

Interactive Session Recorder

Release Notes



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Interactive Session Recorder Release Notes, Release 6.0

F20191-01

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About This Guide

The Interactive Session Recorder (ISR) Release Notes provides the following information when applicable:

- An introduction to the full release
- An overview of the new features available
- Inherited Features
- A summary of fixes, known issues, and caveats

If any of these sections does not appear in the document, then there were no changes to summarize in that category for that specific release.

Related Documentation

The following table describes the documentation set for this release.

Document Name	Document Description
ISR Release Notes	Contains information about new ISR features, fixes, and known issues.
ISR Installation Guide	Provides an overview of the ISR, hardware/software requirements and recommendations, storage considerations, pre-installation information, installation procedures, post-install verification procedures, making the first call, and additional advanced topics about the ISR.
ISR User Guide	Contains information about using the ISR Dashboard for all levels of users. Provides information about viewing, playing, deleting recordings, running reports, and managing user profiles.
ISR Administrator Guide	Contains information about using the ISR Dashboard for the Administrator level user (Super User, Account Administrator, Tenant Administrator). Provides information about creating and managing accounts, routes, and users. Also provides information about configuring the ISR, running reports, viewing active calls, and securing the ISR deployment.
ISR API Reference Guide	Contains information about ISR FACE, Recording File Types/Formats Supported, Return Codes, and Troubleshooting.
ISR Monitoring Guide	Provides provisioning, configuration and test instructions for the NET-SNMP implementation to monitor all ISR component hosts.
ISR Security Guide	Contains information about security considerations and best practices from a network and application security perspective for the ISR product.

Revision History

Date	Description
September 2017	<ul style="list-style-type: none">• Initial release of ISR 6.0 software.

Date	Description
October 2017	<ul style="list-style-type: none">• Adds "MySQL Host Resolution Configuration Issues" to "Fixes, Known Issues, and Caveats in ISR 6.0".• Adds "Remote Archival Webservice is Deprecated" to "New Features".
November 2017	<ul style="list-style-type: none">• Adds "Recording Retention Limit" to "Fixes, Known Issues, and Caveats in ISR 6.0".• Adds a fix to "Fixes, Known Issues, and Caveats in ISR 6.0" regarding errors generated during searches for recordings based on duration.• Adds a fix to "Fixes, Known Issues, and Caveats in ISR 6.0" regarding the conversion of RPDDs during upgrade scenarios.
October 2019	<ul style="list-style-type: none">• Updates "Fixes, Known Issues, and Caveats in ISR 6.0" for Release 6.0m0p4.• Updates Oracle Linux support to Releases 7.2 - 7.6.
January 2020	<ul style="list-style-type: none">• Updates "Fixes, Known Issues, and Caveats in ISR 6.0" for Release 6.0m0p5.

1

Introduction to ISR 6.0

The Oracle Communications Interactive Session Recorder 6.0 Release Notes provide the following information about this product:

- Hardware and software requirements
- An overview of the new features available in this release
- An overview of previously-available features that are new to the GA of this major release
- A summary of fixes, known issues, and caveats

Hardware

ISR is distributed as an application running on Oracle Linux Releases 7.2 - 7.6, which abstracts the ISR application from the physical hardware. As such, ISR can be deployed on any hardware platforms that support Oracle Linux Releases 7.2 - 7.6. For a comprehensive list of the hardware platforms currently certified, see the [Oracle Linux and Oracle VM Hardware Certification List \(HCL\)](#).

ISR Internal testing is predominantly done on Oracle Server X5-2 and Oracle Server X6-2 systems with the following resource configurations:

Hardware Description	Quantity
Intel® Xeon® E5-2630 v3 8-core 2.4 GHz processor	2
One 16 GB DDR4-2133 DIMM	8
One 1.2 TB 10000 rpm 2.5-inch SAS-3 HDD with marlin bracket in RAID 10 configuration using 12Gb SAS RAID HBA	4

Note:

RAID must be configured BEFORE performing the ISR component installation.

Each of the ISR components must be installed on their own server/VM instance.

Software

This section provides a list of the software that installs during the ISR installation process.

Installation Prerequisites

To install the ISR components, you must:

1. Have installed Oracle Linux version 7.2 - 7.6
2. Have access to the ISR rpms:

- `isr-Index-<release#>.x86_64.rpm`
 - `isr-Dashboard-<release#>.x86_64.rpm`
 - `isr-rss-<release#>.x86_64.rpm`
 - `isr-Face-<release#>.x86_64.rpm` (optional)
3. Have access to the Ruby 2.4 rpm (`ruby-2.4.0-1.el7.centos.x86_64.rpm`)
 4. Configure a Linux user named **isradm** to allow you to automatically gain access to config and log files. Once you have configured the **isradm** Linux user, you must add the user to the "sudoers" group.
 5. Verify you are connected to the Internet.
 6. Oracle Linux 7 has the yum package management utility configured by default with access to the "public-yum.oracle.com" repositories in the file located at `/etc/yum.repos.d/public-yum-ol7.repo`. If, for some reason, this file needs to be created, see the Appendix, "Oracle Public Yum Repository Configuration File" in the *Oracle Communications Interactive Session Recorder Installation Guide*, which contains the specific repository entries.
 7. Configure interfaces; ISR expects network configuration to include 4 interfaces, connecting to separate Administration, Local, Data, and Voice networks. Refer to the Oracle Communications Interactive Session Recorder Security Guide for more information on networking and trusted boundaries.
For more information on configuring networking in Oracle Linux 7, see the *man nmtui* guide and <http://www.unixarena.com/2015/04/rhel-7-network-management-nmcli-or-nmtui.html>.
 8. Ensure the **proxy** parameter in the `/etc/yum.conf` file is set to:

```
proxy=http://<your_proxy_host>
```

 **Note:**

During the installation process, you will be asked to provide and/or verify the users, passwords and interfaces you created during the Oracle Linux installation. Ensure you have that information before you begin the installation process.

