VSXi System

Call Detail Record Specification

Version: 1.27

Date: 07/13/2022

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1. Scope

This document defines the Sansay VSXi CDR file format and the file retrieval process.

2. CDR Format

2.1 CDR Header

#	Field	Max. ASCII Chars	Description	Notes	CSV
1	Record Sequence Number	10	Unique identification of this record		A
2	Version Number	5	Format version number of records to follow		B
3	Record Type	1	Type of CDR being generated. R – Normal CDR record, A - Audit		C
	Record Data	Variable	Parameters defined in section 2.2		

CDR fields which do not have data will have “NA”. The character semi-colon (;) is used as the field delimiter to separate the fields of a CDR record. Each CDR record in the file is separated by line feed “\n”.

Starting from CDR V1.11 and above, users can choose to opt out the additional fields in the CDR record and/or skip the intermediate records (non-final failed call record). Contact Sansay Support for details.

2.2 CDR Body

#	Field	Max. ASCII Chars	Description	Notes	CSV
4	Connection Type	16	Type of Connection		D
5	Session ID	36	Unique ID assigned to the call		E
6	Release Cause	4	More info on Section 2.3		F
7	Start Time of Date	32	Indicates Time of Date when the call entered the system		G
8	Answer Time of Date	32	Indicates TOD when the call was answered		H

9	Release Time of Date	32	Indicates the TOD when the call was disconnected		I
10	Minutes West of Greenwich Mean Time	32	Minutes West of Greenwich Mean Time. Used to calculate the time zone used on the system for that call.		J
11	Release Cause from Protocol Stack	32	Release cause string from either H323 or SIP protocol stack		K
12	Binary Value of Release Cause from Protocol stack	4	Binary value of the protocol release cause		L
13	1st release dialog	1	O: origination, T: termination, N: internal, E: ERS (external routing server)		M
14	Trunk ID - Origination	6	Trunk ID for origination GW (Resource assigned inbound call leg)		N
15	VoIP Protocol - Origination	6	VoIP protocol for origination dialog		O
16	Origination Source Number	41	Source Number in Origination Dialog		P
17	Origination Source Host Name	127	FQDN or IP address for Source GW in Origination Dialog		Q
18	Origination Destination Number	41	Destination Number in Origination Dialogue		R
19	Origination Destination Host Name	127	FQDN or IP address for Destination GW in Origination Dialogue		S
20	Origination Call ID	127	Unique ID for the origination dialog (origination call leg)		T
21	Origination Remote Payload IP Address	40	Remote Payload IP address for origination dialogue (support IPv6 is new in V1.22)		U
22	Origination Remote Payload UDP Port	5	Remote Payload UDP Port for origination dialogue		V
23	Origination Local Payload IP Address	40	Local Payload IP address for origination dialogue (support IPv6 is new in V1.22)		W
24	Origination Local	5	Local Payload UDP Port for origination		X

	Payload UDP Port		dialogue		
25	Origination Codec List	63	Supported codec list (separated by comma) for origination dialog		Y
26	Origination Ingress Packets	10	Number of Ingress (into Sansay VSXi system) payload packets in origination call leg		Z
27	Origination Egress Packets	10	Number of Egress (out from Sansay VSXi system) payload packets in origination call leg		AA
28	Origination Ingress Octets	10	Number of Ingress (into Sansay VSXi system) payload octets in origination call leg		AB
29	Origination Egress Octets	10	Number of Egress (out from Sansay VSXi system) payload octets in origination call leg		AC
30	Origination Ingress Packet Loss	10	Number of Ingress (into Sansay VSXi system) payload packet loss in origination call leg		AD
31	Origination Ingress Delay	10	Average Ingress (into Sansay VSXi system) payload packets delay (in msec) in origination call leg		AE
32	Origination Ingress Packet Jitter	10	Average of Ingress(into Sansay VSXi system) payload packet Jitter (in msec) in origination call leg		AF
33	Trunk ID -- Termination	6	Trunk ID for termination GW(resources)		AG
34	VoIP Protocol - Termination	6	VoIP protocol from termination gateway		AH
35	Termination Source Number	41	Source Number in Termination Dialog		AI
36	Termination Source Host Name	127	FQDN or IP address for Source GW in Termination Dialog		AJ
37	Termination Destination Number	41	Destination Number in Termination Dialog		AK
38	Termination	127	FQDN or IP address for Destination GW		AL

