

Crystal Quality

The logo for Crystal Quality, featuring a green hexagonal shape with a white stylized 'C' inside, and a small grey oval shadow below it.

**Interaction Recording, Monitoring,
and Performance Optimization**

Company, Products, and service overview

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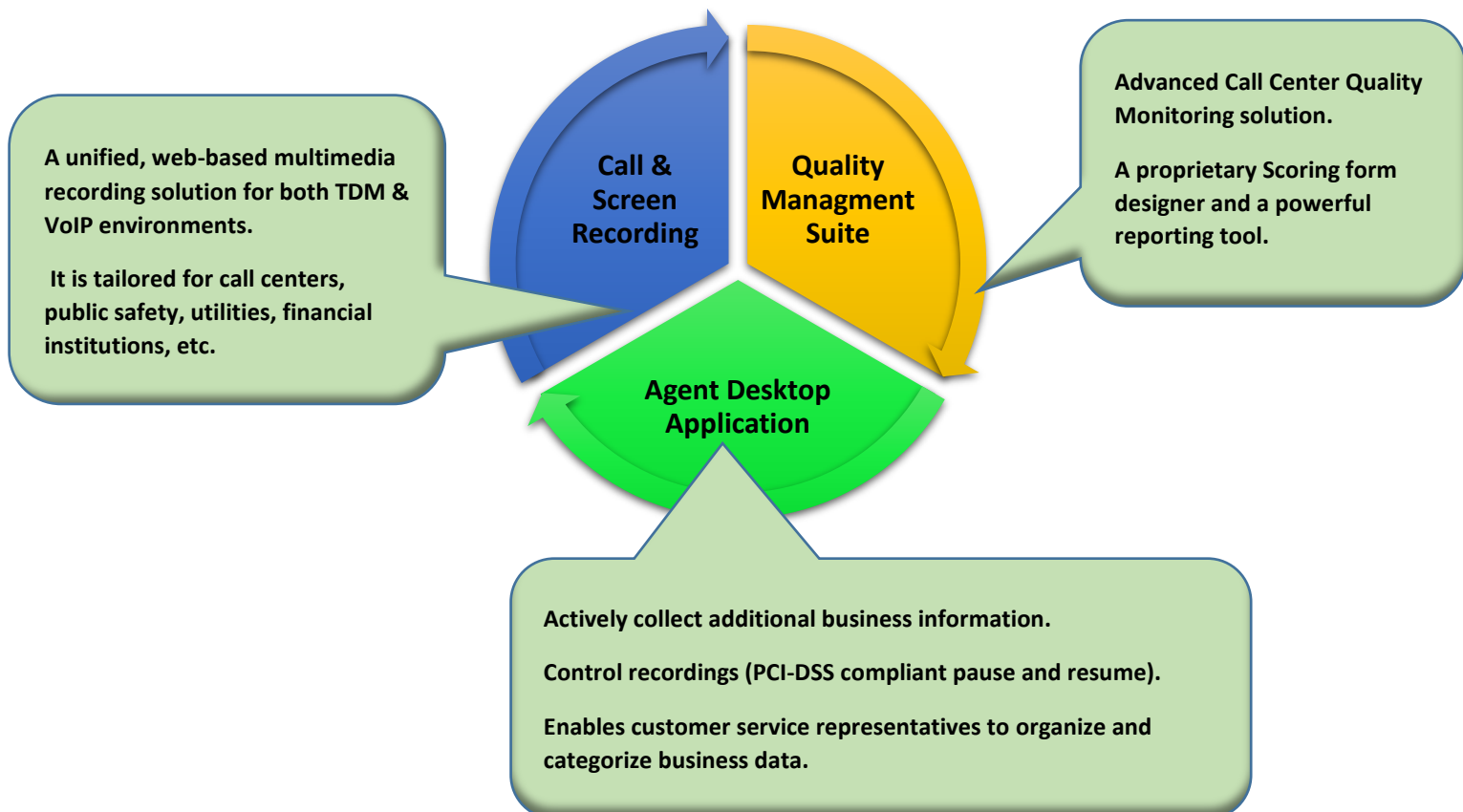
Introduction

Crystal Quality® is a call and screen data interaction recording solution.

