GMT WFM Connector

Integration Requirements

and

Functional Design Document

Version 01

June 07, 2019

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Version History

Date	Version	Author	Description
	01		Created the draft
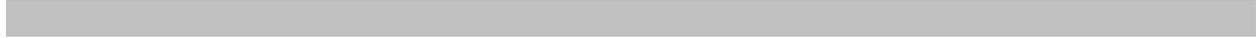
1.0   Introduction

The objective of the document is to provide a specification of historical and real-time data integration between Genesys/Cisco Contact Routing System and the GMT Planet Workforce Management Tool using the Max Data WFM RTS Connector application.

2.0   Scope of the Project

The WFM RTS Connector will be used to collect historical and real-time Workforce Management related statistics from the Genesys/Cisco Call Center Environment and deliver the statistics to the GMT Planet Workforce Management Tool. The delivered statistics will enable (5/15/30/45/60) historical interval reports call volumes and patterns and real-time data to be used by GMT Planet to forecast and project future comparable intraday historical call volumes and patterns for future scheduling periods.

The project includes gathering the requirements, creation and approval of the specification, integration design and development, deployment, testing and validation. WFM RTS Connector data output will be validated by Customer as well as by GMT/Verint. Once the WFM RTS Connector functionality has been successfully validated and accepted by the Customer, continued technical support of this application will be provided as per the existing technical support agreement.

3.0   Definitions

The following terms and definitions apply to this document:

Agent Login Id – The numeric digit sequence used to identify an agent within the Genesys framework, and within TotalView. The PBX Logon ID.

Queue ID – The alphanumeric digit sequence used to identify a *Virtual Queue* within the Genesys framework, and to identify a *Queue* within the TotalView system.

RTA – TotalView Real time Adherence

ACD – Automatic Call Distributor

Routing Strategy – A programmatic script utilized by the Genesys/Cisco Enterprise Routing Server to distribute interactions (contacts) to agents.

Target – A routing object, such as a Skill, Agent, or Agent Group that can be comprised of one or more agents but is always resolved to a specific agent (the one that will receive the interaction) based on some criteria such as agent availability.

Virtual Queue – A virtual object created in the Genesys environment and used solely for reporting purposes. Virtual Queues do not actually queue interactions to agents. Instead, they provide a means by which a Routing Strategy can generate queuing events to provide custom statistics in the WFM Connector application.

Genesys/Cisco softphone Agent States – The Genesys/Cisco CTI agent phone states used to control Agent activities as defined within the Genesys/Cisco CTI communication messaging.

4.0   System Architecture

WFM RTS Connector (commonly referred to as a WFM Adapter) is a module offered as part of the Info-Bridge Reporting Solution installed in the Customer's call center environment. Below is the diagram showing the WFM RTS Connector deployed as part of the overall architectural design.

