen image. If the actual monitor height is bigger, then the screen image is automatically resized

Video file bitrate	256	kbps
	The lower bitrate, the smaller file size and the worse quality. The higher bitrate, the bigg size and the better quality	er file,
NETWORK SETTINGS		
Controller TCP port	6091	
	Listening TCP port for Client -> Controller communication (use 0 to disable TCP)	
Controller TLS port	6092	
	Listening TLS port for encrypted Client -> Controller communication (use 0 to disable TL	S)
SSL private key file	screen_rec_tls_private.pem	
	Location of PEM-encoded private key file for inbound TLS connections from clients. The key will be automatically generated if does not exist yet.	private
SSL certificate file	screen_rec_tls_certificate.pem	
	Location of PEM-encoded certificate file for inbound TLS connections from clients. The certificate will be automatically generated if does not exist yet.	
SSL CA certificates		
(optional)	This optional directive sets CA certificates used to verify the client certificate on Client	

Important! If Call Recording is deployed on Linux, then make sure the Apache process has write permissions to the storage target directory.

On Centos, run as an example:

chown -R apache:apache /var/Call Recording/screen-recordings

On Ubuntu, run:

chown -R www-data:www-data /var/Call Recording/screen-recordings

3.4 Generate security token

3.4.1 A single-tenant configuration - generate token

This step applies only to a single-tenant configuration!

Navigate to Administration -> Screen Recording -> Screen Recording Settings to view the current Screen recording token (see below screenshot).

This token should be used during installation of the Screen Recording Client application.

Administration > Screen Recording	
Screen Recordi	ng Settings
	0 0
SCREEN RECORDING T	OKEN
Screen recording token:	60789d57f901655fcbbf5d117f7a84c8
STORAGE	
Storage upload URL:	http://192.168.1.106:6543/screen_recordings_upload
Storage Target:	SFTP 192.168.1.70 (2)
Audio file name format:	%{start-time#%Y%m%d}\%{start-time#%Y%m%d%H%M%S}-%{recording-id}.mp4

To generate new token, click Edit Configuration button and check Reset token option.

Administration > Screen Recording > Screen Recording Settings	
Edit Screen Recording Settings	
SCREEN RECORDING TOKEN	
Screen recording token	×

3.5 Install client application

Contact your service provider to get the Call Recording Screen Recorder application. Once provisioned, they can be installed on the agent desktops.

Supported operating systems: Windows 7, 8, 10, Server 2008/2012/2016 with the latest windows updates installed.

During installation, provide the address of the Call Recording Screen Controller server and "Secure Token". You can retrieve the secure token on the tenant profile page (see above).

Enter the IP-address or DNS name of Call Recording server in the Primary Controller Address field. By default, port 6092 is used for SSL connection and 6091 for non-SSL connection (see Administration -> Screen Recording -> Screen Recording Settings for exact port values).

1	MiaRec Screen Recorder 1.1.0.0 Se	etup 📃 📃 💌
	Connection settings Configure connection settings	
	Primary Controller Address: Secondary Controller Address:	192.168.1.40:6092
	Secure Token:	758016d625be165803b748864937d80d
Mia	aRec Screen Recorder v1.1.0.0 ———	< Back Install Cancel

3.5.1 Verify installation

Call Recording Screen Recording Client silently works in background. It is visible Control Panel -> Services.

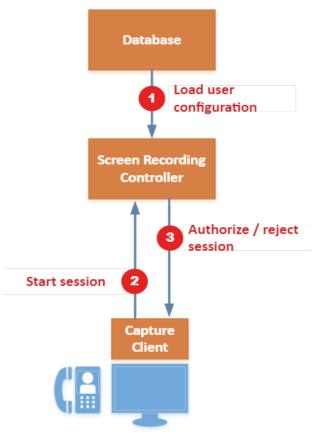
Services						
File Action V	/iew Help					
	à 📑 🛛 📰 🕨 🔲 🖬 🕨					
👒 Services (Lo	Services (Local)	_				
	MiaRecScreenRecorder	Name	Description	Status	Startup Type	Log On As
		Service Media Center Extender Service	Allows Me		Disabled	Local Servi
	Stop the service	MiaRecScreenRecorder		Started	Automatic	Local Syst
	Restart the service	Alicrosoft .NET Framework NGEN	Microsoft		Manual	Local Syst
		Microsoft .NET Framework NGEN	Microsoft		Automatic (Local Syst
		Microsoft iSCSI Initiator Service	Manages I		Manual	Local Syst
		Microsoft Software Shadow Cop	Manages s		Manual	Local Syst
		Mozilla Maintenance Service	The Mozilla		Manual	Local Syst
		Multimedia Class Scheduler	Enables rel	Started	Automatic	Local Syst
		🔍 Net.Msmq Listener Adapter	Receives ac		Disabled	Network S
		🔍 Net.Pipe Listener Adapter	Receives ac		Disabled	Local Servi