ISR Dashboard Requirements

- Web browser recommendations for ISR Dashboard:
 - Chrome Version 60.0.3112.113
 - Firefox ESR 52.3.0
 - Internet Explorer 11.0.9600.18762CO

 **Note:**

Browser playback support for recording codecs changes frequently. Refer to the *Oracle Communications Interactive Session Recorder Release Notes* and *Oracle Communications Interactive Session Recorder Maintenance Release Guide* for current details.

Supported Codecs

The ISR supports the following transmission codecs:

- g.711 mulaw
- g.711 alaw
- g.729
- g.722 and g.722.2 (excluding g.722.1)
- H.264

These transmission codecs can be mapped to the following recording formats:

- RAW ulaw
- RAW alaw
- RAW PCM
- WAVE PCM (8-bit 8k Hz) mono
- WAVE PCM (8-bit 8k Hz) stereo
- WAVE PCM (8-bit 8k Hz)
- WAVE PCM (16-bit 8k Hz) mono
- WAVE PCM (16-bit 8k Hz) stereo
- WAVE PCM (16-bit 8k Hz)
- WAVE PCM (16-bit 1k Hz) mono
- WAVE PCM (16-bit 16k Hz) stereo
- WAVE PCM (16-bit 16k Hz)
- WAVE ulaw (8-bit 8k Hz) mono
- WAVE ulaw (8-bit 8k Hz) stereo
- WAVE ulaw (8-bit 8k Hz)
- WAVE alaw (8-bit 8k Hz) mono
- WAVE alaw (8-bit 8k Hz) stereo
- WAVE alaw (8-bit 8k Hz)
- WAVE ADPCM (4-bit 8k Hz) mono
- WAVE ADPCM (4-bit 8k Hz) stereo
- WAVE ADPCM (4-bit 8k Hz)
- MP4

2

New Features in ISR 6.0

This section lists and describes features developed and released new for ISR 6.0.

Note:

System session capacity and performance are subject to variations between various use cases and major software releases.

Support for Oracle Linux 7.3

Starting with ISR 6.0, all components have been tested on Oracle Linux 7.3. Existing users may continue to use Oracle Linux 7.2 as well.

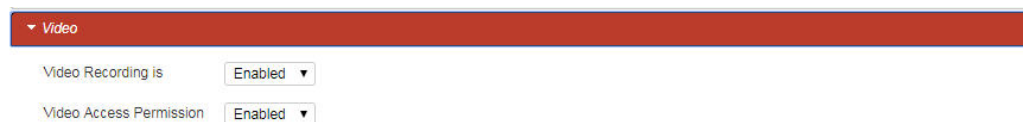
H.264 Video Recording and Playback

The ISR now supports 2-party H.264 video recording via SIPREC. Video recording can be enabled and disabled at both the Account and Route levels. Playback can be controlled at the Account, Route, and User levels, allowing you to control access and limit bandwidth and usage. Video recording is disabled by default, but can be enabled via the ISR Dashboard Account and Route configurations. When video recording is disabled, the ISR continues to record audio calls.

Enabling Video Recording

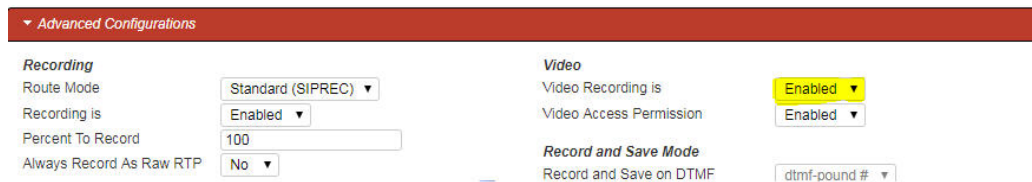
Video Recording may be enabled at both the Account and Route levels.

Account:



A screenshot of the Account configuration page. At the top, there is a red header bar with a dropdown arrow and the text "Video". Below this, there are two rows of configuration options. The first row is "Video Recording is" with a dropdown menu set to "Enabled". The second row is "Video Access Permission" with a dropdown menu set to "Enabled".

Route:



A screenshot of the Route configuration page under "Advanced Configurations". The page is divided into two columns. The left column is titled "Recording" and contains: "Route Mode" with a dropdown set to "Standard (SIPREC)", "Recording is" with a dropdown set to "Enabled", "Percent To Record" with a text input field containing "100", and "Always Record As Raw RTP" with a dropdown set to "No". The right column is titled "Video" and contains: "Video Recording is" with a dropdown set to "Enabled" (highlighted in yellow), "Video Access Permission" with a dropdown set to "Enabled", and "Record and Save Mode" with a dropdown set to "dtmf-pound #".

Recordings List with Video Recordings

Recordings containing "supplemental" video files are indicated by a "film" icon on the left-hand side of the listing.