4.1   General System Architecture
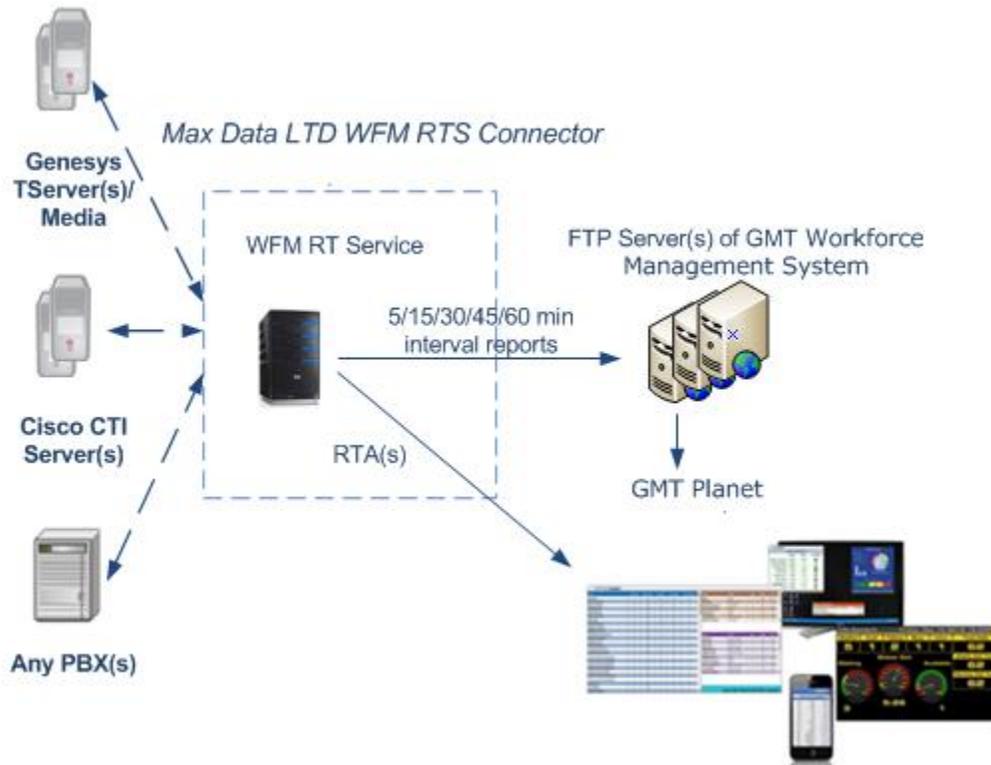
4.2   Detail System Architecture

The Avaya PBX and the Genesys Call Center environment are located at Infinity Insurance. WFM RTS Connector extracts required data from the TServer and forwards the data as Real-Time stream to GMT Planet located on the Alpine side. The WFM RTS Connector Server performs necessary calculations and forwards the data via FTP to the GMT WFM Planet Server. The data can also be sent to multiple FTP locations or any shared folder on the network.
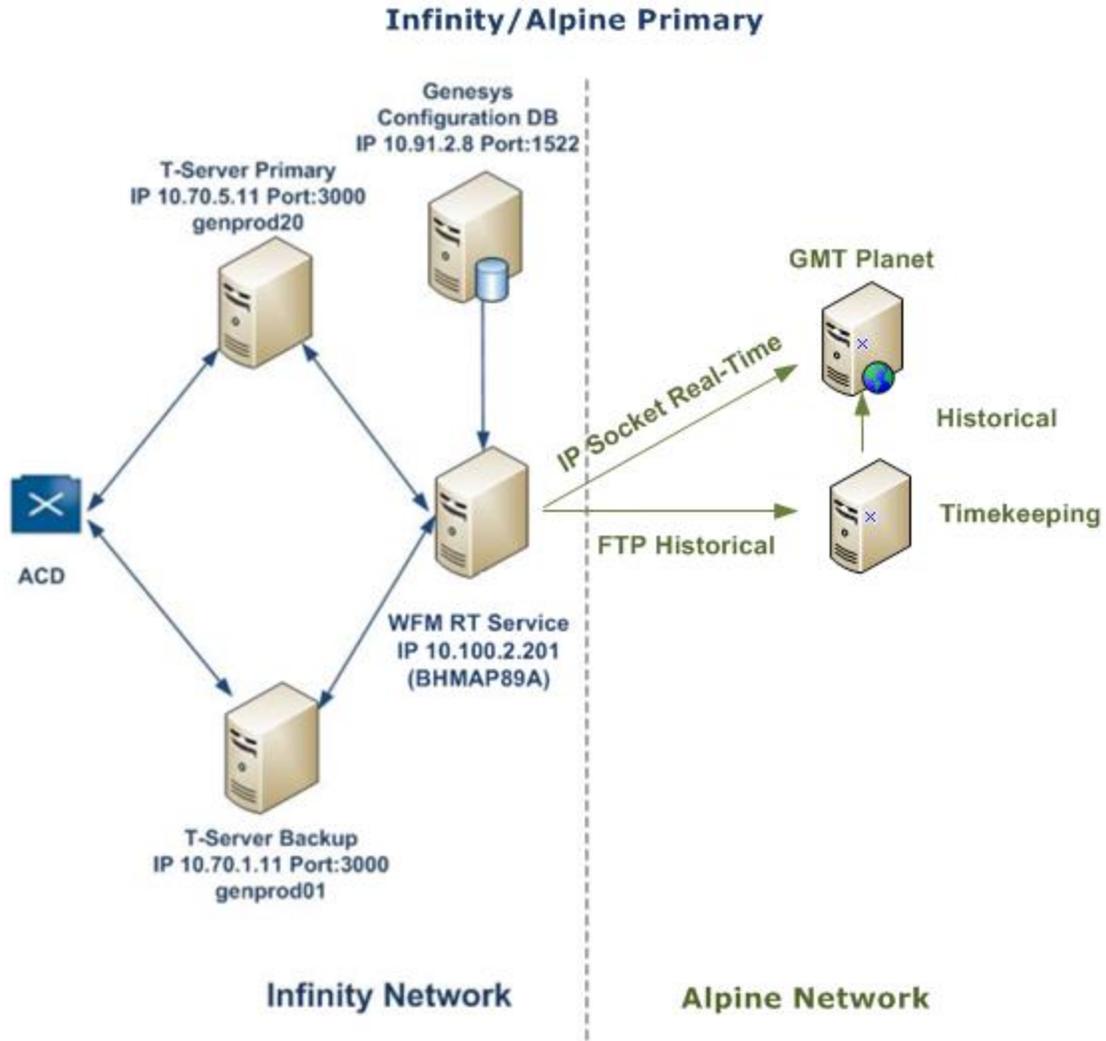
4.3   Redundancy