Crystal Quality® offers comprehensive recording and monitoring solutions to fit all environments and customer needs. From TDM to VoIP, from smaller contact center operations to large, multi-site, multi-branch, easily deployed, configured, and friendly.

In addition, the Crystal Quality powerful call center quality monitoring and management solution enables you to manage the evaluation process easily. Manage score and performance evaluation. Provide the employ managers with reports on the agent's behavior and performance to maximize the efficiency of your call center.

The optional Crystal Quality agent application can collect additional business information directly to the employee desktop application screen. The application offers control of recordings (PCI-DSS compliant pause and resume recording) and allows customer service representatives to collect and categorize business data.





Intuitive and Powerful Call Search & Playback

With Avdor CIS's powerful call search engine, you can quickly and easily search, locate, and share recordings. Avdor CIS offers the ultimate Solution for business recording while achieving regulatory PCI-DSS compliance.

- ◆ Locate recordings quickly and accurately according to multiple search criteria.
- ◆ Create predefined search templates.
- ◆ Save the most frequently used search combinations.
- ◆ Follow up on call routes using Crystal Quality's scenario reconstruction.
- ◆ Smart player based on waveform display with a split audio view.
- ◆ Download fully or partially recorded files and share them by e-mail.
- ◆ Save, e-mail, or export single or multiple-recording interactions as secured Standard files.
- ◆ Calls can be searched by any combination of the following search criteria:
 - ◆ Custom and self-defined data fields (reserved fields)
 - ◆ Call duration (from-to)
 - ◆ Date and time (from-to)
 - ◆ CLID or part of the number for incoming calls
 - ◆ Dialed number or part of the number for outgoing calls
 - ◆ Extension number, Channel number
 - ◆ Agent name, Channel, Username
 - ◆ Call direction (incoming/outgoing or both)
 - ◆ Remarks and annotation
 - ◆ Agent/ User/ Group, Tags
 - ◆ Agent evaluation score
 - ◆ CTI references
 - ◆ Recording server number
 - ◆ Storage device
 - ◆ Recording that has been archived (backup)
 - ◆ Recordings that include screen recording
 - ◆ Reference number

Avdor CIS Crystal Quality's ® Unique Waveform

- ◆ Visually represents the actual dB value.
- ◆ No need to replay entire recordings; you can select any part of a recording on the waveform to further playback.
- ◆ Any segment of a voice recording can be saved as evidence or sampling for training (supervisor accessibility is required).
- ◆ Customer and agent voices will be separated into two waveforms in VoIP recording environments.
- ◆ Tag as many points as desired on the waveforms for future queries.
- ◆ Key call information will be attached when the recording is played.

**Playback Capabilities**

- ◆ Web-based, no need to install any client application.
- ◆ Play back recordings on the server's Storage, backup device, and network device.
- ◆ Section direct export
- ◆ Low and high-speed playback.
- ◆ Loop playback.
- ◆ Easy to navigate through calls.
- ◆ Volume control.



Live Monitoring

Listen to live calls with just one click.

- ◆ Monitor agents' call status.
- ◆ Monitor agents' calls in real time.
- ◆ Monitor agents' screens at any time.
- ◆ Instant playback while the call is still in progress.

Crystal Quality 									
Home Monitor Search Evaluation Report Management									
Extension	User	Start Time	End Time	Duration	Caller ID	Called ID	Operation		
3886	1083()	01/11/2015 15:11:39		00:43	0546356948	3886			
5604	23113()	11/1/2015 3:11:38 PM		00:45	0548428844	5104			
5603	23327()	11/1/2015 3:11:33 PM		00:49	0533125682	5103			
3832	8641()	01/11/2015 15:11:29		00:54	3832	0504444858			
5736	7431()	11/1/2015 3:11:29 PM	11/1/2015 3:11:50 PM	00:20	5736	098630549			
5616	23112()	11/1/2015 3:11:20 PM		01:03	0556631140	5116			
3844	4839()	01/11/2015 15:11:18		01:04	0545242660	3844			
600011	200013(נציג)	11/1/2015 3:11:18 PM		01:04	0732006500	600011			
3733	4547()	01/11/2015 15:11:09		01:13	035634848	3733			
3760	8194()	01/11/2015 15:11:07		01:16	097762201	3760			
5877	23142()	11/1/2015 3:09:24 PM	11/1/2015 3:10:08 PM	00:43	5877	0504056568			
5803	5803()	11/1/2015 3:10:31 PM	11/1/2015 3:11:14 PM	00:43	7529	5803			

