Document Number: EDCS-893513

Detailed IVT Test Report for ASCOM - Unite Messaging Suite

Test Result	PASS
Test Date	10 Jan 2011
Product Name	Unite Messaging Suite
Product Version: **(must be generally available)**	1.21
CUCM Version X.X(x)	8.0.2.40000-1
Cisco Phones Tested	7900 series
Product Type:	IP Phone Application
API/Protocol(s) Used	XML, HTTP
Developer Services Contract #	3206825
Partner IVT Contact Name:	Staffan Örnbratt
Partner IVT Contact Phone:	+46 31 559300
Partner IVT Contact Email:	Staffan.ornbratt@ascom.se
IVT Lab Location **(EMEA or US):**	Galway
Partner Main Support Number	+46 31 55 94 50
Partner Main Support Email:	support@ascom.se

Revision History

Revision	Author	Date	Comment
1.0	Gerry Pearson	8/28/2006	Initial draft for Cisco review
1.1	Gerry Pearson	10/04/2006	Updated comments after review
1.2	Gerry Pearson	05/07/2007	Updated based on the IVTQ Response.
1.3	David Meredith	02/16/2010	Updated for CUCM 8.0
1.4	Tony Nally	01/07/2011	Updated to CDN format
1.5	Oumar Dakissia	01/26/2011	Updated Supported Test Cases

Table of Contents

1 Introduction 5
1.1 Objective(s) 5
1.2 Scope 5
1.3 Code Used During IVT 5
1.4 Pass/Fail Criteria 5
2 Product Overview 7
2.1 3rd Party Application Components/Services 8
2.2 CallManager Device Table 8
2.3 What Will Be Tested 8
2.4 What Will Not Be Tested 9
2.5 Administration and Debugging tools 9
3 Executive Summary 10
3.1 Summary of test results 11
3.1.1 Product Test Results 11
3.1.2 Problem Report 12
4 Test Setups 13
4.1 Hardware 14
4.2 Software/ Firmware 15
4.3 Test Equipment 15
4.4 Test Tools (software) 15
4.5 Supported Signaling Protocols and Interfaces 15
5 Test Resources 16
5.1 Test Engineers and Technology Contacts 16
5.2 Issues from previous IVT testing 17
6 Detailed Test Cases 18
6.1 Installation and Configuration Tests 18
6.1.1 3rd party Server installation and registration 18
6.1.2 Client application installation 19
6.1.3 3rd party Personal Assistant installation and registration 19
6.1.4 3rd party Personal Assistant configuration with reference to 3rd party Server 20
6.1.5 3rd party application shutdown 21
6.2 Phase 2 Application Reliability Verification 22
6.2.1 Application is available for a valid device 22
6.2.2 Application Interaction is correctly handled for IM page 22
6.2.3 Application able to use Non Alpha-Numeric Characters 23
6.2.4 Timeout Support for Specified Text messages 23
6.2.5 Incoming phone call not interrupted by Application sending Text message 24
6.2.6 Application places text message in queue 24
6.2.7 Application able to use Non Alpha-Numeric Characters 25
6.3 Phase 3 Scalability, Stress, Performance and Load Testing 26
6.3.1 CUCM Baseline Measurement 26
6.3.2 Test Case Overnight CM performance monitoring 27
6.4 Informational Tests 29
6.4.1 Calculate Time to receive text message from application 29
6.5 Phase 5 Negative Tests 31
6.5.1 Primary server loses connection / reconnects after the IP Phone has received text message 31
6.5.2 Primary server looses power after text message has been sent to phone 31
6.5.3 IP Phone loses connection while message is displayed / reconnects after 5 seconds 32
6.6 Phase 6 - Additional Application Specific Test cases 34
6.6.1 Read New Messages 34
6.6.2 Read New Messages .... **Error! Bookmark not defined.**
7 Reference 35

8 Glossary 35
9 Attachments 39
10 Internal Review 39
Appendix A 3rd Party Serviceability Information 40
3rd Party Support Contact Information 40
3rd Party Product Isolation Procedures 40
Troubleshooting 40
Installation and Configuration 40
Upgrades and patch application 40
Debugging and Diagnostics 40
Error Messages 40
Tools / Aids 40
List of Commands 40
Redundancy and Recovery 40
11 Appendix B Test Approach 41
IVT Entrance Criteria 41
IVT Exit Criteria 42
Error report handling (software and hardware) 42
Defect Tracking Information/Problem Reporting and Severity Levels 42
12 Appendix C IVT Troubleshooting Tools and Default configurations 45
Trace Utility for TAPI/JTAPI 45
Event Log 46
What to collect when preparing for and reporting CM related problems 46

1 Introduction

This document is the detailed IVT test Report for 1.21 of Unite Messaging Suite. It defines the scope, approach, resources, schedule, risks/mitigations, and entry/exit criteria for IVT testing.

.

1.1 Objective(s)

The principle objective of the Interoperability Verification Testing (IVT) is to provide Cisco CDN program partners with an approved, consistent and comprehensive verification methodology for acceptance of their application product into the Cisco CDN Partner Program. Testing is focused on functionality and compliance with the open standards followed by the Cisco Call Manager and design within context of a Cisco internetworking infrastructure.