Infinity has a hot redundancy system for the Genesys TServer and primary and secondary WFM RT Server. The primary and secondary systems work in parallel.

The WFM RTS Connector service works in a standby mode on the secondary server. Should the primary WFM RTS Server fail, the secondary WFM RT Service is configured to wake up the secondary WFM RTS Connector server to start sending the data via FTP to GMT Planet module.

5.0   WFM Connector Configuration

5.1   Historical Adherence

Max Data LTD WFM Connector will derive the necessary historical statistics within (5/15/30/45/60) min time interval that enable the GMT Planet Workforce Management System.

5.2   FTP/Folder Configuration

6.0   GMT Planet Data Collection from WFM Connector

6.1   Historical Statistical Integration

The following section describes interval report generation and delivery, and how it is accomplished by the WFM Connector.

6.2   Report Generation

The WFM Connector will generate the following (5/15/30/45/60) minutes interval reports for the GMT Planet system:

- Agent Productivity Report
- Queue/Skill Statistics

The files generated by WFM RTS Connector will contain one (5/15/30/45/60) minutes interval report and will be named according to the following format:
GmtAgentProductivity.YYYY.MM.DD.HH.MM. parse2_agent_prod.
The time stamp information will be based on the system time (in the local time zone) of the server where the report generator is running.

The Customer will supply the FTP transfer information or the network folder path at the time of implementation.

6.3   Report Delivery

The WFM Connector will support both anonymous and username/password FTP transfers. *Customer* is expected to indicate the FTP username/password at the time of the WFM Connector implementation.

Remote FTP Configuration

IP/Folder	FTP Directory	Port
☑ C:\2002\FTP		
☑ 127.0.0.1	WFM	0

☑ FTP

FTP

IP Address: 127.0.0.1	Directory: WFM	Port: 0	
User Name: Alex	PSW: **********		

Folder: [   ]   [Add New]

[Check]

[Delete]

Remote FTP Configuration

IP/Folder	FTP Directory	Port
☑ C:\2002\FTP		
☑ 127.0.0.1	WFM	0

☐ FTP

FTP

IP Address: [ ]	Directory: [ ]	Port: [ ]	
User Name: [ ]	PSW: [ ]		

Folder: C:\2002\FTP   [Add New]

[Check]

[Delete]

Name	Date modified	Type	Size
GmtAgentProductivity.2016.08.11.08.45.parse2_agent_prod	8/11/2016 8:50 AM	PARSE2_AGENT_PROD File	1 KB
GmtAgentProductivity.2016.08.11.08.50.parse2_agent_prod	8/11/2016 8:55 AM	PARSE2_AGENT_PROD File	1 KB
GmtAgentProductivity.2016.08.11.08.55.parse2_agent_prod	8/11/2016 9:00 AM	PARSE2_AGENT_PROD File	1 KB

7.0   Genesys/Cisco to GMT Planet WFM System Statistics Mapping

The following section provides a list of the data items that have been identified as necessary to produce the (5/15/30/45/60) minutes interval reports required by GMT Planet WFM and a description of how each data item will be mapped to a corresponding statistic within the Genesys/Cisco environment.