Also, you can see the application in the list of running processes.

blications Processes Services Perform				
	ance Networking Users			
Image Name	User Name	CPU	Memory (Description
lsass.exe	SYSTEM	00	2,260 K	Local Security Authority Process
lsm.exe	SYSTEM	00	1,296 K	Local Session Manager Service
MiaRecScreenRecorder.exe	SYSTEM	00	1,144 K	MiaRecScreenCaptureService
MiaRecScreenRecorderCapture.exe	IEUser	00	568 K	MiaRecScreenCapture
MiaRecScreenRecorderService.exe	SYSTEM	00	404 K	ServiceWrapper
MiaRecScreenRecorderService.exe	SYSTEM	00	504 K	ServiceWrapper
mmc.exe	IEUser	ŨŨ	2,760 K	Microsoft Management Console
msdtc.exe	NETWORK SE	00	2,028 K	Microsoft Distributed Transacti
SearchFilterHost.exe	SYSTEM	00	836 K	Microsoft Windows Search Filte
SearchIndexer.exe	SYSTEM	00	4,608 K	Microsoft Windows Search Inde
SearchProtocolHost.exe	SYSTEM	00	1,268 K	Microsoft Windows Search Prot
services.exe	SYSTEM	00	3,248 K	Services and Controller app
smss.exe	SYSTEM	00	196 K	Windows Session Manager
spoolsv.exe	SYSTEM	00	3,784 K	Spooler SubSystem App
sppsvc.exe	NETWORK SE	00	1,392 K	Microsoft Software Protection P
svchost.exe	SYSTEM	00	2,164 K	Host Process for Windows Serv
sychost.exe	NETWORK SE	00	2 224 K	Host Process for Windows Serv

3.6 Authorize new workstations

The capturing client application automatically establishes a network connection with the Call Recording screen recording controller. New workstation requires authorization before it can record screen.



Every workstation is uniquely identified using the automatically generated secure workstation token. The administrator can authorize new workstations using Call Recording Web UI. Navigate to menu Administration -> Screen Recording -> Screen Capture Workstations.

New workstations are shown in the Pending authorization tab. Select the corresponding worktation(s) and authorize them.

Il Clients Auti	Pending A	Authorization Forbidd	len	
Authorize				
-	Forbid X D	elete Selected rows: 3		0-13 of 13 🔇
	ZATION DOMAIN	COMPUTER NAM	IE IP-ADDRESS	
Pending				View
Pending				View
Pending		_		View

3.7 Configure users for screen recording

Navigate to Administration -> User Management -> Users and click Edit for the corresponding user profile.

3.7.1 Step 1. Configure Screen Recording Login

Under Recording settings, configure the Windows login name in the Screen recording login attribute. This value should match to username, the user is using to login to Windows machine. Optionally, you can specify a domain name if your organization has multiple domains.

RECORDING SETTINGS		
Record	 Always On-demand Never Default 	
Record direction	🕑 Inbound 🕑 Outbound	
Extension	1234567	×
	Add Extension	
Confidential calls	Automatically mark all calls of this user as confidential	
Screen Recording Login	justinamado	
	Supported formats: NETBIOS\login, DOMAIN\login, login	

3.7.2 Step 2. Assign Screen recording license

LICENSING		
	Call recording seat license	
	😴 Screen recording seat license	

Under Licensing, assign the Screen recording seat license to user.

If user logs into to the authorized workstation using the configured login name, a screen capture will be activated automatically.

3.8 Verify screen recording

Make a test call to verify screen recording.

Once a call is completed, the video file should be automatically uploaded to the central storage server. You will be able to playback both audio and screen recordings simultaneously.