Instant Replay

The Avdor CIS Crystal Quality Instant Replay feature will significantly improve work efficiency when a supervisor might have missed parts of an audio conversation between the customer and an agent. The supervisor can retrieve the call from the beginning if a problem arises during a telephone conversation. This can help call center supervisors/dispatchers make decisions in real-time.

      Selected:1 Local Start Time: 11/1/2015 12:00:00 AM-11/1/2015 11:59:59 PM Group: pazgaz										
#	Local Start Time	Direction	Duration	Caller ID	Called ID	Extension	Group Name	Reserved Field1	Scr Server	User Name
1	2015-11-01 15:53:28		00:00:59	600014	9054-4556444	600014	pazgaz	018a0272acc6df5	 0	200028(נציג)
2	2015-11-01 15:49:00		00:01:35	600025	9086248326	600025	pazgaz	018a0272acc6df3	 0	200008(נציג)
3	2015-11-01 15:48:39		00:03:57	600026	904-9830411	600026	pazgaz	018a0272acc6df1	 0	200023(נציג)
4	2015-11-01 15:44:56		00:02:20	600025	90543305215	600025	pazgaz	018a0272acc6dfb	 0	200008(נציג)
5	2015-11-01 15:43:42		00:01:33	0536224191	600027	600027	pazgaz	018a0272acc6df7a	 0	200069(נציג)
6	2015-11-01 15:42:18		00:00:01	035586655	600027	600027	pazgaz	018a0272acc6df9	 0	200069(נציג)
7	2015-11-01 15:42:17		00:07:33	0508876707	600014	600014	pazgaz	018a0272acc6dfb4	 0	200028(נציג)
8	2015-11-01 15:40:36		00:04:51	600026	9054-6000173	600026	pazgaz	018a0272acc6df2	 0	200023(נציג)
9	2015-11-01 15:40:08		00:01:40	0528825915	600012	600012	pazgaz	018a0272acc6df5c	 0	200056(נציג)



Storage Archive and Recycle

The Avdor CIS Crystal Quality® advanced archiving feature ensures data security and integrity by providing a solid and flexible archiving strategy spanning multiple storage media.

Flexible, long-term storage and archive - Local and network storage and archive (Disk RAID, Disk Mirroring) are standard features of the Crystal Quality® recording solutions, which support archiving to any mass storage device such as NAS, SAN, and FTP servers.

- ◆ Supports local and remote voice and screen archiving.
- ◆ Initial storage on the recording server hard drive (Disk RAID, Disk Mirroring).
- ◆ Recordings can simultaneously be archived on the local hard drive, remote FTP servers, or NAS to secure the data.
- ◆ Manual or scheduled archiving.
- ◆ FIFO or keep policies for data recycling.
- ◆ Recycle operation on the server hard drive (predefined deletion of old recordings).
- ◆ Separate recycle rules for voice, screen, and voice + screen.
- ◆ Backup by extension/group/user.
- ◆ Backup one server or capsules of recording servers under centralized management.

Backup:

- ◆ Local or network backup.
- ◆ You can define up to three backup devices.
- ◆ Manual backup or an automatic backup.
- ◆ Pre-programmed setup of backup recordings at a fixed date and time (periodically) - weekly, daily, monthly, or immediately after the call has ended.
- ◆ Continue back up until there is no free space on DAT, DVD Disk, or NAS.
- ◆ Standalone player application for archived calls.