7.1   Agent Productivity Report

The *Contact Type Report* contains a breakdown of interaction activity grouped by Genesys/Cisco Any Queue Types within (5/15/30/45/60) minutes interval. For agent productivity generate a file with the extension .parse2_agent_prod. Parse2 (GMT Application) will process this file.
Implementing the GMT agent productivity data capture
Each line is of the format:
ACD Login   SkillQueueCode   Date   Abbreviation Time   Value

7.1.1   Sample Report

```
GMT.Agent.Data
1002     671005  08/11/2016        ANS                  08:50       1
1002     671005  08/11/2016        INCALL_ANS           08:50       1
1002     671005  08/11/2016        ATT                  08:50       321.00
1002     671005  08/11/2016        AVG_INCALL_TALKTIME  08:50       321.00
1002     671005  08/11/2016        AWU                  08:50       147.00
1002     671005  08/11/2016        OUTCALL              08:50       1
1002     671005  08/11/2016        AVG_OUTCALL_TALKTIME 08:50       151.00
1002     671005  08/11/2016        HLDT                 08:50       152.00
End GMT.Agent.Data
```

7.1.2   Data Elements

Field	Data Type	Description
Agent Login ID	char(50)	Agent's Login ID within the PBX
SkillQueueCode	char(50)	Genesys/Cisco Skill or Queue/VQ
Date	MM/DD/YYYY	Reporting date
Abbreviation	char(50)	See below…
Time	HH:mm	Reporting start time
Value	char(10)	The resulting value

7.1.3   Abbreviation

Field	Data Type	Description
ANS	ushort	The number of all calls answered. Includes ACD and non-ACD related
INCALL_ANS	ushort	Number of incoming ACD only calls answered.
ATT	double	Average Talk Time (Total talk time All Calls)/(Total number of calls [ANS])
AVG_INCALL_TALKTIME	double	Average time spent on Incoming Calls (ACD only) (Total Time Incoming ACD Calls)/(Number of Incoming ACD Calls [INCALL_ANS])
AWU	double	Average Wrap-Up time ACD and non-ACD related (Total ACW Time)/(Number of ACW occurrences)
OUTCALL	ushort	Number of outbound calls answered ACD and non-ACD related
AVG_OUTCALL_TALKTIME	double	Average time of outbound calls in seconds. (Time spent on Outbound Calls)/(Number of Outbound Calls [OUTCALL])
HLDT	double	Average Hold Time in seconds (Total Hold Time)/(All calls placed on Hold)

7.2   Queue/Skill Statistics

The *Queue/Skill Statistics Type Report* contains a breakdown of agent interaction activity grouped by Genesys/Cisco Any Queue Types and Agent Logon ID within (5/15/30/45/60) minutes interval.

The objective of GMT's Planet Workforce Management tool (WFM) collecting the following ACD historical data is to enable historical call volumes and patterns to be used to forecast and project future comparable intraday historical call volumes and patterns for future scheduling periods.

The GMT Planet Workforce Management (WFM) tool collects the following data elements from a direct feed from the WFM RTS Server. This historical data is captured every 5, 15, 30, 45 or 60 minutes, depending on the WFM RTS Server's historical data collection interval configuration. This historical data is collected for each Genesys/Cisco ACD Queue/Virtual Queue.

This data is fed from the WFM RTS Server immediately (the same millisecond) after the 5, 15, 30, 45 or 60 minute time interval has lapsed to enable usage of this data to assist in intra-day schedule management in addition to being used in generating forecasts to be used in.

