



COMPUTERISED
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SYSTEMS
INC.

Software Solutions

FOR THE TELECOMMUNICATIONS INDUSTRY

CTS SS7

Collect, Decode and Store SS7 Events
Correlate SS7 Data with AMA Records
Generate Reports
Uncover Fraud

With over 20 years of experience in the telecommunications industry, Computerised Business Systems, Inc. creates software solutions which are aimed at adding value to our customer's business through increased productivity, profitability, growth and competitive advantage.



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CTS SS7

The SS7 solution, when paired with CTS AMA, provides a correlation tool between AMA records and SS7 events. The results give a clear picture of the data with specific reports which detail:

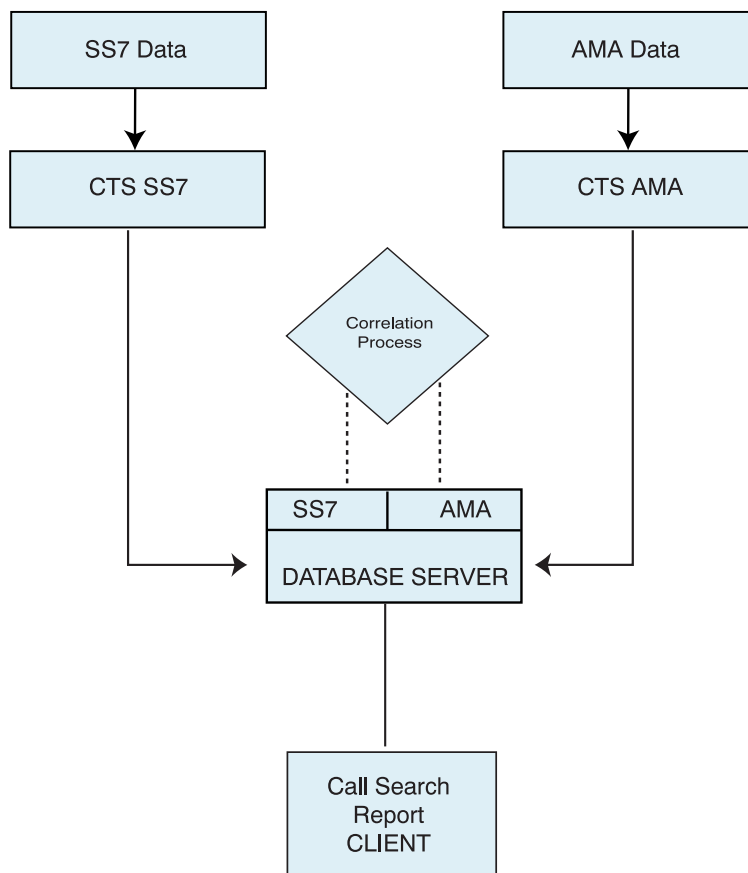
- SS7 events with matching AMA records
- SS7 events without matching AMA records
- AMA records without matching SS7 events

FEATURES AND BENEFITS

FEATURES:

- Continuous data collection and storage which provide quick retrieval
- Sophisticated correlation between SS7 events and AMA records
- Ability to search and view correlated records
- Easy to read reports detailing records with no matches.
- Discover and trouble-shoot phantom traffic.
- Identify translation errors/issues.
- Comprehensive turn-key system with ongoing maintenance and enhancements.

CTS SS7 SOLUTION



* This brochure supersedes any and all brochures distributed previously. 10/05



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CTS AMA SEARCH WITH SS7

When the CTS AMA and CTS SS7 programs are purchased together, the CTS AMA Search screen is enhanced to include the correlated SS7 records. This allows the user two methods to search:

- ◆ Searching for the AMA record and seeing the correlated SS7 messages. (as shown below)
- ◆ Searching for the SS7 record and seeing the related AMA record (as shown on the next page)