RSS Ingress Call ID	Time	From	To	Duration
4-5350@10.10.248.146	2017-08-04 09:35:39 am	sipp_g711_ulaw	rss_g711_ulaw	10.0s
3-5350@10.10.248.146	2017-08-04 09:35:29 am	sipp_g711_ulaw	rss_g711_ulaw	10.0s
2-5350@10.10.248.146	2017-08-04 09:35:19 am	sipp_g711_ulaw	rss_g711_ulaw	10.0s
1-5350@10.10.248.146	2017-08-04 09:35:09 am	sipp_g711_ulaw	rss_g711_ulaw	10.0s
1-13381@10.10.248.146	2017-07-19 10:44:49 am	sipp_g711_ulaw	rss_g711_ulaw	10.0s

Recording Details with Video Recordings

A "Supplemental Files" accordion displays in the recording details page for a recording containing video files. The download icon displays for users with the proper permissions to download video files.

File Name	File Type
raf-ae6f19af0308b0e125b32a92b5b528dd@10.138.217.133-1.mp4	video
raf-ae6f19af0308b0e125b32a92b5b528dd@10.138.217.133-2.mp4	video

Playback

Video recording playback is available through the traditional play option for any recording with the video identifier. Both parties in the 2-part video recording are offered in picture-in-picture format that may be reversed by clicking on the smaller window.

Video Codec Negotiation

When video recording is disabled, an incoming invite containing a video codec in the SDP negotiation is answered with "0" as the RTP port and a media directive of "inactive" for the video media, echoing the supported video codec ID. Below is an example of the SDP negotiation with video support disabled:

INVITE SDP:

```
v=0
o=linphone 1887 1227 IN IP4 10.138.238.92
s=Talk
c=IN IP4 10.138.238.92
t=0 0
a=rtcp-xr:rcvr-rtt=all:10000 stat-summary=loss,dup,jitt,TTL voip-metrics
m=audio 7078 RTP/AVP 0 8 101
a=rtpmap:101 telephone-event/8000
m=video 9078 RTP/AVP 96 97
a=rtpmap:96 VP8/90000
```

```
a=rtpmap:97 H264/90000
a=fmtp:97 profile-level-id=42801F
```

200OK SDP:

```
v=0
o=userX 20000001 20000001 IN IP4 10.138.222.114
s=Talk
c=IN IP4 10.138.222.114
t=0 0
m=audio 22000 RTP/AVP 0 101
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=ptime:20
m=video 0 RTP/AVP 96
a=ptime:20
a=inactive
```

When video recording is enabled, the same INVITE SDP has the following reply instead:

200OK SDP:

```
v=0
o=OCISR 0 0 IN IP4 10.196.0.114
s=-
c=IN IP4 10.196.0.114
t=0 0
m=audio 22002 RTP/AVP 0 101
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
m=video 36002 RTP/AVP 97
a=rtpmap:97 H264/90000
```

The same principle applies to SIPREC SDP negotiation, with the obvious difference of two sets of media specs and media directives.

Files Recorded For a Video Call Session

The ISR has extended support for SIPREC video recording in 6.0. The video filename is based on the final audio recording name resolution, from the whole call recording, adding suffix and proper file extension. In this case the file extension is ".mp4".

In SIPREC recording mode, the video filenames are, following the above example, "rss_sd_siprec-1-12215@10.196.153.206-1.mp4" and "rss_sd_siprec-1-12215@10.196.153.206-2.mp4". Note that here the caller side of the video capture has the suffix of "-1", and the 3rd party side has the suffix of "-2".

CSV Download of Recording to Include Video File Name

The CSV Download feature has been updated to include all video/supplemental file names. To include the supplemental files the include details checkbox must be checked. The header name is "Supplemental Files" with file name values in JSON like the following:

```
[{"file_type":"VIDEO","file_name":"test.mp4"},
{"file_type":"VIDEO","file_name":"test_2.mp4"}]
```

Video Recordings Access Permissions

Video Recording permissions may be set at the Account, Route, and User levels.

Account:

Video Recording is

Video Access Permission

Route:

Recording

Route Mode

Recording is

Percent To Record

Always Record As Raw RTP

Recording Format Profile

Record DTMF

Recording Editing Permissions

Allow Editing of Agent ID

Allow Editing of Rating

Allow Editing of Completed Transaction

Allow Editing of Notes

Video

Video Recording is

Video Access Permission

Record and Save Mode

Record and Save on DTMF

Archiving

Keep Recordings for Days

Sessions Capacity

Session Capacity

Additional Burst Session Capacity

Users:

Permissions

(Drag and Drop fields below; then Update to apply settings.)

Granted	Available
Delete Recordings Permission	Edit Recordings Permission (Does not apply to Super Users)
Download Recording Permission	Notes and Scoring Permission
Playback Recording Permission	
Video Access Permission	

