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Software Solutions

FOR THE TELECOMMUNICATIONS INDUSTRY

CTS AMA ADVANCED AMA ANALYSIS SYSTEM

AMA File Processing
Analyze Calling Patterns
CDR Data Processing
Call Search Module
Engineering Studies
Establish Average Holding Times
Fraud Detection
Reports Module

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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*Are you getting
all your **ACCESS
REVENUE?***

*CTS AMA insures
every usable
record is
captured*

and

*assists your
company in
receiving
maximum
revenue from
each record*

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

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CTS AMA

CTS AMA is a software package that extracts specific items from Bellcore Format Automatic Message Accounting (AMA) data records and puts the information into databases. These databases can then be used to view and report the information in a variety of formats with customizable options. The software is designed to meet the needs of both large and small carriers and to take into account the various configurations found in the telephone industry.

FEATURES AND BENEFITS

FEATURES:

- Sophisticated near real-time display of incoming switch data.
- Near real-time AMA call record collection
- Customizable and immediate call search and reporting capabilities
- Detailed AMA reports generated at the convenience of the user
- Connected to switch via TCP/IP, RS232 or x.25
- Reports which allow you to easily compare AMA records with the Equal Access Carrier records.
- Archives data for summary reports
- Provides ratio studies (example: Answered to Unanswered calls)
- Easy installation with one time data set up and system integration
- Accommodates future switch growth without major system changes
- Complete turn-key system including hardware, software, installation and training. Hardware configured to optimize software's performance.
- Technical support and monitoring through a secure VPN connection.

BENEFITS:

- Identifies and helps you problem solve PHANTOM TRAFFIC!
- Insures accurate (and maximum) settlements
- Easily helps resolve billing disputes.
- Assists with determining the validity of a call as it relates to a billing record!
- Reveals calling patterns for an established market
- Reduces labor cost with immediate data collection and report production
- See total incoming/terminating as well as outgoing/originating usage.
- CUSTOMIZABLE REPORTS with continual enhancements to meet your needs.
- Separates usage by trunk group.
- Helps TROUBLESHOOT the implementation of new circuits!
- Reduces errors with simplified report generation
- FRAUD DETECTION! You define what is a fraudulent call and how you wish to be notified.



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CTS AMA SYSTEM HIGHLIGHTS

AMA CALL SEARCH MODULE: IMMEDIATE CALL SEARCH AND REPORTING

The screenshot shows the 'CTS AMA Call Search - [AMA Search 1]' window. It includes a menu bar (File, Edit, View, Search, Tools, Window, Help) and a toolbar. The search criteria are set to 'DESTINATION' with a Called Number of '(800)895-5550'. The search date range is from 6/22/2004 00:00:00 to 6/24/2004 23:59:59. Below the search criteria is a table with 12 columns: Row, Calling Number, Dialed Number, Dial Ind, Called Number, Call Type, Str Code, In Trunk, Out Trunk, Start Date, Start Time, End Time, and Elapsed Time. The table contains 11 rows of call records.

Row	Calling Number	Dialed Number	Dial Ind	Called Number	Call Type	Str Code	In Trunk	Out Trunk	Start Date	Start Time	End Time	Elapsed Time
1	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/23/2004	10:35:38.4	11:23:46.5	00:48:08.1
2	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/23/2004	12:39:36.3	12:58:52.8	00:19:16.5
3	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/23/2004	15:26:37.8	16:14:29.0	00:47:51.2
4	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	08:43:53.9	08:53:32.2	00:09:38.3
5	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	10:25:21.1	10:37:33.1	00:12:12.0
6	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	11:52:17.5	12:11:40.6	00:19:23.1
7	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	12:14:48.5	12:20:50.3	00:06:01.8
8	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	12:25:52.7	12:30:44.2	00:04:51.5
9	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	12:37:01.6	12:43:39.9	00:06:38.3
10	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	15:55:09.7	15:59:26.7	00:04:17.0
11	(336) 249-5876	(800) 895-5550	8	(800) 895-5550	141 - IC/INC number s...	40360		0192	06/24/2004	16:58:43.2	17:00:38.1	00:01:54.9