1.2 Scope

The IVT test activities between third party devices and the Cisco IVT test bed determines whether the implementation of third party devices provides basic functionality without compromising the Cisco network. This document provides the test strategy and test case procedures to validate the mandatory standard requirements and a variety of optional requirements for the device. The device under test must satisfy all the mandatory requirements, and selected optional requirements in order to pass the test. This test determines whether the product performs as required and inter-operates on a pass/fail basis. The test suite therefore emphasizes error detection, not error diagnosis or correction; however, if there is a failure, data will be captured for further analysis, and, if possible, will be traced to the specification of the standard to determine the cause of the problem. Any problems found will be reported to Cisco and to the vendor for correction.

Please note additional tests may be included in the testing session that is not listed in this test plan. The purpose of such additional testing is for investigative purposes to ensure the solution is reliable. The results of the additional tests will be included in any subsequent review. It is expected that the partner will have already carried out their own testing above and beyond the requirements of the test plan to ensure a quality solution.

1.3 Code Used During IVT

The IVT operates a closed code program. Any modification of the Application will be deemed an IVT failure. If your application fails IVT on three occasions you will be barred from the program as such a failure indicates poor product quality. Cisco will perform due diligence to ensure the failure reason is not due to a Cisco Call Manager issues. You will be presented with the appropriate Call Manager Logs for the time of the failure. It is then your responsibility to isolate the failing reason and present this information to Developer Support (DS) for verification, via a DS case. The program team will then decide if the failure reason can be wavered.

1.4 Pass/Fail Criteria

On completion of the verification tests, if there are any issues deemed as severity 1, any issues deemed as severity 2, or 3 issues deemed as severity 3, the product will be considered to have failed IVT. Note: The approval process can increase/decrease the severity after the test cycle if considered necessary.

2 Product Overview

ECG/Cisco is a gateway between the Unite messaging system and Cisco IP phones, and sends messages from Unite to Cisco. It contains a simple configuration Graphical User Interface (GUI) and interacts with the Cisco Unified Communications Manager (CUCM) and the Cisco IP phones.
The Cisco Unified Communications Manager is the central node in a Cisco phone network with information about all phones and calls. It also keeps track of which phones that exist and which phones that are connected.

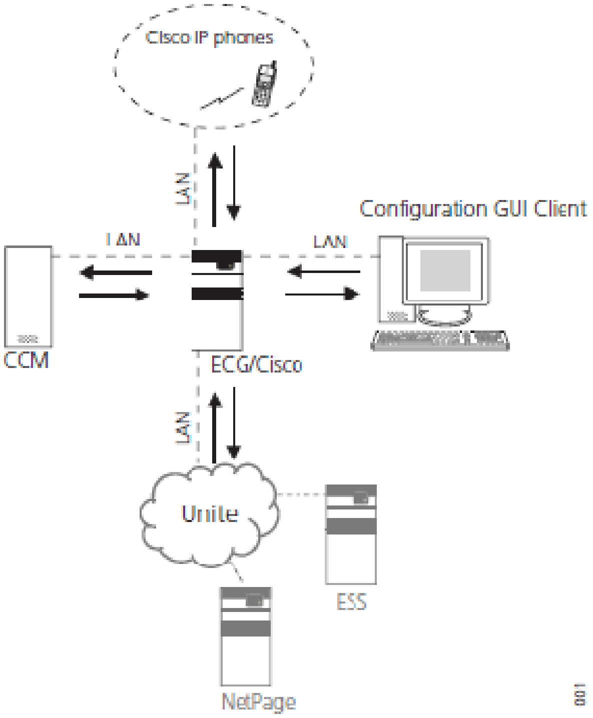


Figure 1. An example with the ECG/Cisco gateway and part of a Unite system.

The ECG makes inquiries every minute about added or modified devices and the status of every device, i.e. if they are logged in, using SNMP. To make sure nothing is inconsistent the ECG also extracts a complete list of all registered phones in the CUCM at a regular configurable interval, default once a day. When a message is received from Unite the status of the intended receiver is checked and ECG/Cisco accepts the message if the phone is currently online.
A common way to handle messaging is to let the phone store a number of the latest messages for viewing, but the Cisco phones are not equipped with any local message storage. It is therefore up to the ECG/Cisco to implement this function, which is illustrated in figure 2. The ECG/Cisco keeps a small message database for each phone. Each database consists of the 20 latest received messages, and the messages are distributed first-hand in priority order and secondly, for messages with the same priority, in time order.

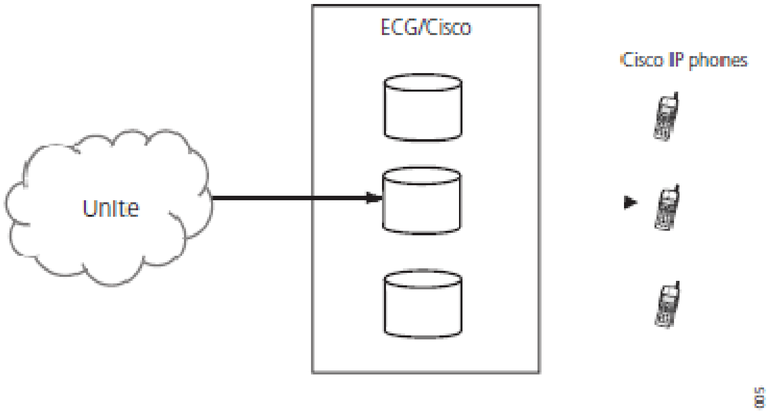


Figure 2. The ECG/Cisco sends a stored message to a Cisco IP phone.

