Inova Solutions

LightLink™ Product Profile

Cisco UCC Express Data Source

1. Introduction to Inova Solutions

Inova Solutions is a global provider of real-time performance management solutions that help contact centers improve their operations through the use of actionable, real-time metrics and consolidated reporting, allowing you to gain insight into the relationship between the call center and overall organizational performance.

Inova's contact center solutions are built on Inova LightLink®, a powerful middleware that extracts, calculates, and unifies data from multiple contact center and enterprise operating systems and prepares it for display to an array of output options. Visual output options include LCD and LED digital signage and wallboards, agent desktop applications, and web-based dashboards. LightLink also allows you to program KPI thresholds that trigger an alert, such as a message, text, email, color change, or audio notification, ensuring that you're instantly aware of changing conditions that need your attention. With these capabilities, LightLink-based solutions provide a foundation for contact center performance management by managing your center's data, unifying your reporting, and ensuring the right people receive the right information when and how they want to see it.

2. Executive Summary

The Inova LightLink interface to Cisco UCC Express (UCCX) enables LightLink to retrieve an extensive array of data from Cisco UCC Express for real-time processing and display. LightLink is the powerful middleware that provides a real-time infrastructure for capturing and communicating information throughout the enterprise. Interfaces are available for dozens of Automated Call Distributors (ACDs), telephony systems, databases, and management applications.

2.1. CCX High Availability Mode

If the UCCX system is set up in high availability (HA) mode, the LightLink data source can automatically follow the Active instance as it switches to the standby server, typically within 45 seconds. UCCX version 8 provides a web service for this purpose, while version 7 updates the DNS host entry on the LightLink server. Due to the critical importance of proper operation, it is important to coordinate with the Inova Technical Project Manager to ensure proper setup and testing.

4. Data Source Specifications

4.1. Data Fields

Refer to Appendices A and B for details about the data fields available.

5. Prerequisites

5.1. What the Customer Provides

5.1.1. What the Customer Provides for Versions 4.x-7.x

Inova Solutions requires the customer to provide the following information and software:

- Hostnames or IP Addresses for all CCX Servers.
- UCCX CRA Database Instance name/s if customization has occurred.
- IT Assistance in configuring the proper local user account on the LightLink Server in order to allow proper Windows Authentication to the Cisco UCC Database. Typically this is a local account on both the SQL Server and LightLink Server, and the LightLink Services must run using these credentials. This user will correlate to a default read only database account to access the CRA database real-time tables on the CCX server. The local user accounts should be set up as:
  - v4, 5: wallboardUser
  - v6, 7: CiscoWbUsr
- Username and Password for the Cisco UCC Database if the Cisco default CiscoWbUsr or wallboardUser local account is not in place.
- Activation of the Real-time wallboard tables in the UCCX Administration site. *Note that Inova Solutions highly recommends that the customer review the Cisco CRS/UCCX Administration Guide – Real-time Snapshot Configuration for Wallboards for specific instructions on the configuration process. Please see Appendix C for more information.*
- Appropriate SQL Server driver to read the UCC Express source tables. Many of the Microsoft® ODBC drivers, including SQL Server, are generally available with a typical Windows Server 2003 or Server 2008 installation. However, if the driver is not present, the customer must supply the necessary ODBC driver, which can usually be found on the Microsoft support site.
- IT Assistance creating the Data Source Name (DSN) on the LightLink Server computer that connects to the Cisco UCC Express database.

- IT Assistance dealing with any intervening firewalls or network connectivity problems.

5.1.2. What the Customer Provides for Version 8.x

Inova Solutions requires the customer to provide the following information and software:

- Working knowledge of SQL statements and of the Cisco UCC Express system, which can vary from site to site.

  Inova Solutions highly recommends that the customer review the Cisco CRS Admin Guide – Real Time Snapshot Writing Configuration for Wallboards for specific instructions on the ODBC creation process and available functionality for specific Express versions.

- The appropriate IBM Informix Database Driver for the Windows Operating System on the server that hosts the LightLink Middleware software.
- The information required by the Inova DSN Installer for Cisco UCCX 8.x installation package to create an ODBC connection to the Cisco UCC Express database, as listed below:
  - Primary UCC Express Server Hostname or IP Address
  - Primary UCC Express Server Database Instance Name (typically the host name with hyphens changed to underscores and appended with _uccx)
  - Secondary UCC Express Server Hostname or IP Address (If UCC Express is set up for High Availability)
  - Secondary UCC Express Server Database Instance Name (typically the host name with hyphens changed to underscores and appended with _uccx)
- IT Assistance dealing with any intervening firewalls or network connectivity problems.
- The password for the 'uccxwallboard' user account of the Cisco UCC database. *Cisco provides the read only 'uccxwallboard' account specifically for the use of partners such as Inova Solutions.*

5.2. Hardware and Software Requirements

For all versions, the hardware and software requirements are the same as general LightLink server requirements.