Supported storage media:

- | | |
|------------------------------|--------------------------------|
| ◆ SAN (storage area network) | ◆ EMC |
| ◆ FTP server | ◆ USB storage device |
| | ◆ NAS (network access storage) |

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Integration

Integration - As a total, cross-platform recording solution, Crystal Quality® provides a comprehensive support list for various PBX platforms, CTI types, and VoIP protocols, with proven integrations with Cisco, Avaya, Mitel, Genesys, and more.

Supported PBX list: Crystal Quality supports recording compatibilities with all major TDM, analog, and VoIP PBXs vendors.

Data Collection – Avdor CIS facilitates integration with additional metadata information from various sources, providing additional data filtering criteria.

- ◆ **CTI** – Fully compliant with standard CTI protocols such as CT Connect, GENESYS, TSAPI, CVCT, AVAYA AIC, TAPI, and more.
- ◆ **SDK & API** – Integration with third-party applications such as CRM.
- ◆ **SMDR** – Accepts SMDR information from PBX for call data.
- ◆ **Agent Application** – Crystal Quality's® for additional customer data collection.

Special Integration:

- ◆ Avaya DMCC
- ◆ Cisco BIB
- ◆ Cisco Fork
- ◆ Genesys
- ◆ AudioCodes – SIPREC
- ◆ Mitel SRC

SDK - Crystal Quality SDK contains a wealth of resources designed to help you build robust applications using Crystal Quality data.

This tool is meant for developers who write server-side code, custom business logic, custom workflow modules, and more.

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User Management

The Crystal Quality® User Management feature enables you to manage all users at your contact center or organization based on the concepts of role and group. CQ supports connectivity to LDAP to provide centralized security management. Furthermore, you can import personal contacts. CSV files.

Avdor CIS security is designed to assure that your system functions are only accessible to those users to whom the system administrator has granted permission. The administrator has full control over who can play back recordings, create and use evaluation forms and run reports. The user administration is divided into three areas:

User/Agent – Addressing the organization's or call center's fundamental building blocks. Each user may be granted access to replay recordings, evaluate calls, etc., while belonging to different groups.

Group - Each user/agent belongs to a different group according to his job and skills. Regardless of the complexity of your organizational structure, you can manage it by organizing multiple groups.

Profiles/roles – This is a set of privileges or access rights to the system. A profile will be assigned to each user. Each time the privileges in a profile are updated, the change will be dynamically filtered throughout your user database.

User Management

Users & Groups

Role Management

Organization Management

Contact Management

Alarm & Audit

Alarm List

Audit List

Screen Display

Change Display

Organization

pazgaz

Ministry of Health

Neta

Switch

Bear-Sheva IP

knyat Malachi digital

Group

Domain

Un grouped

☐	User Name	Full Name	Group Name	Role Name	Email	Create Date	Remark	Extension	Use	Enable	Screen Record
☐	200059	בידאן אשירי	pazgaz	Agent	301367140	10/27/2015	bizani oshrit	☐	☒	☐	☐
☐	200058	בכר אשירי	pazgaz	Agent	26541508	10/27/2015	bachar oshrit	☐	☒	☐	☐
☐	200057	זכרון אשירי	pazgaz	Agent	39501226	10/27/2015	zvikun only	☐	☒	☐	☐
☐	200055	שמעיה אשירי	pazgaz	Agent	43116490	10/27/2015	shemaya ortal	☐	☒	☐	☐
☐	200054	בוראיה אשירי	pazgaz	Agent	301060695	10/27/2015	borayev ortal	☐	☒	☐	☐
☐	200053	אסיליה אשירי	pazgaz	Agent	200374809	10/27/2015	oaila ortal	☐	☒	☐	☐
☐	200051	לוי אשירי	pazgaz	Agent	22572796	10/27/2015	levi ofira	☐	☒	☐	☐
☐	200050	גטו אשירי	pazgaz	Agent	300791696	10/27/2015	gettu odella	☐	☒	☐	☐
☐	200049	שמעון אשירי	pazgaz	Agent	230191564	10/27/2015	shemtov nofar	☐	☒	☐	☐

Availability / Redundancy

High availability, no single point of failure. Prevents loss of data by:

- ◆ Hot swaps hard drive to protect local data.
- ◆ Both local and central data storage run simultaneously to secure data access. In case one of these fails, the calls are still safe in another location.
- ◆ N+1 redundancy for central storage is supported to provide higher level redundancy.
- ◆ The database will be synchronized once the failed recording is back online.
- ◆ Monitor workloads for each Crystal Quality recorder, such as CPU, memory, etc. The Crystal Quality data distributor forwards packets to the least loaded unit.
- ◆ Supports redundant power supply.