Dashboard Localization

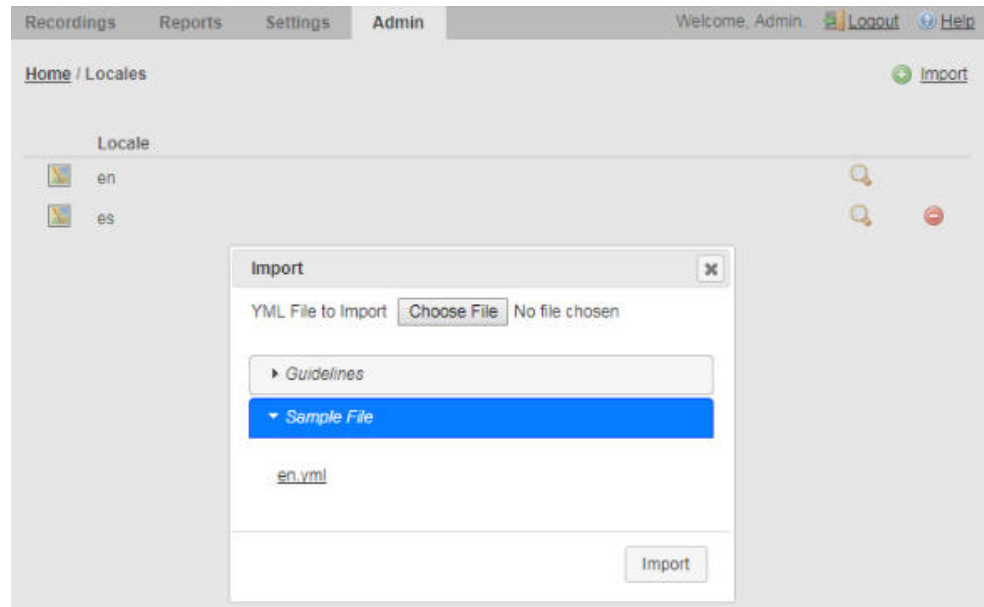
For users looking to extend their branding and offer the ISR Dashboard in languages other than English, you can upload transcriptions of static dashboard text. Transcriptions are not provided by Oracle, but detailed instructions on how to upload translations, and a sample file are, making it easy to extend the ISR Dashboard.

Adding a New Locale

You can create, import, and set a new locale by completing the following procedure on the Dashboard:

1. In the Admin tab, click **Locales**.
2. Click **Import**.
3. Read the provided guidelines.

4. Click the provided "en.yml" English sample for a template for your locale.
5. Copy the content starting at the root element "en" and ending at "multi_page_html" and paste it into a local text file or editor.
6. Save the file as "<root_element>.yml", where <root_element> is the ISO language code. A comprehensive list of ISO-639-1 language codes can be found in https://www.w3schools.com/tags/ref_language_codes.asp.
7. Update the strings with the translations appropriate for the chosen language/locale.
8. Click **Choose File**, select the file, and click **Import**.



9. Set the "Preferred Language" for the User or Account (in "Branding and Language") to the new locale root element value.
10. Log in and confirm your changes.

Recording Metadata Export Templates

ISR offers the FACE API for customers wishing to connect to ISR to extract recordings for use in other 3rd party or homegrown applications. Some legacy recording vendors require recording metadata be delivered in a pre-defined format. Using Export Templates, customers can create a defined format for data extraction and then call the FACE API, referencing the Template, to extract recording information in the defined format. Export Templates are version controlled and can be updated or replaced as needed. ISR provides the Verint® Import Manager Template, by default.

Template Definitions

Templates can be defined to format the metadata returned by FACE requests for recording details. They can be created, edited, and deleted in the Template Definitions sections of the Admin tab. Users can specify a name for the Template, and a version number is automatically assigned, starting at 1 and incrementing for each update to the Template body with the same name.

Formatting

The text contained in the Template body is returned as is, unless it is surrounded by percent symbols (%). When FACE is using a template and comes across a % character, if the next character is also a %, a single % is inserted in the response. Otherwise, it searches for a second % and tries to find a matching Field Parameter for the text between the %s (exclusive). If found, the recording's appropriate value for the Field Parameter Name is inserted in the response. If no default Field Parameter match is found, the Custom Data for the recording is checked, whereupon the value of a matching Custom Data field is appended to the response. In the event that no value can be determined for the given Field Parameter (in both the default list and among the Custom Data), an empty string is inserted in the formatted text returned to the client. If no closing % is found after an opening %, an error code/response is returned, indicating that the template is improperly formatted. Text between and after field parameters (delineated by %) is appended to the response as is.

Field Parameters

The following list contains the currently supported Field parameters with a brief description of each. In addition, any defined Custom Data fields can be included as Field Parameters using the Custom Data field name in the template body (surrounded by percent % signs).

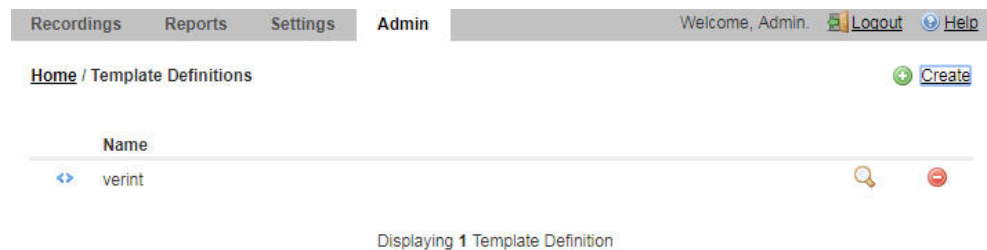
- recordingId—recording ID
- filename—audio recording filename
- directory—audio recording file relative directory
- isrUcid—ISR UCID
- ingressCallId—ingress call ID
- egressCallId—egress call ID
- from—from/ANI
- to—to/DNIS
- accountId—account ID
- routeId—route ID
- rssId—RSS ID
- agentId—agent ID
- duration—duration (milliseconds)
- durationSeconds—duration (seconds)
- startDate—start date (yyyy-MM-dd)
- startTime—start time (HH:mm:ss)
- startDateUtc—start date in UTC (yyyy-MM-dd)
- startTimeUtc—start time in UTC (HH:mm:ss)
- startYear—start date year
- startYearUtc—start date year in UTC
- startMonth—start date month
- startMonthUtc—start date month in UTC