In this section briefly describe what the product is and what it does.

2.1 3rd Party Application Components/Services

List all the 3rd party application services run on the 3rd party server

3rd Party Services running on the Server	Version
Unite Messaging Server	1.21

2.2 CallManager Device Table

CallManager Device Summary Template:

CallManager Device/Interface Type	Description	Configuration Comments	Min/Max Configurable	Suggested Provisioning

2.3 What Will Be Tested

Unite Messaging Suite Version 1.21 will be tested for functionality and performance as per the specifications detailed by ASCOM in the IVT Questionnaire. The main focus of the IVT is to verify that the application operates with no or little impact on the Call Manager environment.

Standard features of Unite Messaging Suite Version will be tested in conjunction with Communications Manager as well as extended feature testing and failure scenarios.

Performance testing will be undertaken to verify the performance of Unite Messaging Suite Version 1.21 application in relation to the Communications Manager cluster.

- Cisco Unified Communications Manager 8.x Feature specific test cases
- Application specific test cases

2.4 What Will Not Be Tested

Test Cases that are not applicable or unsupported Test Cases as per IVT questionnaire.

2.5 Administration and Debugging tools

List 3rd party administration and debugging tools	Version
None	

3 Executive Summary

ASCOM Unite Messaging Suite Version 1.21 **PASSED** the IVT with CUCM version 8.0.2.40000-1

ASCOM Unite Messaging Suite Version 1.21 software performed very well throughout IVT testing.

No issues were found during this IVT.

However, some observations were noted regarding different behavior of certain Cisco IP phone type – particularly the low-end IP phone series such as the 7906 and 7911 with limited functionality and/or the device is not supported by the partner such as the 7985 video IP phone.

A number of test cases were either not supported (N/S) or not applicable (N/A).

Observation:

Test Case 6.2.4 Timeout Support for Specified Text messages.

All IP phones respond normally to the third party application as expected:

Except the 7906, 7911 & 7985 models which have limited functionality and cannot delete the last message from the screen by pressing the "DELETE" button. A workaound solution is to simply either lift the handset or press services button and the display will return to normal or refresh.

Note also that during the installation and configuration process, the "Web access" parameter must be enabled on all IP phones through the CUCM Administration Page for the application to function normally.

The Partner should alson update the "User Installation Guide" to include this key information to facilitate Intallation of the software.

ASCOM Unite Messaging Suite Version 1.21 is a very useful tool easy to deploy.

3.1 Summary of test results

This is an example of summary test results from IVT/SDL testing. The results of the summary are taken from the Test Cases section. The purpose of this is for AVVID Partner Program Team to review without the need of going into the full detail of the report.

✓ = pass

x = fail

✓* = See Defect Tracking Information/Problem Reporting and Severity Levels section.

N/A = If any section is not applicable to your product please state N/A.

N/S = Not supported

N/T = Not tested

3.1.1 Product Test Results

Product Test Results	S1	S2	S3	S4	S5	UC
Phase 1 Installation & Configuration	0	0	0	0	0	0
Phase 2 Application Reliability Verification	0	0	0	0	0	0
Phase 3 Scalability, Stress, Performance and Load Testing	0	0	0	0	0	0
Phase 4 Informational tests	0	0	0	0	0	0
Phase 5 Negative Tests	0	0	0	0	0	0
Phase 6 Live Monitoring of VoIP Recording	0	0	0	0	0	0
Phase 7 Recording on Demand	0	0	0	0	0	0
Phase 8 Voice Quality	0	0	0	0	0	0
Final Problem Counts:	0	0	0	0	0	0