Row	Calling Number	Called Number	Call Type	Str Code	In Trunk	Out Trunk	Start Date	Start Time	End Time	Elapsed Time
1		(336) 859-45	119 - Terminating access	40653	0359	0204	09/07/2005	10:00:00.0	10:03:05.5	00:03:05.5
2	(336) 731-33	(336) 775-58	110 - Inter-LATA statio...	40625	0148	0268	09/07/2005	10:00:00.2	10:00:00.2	00:00:00.0
3	(336) 787-30	(800) 568-01	950 - Trunk group mem...	40500	0393	0192	09/07/2005	10:00:00.2	10:00:53.1	00:00:52.9
4	(336) 787-30	(800) 568-01	141 - IC/INC number s...	40360	0393	0192	09/07/2005	10:00:00.2	10:00:53.1	00:00:52.9
5	(336) 956-11	(336) 240-08	950 - Trunk group mem...	40500	0186	0361	09/07/2005	10:00:00.4	10:00:03.4	00:00:03.0
6	(336) 202-33	(336) 859-37	950 - Trunk group mem...	40500	0093	0238	09/07/2005	10:00:00.4	10:00:30.2	00:00:29.8
7	(410) 224-73	(336) 236-53	119 - Terminating access	40625	0378	0360	09/07/2005	10:00:00.5	10:00:47.5	00:00:47.0
8	(336) 416-31	(336) 242-10	119 - Terminating access	40625	0292		09/07/2005	10:00:00.8	10:00:15.8	00:00:15.0
9	(336) 462-10	(336) 731-61	950 - Trunk group mem...	40500	0361		09/07/2005	10:00:00.9	10:02:20.0	00:02:19.1
10	(336) 956-17	(866) 423-13	141 - IC/INC number s...	40360		0387	09/07/2005	10:00:00.9	10:02:27.1	00:02:26.2
11	(801) 316-00	(336) 248-24	119 - Terminating access	40625	0317		09/07/2005	10:00:01.1	10:00:01.1	00:00:00.0
12	(757) 000-0C	(336) 470-10	950 - Trunk group mem...	40001	0292	0333	09/07/2005	10:00:01.1	10:00:27.3	00:00:26.2
13	(757) 000-00	(336) 470-10	119 - Terminating access	40625	0292	0333	09/07/2005	10:00:01.1	10:00:27.3	00:00:26.2
14	(336) 859-51	(877) 226-26	950 - Trunk group mem...	40500	0204	0240	09/07/2005	10:00:01.1	10:00:58.3	00:00:57.2
15	(336) 460-77	(336) 239-16	950 - Trunk group mem...	40500	0093	0339	09/07/2005	10:00:01.5	10:01:45.0	00:01:43.5
16	(800) 883-06	(336) 224-08	119 - Terminating access	40625	0388		09/07/2005	10:00:01.7	10:00:06.2	00:00:04.5
17	(336) 248-22	(336) 768-04	110 - Inter-LATA statio...	40625		0268	09/07/2005	10:00:01.7	10:00:36.7	00:00:35.0
18	(888) 858-98	(336) 357-52	119 - Terminating access	40625	0192		09/07/2005	10:00:01.8	10:00:11.8	00:00:10.0
19	(336) 357-78	(336) 250-11	950 - Trunk group mem...	40500		0093	09/07/2005	10:00:01.8	10:00:36.6	00:00:34.8
20			120 - Originating excha...	00655			09/07/2005	10:00:01.9	10:00:01.9	
21			120 - Originating excha...	00655			09/07/2005	10:00:01.9	10:00:01.9	
22			120 - Originating excha...	00655			09/07/2005	10:00:01.9	10:00:01.9	

Row	Date/Time	Msg Type	Calling Number	Called Number	OPC	DPC	CIC	SIO
1	09/07/2005 09:59:56	IAM	(336) 956-17	(866) 423-13	238-114-003	244-002-003	093	95
2	09/07/2005 09:59:57	ACM			244-002-003	238-114-003	093	95
3	09/07/2005 10:00:01	ANM			244-002-003	238-114-003	093	A5
4	09/07/2005 10:02:29	REL			238-114-003	244-002-003	093	A5
5	09/07/2005 10:02:29	RLC			244-002-003	238-114-003	093	A5

The last two digits of the phone numbers have been removed to protect privacy.

AMA Search Results

User selects the columns and the order in which they appear.