	Destination Host Name		in Termination Dialog		
39	Termination Call ID	127	Unique ID for the termination dialog		AM
40	Termination Remote Payload IP Address	15	Remote Payload IP address for termination dialog	Up to V1.21	AN
40	Termination Remote Payload IP Address	40	Remote Payload IP address for termination dialog (support IPv6 is new in V1.22)		AN
41	Termination Remote Payload UDP Port	5	Remote Payload UDP Port for termination dialog		AO
42	Termination Local Payload IP Address	15	Local Payload IP address for termination dialog	Up to V1.21	AP
42	Termination Local Payload IP Address	40	Local Payload IP address for termination dialog (support IPv6 is new in V1.22)		AP
43	Termination Local Payload UDP Port	5	Local Payload UDP Port for termination dialog		AQ
44	Termination Codec List	63	Supported Codec list (separated by comma) for termination dialog		AR
45	Termination Ingress Packets	10	Number of Ingress (into Sansay VSXi system) payload packets in termination call leg		AS
46	Termination Egress Packets	10	Number of Egress (out from Sansay VSXi system) payload packets in termination call leg		AT
47	Termination Ingress Octets	10	Number of Ingress (into Sansay VSXi system) payload octets in termination call leg		AU
48	Termination Egress Octets	10	Number of Egress (out from Sansay VSXi system) payload octets in termination call leg		AV
49	Termination Ingress Packet Loss	10	Number of Ingress (into Sansay VSXi system) payload packet loss in termination call leg		AW
50	Termination Ingress	10	Average Ingress (into Sansay VSXi		AX

	Delay		system) payload packets delay (in msec) in termination call leg		
51	Termination Ingress Packet Jitter	10	Average of Ingress (into Sansay VSXi system) payload packet Jitter (in msec) in termination call leg		AY
52	Final Route Indication	1	F: Final Route Selection, I: Intermediate Route Attempt	New in V1.3	AZ
53	Routing Digits	41	Routing Digit (Digit after Inbound translation, before Outbound Translation).	New in V1.5	BA
54	Call Duration in seconds. (Not to be used for billing).	10	Call Duration in Seconds. 0 if this is failed call. Time is truncated, we recommend using the millisecond duration field for billing instead.	New in V1.5	BB
55	Origination Post Dial Delay in seconds	6	Post dial delay (from call attempt to ring). 0 if this is failed call	New in V1.6	BC
56	Ring Time in seconds	6	Ring Time in Seconds. 0 if this is failed call	New in V1.6	BD
57	Duration in milliseconds	10	Call duration in milliseconds.	New in V1.8	BE
58	Conf ID	35	Unique Conference ID for this call	New in V1.9	BF
59	RPID/PAI	41	User-part from the Remote-Party-ID or P-Asserted-Identity header	New in V1.10	BG
60	Route Entry Index	2	1-8, indicate the relative index in a route entry	New in V1.11	BH
61	Route Table Used	5	1-59,999	New in V1.11	BI
62	LNP Dipped	1	The call has been through External LNP server. 1: Yes, 0: No	New in V1.12	BJ
63	Ingress LRN	41	Routed Number (RN) from Ingress Call Attempt if present	New in V1.12	BK
64	Egress LRN	41	Egress RN sent to termination leg	New in V1.12	BL
65	CNAM Dipped	1	CNAM server has been queried for this call, 1: Yes, 0: No	New in V1.12	BM
66	DNC Dipped	1	DNC (Do Not Call) Server has been queried for this call, 1: Yes, 0: No	New in V1.12	BN

67	Origination TID Alias Name (as configured in Resource Page)	28	Can be used as Company ID if configured in Resource page	New in V1.13. Increased length in V1.18.	BO
68	Termination TID Alias Name (as configured in Resource Page)	28	Can be used as Company ID if configured in Resource page	New in V1.13. Increased length in V1.18.	BP
69	External Route Server Dipped	1	Did call query an ERS; 1: Yes; 0: No	New in V1.14	BQ
70	OLI Digits	7	Inbound OLI Digits if they were present	New in V1.15	BR
71	Routing Match	41	This is the digits that were matched in the route entry	New in V1.16	BS
72	Termination PDD in milliseconds	6	The Post Dial Delay provided by this call leg	New in V1.16	BT
73	P-Charge-Info	41	The Proxy Charge Information presented on the call	New in V1.16	BU
74	JIP	41	The Jurisdictional Indication Parameter presented on the call	New in V1.16	BV
75	Matched Digits in ERS	41	The routed digits matched in the ERS route tables	New in V1.17	BW
76	Route Table in ERS	5	The route table that was used by the ERS for this call	New in V1.17	BX
77	Route Sequence number in ERS	2	This is the sequence number in the route match used for this call	New in V1.17	BY
78	Jurisdiction Type used in ERS	5	This is the JD Type that was determined by the ERS for this call	New in V1.17	BZ
79	Reason Cause Value from Protocol Stack	32	SIP Reason header Q.850 cause code value	New in V1.19	CA
80	Mapped Cause Code	3	Post-Cause Code Profile Code	New in V1.19	CB
81	Mapped Reason Cause Value	3	Post-Cause Code Profile Reason header Q.850 cause code value	New in V1.19	CC