MEDIA PLAYER	Switch to basic player
	Switch to basic player
We convert the second state s	

Upload process may take some time depending on network speed between client and server. The message Screen recording file is not uploaded yet is shown when upload is not completed yet:

Call 28155	8487 -> 30	0		N	lark as confidential Delete Call
MEDIA PLAYER					Switch to basic player
		Screen recordi	ing file is not uploaded yet		
parampara se fan ble Lanne la sera fan soc Dolar fordere fan spiel terre gemeenter fan t	e kong ¹⁶ erine k. J. K. Sonor and Kong Kong Kong Kong Kong Kong Kong Kong	na shena da u dha na ban dan san shara ban gu barad danan da u baraba na sa da she bara sa da u barba fa sa ba A sa na na na lan sa	n bar gant bar da a bar da da a bar da da a bar da bar A da bar da bar da da gang da san da bar	land any beginned a state of the fact that the fact that the fact the fact that that that the fact that the fact that that the f	na a la sur de la sur de la fancie de la sur de la fancie de la fancie de la sur de la sur de la sur de la sur En sur de la
					40 45
▶ Play 📩 S	Save audio file				
P Play 26 3	save autio me				
INFO		FROM		то	
Tenant:	Flexus	User:		User:	Justin Amado
Date:	Today	Phone Number:	281558487	Group:	Users
Connect Time:	12:01:46 PM	Phone Name:		Phone Number:	300
Disconnect Time:	12:02:33 PM	Phone Id:	281558487	Phone Name:	
Duration:	0:47	lp-address:	192.168.1.106 (3000)	Phone Id:	300
Watermark:	View	4) Live mor	nitor phone 281558487	lp-address:	192.168.1.40 (5070)
				 Live 	monitor phone 300

4. Troubleshooting

4.1 Troubleshooting on Client Side

4.1.1 Enable logging for service application

By default, the client application doesn't write logs. Navigate to INSTALL-FOLDER\Bin and edit the file Call RecordingScreenRecorder.ini Change Enable to 1 in the section [Trace]:

[Trace] Enable=1 File=<INSTALL-FOLDER>\Data\log\trace.log

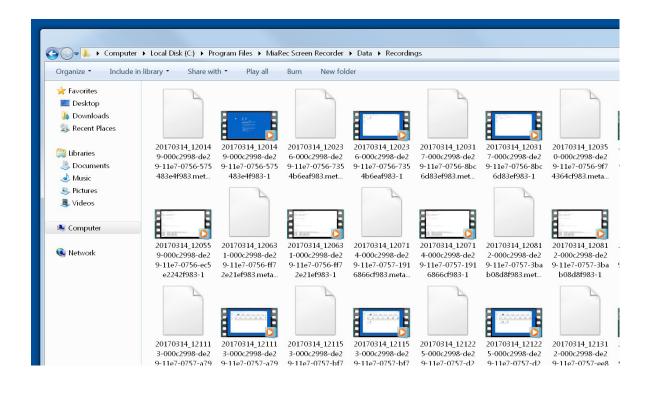
Restart Service Call Recording Screen Recorder.

Once enabled, the logs are written into INSTALL-FOLDER\Data\log\trace.log file. Optionally, you can change the location of the log file by editing the File parameter in the INI file.

🕞 🕞 マ 👃 ► Computer ➤ Local Disk (C:) ➤ Program Files ➤ MiaRec Screen Recorder ➤ Data ➤ log						
Organize 🔹 Include ir	library • Share with • Burn New folder					
🚖 Favorites	Name	Date modified	Туре			
💻 Desktop]], Downloads 🌫 Recent Places	errors trace	3/14/2017 10:57 AM 3/14/2017 10:59 AM				
 Libraries Documents Music Pictures Videos 						

The video files are stored temporarily in the directory INSTALL-FOLDER\Data\Recordings. The client application

automatically uploads the recorded files to the central storage server after call completion. Once uploaded, the files are removed from local storage. You can verify if any of the files are recorded by the client but not uploaded yet.



4.1.2 Enable logging for desktop capturing process

To enable logging for the capturing process, first, create a new directory on the computer where nonprivileged users can write files. It should be outside of C:\Program Files. For example, create the directory C:\Call RecordingLogs

Then, navigate to INSTALL-FOLDER\Bin and edit the file Call RecordingScreenRecorder.ini

Under section [Recording] edit the parameter CaptureProcessArgs. Change it to:

CaptureProcessArgs = -ttttt -o C:\Call RecordingLogs\ScreenRecDesktop.log

Note, the directory C:\Call RecordingLogs should exist, and it should be writable by non-privileged users.