7.2.1   Sample Report

For queue/skill data, generate a report in the following example format:
DATE,TIME,CG,CO,ABT,ANS,ASA,ATT,AWU,HOLD,SVC,ANS_SVC,ABT_SVC,ACT,COF, CIF,ACD

Example:

01-02-2002,13:15,1,100,1,99,60,30,10,10,96,2,3,46,1,2,0

```
GMT.Call Group.Data
08/13/2016 18:35
CG         CO           ABT           ANS           ASA           ATT           AWU           HOLD
671005 0000000004 0000000001 0000000003 0000000003.75 0000000007.67 0000000050.50 0000000004.33
End GMT.Call Group.Data

   SVC          ANS_SVC       ABT_SVC        ACT           COF           CIF           ACD
0000000066.67 0000000002 0000000001.00 0000000002.50 0000000000 0000000000 0000000000
```

7.2.2   Data Elements

| Column	Data Type	Abbreviation	Description
DATE	MM-DD-YYYY		Reporting Date
TIME	HH:mm		Reporting start time
CG	char(50)	CALL_GROUP	Genesys/Cisco Skill or Queue/VQ
CO	ushort	CALLS_OFFERED	The total number of contacts that have entered the system for the designated contact type within the given interval. GMT Planet will not reference this value for Voice integration. It is reserved for multimedia interactions.
ABT	ushort	CALLS_ABANDONED	The total number of contacts Abandoned on the Queue/VQ during this interval. This does not include any contacts Abandoned before offered to the Genesys/Cisco Queue/VQ
ANS	ushort	CALLS_ANSWERED	The number of all calls answered. Includes only ACD related
ASA	double	AVG_SPEED_TO_ANSWER	Average Speed of Answer. The average amount of time it takes for calls to be answered during time interval. This includes the amount of time callers wait in a waiting queue and while the agent's phone rings however does not include the time it takes for callers to navigate through the IVR. $$ASA = \frac{Total\ Waiting\ time\ for\ all\ callers\ (in\ Secs.)}{Total\ Number\ of\ Callers}$$
ATT	double	AVG_TALK_TIME	Average Talk Time (Total talk time All Calls)/(Total number of calls [ANS])
AWU	double	AVG_WRAPUP_TIME	Average Wrap-Up time ACD related (Total ACW Time)/(Number of ACW occurrences)
HOLD	double	AVG_HOLD_TIME	Average Hold Time in seconds (Total Hold Time)/(All calls placed on Hold)
SVC	double	SERVICE_LEVEL	Service Level. (percentage achieved)
ANS_SVC	ushort	CALLS_ANSWERED_WITHIN_ SERVICE_LEVEL	Total number of contacts that were answered on this Queue/VQ before target

			threshold (Service Level) was met. The Genesys/Cisco target threshold for each Queue/VQ will be referenced for this calculation, if not present, the default (system wide) WFM Connector target threshold will be used.
ABT_SVC	ushort	CALLS_ABANDONED_WITHIN _SERVICE_LEVEL	Total number of contacts that were abandoned on this Queue/VQ before target threshold (Abandoned Service Level) was met. The Genesys target threshold for each Queue/Virtual Queue will be referenced for this calculation, if not present, the default (system wide) WFM Connector target threshold will be used.
ACT	double	AVG_CONFERENCE_TIME	Average Consult Time (Total Consult Time)/(Number of Consult calls occurrences)
COF	ushort	CALLS_OUTFLOWED	Number of calls redirected from this Queue/VQ to another Queue/VQ.
CIF	ushort	CALLS_INFLOWED	Number calls redirected to this Queue/VQ from another Queue.
ACD	integer	ACD_NUMBER	(if applicable for multiple ACDs)

8.0   Real-Time Adherence / Agent State Monitoring

The objective of GMT's Planet Workforce Management tool (WFM) collecting the following ACD real-time agent phone state data is to enable supervisors and management to monitor agent schedule adherence in both real-time and historically. GMT Planet accomplishes this by retrieving the agent phone states, in real time from WFM RTS Server. These ACD phone states can include but are not limited to: "Ready", "After Call Work", "Break", Lunch", or "Training". GMT Planet compares, in real-time the agent's ACD phone state to the schedule that has been generated and published by GMT Planet for the agent and displays, in real-time, in GMT Planet's Real-time Adherence screen whether the agent is adhering to their published schedule or not.