82	Reason Cause Text from Protocol Stack	32	SIP Reason header Q.850 text string received from Protocol Stack	New in V1.19	CD
83	Diversion/History-Info	41	ANI from Diversion/History-Info header	New in V1.20	CE
84	Origination Burst Loss Count	10	Total number of RTP discontinuations in the origination forward RTP stream.	New in V1.21	CF
85	Origination MOS (multiplied by 10)	2	Mean Opinion Score (MOS) of the origination forward RTP stream.	New in V1.21	CG
86	Origination R-Factor	3	R-Factor of the origination forward RTP stream	New in V1.21	CH
87	Termination Burst Loss Count	10	Total number of RTP discontinuations in the termination forward RTP stream.	New in V1.21	CI
88	Termination MOS (multiplied by 10)	2	Mean Opinion Score (MOS) of the termination forward RTP stream.	New in V1.21	CJ
89	Termination R-Factor	3	R-Factor of the termination forward RTP stream	New in V1.21	CK
90	Transcoding	1	Was media actually transcoded, 0: No, 1: Yes	New in V1.23	CL
91	Origination SRTP	1	SRTP on the origination call leg, 0: No, 1: Yes, 2: Yes with DTLS	New in V1.23	CM
92	Termination SRTP	1	SRTP on the termination call leg, 0: No, 1: Yes, 2: Yes with DTLS	New in V1.23	CN
93	FAS (False Answer Supervision) Duration in milliseconds	10	FAS duration in milliseconds (on termination leg), 0 means FAS not detected	New in V1.24	CO
94	FAS Idle (No Packet) Duration in milliseconds	10	FAS idle (no packet) duration in milliseconds (on termination leg)	New in V1.24	CP
95	Caller Identity Header Presence	1	Call was received with an Identity Header 0: No Identity Header 1: Identity Header Present	New in V1.25	CQ
96	Caller Identity Authentication	2	Status of Caller Identity Authentication One or two characters. ***One character:*** 0: No Authentication E: Authentication Failed	New in V1.25 Changed in V1.27	CR

			M: timeout/communication error with Authentication server ***Two characters:*** 1st character: A: Auth success with attestation level A B: Auth success with attestation level B C: Auth success with attestation level C N: No attestation (added to support base PASSPorT). Added in V1.27. 2nd character: I: Attestation from incoming INVITE N: Attestation from NSS/STI-AS dip R: Attestation from ERS dip		
97	Egress Caller Identity Header	1	0: Identity Header Not Sent 1: Identity Header Sent	New in V1.25	CS
98	Caller Identity Verification	1	Status of Caller Identify Verification 0: No Verification N: Verification Incomplete due to error V: Verified OK C: Verification not sent due to error in configuration. E: Verification Failed M: Timeout/Communication error with Verification Server	New in V1.25	CT
99	Customer Rate	10	Customer Rate Info 0.000000 - 99.9999	New in V1.26	CU
100	Vendor Rate	10	Vendor Rate Info 0.000000 - 99.9999	New in V1.26	CV
101	Caller Identity Header origid	36	UUID version 1 variant 10 as specified in RFC4122. xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx consisting of: ● 60-bit timestamp - 100 nsecs since 15-Oct-1582 ● Last 5 nibbles of NSS IP address) ● 6-byte Service Provider Code	New in V1.26	CW
102	Origination Video	1	Video on the origination call leg.0: No, 1: Yes	New in V1.27	CX
103	Termination Video	1	Video on the termination call leg.0: No, 1: Yes	New in V1.27	CY

2.3 Release Causes

The CDR records generated by the Sansay VSXi contain four fields that can be used to determine the exact cause of a call termination.

2.3.1. Session Release Cause: (CSV Column F)
Mainly for successful calls (answered, ring no answer) calls. Calls with session release cause of 00x indicates that the call did not fail. For failed calls, the released stack and stack release cause can provide more information.