4.2 Troubleshooting on Server Side

If the screen recording doesn't appear on the server for too long, then you need to check logs on both the server and the client. First, check System Log on the server (menu **Administration -> Maintenance -> System Log**).

One of the common issues is insufficient permissions to the upload directory. The following screenshot shows one of such cases.

<pre>File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/router.py", line 163, in handle_ response = view_callable(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 596, in _ return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 329, in ar return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 305, in pr return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in pr return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v: result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v: response = getattr(inst, attr)() File "/var/www/miarec/app/miarecweb/views/admin/screen_recording_upload_views.py", line 604, in view_upload_file_content os.makedirs(new_directory, exist_ok=True) File "/usr/local/lib/python3.4/os.py", line 227, in makedirs makedirs(head, mode, exist_ok) File "/usr/local/lib/python3.4/os.py", line 237, in makedirs mkdir(name, mode) PermissionError: [Errno 13] Permission denied: '/var/miarec/screen_recordings'</pre>	response = handler(request)	
<pre>File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 596, in _ return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 329, in a return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 305, in pr return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 305, in pr return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v: result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v: result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v: result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 491, in _ response = getattr(inst, attr)() File "/var/www/miarec/app/miarecweb/views/admin/screen_recording_upload_views.py", line 604, in view_upload_file_content os.makedirs(new_directory, exist_ok=True) File "/usr/local/lib/python3.4/os.py", line 227, in makedirs makedirs(head, mode, exist_ok) File "/usr/local/lib/python3.4/os.py", line 237, in makedirs makedirs(new_mode)</pre>		1
<pre>return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 329, in a return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 305, in p return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 305, in p return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v: result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 491, in _ response = getattr(inst, attr)() File "/var/www/miarec/app/miarecweb/views/admin/screen_recording_upload_views.py", line 604, in view_upload_file_content os.makedirs(new_directory, exist_ok=True) File "/usr/local/lib/python3.4/os.py", line 227, in makedirs makedirs(head, mode, exist_ok) File "/usr/local/lib/python3.4/os.py", line 237, in makedirs mkdir(name, mode)</pre>	response = view_callable(context, request)	
<pre>File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 329, in a return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 305, in pr return view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 385, in v result = view(context, request) File "/var/www/miarec/pyenv/lib/python3.4/site-packages/pyramid-1.5.6-py3.4.egg/pyramid/config/views.py", line 491, in _ response = getattr(inst, attr)() File "/var/www/miarec/app/miarecweb/views/admin/screen_recording_upload_views.py", line 604, in view_upload_file_content os.makedirs(new_directory, exist_ok=True) File "/usr/local/lib/python3.4/os.py", line 227, in makedirs makedirs(head, mode, exist_ok) File "/usr/local/lib/python3.4/os.py", line 237, in makedirs mkdir(name, mode)</pre>		-
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File "/usr/local/lib/python3.4/os.py", line 237, in makedirs mkdir(name, mode)	File "/usr/local/lib/python3.4/os.py", line 227, in makedirs	
mkdir(name, mode)	makedirs(head, mode, exist ok)	
	File "/usr/local/lib/python3.4/os.py", line 237, in makedirs	
PermissionError: [Errno 13] Permission denied: '/var/miarec/screen_recordings'	mkdir(name, mode)	
	PermissionError: [Errno 13] Permission denied: '/var/miarec/screen_recordings'	
	4	

In this case, you just need to grant the write permission on that folder to the Apache web server user account:

mkdir -p /var/Call Recording/screen_recordings
chown apache:apache /var/Call Recording/screen_recordings

Additionally, you can enable trace on the server side. Navigate to menu Administration -> Screen Recording -> Screen Recording Settings and enable detailed trace logging.

Enable *	😪 Enable writing of trace log information into file	
Trace log file name *	/var/log/mlarec_screen/trace.log	
	Full path to file trace log file	
Trace level *	5	
	Depth of trace information (from 1 to 5). Default is 5	
Rotate *	Daily (once per day)	
	When rotating the log file will be ranmed into new one with name "*.yyyyMMdd-hhmmss.EX (EXT is file extension)	T
Rotate day *	1	
	For weekly rotation, one of [Mon, Tue, Wed, Thu, Fri, Sat, Sun, 1, 2, 3, 4, 5, 6, 0]. For monthly rotation a day from 1 to 31. For monthly rotation a day from 1 to 31	
Rotate time *	23:55	

5. Deploy Screen Capture Client with Windows Group Policy

5.1 Create a Transform (MST) file

This article describes how to prepare Transform (MST) file for Windows installer.