Correlated SS7 Records

Includes all available messages in the event.



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CTS SS7 SEARCH WITH AMA

The CTS SS7 Search features has a number of options designed to put the power in the hands of the user. These include:

- ◆ Probe
- ◆ Calling Number/Called Number
- ◆ Date and Time
- ◆ OPC/DPC/CIC
- ◆ Additional Options are being added based on customer feedback.

The screenshot shows the 'CTS AMA Call Search - [Ss7 Search 1]' window. It includes a menu bar (File, Edit, View, Search, Tools, Window, Help), a toolbar, and a search filter section with fields for Probe, Calling Number, Called Number, Start Date and Time (From/To), and Filters (OPC, DPC, CIC). Below the filters are two tables of search results.

Row	Date/Time	Msg Type	Calling Number	Called Number	OPC	DPC	CIC	SIO
10	09/07/2005 10:00:00	RLC			238-114-003	254-220-045	1378	A5
11	09/07/2005 10:00:00	ACM			238-114-003	252-056-004	519	A5
12	09/07/2005 10:00:00	IAM	(336) 250-82	(336) 247-94	238-114-003	001-216-016	013	95
13	09/07/2005 10:00:00	ANM			234-007-004	238-114-003	103	A5
14	09/07/2005 10:00:00	ACM			001-009-008	238-114-003	124	A5
15	09/07/2005 10:00:00	IAM	(336) 243-23	(336) 442-73	238-114-003	001-049-000	061	95
16	09/07/2005 10:00:00	ANM			238-114-003	253-064-028	035	A5
17	09/07/2005 10:00:00	ACM			001-216-016	238-114-003	013	85
18	09/07/2005 10:00:00	IAM	(336) 249-62	(336) 771-12	238-114-003	252-056-004	124	95
19	09/07/2005 10:00:00	ANM			253-064-028	238-114-003	1037	A5
20	09/07/2005 10:00:00	REL			238-114-003	234-007-004	592	A5
21	09/07/2005 10:00:01	REL			204-223-009	238-114-003	082	A5
22	09/07/2005 10:00:01	ACM			238-114-003	204-223-009	280	A5
23	09/07/2005 10:00:01	ACM			254-220-045	238-114-003	1436	A5
24	09/07/2005 10:00:01	ANM			238-114-003	005-009-008	343	A5
25	09/07/2005 10:00:01	RLC			238-114-003	204-223-009	082	A5
26	09/07/2005 10:00:01	REL			238-114-003	001-216-016	075	A5

Row	Date/Time	Msg Type	Calling Number	Called Number	OPC	DPC	CIC	SIO
1	09/07/2005 10:00:00	IAM	(336) 249-62	(336) 771-12	238-114-003	252-056-004	124	95
2	09/07/2005 10:00:02	ACM			252-056-004	238-114-003	124	A5
3	09/07/2005 10:00:24	ANM			252-056-004	238-114-003	124	A5
4	09/07/2005 10:01:55	REL			238-114-003	252-056-004	124	A5
5	09/07/2005 10:04:37	RLC			252-056-004	238-114-003	124	A5

Row	Calling Number	Called Number	Call Type	Str Code	In Trunk	Out Trunk	Start Date	Start Time	End Time	Elapsed Time
1	(336) 249-62	(336) 771-12	110 - Inter-LATA statio...	40625		0268	09/07/2005	10:00:23.6	10:01:52.6	00:01:29.0

The last two digits of the phone numbers have been removed to protect privacy.

SS7 Search Results

User selects the columns and the order in which they appear.

Related SS7 Records

Shows the messages which make up each SS7 event.

AMA Record

Shows the AMA record correlated to this SS7 event.