Cause Code	Description
001	Normal answered call
002	No Answer, tear down by originator
003	No answer, tear down by the termination
004	NORMAL_NO_ANSWER, tear down by system
400	No Route to destination
401	No Response from Remote
402	Remote not Capacity / Service Unavailable
405	Termination reject for some other reasons
406	Termination Route is blocked
500	Originator is not in the Authorized list (source verification failed)
502	Origination direction is not bi-directional or inbound
503	Origination is not in service state

2.3.2. 1st Release Dialogue: (CSV Column M)
A one character value identifying the side of the call that initiated the teardown:

- ‘O’ – origination initiated the teardown.
- ‘T’ – termination initiated the teardown.
- ‘N’ – the VSXi internally initiated the teardown.

- 'E' – External Route Server initiated the teardown.

2.3.3. Release Cause from Protocol Stack: (CSV Column L then Column K)
An integer value based on the releasing dialogue protocol.

1. For a H.323 call leg originated release, it will be the returned Q.931 value received from the release side.
2. For a SIP call leg originated release, it's the RFC 3261 release cause value received from the release side.
3. For a VSXi system originated release, it an internal release cause for teardown.
    a. If the VSXi initiates a call teardown, the following cause values and strings are written into the CDR

        i. 960, "Demo Licence Expired!"
        ii. 961, "VSXi Capacity Exceeded"
        iii. 962, "Route Rejected"
        iv. 963, "Radius Rejected"
        v. 964, "Radius Access Timeout"
        vi. 965, "Gatekeeper Reject"
        vii. 966, "Enum Server Reject"
        viii. 967, "Enum Server Timeout"
        ix. 968, "DNS Server Reject"
        x. 969, "DNS/GK Timeout"
        xi. 970, "Could not allocate media"
        xii. 971, "EAM Busy"
        xiii. 972, "EAM Routing Timeout"
        xiv. 973, "Invalid EAM Response"
        xv. 974, "Dialog Block Failure"
        xvi. 975, "Application Timeout"
        xvii. 976, "No Response to INVITE"
        xviii. 977, "No Ring Timeout"
        xix. 978, "Ring No Answer Timeout"
        xx. 979, "200 OK Timeout"
        xxi. 980, "Maximum Duration Exceeded"
        xxii. 981, "ERS Reject"
        xxiii. 982, "ERS TID lookup fail"
        xxiv. 987, "Termination Capacity Exceeded"
        xxv. 987, "Origination Capacity Exceeded"
        xxvi. 987, "Term CPS Capacity Exceeded"
        xxvii. 987, "Orig CPS Capacity Exceeded"
        xxviii. 987, "Max H323 Legs Exceeded"
        xxix. 988, "STI No Identity Hdr from Orig"
        xxx. 988, "STI No Identity Hdr from STI-AS"
        xxxi. 988, "STI Term needs Identity Hdr"

xxxii. 991, "System Reset"
xxxiii. 992, "Loop Detected"
xxxiv. 998, “HA Failover”

2.3.4. Release Cause String: A string of text further identifying the teardown circumstance.

3. Sample CDR Record

000009975;V1.25;R;WithMedia;4045603-77913130@10.62.23.115;0001;Thu Dec 11 16:35:05 2014;Thu Dec 11 16:35:06 2014;Thu Dec 11 16:35:08 2014;0;Normal BYE; 200;O;000001;SIP;2404980441;10.197.32.59;0444;as.iop1.sansay.com;c13ec150-3786276-184ac3ff@192.168.1.102;10.197.32.59;2254;10.62.23.110;10084;G.711u_64k,G.729,RFC 2833;100;109;17200;18748;0;0;0;000010;SIP;2404980441;10.62.23.109;0444;as.iop1.sansay.com;4045603-0-DNS0-77913130@10.62.23.115;199.19.193.12;25596;10.62.23.109;10086;G.711u_64k,RFC 2833;109;100;18748;17200;0;0;0;F;0444;2;0;0;2280;003DBB23 04A4DC2A 00001AA1 73173E4A;;1;6;0;;;0;0;Access;Peering OUT;0;;default;280;;;;0;0;0;;;;;;0;0;0;0;0;0;0;1;AN;1;E;0.00033;15.9900;e1e30f40-5602-11eb-8713-c1c1bfdc8888;

4. CDR File Storage/Retrieval

4.1 File Storage Policy

By default, all CDR files will be kept on the system for at least 360 hours. CDR files which are older than 360 hours will be deleted by the system automatically in order to save disk space. The CDR file is generated in a configured time interval. The time interval can be configured from 60 seconds to 99,999 seconds.