- startDay—start date day
- startDayUtc—start date day in UTC
- startHour—start time hour
- startHourUtc—start time hour in UTC
- startMinute—start time minute
- startMinuteUtc—start time minute in UTC
- startSecond—start time second
- startSecondUtc—start time second in UTC
- startMillisecond—start time millisecond
- startMillisecondUtc—start time millisecond in UTC
- startTimeZone—start time time zone (e.g. EDT)
- startTimeZoneOffse— start time time zone offset (e.g. +0400)
- pauseLength—pause length (milliseconds)
- baseUrl base—URL (from which recording file is served)
- sourceDirectory—archiver source directory
- destinationDirectory—archiver destination directory

Adding a New Template

You can create a special formatting template by performing the following procedure on the Dashboard:

1. In the Admin tab, click **Template Definitions**.
2. Click on the provided "verint" template for an example and return to "Template Definitions" when ready.
3. Click **Create**.



4. Assign a **Name**.
5. In the **Body** field, enter any required special formatting characters and the %-surrounded ISR fields represented in "Field Parameters".
6. Click **Create**.

Note:

You may download recording metadata in the new special format using the example provided in "Common FACE Commands" in the *Oracle Communications Interactive Session Recorder API Guide*.

Recordings with No Media

Starting with the 6.0 release, ISR now offers the ability to optionally write an empty (0 byte) file when a recording INVITE is received and indexed, but results in no RTP being received. These "missing" recordings can occur when a session terminates so quickly that the Recorder process does not have time to fully initialize, or when media is never offered for an established session.

To better reconcile these situations for certain customer use cases, a new Archival process configuration has been created to ensure a recorded file is created and associated with the existing metadata regardless of whether RTP was ever received.

To enable this functionality, set the **Create Empty Recordings** parameter to **yes** for each Archival instance. By default, this parameter is disabled.

The screenshot shows the Admin console for Archivers. The 'Update' dialog box is open, displaying the following configuration:

Parameter	Value
IP Address	10.10.248.125
Source	10.10.248.125 (10.10.248.125) Primary
Destination	10.10.248.125 Archive
Number of Threads	3
Move Attempts	3
Mode	Primary
Status	Enabled
Able to Delete Recordings	Yes
Dir date structure	Yes
Dir account structure	No
Purge Index of Missing Recordings	No
Create Empty Recordings	No

When this parameter is enabled, when a missing file for a recording record is encountered, the Archival process writes an empty file in the recording destination Location and logs a message similar to the following example:

```
9/7/17 14:20:00[INFO ]      Thread[ArchiverThread-71,5,main] (Missing File)
creating empty recording for /opt/isr/Recordings/
rss_g711_ulaw-1-2171@10.10.248.128.wav
```

This message can also be found in the **Recording Details > File Location** section of the Dashboard.

▼ File Location

Store Indefinitely	<input type="checkbox"/>
Archival Status	Successfully Archived
Directory	/2017-09-11/13/09
Archival Remarks	(Missing File) created empty recording: /opt/isr/ArchivedRecordings/2017-09-11/13/09/rss_g711_ulaw-1-28154@10.10.248.209.wav at Mon Sep 11 09:12:00 EDT 2017 by archiver ID 1 process ID ap-isrdev-dh1-3.us.oracle.com15e71116911.

Existing customers who do not wish to change the current ISR behavior should leave the **Create Empty Recordings** parameter set to **No**.

Remote Archival Webservice is Deprecated

As of ISR Release 6.0, the Remote Archival Webservice (RAWS) has been deprecated and replaced by FACE API functionality. For more information, see the *Oracle Communications Interactive Session Recorder API Guide*.

3

Inherited Features

Feature descriptions found in this chapter are inherited (forward merged) from Oracle Communications Interactive Session Recorder releases:

- ISR 5.2M1

These features were not included in the ISR 5.2 GA docset.

ISR 5.2 Maintenance Release Features

The following features appear in this major release documentation set for the first time.

Data and Configuration Backup Option

The ISR upgrade includes a backup step that copies an exhaustive set of existing data, security keys, certificates, keystores, configuration files, and logs related to applications and platforms associated with all of the ISR components. For a detailed list of these files, contact your Oracle account representative.

You may execute the backup step at any time through the `configIsr.sh` script by choosing option **b** on any of the component hosts. Upon upgrade, each of the ISR components automatically executes the backup option by default.

 **Note:**

When backing up files, ensure you consider disk space limits and follow the script's instructions carefully.

By default, the backup files are generated in the following locations for each component and you can change them during the backup process

Dashboard

- `/opt/isr-backups/dash-configs.tgz`
- `/opt/isr-backups/dash-data.tgz`

FACE

- `/opt/isr-backups/face-configs.tgz`
- `/opt/isr-backups/face-data.tgz`

Index

- `/opt/isr-backups/index-configs`
- `/opt/isr-backups/index-data.tgz`

RSS

- /opt/isr-backups/rss-configs.tgz
- /opt/isr-backups/rss-data.tgz

This feature description is found in the ISR Installation Guide, "Upgrading the ISR" chapter.