Enhanced Security Diagnostics and Alarm System

Enhanced Security - Crystal Quality® is designed to meet the strict security requirements dictated by the PCI-DSS compliance regulations.

- ◆ Strict user-defined password and user permission management.
- ◆ Supports verification codes.
- ◆ Pause and resume recordings, mute, and mask sensitive data (DTMF).
- ◆ Multi-level access control (extensive rights can be defined for different users).
- ◆ Crystal Quality® provides two proprietary encryption algorithms and the Microsoft AES 256 - bit encryption algorithm.
- ◆ Crystal Quality® supports Secure Socket Layer/ Transport Layer Security (SSL/ TLS) to secure transporting recordings and call information over the network.
- ◆ Supports LDAP/Active Directory.
- ◆ Supports HTTP/HTTPS.
- ◆ Supports MD5.
- ◆ File watermarking to ensure file authenticity.

Detailed Audit Trial Log - Provides a detailed audit trail log that records all user activity within the system.

Track and record all user activities within the system. Crystal Quality® keeps a record of activities such as logging in/out, searching, and replaying records, and more. Records can be exported as a history report to determine and identify suspicious or questionable activities.

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The audit trail system provides monitoring for:

- ◆ System login/logout.
- ◆ User/group/role and organization tracing management.
- ◆ Search and playback.
- ◆ Plus, more!

Diagnostics and Alarm System - Continuous self-diagnostics for major operation modules such as database operation, system hardware, storing and backup devices, etc., using alarm types such as SMS and e-mail.

- ◆ Automated alerts and notifications for any abnormal system behavior.
- ◆ Monitoring of server and application behavior.
- ◆ Secure SQL database.
- ◆ Search alarm history.
- ◆ E-mail alerts to a specific person or group.
- ◆ Audit trail for user activities.

The alarm system provides- Monitoring for the following:

- ◆ VoIP/TDM module loading failure.
- ◆ Software license was not found or has expired.
- ◆ App heartbeat packet loss.
- ◆ User locked.
- ◆ NIC start failed, NIC heap package, heap channel package, recording start without RTP, channel reset, etc.
- ◆ Database/ disk/ CPU/ memory overload.
- ◆ Failure to connect to the database.
- ◆ CTI connection failed.
- ◆ Service is down.
- ◆ Configuration not found.
- ◆ Recycle critical touch areas.

The screenshot shows the 'Crystal Quality Notifier' application. At the top, there are buttons for 'Reset', 'Reset All', and 'Refresh', and a date field showing '13/07/2017'. Below this is a table with columns for 'Alarm time', 'From application', and 'Alarm message'. The table contains several rows of event data, including 'Event:APP_HEARTBEAT_LOST', 'Crystal live.RecordService ...', 'Crystal live.Backup lost re...', 'Event:RECORD_SERVICE_SHUTDOWN', 'Event:ALARM_SERVICE_SHUTDOWN', 'Event:APP_HEARTBEAT_LOST', 'Crystal live.DataService ...', 'Event:BACKUP_SERVICE_SHUTDOWN', 'Event:CONNECT_DATABASE_ERROR', 'Event:DB_SERVICE_SHUTDOWN', 'Crystal live.DataService ...', 'Event:DONGLE_NOT_FOUND', and 'Event:RECORD_SERVICE_SHUTDOWN'.