3.1.2 Problem Report

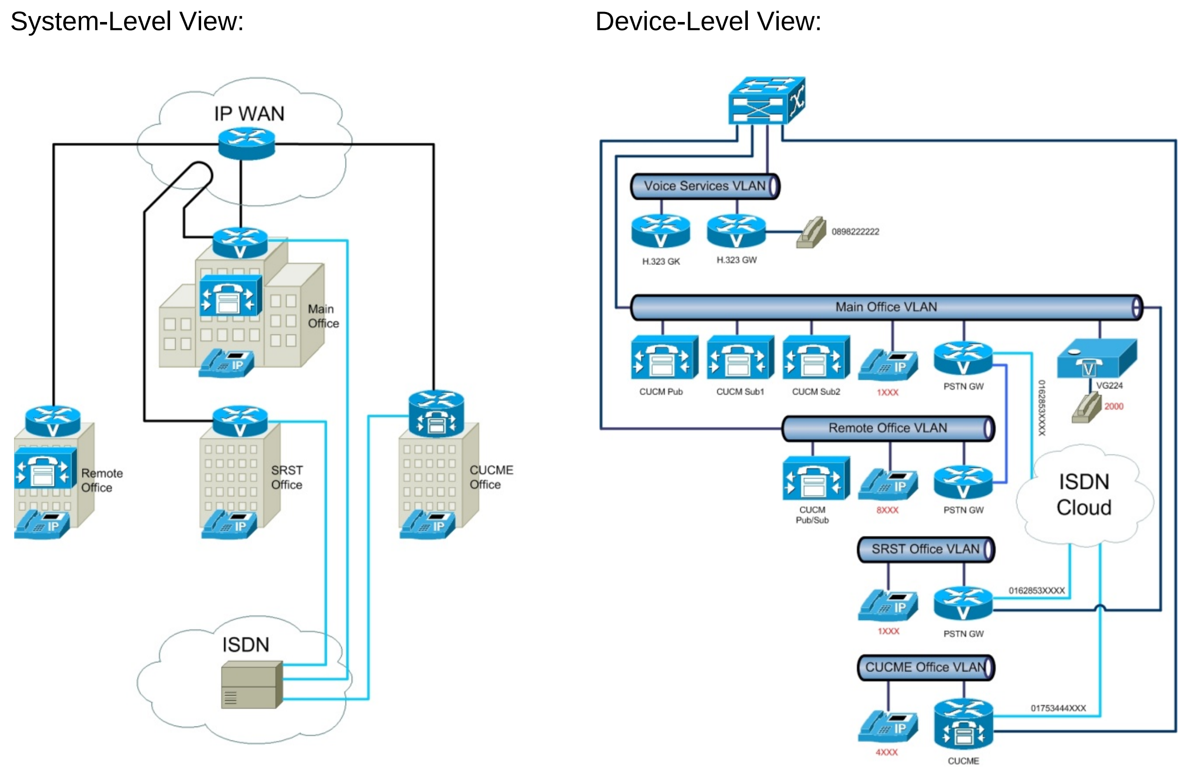
The following table highlights all problems discovered and their date resolved, if any.

Related Testcase	Problem Description Date Found	Resolution Description Date Resolved	Severity/Priority	Origin of Issue?

4 Test Setups

The IVT test beds represented below include the following diagrams to support transit voice calls and subscriber support services. The IVT test architecture attempts to mirror the CCM design guides functional requirements where possible.

Figure 4.1 Example Test Setup



System-Level View:

Device-Level View:

4.1 Hardware

Component	Qty	Hardware	Firmware Version
Communications Manager	4	MCS 7845	8.0.2.40000-1
Trunk Switch	1	WS-C3560G-24PS	C3560-IPBASE-MVers. 12.2(25)SEB4
SRST Node	1	c2811	C2800NM-SPSERVICESK9-M Version 12.4(8)
H323 Gatekeeper	1	c2821	C2800NM-IPVOICE_IVS-M Version 12.4(2)T5
H323 Gateway	1	c2811	C2800NM-SPSERVICESK9-M Version 12.4(9)T
MGCP Gateway	1	VG224	vg224-I6S-M Version 12.4(4)T3
Local PSTN GW	1	c2811	c2800nm-ipvoice-mz Version 12.4(8)
Remote PSTN GW	1	c2811	c2800nm-spservicesk9-mz Version 12.4(8
Phone Switch	1	WS-C3560G-24PS	C3560-IPBASE-M Vers. 12.2(25)SEB4
Main Switch	1	WS-C3750-24P	C3750-IPBASE-M Vers. 12.2(25)SEB4
SCCP Standard phone	1	7941G	SCCP41.9-0-2SR1S
SCCP Standard phone	1	7961G	SCCP41.9-0-2SR1S
SCCP Standard phone	1	7970G	SCCP70.9-0-2SR1S
SCCP Standard phone	1	7975G	SCCP75.9-0-2SR1S
SIP Standard phone	1	7942G	SIP42.9-0-2SR1S
SIP Standard phone	1	7962G	SIP42.9-0-2SR1S
SIP Standard phone	1	7971G-GE	SIP70.9-0-2SR1S
SIP Standard phone	1	7965G	SIP45.9-0-2SR1S
SCCP Standard phone	1	7960	P00308010200
SCCP Standard phone	1	7911	SCCP11.9-0-2SR1S
SCCP Standard phone	1	6961	SCCP69xx.9-0-2-0
SCCP Standard phone	1	7906	SCCP11.9-0-2SR1S
SIP Standard phone	1	9951	sip9951.9-0-2
SIP Standard phone	1	9971	sip9971.9-0-2
SCCP Standard phone	1	6941	SCCP69xx.9-0-2-0
SCCP Standard phone	1	7925	CP7925G-1.3.3.LOADS
Unite Messaging Server	1	N/A	
Test Servers	2	Pentium 4	Windows 2003

Component	Qty	Hardware	Firmware Version
Test PCs	2	Pentium 4	Windows 2000 SP4

4.2 Software/ Firmware

Component	Qty	Software Version	Firmware Version
CUCM	4	8.0.2.40000-1	N/A

4.3 Test Equipment

Equipment	Qty	Purpose
Windows 2003	2	Camelot Call Generation

4.4 Test Tools (software)

Equipment	Qty	Purpose
Windows 2003	2	Camelot Call Generation

4.5 Supported Signaling Protocols and Interfaces

Protocol	Version	Function
XML / http		

5 Test Resources

In this section please state all logistics in relation to performing and carrying out the IVT testing.