What is a Transform?

A Transform (*.MST) file allows you to collect installation options for programs that use the Microsoft Windows Installer in a file. They can be used on the Installer (MSIEXEC.EXE) command line, or used in a software installation Group Policy in a

Microsoft Active Directory domain.

Use Orca utility to prepare a packaged installation of Call Recording screen recording client. You can download Orca as a part of Windows SDK or by contacting your Call Recording representative.

What is Orca?

Orca.exe is a database table editor from Microsoft for creating and editing Windows Installer packages and merge modules. The tool provides a graphical interface for validation, highlighting the particular entries where validation errors or warnings occur. More details can be found on Microsoft web-site.

Open Call RecordingScreenRecorderSetup.msi in Orca utility.

🚰 Untitled - Orca					
File Edit Tables Transform Tools View Help					
Tables	Computer Network	MiaRecScreet	nRecorderSetup	Setup	e •

Select New Transform from the Transform menu.

🕂 MiaRecScreenf	RecorderSetup.msi - Orca
File Edit Tables	Transform Tools View Help
	New Transform
	Apply Transform
Tables	View Patch
AdminExecuteSec	
AdminUISequence	Close Transform
AdvtExecuteSequ	Transform Properties,
AppSearch	
Binary	
CheckBox	
Component	

Select Property in the Tables pane on the left.

MiaRecScreen	RecorderSetup.msi - Orca
File Edit Tables	Transform Tools View Help
	New Transform
Tables	Apply Transform View Patch
AdminExecuteSec	
AdminUISequence	Close Transform
AdvtExecuteSequ	Transform Properties
AppSearch	
Binary	
CheckBox	
Component	

In the right pane, right-click on empty space and choose Add Row.

Add Row	×
Name	Value
Propert	y SERVER1
Value	
Column -	
	ocalizable String[0], Required
192.168.	1.106:6092
	OK Cancel

Create the following parameters:

Property	Value	Description
SERVER1	IP:PORT	1st Call Recording screen recording server
SERVER1	IP:PORT	2nd Call Recording screen recording server (optional)
TENANT_TOKEN	STR	Screen recording token as configured in Call Recording web portal
USE_SSL	1 or 0	Set to 1 if encrypted channel is used (default port is 6092). Set to 0 if encrypted channel is not used (default port is 6091)

The following screenshot shows an example configuration

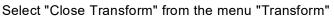
MiaRecScreenRecorderSetu						
File Edit Tables Transform Tools View Help						
Tables	•	Property	Value			
AdminUISequence		UpgradeCode	{B166BEA2-C956-481F-8FA9-A309576A0A2E}			
AdvtExecuteSequence		WIXUI_USE_SSL	USE_SSL			
AppSearch		WixUIRMOption	UseRM			
Binary		WIXUI_SERVER1	SERVER1			
CheckBox		WIXUI_SERVER2	SERVER2			
Component		WIXUI_TENANT_TOKEN	TENANT_TOKEN			
Control		WIXUI_INSTALLDIR	INSTALLDIR			
ControlCondition		ALLUSERS	1			
ControlEvent		ARPPRODUCTICON	Icon.exe			
CreateFolder		ARPHELPLINK	https://www.miarec.com/			
CustomAction		Manufacturer	MiaRec, Inc.			
Dialog		ProductCode	{1DD6CBFF-725D-4F37-93FD-779F92339E77}			
Directory		ProductLanguage	1033			
EventMapping		ProductName	MiaRec Screen Recorder			
Feature		ProductVersion	1.1.0.57			
FeatureComponents		DefaultUIFont	WixUI_Font_Normal			
File		WixUI_Mode	InstallDir			
Icon		ErrorDialog	ErrorDlg			
IniFile		SecureCustomProperties	INSTALLDIR;SERVER1;SERVER2;TENANT_TOKEN;USE_SSL;WIX_DOWNGRADE_DE			
InstallExecuteSequence		SERVER1	192.168.1.106:6092			
InstallUISequence	_	TENANT_TOKEN	87325060c8c38a93f0b348f3d79a07b1			
LaunchCondition		USE_SSL	1			
ListBox						
Media						
MsiFileHash						
Property						
RadioButton						
ables: 37	•	Property - 22 rows				

When finished, select "Generate Transform..." from menu "Transform"

🚰 MiaRecScreenRecorderSetup.msi () - Orca								
File Edit Tables	Transform	Tools	View	Help				
	New Tra Apply Tr		ì					
Tables	View Pat			·				
AdminUISequence	Generati	e Transf	orm	Cod				
AdvtExecuteSequ	Close Tra	ansform	l	ISE_				
AppSearch	Transfor	m Prope	erties	lOpi				

Save the generated Windows Installer Transform file (*.mst).