Recorder Process Packet Reassembly Option

Release 5.2M1 introduced a new configuration parameter, allowing you to disable the media packet realigning functionality of the RSS Recorder process. Because ISR recordings are often used in advanced analytics applications, the default system behavior was to reorder packets upon receipt to provide potentially better audio quality. This enhancement allows you to choose to disable that realignment and write the packets to disk as they are received, even if they are received out of sequence.

By default, media is realigned.

Note:

You must restart the RSS Recorder for this functionality to take effect.

This feature description is found in the ISR Administrator Guide, "Managing Sites" chapter.

collectLogs.sh Script for Troubleshooting and Support

The collectLogs.sh is a script that gathers critical details about application, host resource, and OS configuration and bundles them into a compressed file, helpful for troubleshooting and submitting service requests. To run the script, execute the **sudo /opt/isr/collectLogs.sh** command on the component host(s).

The following list outlines the files that are gathered for each component host, along with the compressed file's name:

Index:

Index_<release#>_logs.tgz

```
/var/log/mysqlld.log  
/var/lib/mysql/mysql/general_log.CSM  
/var/lib/mysql/mysql/general_log.CSV  
/var/lib/mysql/mysql/general_log.frm  
/var/lib/mysql/mysql/slow_log.CSM  
/var/lib/mysql/mysql/slow_log.CSV  
/var/lib/mysql/mysql/slow_log.frm  
/tmp/system_df.log  
/tmp/system_dmesg.log  
/tmp/system_ip.log  
/tmp/system_ps.log  
/tmp/system_top.log
```

Dashboard:

Dashboard_<release#>_logs.tgz

```
/opt/isr/logs/dashboard/production.log*  
/var/log/puma/puma.log*  
/tmp/system_df.log
```

```
/tmp/system_dmesg.log  
/tmp/system_ip.log  
/tmp/system_ps.log  
/tmp/system_top.log
```

RSS:

```
RSS_<release#>_logs.tgz
```

```
/var/log/tomcat/catalina.*  
/var/log/tomcat/host-manager.*  
/var/log/tomcat/localhost.*  
/var/log/tomcat/localhost_access_log.*  
/opt/isr/logs/watcher/ServiceWatcherService.log*  
/opt/isr/logs/watcher/watcherd.log*  
/opt/isr/logs/watcher/watcher.log*  
/opt/isr/logs/recorder/ISRService.log*  
/opt/isr/logs/recorder/recorder.log*  
/opt/isr/logs/converter/converter.log*  
/opt/isr/logs/converter/converterService.log*  
/opt/isr/logs/api/apievent.log*  
/opt/isr/logs/api/api.log*  
/opt/isr/logs/archiver/archiver.log*  
/tmp/system_df.log  
/tmp/system_dmesg.log  
/tmp/system_ip.log  
/tmp/system_ps.log  
/tmp/system_top.log
```

FACE:

```
Face_<release#>_logs.tgz
```

```
/opt/isr/logs/face/event.log*  
/opt/isr/logs/face/face.log*  
/var/log/tomcat/catalina.*  
/var/log/tomcat/catalina.out*  
/var/log/tomcat/host-manager.*  
/var/log/tomcat/localhost.*  
/var/log/tomcat/localhost_access_log.*  
/var/log/tomcat/manager.*  
/tmp/system_df.log  
/tmp/system_dmesg.log  
/tmp/system_ip.log  
/tmp/system_ps.log  
/tmp/system_top.log
```

This feature description is found in the ISR Installation Guide, "CIS Troubleshooting" chapter.

Upgrading the ISR

The ISR 5.2M1 release introduced a "yum-style" approach to upgrading all ISR applications on each ISR component host. The 6.0 release continues with this method.

 **Note:**

The upgrade feature is limited to upgrades within the 5.2Mx and 6.0 release sets (5.2M1 and higher as upgrading is not supported in 5.2M0), and an upgrade process from release 5.1 or earlier is not currently available. Contact your Oracle account representative with any questions.

This feature description is found in the ISR Installation Guide, "Upgrading the ISR" chapter.

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Fixes, Known Issues, and Caveats in ISR 6.0

Fixes

- An error for importing new certificates has been fixed.
- An error in the Face Tomcat server.xml that was causing TLS1.2 not to be enabled, has been fixed.
- A fix for "ad-hoc" recording through the API addresses missing recorded files when ISR handles many sessions and only records a small percentage of them.
- An improper RSS 200 OK to a transfer re-INVITE, where the API request to start recording is not reflected in the SDP's media directive of the 200 OK, has been resolved, and the RSS now responds that media is active.
- Port shuffling during a transfer re-INVITE exposes an RTP stack limitation where media packets are not available to be written, resulting in loss of session media. This has been fixed with a reset of the RTP object handling the session media.
- More than three codec changes exceeded the codec list for the RPDD file header and crash the Recorder process. The fixed version enforces unique codec values in the list, avoids exceeding the maximum of four in the list, while also catching an unfinished SIPREC re-INVITE for ad-hoc StartRecord (and pause and unpause) to time out and properly drop the inactive call.
- A race condition has been addressed to properly process SIPREC re-INVITES that may happen simultaneously from the SRC and SRS in the ad-hoc recording mode.
- The forceRPDD setting (aka "Always Record As Raw RTP" in the Dashboard) is now accurately propagated to the Recorder process' Mixer threads to properly handle RecordStart API events.
- The API no longer requires using the ".wav" extension in the fileId parameter value and accepts the ".rpdd" extension as well.
- The Recorder process crashes with close events at the end of a session that causes the RtpIO thread to override the EndCall event, forcing a reset of the thread while not idle. A bug with the reset then causes the Recorder process to crash. The resolution is twofold, clear the voiceStruct pointer properly for the reset of the RtpIO thread, and add an event queue mechanism for the RtpIO thread to prevent the race condition and events overriding each other.
- During a load test for a patch, a race condition was discovered with the Recorder thread. In very specific, rare scenarios (1:100,000 under scenario load test) the Recorder thread runs away until the next session on that resource. This impacts a single call recording, usually a very short session, or even a non-indexable one.
- The Converter process has a fix for a memory leak under load of certain scenarios. Without the fix the Converter may consume all (e.g. 64GB) of memory if left unattended. With the fix in this release the "converterl.elf" process consumes on the order of .5MB in a 3-thread configuration.
- A second "recordStart" on the same session fails after the previous recording has ended. The SBC answers the Recorder reINVITE containing the "a=inactive" parameter with an errant "a=sendonly". The patch supports this behavior.