5.1 Test Engineers and Technology Contacts

The engineers responsible for the IVT test efforts are listed in this section with their roles and responsibilities. A second table includes the internal/external email aliases used during testing to relay status information or for technical consultation. In addition, in this table, lists of internal/external web pages are identified as IVT resources.

Table 5-1 – IVT Test Engineers

IVT/SDL Test Engineer	Role
Oumar Dalissia	Test Lead

Table 5-2 – Vendor Contacts

Name	Telephone	Email	Role
Staffan Örnbratt	+46 31 559300	Staffan.ornbratt@ascom.se	Product Manager

IVT related email aliases	Purpose of alias
IVT related web page (internal and/or external)	Purpose of web page

Table 5-3 – IVT related email aliases and web pages.

5.2 Issues from previous IVT testing

None

6 Detailed Test Cases

This section details the tests that will be performed during the testing period.

Unless otherwise noted in the individual test case, all tests shall be executed with a background load (provided by a load generation utility such as Camelot or SimClient) resulting sustained in Call Manager CPU utilization of 65%.

Refer to Table 1 – Test Results Legend for the definitions of the annotations in the Pass/Fail column.

6.1 Installation and Configuration Tests

This phase includes making sure the 3rd Party application installed correctly and that it registered correctly with the Call Manager. These tests will also focus on clean installation, configuration and removal of any software components on the Call Manager server(s).

6.1.1 3rd party Server installation and registration

Test Case Details	
Title	3rd party server installation and registration
Description	Installation of the server Personal Assistant. Verification of the completeness and accuracy of the server Personal Assistant installation guide. Documentation of any required software installation or configuration change on the CUCM.
Test Setup	Very important: configure CTI ports to a CTI Manager that is not on the primary CUCM. This is typically the database publisher machine
Procedure	1. Read the 3rd party installation instructions. 2. **If 3rd party product is not turnkey:** On a designated client machine (not one of the CUCM machines), install the 3rd party product. Record length of time required for install. 3. Perform any configuration the 3rd party product according to the installation instructions. Document the various separate installation programs and manual configurations needed.
Expected Results	1. Verify that via the partner Personal Assistant that the Server has installed correctly 2. Record any changes to the CUCM devices required by the 3rd party installation. Most likely, this will consist of making CTI ports and route points on the CUCM for the 3rd party product.
Observations	**Passed**

	This is a turnkey installation. ASCOM Unite Messaging Suite Version 1.21 software is installed by ASCOM engineer; refer to installation and User Manual for detail. No error reported.

6.1.2 Client application installation

Test Case Details	
Title	Client application installation
Description	Verify that the server Personal Assistant registers properly with the CUCM.
Test Setup	Server Personal Assistant installed on the required hardware and physically connected to the network. CUCM installed with the required configuration parameters to register and connect the server.
Procedure	1. Connect the Call Center Personal Assistant platform to the CTDP network through the TAPI/JTAPI interface. This may have been done as part of installation in the previous section. 2. Spot check the ability of the Personal Assistant to control the configured CTI Devices IP Phones configured on the publisher CUCM. Use the instructions provided in the 3rd party installation and configuration guide to confirm that the product is correctly installed and communicating with the CTI Devices /IP Phones configured on the publisher CUCM.
Expected Results	1. Verify that the Call Centre Personal Assistant recognizes all CTI Port/CTI Route Point/IP Phone directory numbers as assigned in CUCM.
Observations	Not Applicable.

6.1.3 3rd party Personal Assistant installation and registration

Test Case Details	
Title	3rd party Client Personal Assistant installation and registration
Description	Installation of the client Personal Assistant. Verification of the completeness and accuracy of the client Personal Assistant installation guide. Documentation of any required software installation or configuration change on the CUCM.
Test Setup	Required hardware and operating system installed on the client machine. Server Personal Assistant must be installed and configured to register and connect the client.

Procedure	1. Read the 3rd party installation instructions. 2. **If 3rd party product is not turnkey:** On a designated client machine (not one of the CUCM machines), install the 3rd party product. Record length of time required for install. 3. Perform any configuration the 3rd party product according to the installation instructions. Document the various separate installation programs and manual configurations needed.
Expected Results	1. Verify that via the partner Personal Assistant that the Server has installed correctly 2. Record any changes to the CUCM devices required by the 3rd party installation. Most likely, this will consist of making CTI ports and route points on the CUCM for the 3rd party product.
Observations	**Passed** This is a turnkey installation. No error reported

6.1.4 3rd party Personal Assistant configuration with reference to 3rd party Server