Alarm time	From application	Alarm message
Record_Server: 192.168.1.5	Event:APP_HEARTBEAT_LOST	
2017-07-13 16:12:37	Crystal live.RecordService ...	Crystal live.RecordService ...
2017-07-13 15:46:07	Crystal live.Backup	Crystal live.Backup lost re...
Record_Server: 192.168.1.5	Event:RECORD_SERVICE_SHUTDOWN	
2017-07-13 15:02:21	Crystal live.RecordService ...	Crystal live.RecordService...
Record_Server: 192.168.1.5	Event:ALARM_SERVICE_SHUTDOWN	
Record_Server: 192.168.1.69	Event:APP_HEARTBEAT_LOST	
2017-07-13 15:33:16	Crystal live.DataService	Crystal live.DataService I...
Record_Server: 192.168.1.5	Event:BACKUP_SERVICE_SHUTDOWN	
Record_Server: 192.168.1.65	Event:CONNECT_DATABASE_ERROR	
Record_Server: 192.168.1.65	Event:DB_SERVICE_SHUTDOWN	
2017-07-13 15:23:01	Crystal live.DataService	Crystal live.DataService s...
Record_Server: 192.168.1.5	Event:DONGLE_NOT_FOUND	
Record_Server: 192.168.1.65	Event:RECORD_SERVICE_SHUTDOWN	

Notification Tool – The pure alarm tool is designed for installation on each client computer.

It provides the option of viewing the list of alerts on the client's computer, monitoring, detection, and quick solving in real time.

Crystal Quality® Personal Home Screen - Graphic View Call Statistics

The Crystal Quality® personalized web, the home screen lets you build several customized statistical reports that can be displayed at a glance.

Predefined home screen graphs display the following information:

- ◆ Users' **records** over the past seven days or the past month.
- ◆ Users' **scores** over the past seven days or the past month.
- ◆ **Comparison** of total records over the past months or seven days.
- ◆ **Trends** for users' total records over the past month or seven days.
- ◆ **Percentages** for users' total records over the past seven days.
- ◆ **Trends** for users' average scores over the past seven days.

Supervisors can easily create customized statistical reports based on their needs, such as:

- ◆ Call duration statistics, Idle duration statistics.
- ◆ Call in and **call out statistics**.
- ◆ **Weekly, monthly, and annual** statistics.
- ◆ Percent of recording time statistics.

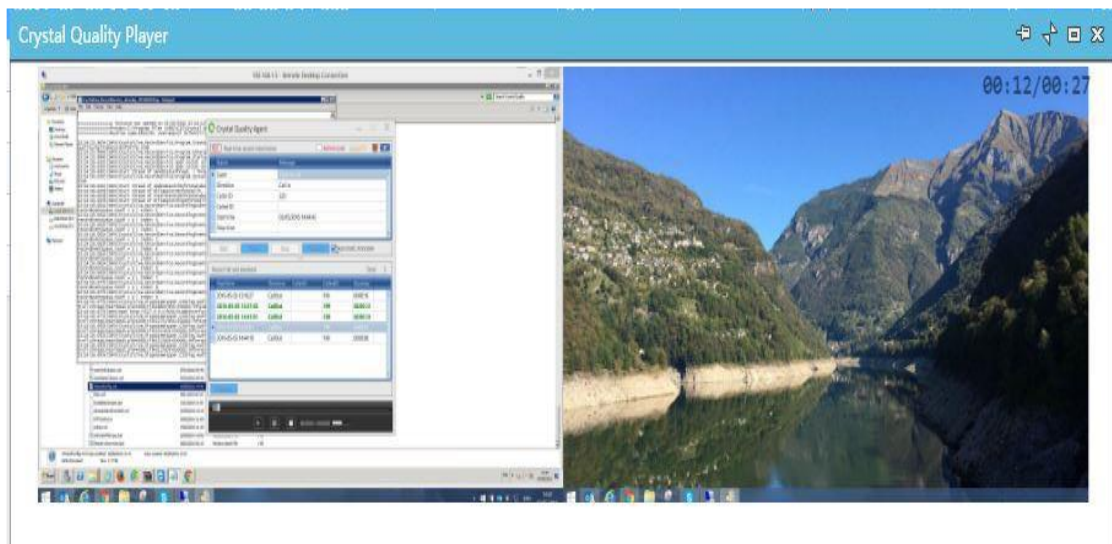
Reports are displayed in several formats, such as diagrams, charts, graphs, and pie charts.