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CTS SS7 MESSAGE TYPES (MOST COMMON)

IAM – Initial Address

ACM – Address Complete Message

ANM – Answer Message

REL – Release

RLC – Release Complete

Row	Date/Time	Msg Type	Calling Number	Called Number	OPC	DPC	CIC	SIO
10	09/07/2005 10:00:00	RLC			238-114-003	254-220-045	1378	A5
11	09/07/2005 10:00:00	ACM			238-114-003	252-056-004	519	A5
12	09/07/2005 10:00:00	IAM	(336) 250-82	(336) 247-94	238-114-003	001-216-016	013	95
13	09/07/2005 10:00:00	ANM			234-007-004	238-114-003	103	A5
14	09/07/2005 10:00:00	ACM			001-009-008	238-114-003	124	A5
15	09/07/2005 10:00:00	IAM	(336) 243-23	(336) 442-73	238-114-003	001-049-000	061	95
16	09/07/2005 10:00:00	ANM			238-114-003	253-064-028	035	A5
17	09/07/2005 10:00:00	ACM			001-216-016	238-114-003	013	85
18	09/07/2005 10:00:00	IAM	(336) 249-62	(336) 771-12	238-114-003	252-056-004	124	95
19	09/07/2005 10:00:00	ANM			253-064-028	238-114-003	1037	A5
20	09/07/2005 10:00:00	REL			238-114-003	234-007-004	592	A5
21	09/07/2005 10:00:01	REL			204-223-009	238-114-003	082	A5
22	09/07/2005 10:00:01	ACM			238-114-003	204-223-009	280	A5
23	09/07/2005 10:00:01	ACM			254-220-045	238-114-003	1436	A5
24	09/07/2005 10:00:01	ANM			238-114-003	005-009-008	343	A5
25	09/07/2005 10:00:01	RLC			238-114-003	204-223-009	082	A5
26	09/07/2005 10:00:01	REL			238-114-003	001-216-016	075	A5

Row	Date/Time	Msg Type	Calling Number	Called Number	OPC	DPC	CIC	SIO
1	09/07/2005 10:00:00	IAM	(336) 249-62	(336) 771-12	238-114-003	252-056-004	124	95
2	09/07/2005 10:00:02	ACM			252-056-004	238-114-003	124	A5
3	09/07/2005 10:00:24	ANM			252-056-004	238-114-003	124	A5
4	09/07/2005 10:01:55	REL			238-114-003	252-056-004	124	A5
5	09/07/2005 10:04:37	RLC			252-056-004	238-114-003	124	A5

Row	Calling Number	Called Number	Call Type	Str Code	In Trunk	Out Trunk	Start Date	Start Time	End Time	Elapsed Time
1	(336) 249-62	(336) 771-12	110 - Inter-LATA statio...	40625		0268	09/07/2005	10:00:23.6	10:01:52.6	00:01:29.0

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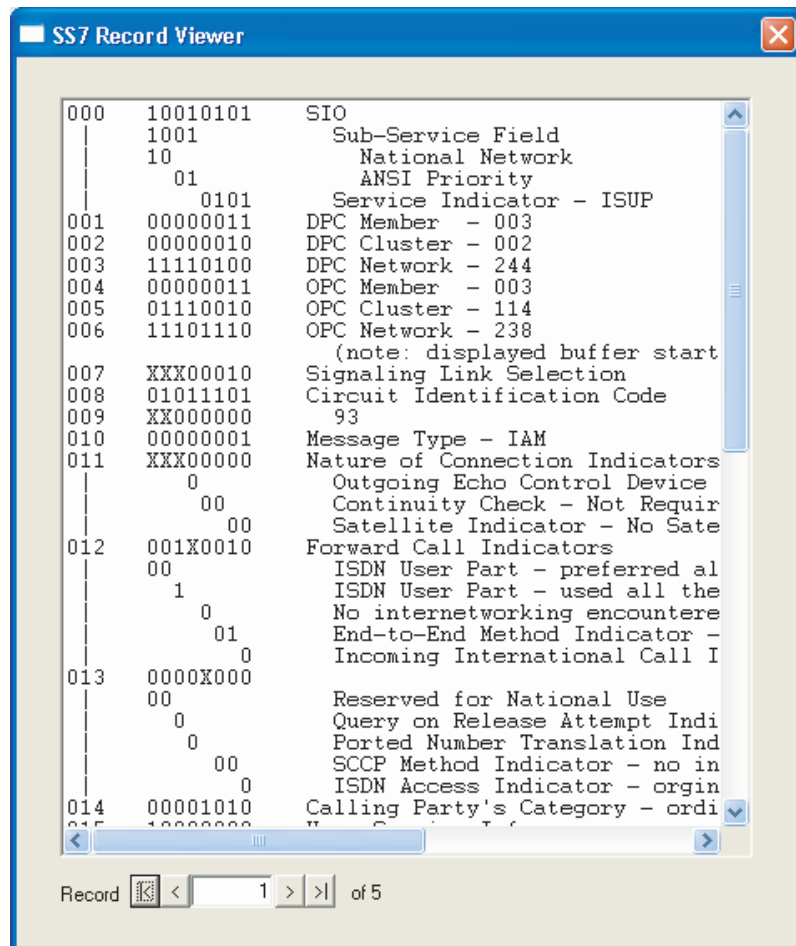
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CTS SS7 RECORD VIEWER