Test Case Details	
Title	3rd party client Personal Assistant with reference to 3rd party Server
Description	Verify that that the client Personal Assistant registers properly with the server Personal Assistant.
Test Setup	Client Personal Assistant installed on the required hardware and physically connected to the network. Server Personal Assistant installed with the required configuration parameters to register and connect the client Personal Assistant.
Procedure	1. Connect the Call Centre Personal Assistant platform to the CUCM network through the TAPI/JTAPI interface. This may have been done as part of installation in the previous section. 2. Spot-check the ability of the Personal Assistant to control the configured CTI Devices /IP Phones configured on the publisher CUCM. Use the instructions provided in the 3rd party installation and configuration guide to confirm that the product is correctly installed and communicating with the CTI Devices /IP Phones configured on the publisher CUCM.
Expected Results	1. Verify that the Call Centre Personal Assistant recognizes all CTI Port/CTI Route Point/IP Phone directory numbers as assigned in CUCM.
Observations	**Passed** This is a turnkey installation. No error reported

6.1.5 3rd party application shutdown

Test Case Details	
Title	3rd party application shutdown
Description	Verify that that the client Personal Assistant shuts down properly.
Test Setup	None
Procedure	Follow installation guide (s): 1. Document how the product can be “shut down” 2. Validate that this works 3. Record the result.
Expected Results	As per stated in the procedure
	Passed No error reported

6.2 Phase 2 Application Reliability Verification

These tests test the various features of the 3rd party application and its various components. This involves the testing of the application against the Application note and IVT questionnaire requirements to ensure that it functions reliably and consistently in a manner that meets the requirements.

6.2.1 Application is available for a valid device

Test Case Details	
Title	Application is available for a valid device
Description	The objective of these sets of tests is to verify that the application is available and functioning appropriately.
Test Setup	Properly associate device with User
Procedure	1. Send Text message from application. 2. After text is invoked, visually inspect IP Phone display to ensure that time, date, etc. are still displayed.
Expected Results	1. Verify that all buttons and displays return to normal state after text is deleted
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.2.2 Application Interaction is correctly handled for IM page

Test Case Details	
Title	Application Interaction is Correctly Handled for IM page
Description	The objective of these sets of tests is to verify the IP phone default soft keys are sill functional after receiving the specified text message from the application server.
Test Setup	Properly associate device with User
Procedure	1. Attempt to complete call when IM page is sent. 2. Use the soft keys implemented by the 3rd-party applications.
Expected Results	Each phone is able to press the Call Button and complete the call to the configured phone.
Observations	**Passed**

	✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.2.3 Application able to use Non Alpha-Numeric Characters

Test Case Details	
Title	Application able to use Non Alpha-Numeric Characters
Description	The objective of these sets of tests is to verify that the IP Phone can and will support non-Alphanumeric characters.
Test Setup	Properly associate device with User
Procedure	1. Where appropriate, attempt to use the IP Phone service with characters containing non alpha-numeric characters e.g. &&, #, etc.
Expected Results	The phones will be able to display non alph-numeric characters
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.2.4 Timeout Support for Specified Text messages

Test Case Details	
Title	Timeout Support for Specified Text Messages
Description	The objective of these sets of tests is to verify the timeout feature for a Text message in queue.
Test Setup	Properly associate device with User.
Procedure	1. From the application generate the Text message. 2. Set the application timeout parameter for the text message to 100 seconds.
Expected Results	Confirm that the message is removed from the phones at the end of the time out period.

Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.2.5 Incoming phone call not interrupted by Application sending Text message

Test Case Details	
Title	Incoming Phone call not interrupted by Application sending Text Message
Description	The objective of this test is to verify that the application will not interrupt incoming call.
Test Setup	Properly associate device with User
Procedure	1. Place call to IP Phone 2. While phone is ringing have application send text page 3. Complete call and hang-up
Expected Results	After call is completed text message appears. Normal phone operation resumes.
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.2.6 Application places text message in queue

Test Case Details	
Title	Application places text message in queue.
Description	The objective of these sets of tests is to verify that the application continues to work when more than one message is in queue.
Test Setup	Properly associate device with User
Procedure	1. Send text to phone via application. 2. Send 2nd text to phone via application 3. Delete first text. Then delete second text

Expected Results	After first message is deleted the second should appear. After both are deleted the phones display should return to normal
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.2.7 Application able to use Non Alpha-Numeric Characters

Test Case Details	
Title	Application able to use Non Alpha-Numeric Characters
Description	The objective of these sets of tests is to verify that the IP Phone can and will support non-Alphanumeric characters.
Test Setup	Properly associate device with User
Procedure	1. Where appropriate, attempt to use the IP Phone service with characters containing non alpha-numeric characters e.g. &&, #, etc.
Expected Results	The phones will be able to display non alph-numeric characters
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.3 Phase 3 Scalability, Stress, Performance and Load Testing

These tests are executed to determine the impact of the 3rd party software on the Cisco Communications's ability to process calls. Testing will also determine the outer limits of the applications ability to properly function under stress and perform characterizing measurements on the Communications Manager