Crystal Quality® Screen Recording - Screen Activity Capturing

Real-time live monitoring and capture of screen activities

Replaying of Voice and Screen recordings or as a standalone solution.

- ◆ Simultaneously replay with voice recordings. Save the files separately for custom data management.
- ◆ The CIS proprietary video compression algorithm, compared to other known services, will minimize the network load without compromising screen recording quality.
- ◆ Light and easy-to-use application that uses minimal resources from the agent PC.
- ◆ Supports all screen resolutions, including 1920 X 1080P (Full HD).
- ◆ User-defined color setting between 8 bits (256) of color to 24 bits of true color and reduced network load.
- ◆ A flexible way to record screens, including total recording, sampling recording, and recording on demand.
- ◆ Simultaneous live monitoring of multiple agent screens.
- ◆ Capture screens from the beginning of a call until the end of a wrap-up action - not only until the end of the voice conversation.
- ◆ Pause and resume screen recordings and encrypt the recording to meet compliance PCI-DSS requirements.



Quality Management Suite

Identify service gaps, enhancing customer experience by capturing, evaluating, and analyzing customer interactions.

A reporting tool as an agent scoreboard and dashboard-style report in a simple format, making every aspect of the agent call/performance visible.

- ◆ Includes evaluation, scoring, silent monitoring, screen capturing, and reports.
- ◆ Easy to use – Create scoring forms using the drag & drop method.
- ◆ RFE – Request for evaluation; create your own business rules for distributing agent evaluation tasks for supervisors.
- ◆ Multiple out-of-the-box report templates that cover most reporting needs for recording and scoring statistics.
- ◆ Create templates to meet your organization's rules.
- ◆ Calibration - Keep all evaluators synchronized throughout the organization.

Evaluation Form

Easy to use, the form even enables a non-technical supervisor or evaluator to easily create dynamic evaluation forms that meet the needs of each contact center.

Crystal Quality® Evaluation Forms contain the following information:

- ◆ Call details, call type, agent evaluated, and evaluator.
- ◆ Date of transaction, date of the evaluation, customer profile.
- ◆ Samples for evaluation, such as verification, product/plan knowledge, procedure knowledge, system knowledge, communication skills, resolution skills, etc.
- ◆ Q&A scheme.
- ◆ **Scoring** - Point values for each question and section of the evaluation form.
- ◆ Recommendations - Free-form text box.
- ◆ Coaching comments.
- ◆ A form designer, along with several evaluation form templates,
- ◆ Quickly and objectively assess the quality and performance of local and remote agents by using a flexible, web-based portal.

Calibration

The Crystal Quality® calibration module helps to:

- ◆ Keep all evaluators synchronized throughout the entire organization.
- ◆ Develop more effective evaluation forms.
- ◆ Consistently apply evaluation criteria.
- ◆ Enhance your agents' perception of the program's credibility and fairness.
- ◆ Generate reports to reflect scoring variances for future discussion.

Crystal Quality® Reports

The Crystal Quality® Report Designer is now A default part of the Crystal Quality®, enabling the design of a custom report to meet every organization's needs.

The Crystal Quality® system comes with the following default reports:

- ◆ Trend of Records
- ◆ Trend of Contact Center QA Score
- ◆ Comparison of Total Records
- ◆ Percentage of Total Records by Agent
- ◆ Trend of Average Score by Agent
- ◆ Average Scores by Evaluation Question
- ◆ Average QA Scores by Agent
- ◆ Average QA Scores by Agent by Category These reports significantly increase efficiency for various organizations in building their specific report templates.

Recording Triggers:

Start and stop recording using one of the following triggering actions:

- ◆ On/off hook (in analog, digital, and VoIP extensions)
- ◆ VOX – Voice Activated (in analog and digital extensions)
- ◆ D channel (in digital extensions, E1 trunks, and VoIP)
- ◆ CTI Control (in analog, digital extensions, E1 trunks, and VoIP)
- ◆ API
- ◆ Manually

Virtualization

- ◆ Crystal Quality is designed to meet installation requirements on most virtual machines.