6. Product Specifications

6.1. Capacity and Limitations

UCCX Version 4.x-7.x	UCCX Version 8.x
The UCCX maximum queue count of 150 is well within LightLink system capability. However, systems with more than 100 queues should be carefully reviewed to ensure optimal performance. Configuration & Refresh Rate: The LightLink UCCX data source requires that an ODBC DSN be set up on the LightLink server. Versions 7 and prior require that this be completed manually. Additionally, the real-time wallboard snapshot function must be enabled and configured using the UCCX administration tool. The data polling interval on the LightLink server should match that set up in the UCCX configuration, in order to provide timely data updates while minimizing network and server loading. The default interval is 15 seconds, but options are also available for 10, 15, 20, and 25 seconds.	The LightLink system will be performing a database query which will return a known number of columns, but the number of records is determined by the complexity of the UCC Express system. The total number of data fields returned is the number of rows multiplied by the number of columns. The two wallboard tables return approximately 25 columns per record. The LightLink UCC Express data source is limited to returning 80 records per data table query (approximately 2000 fields total). A system returning more than 80 records may require professional services as described in the next section. Configuration & Refresh Rate: The LightLink UCCX data source requires that a 32-bit ODBC DSN be set up on the LightLink server; the LightLink system installers will handle this task for version 8 and beyond. Additionally, the real-time wallboard snapshot function must be enabled and configured using the UCCX administration tool. The data polling interval on the LightLink server should match that set up in the UCCX configuration, in order to provide timely data updates while minimizing network and server loading. The default interval is 15 seconds, but options are also available for 10, 15, 20, and 25 seconds.

6.3. Compatibility

Cisco Unified CCX versions 4.x-7x are compatible with LightLink versions 5.5+

Cisco UCC Express v.8.x is compatible with LightLink version 5.5 or later, on both 32 and 64 bit servers using Windows XP, Server 2003, or Server 2008. Windows Server 2008 installs require LightLink version 5.7.327 or later.

Note that the HA mode is only supported with LightLink Middleware version 5.7.492 or later.

6.4. Licensing

The LightLink Middleware product requires that the ODBC Data Source Manager be licensed in order to connect to a UCCE data source.

6.5. Firewall

Any system connecting via the network may be affected by firewalls and firewall applications. Please ensure the firewall team is available to address any potential port and connectivity issues that may be encountered.

7. Appendix A: UCCX 4.x – 7.x Data Fields

The complete field list is presented below. Note that the RtCSQsSummary table provides 24 real-time statistics for each configured queue, while an additional 23 metrics are provided as summary statistics for the UCCX system as a whole from the RtICDStatistics table.

Field	Description
CSQName	Name of the contact service queue
loggedInAgents	Number of logged-in agents
talkingAgents	Number of agents in talking state
workingAgents	Number of agents in work state
reservedAgents	Number of agents in the reserved state
availableAgents	Number of available (idle) agents
unavailableAgents	Number of unavailable agents
totalCalls	Total number of calls
callsWaiting	Number of calls waiting
callsHandled	Number of calls handled
callsAbandoned	Number of calls abandoned
startDateTime	Data collection starting time
endDateTime	Last time this table data was updated
convAvgTalkDuration	Average talk duration in HH:MM:SS format
convAvgWaitDuration	Average wait duration in HH:MM:SS format
convLongestTalkDuration	Longest talk duration in HH:MM:SS format
convLongestWaitDuration	Longest wait duration in HH:MM:SS format
convOldestContact	Oldest call in the queue in HH:MM:SS format
avgTalkDuration	Average talk duration in total milliseconds
avgWaitDuration	Average wait duration in total milliseconds
longestTalkDuration	Longest talk duration in total milliseconds
longestWaitDuration	Longest wait duration in total milliseconds
oldestContact	Oldest contact in the queue as an integer
callsDequeued	Number of calls dequeued

Table 1: RtCSQsSummary Table Fields

Field	Description
totalCSQs	Number of CSQs configured
loggedInAgents	Number of logged-in agents
talkingAgents	Number of agents in talking state
workingAgents	Number of agents in work state
reservedAgents	Number of agents in the reserved state
availableAgents	Number of available (idle) agents
unavailableAgents	Number of unavailable agents
totalCalls	Total number of calls
callsWaiting	Number of calls waiting
callsHandled	Number of calls handled
callsAbandoned	Number of calls abandoned
startDateTime	Data collection starting time
endDateTime	Last time this table data was updated
convAvgTalkDuration	Average talk duration in HH:MM:SS format
convAvgWaitDuration	Average wait duration in HH:MM:SS format
convLongestTalkDuration	Longest talk duration in HH:MM:SS format
convLongestWaitDuration	Longest wait duration in HH:MM:SS format
convOldestContact	Oldest call in the queue in HH:MM:SS format
avgTalkDuration	Average talk duration in total milliseconds
avgWaitDuration	Average wait duration in total milliseconds
longestTalkDuration	Longest talk duration in total milliseconds
longestWaitDuration	Longest wait duration in total milliseconds
oldestContact	Oldest contact in the queue in integer format