6.3.1 CUCM Baseline Measurement

Test Case Details	
Title	CUCM Baseline Measurement
Description	CUCM Baseline idle state, no CTI link to the Test Product. Have a performance baseline to compare further performance monitoring measurement against it.
Test Setup	Reboot of the CUCM machines. Counter log configured in CM1, CM2 and CM3's Win 2K Perfmon. No (J)TAPI connection between the Test Product and the CUCM cluster. Traces configuration: **CDR=ON** (default), **CCM=ON** (ON by default), **SDL=ON** (ON by default), **CTI_Manager =ON**.
Procedure	1. Load SimClient configuration and register phones/clients to be used. 2. Five minutes after SimClient registration start Perfmon logging on CUCM machines being used. 3. Wait five minutes to gather idle baseline usage information. 4. Start test calls. 5. Wait ten minutes. 6. Stop phone calls. Wait five minutes to gather post-test idle baseline usage information. 7. Gather SimClient performance results – i.e. Calls attempted, Calls completed, Off-hook to dial-tone, Hang-up to on-hook, etc. Stop Performance Monitor logging.
Expected Results	1. Verify that CPU usage of CUCM never went above 80% and that average CPU usage never went above 60%. 2. Record the results. ***Paste a screen shot of the Perfmon graph with the PROCESSOR %PROCESSOR TIME highlighted*** Save .CSV file to the IVT Doc-Centre
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.3.2 Test Case Overnight CM performance monitoring

Test Case Details	
Title	Overnight CM performance monitoring Processing run.
Description	Overnight processing run to verify 3rd Party application's stability over long duration and high load.
Test Setup	TURN OFF RTP on the SimClients. Auto registration configured on the Communications Manager Make sure CDRs are being collected on the Communications Counter log configured in Call Manger's Win 2K Perfmon. Traces configuration: **SDL = ON (info.)** (ON by default), **CCM = ON (info.)** (OFF by default) **CDR = ON (info.)** (OFF by default).
Procedure	1. Before commencing the overnight run, it is advisable to run the SimClients for ½ to 1 hour and verify that calls are succeeding. Once this has been done, reset the SimClients 2. On the CUCMs, launch Win2K Perfmon System Monitoring 3. Start the SimClients for an 8 hour test. 4. The following day, complete the corresponding tables in the performance monitoring observations section
Expected Results	1. New ip phones are created on the CUCM Phones register and obtain a DN 2. Perfmon monitoring started 3. SimClient call generation continues for 8 hours 4. Record the results. ***Paste a screen shot of the Perfmon graph with the PROCESSOR %PROCESSOR TIME highlighted*** Save .CSV file to the IVT Doc-Centre
Observations	**Passed** Generate a 20000 BHCA call load on the CUCM cluster sing Camelot CUCATT clients: 200 callers & 200 receivers. While under the Camelot load test, send a text message to 18 IP phones [one text message every 5 second]. The text messages are automatically deleted at the same time.

	As result: a total of 3500 messages were successfully received and deleted on each Phone, or a total of 18 X 3500 = 63000 messages during 10 hours period. The average CPU utilization on the CUCM cluster stayed below 60%.

6.4 Informational **Tests**

These tests are executed to verify specific information about the third-party product to Cisco. This is in relation to the IVT Questionnaire supplied by the vendor.

6.4.1 Calculate Time to receive text message from application

Test Case Details	
Title	Calculate Time to receive text message from application
Description	The objective of these sets of tests is to verify the amount of time it takes to invoke receive text message from application.
Test Setup	Properly associate device with User.
Procedure	1. From the application send text to all phone models listed below. 2. Calculate the amount of time it takes to the text message
Expected Results	Phones should receive text message in less than 2 seconds
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model)

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.5 Phase 5 Negative Tests

These tests are executed to determine the ability of the impact on calls, the Call Manager and the 3rd party application when combinations of the aforementioned fail by power failure or network connectivity problems. Testing robustness of the application through hardware and software fault insertion i.e. Failover/fallback. These tests are executed to verify specific information about the third-party product to Cisco. This is in relation to the IVT Questionnaire supplied by the vendor.

6.5.1 Primary server loses connection / reconnects after the IP Phone has received text message

Test Case Details	
Title	Primary server loses connection / reconnects after the IP Phone has received text message
Description	Check the behavior of the 3rd party server when it loses connection / reconnects after the IP Phone has received text message.
Test Setup	Properly associate device with User.
Procedure	1. From application send text messages to all phones listed below 2. Confirm all phones received text message. 3. Disconnect the 3rd party‟s primary server from the network 4. Reconnect 3rd party‟s primary server to the network 5. Send second text message
Expected Results	1. There should be no interaction required for server to connect with CUCM 2. All phones should see both messages and be able to delete both messages.
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model). The Server must be connected to the network for the "CALL" or "DELETE" command pressed on the phone to work.

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.5.2 Primary server looses power after text message has been sent to phone

Test Case Details	
Title	Primary server looses power after text message has been sent to phone

Description	Check the behavior of the module when the primary server is shutdown
Test Setup	Properly associate device with User.
Procedure	1. Send text message to the phone 2. While the message is displayed on the IP Phone remove power from application server. 3. Make extension to extension call.
Expected Results	1. Message is displayed on the IP Phone. 2. After the extension to extension call phone display returns to normal 3. Record the way the IP Phone reacts to the server‟s failure.
Observations	**Passed** ✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model) The Server must be connected to the network for the “CALL” or “DELETE” command pressed on the phone to work. All phones meet the expected results. If the IP user presses the delete button, the text message cannot be deleted. The phone will try to request the service and will time out. A workaround solution is to simply lift handset or press services button and the display will return to normal.