8.1   Architectural Design
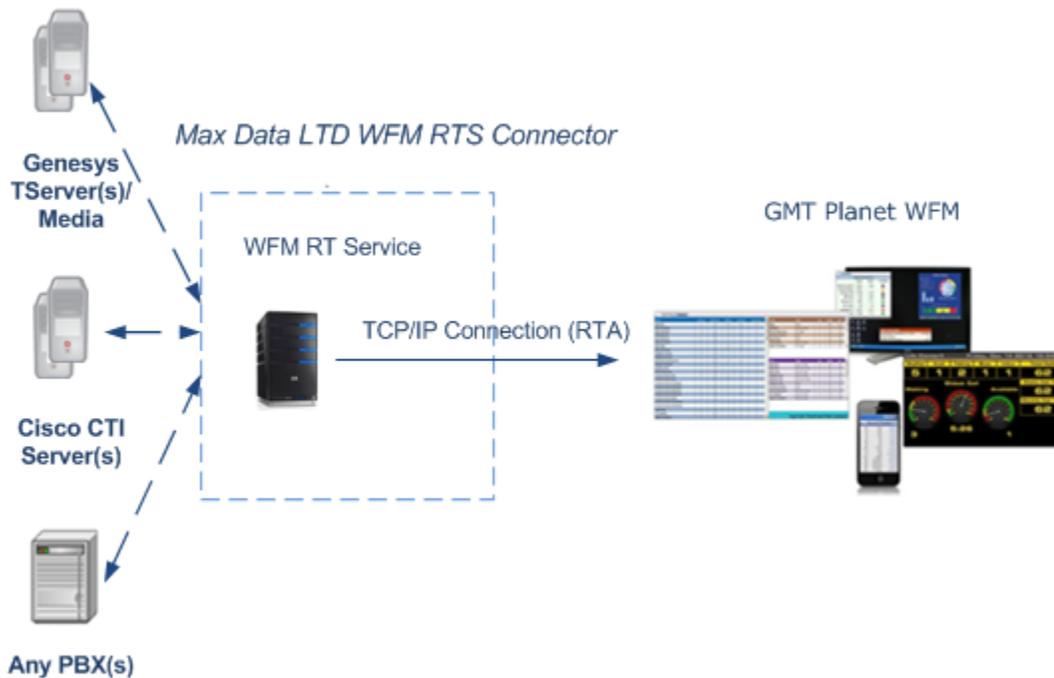
8.2   RTA Configuration

8.3   Implementing the GMT Planet Real-time Phone State Data Capture

GMT will start a TCP/IP listener on a specified port. The switch connects to this port and sends the GMT system real time data. On the initial connection the data for all agents are sent; subsequent updates contain data for agents that have changed states since the last update. All the data is send as text strings terminated by the new line character. The field separator is the pipe (|) character and the record separator is the new line character (ASCII 0x0A – '\n').

The basic flow of events is outlined below:

1. Initial Data Block sent on GMT. The initial data block will include all the current status of all agents tracked by the 3rd party real-time interface. (This included logged in and logged out agents) The Initial Data Block will be sent on one of three occurrences:

   a. First Time GMT connects to the 3rd Party real-time Interface
   b. On a re-connection after either party disconnected from the network for any reason. (That is TCP/IP handshake was broken)
   c. The 3rd Party Interface has determined an "error" and requesting a GMT reset of all agent states.

2. All subsequent agent state changes will send to GMT as Delta Data Blocks. This includes:

   - Status changes for agents within the initial data block
   - Login events and status changes for agents not currently within the initial data block load. (If and agent is added to the ACD or new agent is tracked, the 3rd party interface need only send a Delta Data Block. However, the system can resend the Initial Data Block that includes the current status of all agents.)