Table 2: RtICDStatistics Table Fields

8. Appendix B: UCCX 8.x Data Fields

The following configuration fields are available to the Cisco Administrator and may affect the fields identified in the RtCSQsSummary Table Fields and the RtUnified UCCXStatistics Table Fields, which are listed below.

Field	Description	Data Type	Keys and Null Option
CSQName	Name of the contact service queue	NVARCHAR(50)	NOT NULL
Logged In Agents	Number of logged-in agents	INT	NOT NULL
Talking Agents	Number of agents in talking state	INT	NOT NULL
Working Agents	Number of agents in work state	INT	NOT NULL
Reserved Agents	Number of agents in the reserved state	INT	NOT NULL
Available Agents	Number of available (idle) agents	INT	NOT NULL
Unavailable Agents	Number of unavailable agents	INT	NOT NULL
Total Calls	Total number of calls	INT	NOT NULL
Calls Waiting	Number of calls waiting	INT	NOT NULL
Calls Handled	Number of calls handled	INT	NOT NULL
Calls Abandoned	Number of calls abandoned	INT	NOT NULL
Start DateTime	Data collection starting time	DATETIME	NOT NULL
End DateTime	Last time this table data was updated	DATETIME	NOT NULL
ConvAvgTalk Duration	Average talk duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvAvgWait Duration	Average wait duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvLongest TalkDuration	Longest talk duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvLongestWait Duration	Longest wait duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvOldest Contact	Oldest call in the queue in HH:MM:SS format	NVARCHAR(25)	NOT NULL
Avg Talk Duration	Average talk duration in total milliseconds	INT	NOT NULL
Avg Wait Duration	Average wait duration in total milliseconds	INT	NOT NULL
Longest Talk Duration	Longest talk duration in total milliseconds	INT	NOT NULL
Longest Wait Duration	Longest wait duration in total milliseconds	INT	NOT NULL
Oldest Contact	Oldest contact in the queue as an integer	INT	NOT NULL
Calls Dequeued	Number of calls dequeued	INT	NOT NULL

Table 3 -RtCSQsSummary Table Fields

Field	Description	Data Type	Keys and Null Option
totalCSQs	Number of CSQs configured	INT	NOT NULL
Logged In Agents	Number of logged-in agents	INT	NOT NULL
Talking Agents	Number of agents in talking state	INT	NOT NULL
Working Agents	Number of agents in work state	INT	NOT NULL
Reserved Agents	Number of agents in the reserved state	INT	NOT NULL
Available Agents	Number of available (idle) agents	INT	NOT NULL
Unavailable Agents	Number of unavailable agents	INT	NOT NULL
Total Calls	Total number of calls	INT	NOT NULL
Calls Waiting	Number of calls waiting	INT	NOT NULL
Calls Handled	Number of calls handled	INT	NOT NULL
Calls Abandoned	Number of calls abandoned	INT	NOT NULL
Start DateTime	Data collection starting time	DATETIME	NOT NULL
End DateTime	Last time this table data was updated	DATETIME	NOT NULL
ConvAvgTalk Duration	Average talk duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
convAvgWait Duration	Average wait duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvLongest TalkDuration	Longest talk duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvLongest WaitDuration	Longest wait duration in HH:MM:SS format	NVARCHAR(25)	NOT NULL
ConvOldest Contact	Oldest call in the queue in HH:MM:SS format	NVARCHAR(25)	NOT NULL
Avg Talk Duration	Average talk duration in total milliseconds	INT	NOT NULL
Avg Wait Duration	Average wait duration in total milliseconds	INT	NOT NULL
Longest Talk Duration	Longest talk duration in total milliseconds	INT	NOT NULL
Longest Wait Duration	Longest wait duration in total milliseconds	INT	NOT NULL
Oldest Contact	Oldest contact in the queue in integer format	INT	NOT NULL

Table 4 -RtICDStatistics Table Fields

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Cisco UCCX

While reasonable efforts have been taken in the preparation of this document to ensure its accuracy, Inova Solutions, Inc. assumes no liability resulting from any errors or omissions in this manual, or from the use of the information contained herein.

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