- Fixed an issue where in certain ad-hoc scenarios recordings are not being written to file despite successful indications in the logs and API. Sessions terminated in STANDBY mode no longer lead to subsequent RecordStart commands timing out as the RtpIO thread finishes processing the backed up events.
- Recordings "Partial Search" functionality now returns the appropriate results.
- Download properly downloads file in Recordings Details page.
- Tenant User Recordings Details displays properly.
- Dashboard icons now have properly named alternate text attributes.
- The ISR no longer generates an error when searching for recordings based on recording duration.
- Backward-compatibility is fixed in the Converter process so that upgrade scenarios where not all RPDDs have been converted are handled properly once an ISR deployment has reached 5.2, there is no risk of loss of RPDD recordings when upgrading to release 6.0.
- ISR certificates now update the date when regenerating.

Recording Retention Limit

The Dashboard Archival Route configuration **Keep Recordings for X Days** enforces an upper bound of 365 days. This has been fixed in subsequent patches and releases, but if an immediate workaround is required, contact your Oracle account representative.

MySQL Host Resolution Configuration Issues

A specific parameter for host name resolution may impact deployments by adding noticeable latency in database queries and may cause session recording to fail. Updating with a provided 6.0 patch release resolves any misbehavior due to latency with MySQL host name resolution.

Firewalld Performance Disclaimer

The Oracle Linux 7.2 firewalld services, enabled by default on all ISR component hosts, have demonstrated a performance impact (of as much as 25%), using Oracle hardware. When considering the balance of security vs. performance, see the Oracle Communications Interactive Session Controller Security guide for more information on the configuration options of firewalld services and their benefits.

ISR Index Component Time Zone

Oracle recommends you configure the ISR Index component time zone to be set to UTC. To do this, upon installation the configIsr.sh script prompts the user for permission to configure the system time zone to UTC. You can configure all other ISR components' time zone as needed.



Note:

Remember that your component time zones affect the time stamps in component logs.

MySQL User Passwords

You can have only one MySQL user password for all users. For example, if multiple RSSs are configured to use the same 'israpi' MySQL user name, the password must be the same for every RSS.

Required Recording Format Conversion For FACE

All g.729 and g.722 recordings in RPDD format cannot be downloaded in FACE without off-line Archival conversion.

Deprecated 4.x Passwords

If an account has not updated the security of its password from ISR version 4.x, the Administrator must reset the password.

ISR Recording Playback Errors For Some Web Browsers

ISR recording playback errors have been reported for the following web browsers:

- **Firefox**—Firefox is not supporting playback of the 8-bit/8 kHz audio format set in the "Default Recording Format Profile" for the g711 transmission codec (historically the most popular transmission codec). Most commonly, the Dashboard's playback controls appear only briefly before becoming unavailable. To work around this issue, for routes using the "Default Recording Format Profile", change the setting to the **Firefox Supported** Recording Format Profile, where the g711 transmission codec is converted to the PCM 16-bit/16 kHz recording format.
- **Internet Explorer**—You must use the Windows Media Player plugin to play recorded wave files via Internet Explorer. Without the plugin, an "Invalid Source" error appears in the player popup. This browser support issue impacts ObserveIT Screen Recording integrations with ISR, where the Chrome or Firefox browsers must be used for playback instead of Internet Explorer.
- **Chrome**—Displays some inconsistent behavior with playback of long recordings in internal tests, where the browser stops playback prematurely. Playback in another browser rectifies the problem.

Note:

Playback failures may also occur with the Quicktime plug-in version 7.7.7. If you encounter these issues, downgrade to version Quicktime 7.7.4.

Index Upgrade Errors and Warnings During Backup Process

- In the detailed output of the backup process of the upgrade, you can ignore the following error:

```
cp: cannot stat /opt/isr/security/keys/*: No such file or directory
```

After this error, the ISR logs the configuration backup and displays the following message:

```
The backup of ISR configs was successful
```

- The following error copying MySQL server's log file is expected in the Index data backup process.

```
Error Backing up file, unable to write backup file: /var/log/mysqld.log
to /opt/isr-backups. ***
```

This is followed by warnings that an error has occurred and a prompt asking if you want to continue. If the mysql.log is important to you, you may choose to stop the upgrade or backup process to copy and compress the file. Ignore this error in any subsequent upgrades

or backup runs. If the mysql.log is not important to you, you may type **continue** to ignore the error.