🎘 Save Transfo	rm As					×
Save in:	🔒 MiaRecScree	nRecorder	• 6) 🖞 🖻	 •	
Recent Places	Name A	No items n	↓ Date mod atch your search		Туре	
Desktop Cibraries						
Computer						
	•					•
	File name:	MiaRecScreenRecord	erPackage	v		Save
	Save as type:	Windows Installer Tran	isform (*.mst)	•		Cancel



MiaRecScr	eenF	RecorderSo	etup.m	si (tra	nsfo	ormed by MiaRecSc
File Edit Tal	oles	Transform	Tools	View	Help	p
	Å	New Tra				*
Tables	_	Apply Tr View Pat		haa		,
CreateFolde	r	Generati	e Transf	orm		Code
CustomActio	n	Close Transform			ISE_SSL	
Dialog		Transform Properties			Option	
Directory			WI	UI_S	5ERVER1	
EventMapping			WI:	(UI_S	5ERVER2	
Feature			WI:	(UI_1	TENANT_TOKEN	
FeatureComponents			WI	(UI_I	INSTALLDIR	
File			ALLUSERS			
Icon			ARF	PRO	DUCTICON	
TniFila				٥٥٨	HEI	

5.2 Put the MSI and MST files in a file share

You need to create a folder somewhere on your server that you can remember and find, like the documents folder or the desktop. You need to put the MSI as well as MST files in this new folder, and then right-click the folder, and go to "Share with" -->

"Specific people".

Type "Domain Computers" in the search box, and then give the "Domain Computers" account read permissions and click "Share".

Select Users or Groups		? ×
Select this object type:		
Users, Groups, or Built-in security principals		Object Types
From this location:		
ad.miarec.com		Locations
Enter the object names to select (<u>examples</u>):		
Domain Computers		Check Names
		_
Advanced	ОК	Cancel

hoose people on your network to share with ype a name and then click Add, or click the arro	w to find someone
ype a name and dien chek Muu, of chek die and	
	Add
Name	Permission Level
🚨 Administrator	Read/Write 🔻
Administrators	Owner
umain Computers	Read 🔻

5.3 Create a new GPO

5.3.1 Step 1. Create GPO

Open Group Policy Management from Start --> Administrative Tools --> Group Policy Management. If it is not installed, go to the Server Manager (also in Administrative tools) and go to the Features tab on the left hand side and then click Add

Features in the pane on the right. Check the box in the new window that says Group Policy Management, and then click through the next few screens. It will install and then you can open it like described before.

Navigate to Forest: YOURDOMAIN --> Domains --> YOURDOMAIN --> Group Policy Objects. Right click the folder Group Policy Objects and click New. Type in a name for your GPO. Once you create your new GPO, it will show up under the Group Policy Objects folder.

5.3.2 Step 2. Select computers on which to deploy the software

Click on the new GPO with the name that you just assigned. In the right pane on the bottom, there is a box that says Security Filtering. Click on and remove the Authenticated Users entry.

Option 1. Deploy software for certain users

If you want this program deployed on certain computers, add all of the specific computer names that you want the software to be deployed on.

🔜 Group Policy Management		_ 🗆 ×
🔜 File Action View Window Help		_ 8 ×
🗢 🔿 📶 🖸 🚺 🖬		
Group Policy Management	Install MiaRec Screen Recorder	
🗆 📑 Domains	Scope Details Settings Delegation	
🖃 🚔 ad.miarec.com	Links	
🛒 Default Domain Policy 관 📴 Domain Controllers	Display links in this location: ad.miarec.com	•
🖃 📑 Group Policy Objects	The following sites, domains, and OUs are linked to this GPO:	
Default Domain Controllers Policy	Location A Enforced Link Enabled Path	
Default Domain Policy Install MiaRec Screen Recorder		
🗄 📑 WMI Filters		
🗄 🛅 Starter GPOs		
Group Policy Modeling	Security Filtering	
Group Policy Results	The settings in this GPO can only apply to the following groups, users, and computers:	
	Name A	
	@ad.miarec.com)	
	(@ad.miarec.com)	
	Add Remove Properties	
	WMI Filtering	
	This GPD is linked to the following WMI filter:	
	<pre>(none)</pre>	

Option 2. Deploy on all domain computers

if you want it on all computers, add the group "Domain Computers". Go back up to the "YOURDOMAIN" folder (in the navigation pane) and right-click it. Click "Link an existing GPO". Click your new GPO's name and click OK.