4.2 File Naming Convention

All CDR files are stored on the VSXi system at the default directory (/CDR). CDR files are assembled using the format YYYYMMDD-hhmm-BeginCDRSeq-EndCDRSeg.xxx, where:

- the Year is 4 digit long.
- where the Month, Date, Hour field is 2-digit each.
- The CDRSeq can be up to 9-digits long. The maximum sequence number is 999,999,999 and will wrap around to 0.
- The hour field is written in 24-hour format, which ranges from 00 through 23.
- The .xxx suffix/extension indicates the file was completed (cdr).

The active CDR file will be named cdr.tmp, which has the most current CDRs before the cdr file interval expires. For example, the CDR file 20130611-1658-181810684-182028255.cdr indicates

the file was created on 06/11/2013 at 16:58 and contains the CDR records sequence # from 181810684 to 182028255. The CDRSeq can be as long as 9 digits, it is wrapped around when the value hits 999,999,999.

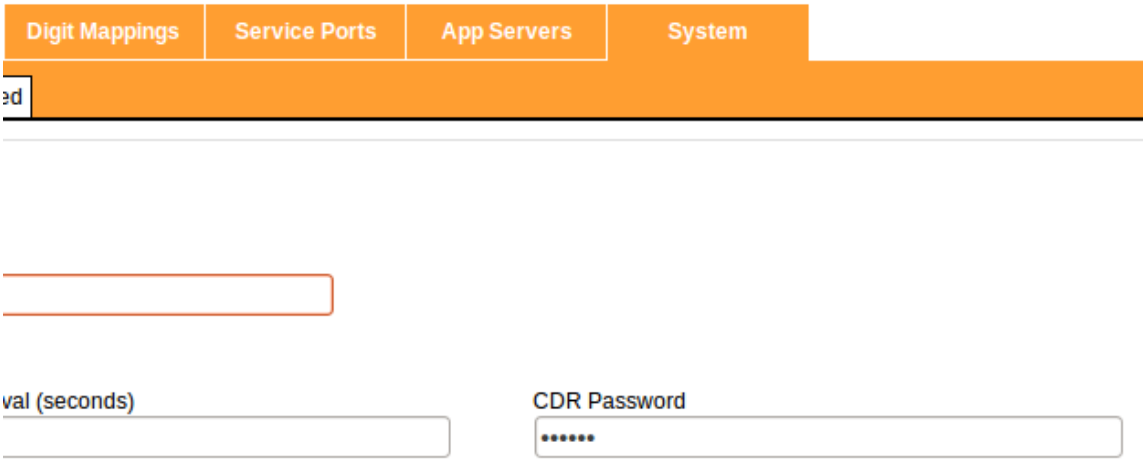
4.3 File Retrieval Procedure

CDRs are written to VSXi INX and CPX systems; VSXi RSX, MSX or MSTs do not write CDRs. When setting up CDR retrieval please point to the static/administrative IPs of all your INX/CPX systems, not the Virtual IP.

CDR files can be retrieved via SCP (secure file copy) or SFTP. This simple procedure should allow you to download CDRs from the Sansay VSXi system.

The SCP procedure requires a defined user login name with password.

1. Credentials:
    a. Username: The CDR user name will always be ‘cdr’. GUI users do not grant CDR access.
    b. Password: There is no default password. It can be modified in the System > Basic > Edit System > CDR Password field.



2. Obtain the IP addresses of your VSXi INX/CPX systems. Do not query the Virtual IP.
3. Obtain the IP address of your billing system or the system that will be downloading CDRs from the VSXi.
    a. Add this IP address as a trusted host (System > Trusted Hosts). Only trusted hosts are allowed secure access into the system
4. Schedule SCP (or SFTP) downloads. Example command:
    a. scp cdr@<IP address>:/CDR/20141227*.cdr /remotedirecotry/

If you wish to use SSH keys to access the system you would also need to do the following:

1. Create a .ssh directory in /home/cdr/:
   mkdir /home/cdr/.ssh
2. Change .ssh directory permissions: chmod 700 /home/cdr/.ssh
3. Add an authorized_keys file to the .ssh directory with permissions of 600:
   touch /home/cdr/.ssh/authorized_keys
   chmod 600 /home/cdr/.ssh/authorized_keys
3. Then you need to generate a key on the remote system (below is linux example):
   ssh-keygen -t rsa
   ssh-copy-id cdr@1.2.3.4 (replace 1.2.3.4 with IP of the Sansay)

Please note that this must be done on both servers if you have a HA pair system, if you don't and a fail-over occurs then key login will break.