8.4   Data lines

Data lines are of the form

AgentId|GMTStateId|IdleReasonCode|Duration|NodeId|ClassificationID|

8.5   Data Blocks

- For the initial data block the server first sends ==START==
- For update data blocks the server sends ==START-DELTA==
- The start or start-delta line is followed by the time stamp (the ==TS line). The value is the current time on the ACD is in milliseconds from the Unix epoch
- Data blocks are terminated by ==EOD==

SAMPLE INITIAL DATA BLOCK
==START==
==TS1108597114000==
AgentId1|AspectStateId|IdleReasonCode|Duration (Seconds)|NodeId|ClassificationID|
AgentId2|AspectStateId|IdleReasonCode|Duration (Seconds)|NodeId|ClassificationID|
==EOD==

EACH DELTA BLOCK IS OF THE FORM

==START-DELTA==
==TS1108597114000==
AgentId1|AspectStateId|IdleReasonCode|StartTime (HHmmss)|NodeId|ClassificationID|
AgentId2|AspectStateId|IdleReasonCode|StartTime (HHmmss)|NodeId|ClassificationID|

==EOD==

8.6 Example

```
Press ENTER to quit
==START==
==TS1472198568664==
1002:12::73::
1002:2::8::
==EOD==
==START-DELTA==
==TS1472198571706==
1002:1::080251::
==EOD==
==START-DELTA==
==TS1472198573391==
1002:10::080253::
==EOD==
==START-DELTA==
==TS1472198573391==
1002:10::080253::
==EOD==
==START-DELTA==
==TS1472198579412==
1002:7::080259::
==EOD==
==START-DELTA==
==TS1472198582673==
1002:10::080302::
==EOD==
==START-DELTA==
==TS1472198590769==
1002:0:End of Shift:080310::
==EOD==
```

```
==START==
==TS1473087852608==
1002:12::54::
1002:7::45::
Email_1002:49::54::
Email_1002:43::40::
Email_1002:38::25::
Chat_1002:50::54::
Chat_1002:44::16::
Chat_1002:17::14::
==EOD==
==START-DELTA==
==TS1473087864458==
Chat_1002:35::150424::
==EOD==
==START-DELTA==
==TS1473087874286==
Email_1002:45::150434::
==EOD==
==START-DELTA==
==TS1473087874289==
Email_1002:40::150434::
==EOD==
==START-DELTA==
==TS1473087874290==
Email_1002:45::150434::
==EOD==
==START-DELTA==
==TS1473087879052==
1002:10::150439::
==EOD==
==START-DELTA==
==TS1473087892855==
1002:1::150452::
==EOD==
==START-DELTA==
==TS1473087897609==
1002:2::150457::
==EOD==
==START-DELTA==
==TS1473087900196==
1002:1::150500::
==EOD==
```

```
Press ENTER to quit
==START==
==TS1472198568664==
1002:12::73::
1002:2::8::
==EOD==
==START-DELTA==
==TS1472198571706==
1002:1::080251::
==EOD==
==START-DELTA==
==TS1472198573391==
1002:10::080253::
==EOD==
==START-DELTA==
==TS1472198573391==
1002:10::080253::
==EOD==
==START-DELTA==
==TS1472198579412==
1002:7::080259::
==EOD==
==START-DELTA==
==TS1472198582673==
1002:10::080302::
==EOD==
==START-DELTA==
==TS1472198590769==
1002:0:End of Shift:080310::
==EOD==
```

8.7 Connection Management

The connection should be kept open as long as possible. If a broken connection is detected GMT will restart the listener within a configurable interval (by default 10 seconds). The switch should retry connecting to the GMT listener. Once a connection has been reestablished the switch should send a

==START== data block with the current states for all agents in the system (followed by **==STARTDELTA==**when agent states changes)

8.8 Notes

For switches where the agents can be in multiple states by ClassificationID (queue or skillsets) the WFM RTS will resolve the active state for the agent before sending the update.

For example: if the agent is on a call on one queue/skillset and is not ready on another queue/skillset, the agent state that is usually desired is that the agent is on a call. Another common issue is handling logouts. An agent is considered logged out only when the agent is logged out of the system. If the agent is logged out on one queue/skillset the WFM RTS will not send one line that says that the agent is logged out with one ClassificationID and another state with another ClassificationID. In other words the primary key is the AgentID and not the combination of AgentID and ClassificationID.