- Easily search by:
 - ALL CALLS – Search selects all records to or from the Calling Number
 - ORIGINATION – Search selects only records that originate from the Calling Number
 - DESTINATION – Search selects only records that terminate at the Called Number
 - POINT TO POINT - Search selects records that originate with the Calling Number and terminate with the Called Number
- Pattern Search: You can enter any pattern or part of a number and search (i.e. enter only the exchange)
- Additional filtering capabilities:
 - Structure Code
 - Call Type
 - Start Date and Time
 - Bill Number
 - Originating Time
 - Trunk Group
- Allows easy access to the actual AMA record.
- User-friendly: You pick the columns you want to see and in what order.



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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

The screenshot shows the 'CTS AMA Call Search - [AMA Search 1]' window. It includes search filters for Search Type (ALL CALLS), Calling Number, Called Number, Start Date and Time (Single Day, From 9/7/2005 10:00:00, To 10/4/2005 10:06:00), and Filters (Structure Code, Call Type, Trunk Group, CIC, ElapsedTime, CarrierTime). Below the filters is a table of call records with columns: Row, Calling Number, Called Number, Call Type, Str Code, In Trunk, Out Trunk, Start Date, Start Time, End Time, Elapsed Time. A second table below shows correlated SS7 records with columns: Row, Date/Time, Msg Type, Calling Number, Called Number, OPC, DPC, CIC, SIO.

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	(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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AMA RECORD VIEWER: PROVIDES TIMELY CUSTOMER SUPPORT

- Displays the raw AMA data
- Lists fields contained in the record
- Lists the individual fields and the corresponding data for each field
- Lists the fields and data for any attached modules
- Allows user to easily navigate between records
- Resizable screen to avoid wasted time scrolling

006A0000AA40360C141C036C0336248C036C0336248C40107C0
0000C0000000C0C0C0C000C336C2495876C800C8955550C0C00
800C8955550C1003289C000022394C03331C40107C1003203C0
00022481C010C30192C0C8C3C000C424C306C000C104C201921
011C000C

Field Name	Value
Operator Action	0C
Service Feature	000C
Originating NPA	336C
Originating Number	2495876C
Dialed NPA	800C
Dialed number	8955550C
Terminating overseas indicator	0C
Terminating NPA	00800C
Terminating Number	8955550C
Answer time	1003289C
Elapsed time	000022394C
IC/INC prefix	03331C
Carrier connect date	40107C
Carrier connect time	1003203C
Carrier Elapsed Time	000022481C
IC/INC Call Event Status	010C
Trunk Group Number	30192C
Routing Indicator	0C
Dialing Indicator	8C
ANI Indicator	3C

Record of 8



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MEDIATION: AMA TRANSPORTS YOUR RECORDS FOR YOU

- Transports AMA/CDR to local billing system or third party billing system
- FTP transfer of call records to local billing system (residing on same network as CTS AMA) can be scheduled automatically on a daily basis
- FTP transfer to third party billing system can be scheduled through Internet
- Scalable system designed for large and small carriers
- Protects against repeating AMA records in database
- Flags partial records and corrupt records
- User can select the format option to transport AMA/CDR to billing system:
 - Binary format
 - ASCII converted billing format

CTS AMA REPORTS MODULE: CUSTOMIZABLE AND EASY TO USE REPORTS

- CTS AMA will allow user-defined report generation
- Multiple users can generate reports simultaneously from desktops
- Reports can be exported to Excel for further manipulation
- Reports can be customized, by the user, to meet the needs of the organization
- Can split reports by call completion status to help validate the CABS billing
- Find Phantom Traffic through No NXX reports.
- CBSI can create custom reports based on the customer's requirements

The screenshot shows a software window titled "CTS AMA Report - T-1020 CIC Summary". The window contains a menu bar (File, View, Edit, Tools, Window, Help) and a toolbar with icons for file operations. On the left is a tree view under "Information" listing various report types. The main area displays a table titled "T-1020 CIC Summary" with the following data:

	Date	CIC Group	CIC ACNA	CIC Entity	Messages	Elapsed Time Mn:Sec	Ave. HT	Carrier Elapsed Time Mn:Sec
3								
4	06/23/2004			Unassigned (See Report T-1042)	192,869	521,991:01.1	2:42.4	268,917:26.3
5	06/23/2004	B0322	ASI	Global Crossing Telecommunications, Inc.	65	5:42.1	0:06.2	5:42.1
6	06/23/2004	B1598	TAK	Transaction Network Services, Inc.	1,303	221:25.9	0:10.2	221:25.9
7	06/23/2004	D0071	WSN	Broadwing Communications, LLC	51	128:57.3	2:31.7	142:22.8
8	06/23/2004	D0089			144	497:55.2	3:27.5	540:45.2
9	06/23/2004	D0111	RVT	SureWest Telephone	363	672:08.5	1:51.1	754:46.1
10	06/23/2004	D0211	RTC	Frontier Communications Int'l, Inc.	2	0:00.0	0:00.0	0:20.5
11	06/23/2004	D0222	MCI	MCI/WorldCom	25,329	62,877:15.7	2:29.2	67,824:01.4
12	06/23/2004	D0223	PST	Primus Telecommunications, Inc.	17	25:11.1	1:28.9	27:42.9
13	06/23/2004	D0233	DLT	ITC DeltaCom Communications, Inc.	324	669:18.3	2:03.9	712:03.0
14	06/23/2004	D0252	LDU	Long Distance/USA [SPRINT]	12	32:20.0	2:41.7	35:01.8
15	06/23/2004	D0284	AVJ	AmeriVision Communications, Inc.	9	73:26.9	8:09.7	75:52.0
16	06/23/2004	D0288	ATX	AT&T Communications	50,631	155,914:48.1	3:04.8	166,525:11.3
17	06/23/2004	D0333	UTC	Sprint	15,246	53,381:48.7	3:30.1	56,687:54.8



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SOME OF THE REPORTS AVAILABLE IN THE AMA MODULE:

Carrier Information Report

The Carrier Information Report allows you to print the carrier information. This listing includes the CIC, ACNA, ACNA Entity, Elapsed Time, Messages and Average Holding Time.

Incoming/Terminating or Outgoing/Originating Trunk Group Report

These two reports list, by date period and trunk group: the trunk group identifier, trunk group name, number of messages, total elapsed time and average hold time. The user chooses the date range and date period as well as whether this contains individual or sets of Incoming/Terminating or Outgoing/Originating Trunk Groups.

Carrier Elapsed Time Report

The Carrier Elapsed Time Report shows a daily total for each trunk group specified in a date range for the NXX(s) and their respective trunk groups. Each trunk group is then further broken down showing each carrier's daily totals for the particular trunk group.

Trunk Group Listing

The Trunk Group Listing displays a list of the trunk groups that are set up within the report application. It shows the trunk group identifier and the trunk group name.

NXX to NXX Report

The NXX to NXX Report prints the number of calls made from an originating NXX to a terminating NXX. It will report each day separately in the selected period, and then print a total for the period.

NO NXX Report

The No NXX Report will allow the user to track phantom traffic and begin the rectification process.

Answer Report

The Answer Report displays the number of answered calls to unanswered calls and calculates a percentage.

AMA Server Log

The AMA Server Log displays a summary of the records received by the server. Each summary contains the date, inserted records, No NXX records, duplicate records, invalid records and total records.

AMA Record Summary

The AMA Record Summary displays a breakdown of the records for a particular time period (day, month, year). It shows the number of normal, No NXX, invalid and total records.

Records with No Trunk Group or CIC Code Reports

The four following reports summarize the records where there is no trunk group or CIC code. Each report shows the date, structure code, call type, message count and elapsed time.

Unassigned Trunk Group Report: No incoming or outgoing trunk group

Unassigned Incoming Trunk Group Report: No incoming trunk group

Unassigned Outgoing Trunk Group Report: No outgoing trunk group

Unassigned CIC Group Report: No CIC code