🕵 Group Policy Management	
🛃 File Action View Window Help	_8×
Group Policy Management Forest: ad.miarec.com Forest: ad.miarec.com Forest: ad.miarec.com Forefault Domain Policy Forefault Domain Controllers Forefault Domain Controllers Forefault Domain Policy Forefault Domain	Install MiaRec Screen Recorder Scope Details Settings Delegation Links Display links in this location: The following sites, domains, and OUs are linked to this GPO Location The following sites, domains, and OUs are linked to this GPO Location Security Filtering The settings in this GPO can only apply to the following groups, users, and computers: Name Security Filtering The settings in this GPO can only apply to the following groups, users, and computers: Name Multiple Settings The settings in this GPO can only apply to the following groups, users, and computers: Name Multiple Settings The settings in this GPO can only apply to the following groups, users, and computers: Name Multiple Settings This GPO is linked to the following WMI filter: (none> Open
J	

5.3.3 Step 3. Create a Software installation

Now go back to the GPO under Group Policy Objects folder, and right-click it. Click on Edit.

A new window will open. Navigate to Computer Configuration --> Policies --> Software Settings --> Software installations.

🗐 Group Policy Management Editor				
File Action View Help				
Install MiaRec Screen Recorder [DC.AD.MIAF Name Version Deployment state Source				
 Computer Configuration Policies Software Settings Software installation Windows Settings Administrative Templates: Policy Preferences User Configuration Policies Preferences 			e are no items to sho	

Right click inside the empty pane on the right and go to New --> Package...

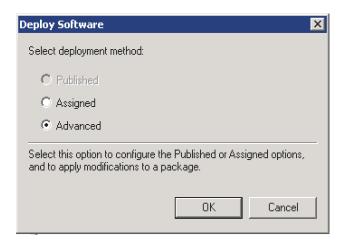
In the new windows that pops up, Navigate to the share that you created earlier using the full Universal Naming Convention

(UNC) path like (\YOURSERVERNAME\FOLDERNAME), not the physical folder on the server (C:

\FAKEPATH\FOLDERNAME) and select your MSI.

Click Open.

On Select deployment method, select Advanced. If you select another option, you won't be able to apply the MST file you created.



Open Modifications tab. Select your MST file (that customizes your installation) from the network share.

Note: Again, it is very important to use a UNC to the file (to the network share), rather than a local/network drive path.

General Deployment Upgrades Categories Modifications Security Modifications or transforms allow you to customize the package and are applied to the package in the order shown in the following list: Modifications: Modifications:	MiaRec Screen Recorder Properties ? 🗙
applied to the package in the order shown in the following list: Modifications: <u>Move Up</u> <u>Move Down</u> <u>Move Down</u> <u>Add</u> Remove Important! Do not press OK until all transforms are added and ordered correctly. For more information, right-click on the Modifications list box, and	General Deployment Upgrades Categories Modifications Security
Move Up Move Up Move Down Move Down Add Remove Important! Do not press OK until all transforms are added and ordered correctly. For more information, right-click on the Modifications list box, and	
Add Remove Important! Do not press OK until all transforms are added and ordered correctly. For more information, right-click on the Modifications list box, and	Modifications:
Important! Do not press 0K until all transforms are added and ordered correctly. For more information, right-click on the Modifications list box, and	Move Down
	Important! Do not press OK until all transforms are added and ordered correctly. For more information, right-click on the Modifications list box, and
OK Cancel	

Click OK to complete the setup.

Close the Group Policy snap-in, click OK, and then close the Active Directory Users and Computers snap-in.

5.3.4 Reboot workstations (optional)

When the workstations re-start, the software package is automatically get installed with the pre-configured parameters (Note: It may take 2-3 restarts for the server to update the GPO on the workstations).