8.9 GMT Staten ID values

ACD State	Aspect StateID	Description
AGENT_LOGGED_OUT	0	Agent logged out of the ACD
AGENT_ACD_INCALL	1	Agent on internal call that came through ACD
AGENT_ACD_HOLD	2	Agent put ACD call on hold
AGENT_OUTCALL	3	Agent made an outbound call
AGENT_OUTCALL_HOLD	4	Agent put outbound call on hold
AGENT_INCALL	5	Agent received call directly to phone from outside bypassing the ACD
AGENT_INCALL_HOLD	6	Agent put inbound non-ACD call on hold
AGENT_WRAPUP	7	Agent in wrap up state
AGENT_NREADY	8	Agent in not ready (AUX) state
AGENT_AWAY	9	Agent in away state
AGENT_ACD_WAIT	10	Agent in ACD wait state
AGENT_CONSULT	11	Agent requested consultation from Supervisor
AGENT_LOGIN	12	Agent logged into the system
AGENT_OUTCALL_SETUP	13	Agent preparing to make outbound call

AGENT_OUTCALL_INT	14	Agent made an internal call
AGENT_INCALL_INT	15	Agent received an internal call
AGENT_EMAIL_INV	16	Agent received email invite
AGENT_CHAT_INV	17	Agent received chat invite
AGENT_WEBCALL	18	Agent on a Web Call
AGENT_ACD_WAIT_PRIM	19	ACD wait primary
AGENT_HELP	20	Agent requested help
AGENT_ACD_INCALL2	21	Agent has a call on their second line
AGENT_OUTCALL2	22	Agent on outbound call on second line
AGENT_EMERG	23	Agent has set their phone in an emergency state
AGENT_INTERNAL_CALL	24	Agent made internal call (similar to state 15)
AGENT_MSG	25	Agent leaving a message
AGENT_SUPERVISOR	26	Agent has requested supervisor assistance
AGENT_ACD_INCALL_NET	27	Agent on an ACD network call
AGENT_TRANSFER	28	Agent is transferring a call
AGENT_NOT_RESPONDING	29	Agent in not responding state
AGENT_MONITORING_USER	30	Supervisor is monitoring agent
AGENT_MONITORING_CONTACT	31	Supervisor is monitoring ACD call
AGENT_COACHING_USER	32	Agent unavailable due to supervisor coaching
AGENT_RECOVERING	33	Agent in recovery state
AGENT_EMAIL_REV	34	Email revoked after it was reached the Agent
AGENT_CHAT_REV	35	Chat revoked after it was reached the Agent
AGENT_EMAIL_REJ	36	Agent rejected Email
AGENT_CHAT_REJ	37	Agent rejected Chat
AGENT_EMAIL_ACC	38	Agent accepted Email
AGENT_CHAT_ACC	39	Agent accepted Chat
AGENT_EMAIL_PROC	40	Agent processed Email (Marked Done)
AGENT_CHAT_PROC	41	Agent processed Chat
AGENT_EMAIL_NOTPROC	42	Agent didn't processed Email (Didn't marked Done)
AGENT_EMAIL_READY	43	Agent in Ready state for Email
AGENT_CHAT_READY	44	Agent in Ready state for Chat
AGENT_EMAIL_NOTREADY	45	Agent in Not Ready state for Email
AGENT_CHAT_NOTREADY	46	Agent in Not Ready state for Chat
AGENT_EMAIL_LOGGED_OUT	47	Agent logged out from Email
AGENT_CHAT_LOGGED_OUT	48	Agent logged out from Chat
AGENT_EMAIL_LOGIN	49	Agent logged into Email

AGENT_CHAT_LOGIN	50	Agent logged into Chat

8.10   Additional Notes

- Not all ACD's support all these different GMT State ID's. We will work with each vendor to identify which state ID's they can provide, and GMT will provide support for those states.
- Idle Reason code is the auxiliary reason code.
- We ignore node id.
- ClassificationID is the queue.

- Duration is in seconds of how long the agent has been in the current state.

9.0 Revision & Sign-off Sheet

9.1 Change Record

Date	Author	Version	Change Reference

9.2 Reviewers

Name	Version Approved	Position	Date

9.3 Distribution

Name	Position

9.4　　Document Properties

Item	Details
Document Title	WFM Connector – GMT WFM Integration Requirements and Functional Design Document
Author	
Creation Date	
Last Updated	