One of the unique options in CTS SS7 is the ability to see the actual SS7 event. As shown below, you can see each available part of the SS7 message. The user can also click the arrow at the bottom to see the subsequent records shown in the same view. As with the CTS AMA Record Viewer, you can resize the window to fit your needs.



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CTS SS7 HARDWARE

The SS7 data will be retrieved from the switch by an SS7 Probe. The probe then sends the SS7 data to the SS7 Application Server which processes it for placement on the database server. To save on costs to the customer, CBSI has designed the database server to also serve as the application server for the SS7 product.

SS7 DATA PROBE: (one is required for each switch which data is pulled from)

- 2 GB Ram
- 250 GB Hard drive
- T1/E1 Card
- Linux Operating System.

SS7 DATABASE/APPLICATION SERVER:

- P4 Xeon Dual, 2.8GHz, 1 GB Ram
- 1 TB of Hard Drive space (depends on customer size and needs)
- DVD-RW
- IBM 19 inch monitor, mouse/keyboard
- Linux operating system

Hardware can be supplied by CBSI and would include installation and one year of maintenance and support. Additional maintenance and support plans are also available.

SS7 CLIENT MACHINE:

Any Windows based client machine could be used to access the reports and search modules. This can be provided by the customer or purchased through CBSI.

**We look forward to scheduling a no-obligation
product demonstration!**

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SOME OF THE REPORTS AVAILABLE IN THE SS7 MODULE:

SS7 Table Summary Report

The Table Summary Report displays the database record counts for the selected date range. It contains the date, ISUP record count, IAM record count, MISC record count, Correlated record count and the total number of records.

SS7 Record Summary

This report displays the count of SS7 record sets by status for the selected date range. It includes the date, incomplete records, call complete records, No ANM - No answer, No ANM - Other, No ACM - Busy, No ACM - Other, No AMA, % No AMA and total SS7 Call Sets.

SS7 Record Summary by Point Code

This report is similar to the SS7 Record Summary (described above) but it can be filtered by the OPC, DPC or CIC.

Uncorrelated Records by Point Code

This report lists the uncorrelated records by point code. The columns include Date, OPC, DPC, CIC and Uncorrelated records.

10 - High Uncorrelated Records by OPC, DPC, CIC (Daily)

This report shows the 10 OPC/DPC/CIC combinations with either the highest percentage or highest count of SS7 records uncorrelated with AMA. The number displayed (10 is the default) is determined by the user. The fields include date, OPC, DPC, CIC, Completed Calls w/AMA, Completed Calls with no AMA, and the % No AMA.

10 - High Uncorrelated Records by NPA/NXX (Daily)

This report displays the 10 NPA/NXX combinations with either the highest percentage or highest count of SS7 records uncorrelated with AMA. The number displayed (10 is the default) is determined by the user. The fields include Date, Orig NPA/NXX, Term NPA/NXX, Completed Calls w/AMA, Completed Calls with no AMA, and the % No AMA.

Bogus Originating Number by OPC/DPC/CIC (Daily)

The OPC/DPC/CIC combinations with bogus originating numbers (ex. 0000000000) is displayed. The bogus number list and the number of lines displayed are both user defined. The fields include date, OPC, DPC, CIC and the count.