- During the data backup process, the output "tar: ./var/lib/mysql.sock: socket ignored" error may be ignored.

RSS Upgrade Error from 5.2M0 During Backup Process

The ISR 5.2M0 was missing a configuration file for formatting the output of the CDR log file. Because of this, RSS upgrades from 5.2M0 display the following error:

```
Error Backing up file, file to backup (/opt/isr/rss/CDRLog.properties) not present. ***
```

This is followed by a configuration backup log error and a prompt during the RSS VM upgrading asking whether you wish to continue. You may ignore these errors and enter **continue** to complete the upgrade.

On bare-metal RSSs the upgrade does not continue without a successful backup step, so you must quit the upgrade and work around the problem. The simplest way to work around the backup error is to execute a **touch /opt/isr/rss/CDRLog.properties** command so that the file exists before the backup and upgrade.

ISR Dashboard Support Tab Inaccuracy

The Help page's Dashboard Support tab improperly lists the log file names and paths. The proper paths are as follows:

- Core Recorder (On RSS Host): /opt/isr/logs/recorder/recorder.log
- Routing API (On RSS Host): /opt/isr/logs/api/api.log
- Recording Dashboard (On Dashboard VM Host): /opt/isr/logs/dashboard/production.log

FACE Import of the RSS Certificate

While FACE communicates securely with the RSS for status and control functions, currently the FACE configIsr.sh script does not automatically import the certificate created during RSS provisioning with its configIsr.sh script. You must manually import the RSS certificate for FACE API control of the RSS.

To import the certificate, execute the following steps:

1. Copy the RSS(s) generated certificate(s) from the path established when the RSS configIsr.sh script was executed /opt/isr/security/keys/rss_cert.pem to the FACE host (for example, the /opt/isr/ directory).
2. on the FACE host, from the Java keytool, execute a command similar to the following example:

```
./keytool -import -noprompt -trustcacerts -alias isr_alias -file /opt/isr/
rss_cert.pem -keystore /usr/lib/jvm/java-1.8.0-
openjdk-1.8.0.91-0.b14.e17_2.x86_64/jre/lib/security/cacerts -storepass
changeit
```

**Note:**

The above command is an example only and it is likely that the **alias**, **file**, and **storepass** parameter values in your environment will be different.

Using NFS Shares to Backup ISR Configurations and Data

To use NFS shares to backup ISR configurations and data you must meet the following prerequisites:

- Configured ISR host (with networking access to NFS share on the remote host)
- NFS share with **no_root_squash** option and writable by root user on the client

To store ISR configuration and data backups on a remote host via NFS:

1. Set up and export the remote share. For more information, see the *Oracle Communications Interactive Session Recorder Installation Guide*.
2. Configure and test the client on the ISR host.
3. Ensure that the "isradm" user (or other configured non-root user) can connect, read, and write files from the share.
4. Backup ISR configuration and data files using the **b** menu option in the configIsr.sh file and use the local path to the remote share to the location to store configuration and data backups.
5. Verify the contents of the data and configuration backups using the **tar tzf /backup/path/<isr_component>-data.tgz** or **tar tzf /backup/path/<isr_component>-configs.tgz** commands (replacing <isr_component> with the specific component data and backup filenames).

RSS Upgrades From 5.2M0 to 6.0M0

In RSS upgrades from 5.2M0 to 5.2M1, the Recorder processes should now communicate over the VoIP network in the "trusted" firewall zone instead of the DMZ zone. However, an RSS upgrade defect leaves these applications in DMZ, impacting Recorder process performance. You must move the VoIP interface and the Recorder applications to the "trusted" network.

To set the recorder processes to the "trusted" zone:

```
$ sudo firewall-cmd --zone=dmz --remove-service recorder_voip
$ sudo firewall-cmd --zone=dmz --remove-service recorder_voip --permanent
$ sudo firewall-cmd --zone=trusted --add-service recorder_voip
$ sudo firewall-cmd --zone=trusted --add-service recorder_voip --permanent
```

To set the VoIP network to the "trusted" zone edit the connection profile (for example, /etc/sysconfig/network-scripts/ifcfg-ens34) and change the following line:

```
ZONE=dmz
```

To the following:

```
ZONE=trusted
```

And restart the firewall by executing the following command:

```
systemctl restart firewalld
```

FACE 'audioRecording/start' Requests Must Include 'Filename' Parameter

FACE "audioRecording/start" requests that fail to include the "filename" parameter result in a recorded file name of "-.wav". This means that subsequent requests omitting "filename" will overwrite previous "-.wav" files.

Incorrect XML Response When FACE Request Accept Header Not Set

In certain scenarios where the Accept header of a FACE request is not set, the default response is in xml, but the content-type header of the response is "application/json" rather than "application/xml".

Chrome Video Playback Issue

Subsequent video playback attempts may not be successful and may force the user to close the player to play again. This issue is specific only to the Chrome browser.

'configIsr.sh' Script Error

Dashboard "configIsr.sh" script fails with error after selecting option 'd'.

Upgrade Conversion Failure

An upgrade from 5.2 to 6.0 likely results in conversion failures until each Location has been updated to properly reflect connections to the Converter using the Data Network. Log into the Dashboard and update each Location in the "Recording Converter" section by setting the "Converter IP Address" field to the Converter's data network IP address. You may confirm the Converter data IP in the "Converter Server Configurations" accordion of the corresponding RSS.