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.5.3 IP Phone loses connection while message is displayed / reconnects after 5 seconds

Test Case Details	
Title	IP phone loses connection while message is displayed / reconnects after 5 seconds
Description	Check the behavior of the IP phone when it loses connection with message being displayed / reconnects after 5 seconds
Test Setup	Properly associate device with User.
Procedure	1. Send a text message to the IP Phone. 2. While the message is being displayed disconnect the IP Phone from the network. 3. After 5 seconds reconnect IP Phone to network
Expected Results	Once IP Phone is reconnected to network the message will be resent from application. Depending on time to live (TTL) timers and resend timer.
Observations	**Passed**

	✓ **Passed** ✓* **Passed** with observation (limited functionality or unsupported phone model) After the phones are reconnected to the network, the message repapears and can be deleted by pressing the “DELETE” button on the phone.

7906✓*	7925✓	7940✓	7942✓	7960✓	7962✓	7970✓	6941✓
7911✓*	7985✓*	7941✓	7945✓	7961✓	7965✓	7971✓	7975✓

6.6 Phase 6 - Additional Application Specific Test cases

These tests are executed to verify specific functionality of the third-party product

6.6.1 Read New Messages

Test Case	Title	Expected Result	Comment
6.6.1	Read new Messages	Messages in correct priority sequence	Message queue updated properly
6.6.2	Message Notification sounds	Sound played when message received	Sound plays as each message is recieved
6.6.3	Softkey Translation on different phone typess	Softkey labels display correctly	Soft phone keys displayed properly
6.6.4	Backup & Restore	System back up and restore operates correctly	N/T
6.6.5	Receive Messages during call	No impact to call processing (transfer, Conference, release)	No error reported
6.6.6	Message updates during call	No impact to call processing (transfer, Conference, release)	No error reported
6.6.7	Exceed 20 Messages to Phone	Latest 20 messgaes stored	First in First out basis
6.6.8	Extension Mobility	Active messages available	N/T
6.6.9	Remove IP phone from CUCM with actve messages	Active messages available	No error reported

7 Reference

Note: Any CPU pegs over 80% sustaining for 5 seconds or more and any sustained memory increases should be noted.

8 Glossary

The following list describes specific acronyms and definitions for terms used throughout this document:

ACD	Automatic Call Distributor. A device that distributes calls to agents based on administratively settable rules.
BHCA	Busy Hour Calls Attempted.
BHCC	Busy Hour Calls Completed.
DID	Direct Inward Dialing
DNIS	Dial Number Identification Service, the telephone number being dialed, same as called party number.
DSP	Digital Signal Processor
E1	32 64kpbs timeslots on a 2.048 Mbps serial interface
ICS	Integrated Communication System.
IP	Internet Protocol
ISDN	Integrated Services Digital Network
IVR	Interactive Voice Response
IVT	Interoperability Verification Testing

LAN Local Area Network

MCS Media Convergence Server.

MCU Multi-point Control Unit

POTS Plain Old Telephone Service

PRI Primary Rate Interface: ISDN interface to 64kbps D channel plus 23 (T1) or 30 (E1)B channels for voice or data.

PSTN Public Switched Telephone Network

RAS Registration Admission Status

RTCP Real Time Transport Control Protocol

RTP Real Time Transport Protocol

T1 24 64kpbs timeslots on a 1.544 Mbps serial interface

UM Unified Messaging. A voice mail system that includes fax and email capabilities.

Agent Phone A client application typically used in a Call Center environment, which allows graphical call control of the agent’s phone.

Call Center A place where calls are answered and/or calls are made. A typical call center will have lots of people, called agents, answering phones. Outbound calls are typically made using a machine-automated process and inbound calls are typically answered by an IVR system before being placed in an on-hold queue to wait for a live agent.

Client App A TAPI or JTAPI based program that allows call control through a Windows interface but does not actually handle termination for a CTI port device like a SoftPhone does.

JTAPI Java Telephony API is a set of APIs for Java-based telephony control. JTAPI applications, like Java, are platform independent and depend on another API, TAPI in the case of Cisco, to control the actual telephony hardware.

Prompt quality Like speech quality except that the call is between a phone and an automated system such as IVR.

SimClient The name applied to a Cisco proprietary end point simulator. A SimClient machine can simulate the traffic of up to 1000 simultaneous calls. Used by Cisco, and Cisco partners, to stress test applications.

SoftPhone Controls and handles media termination for a CTI port device. Typically refers to a software program, programmed in TAPI or JTAPI, which acts like a PBX phone. An example of a PBX phone is the Cisco 7960.

Speech quality When grading the quality of sound as passed between two phones we call it speech quality.

TAPI AKA Microsoft Windows Telephony API. TAPI is a standard group of Win32 APIs that allow communications applications to control telephony functions.

Auto Registration Auto Registration is a feature of CUCM where a phone can be added to the network. The phone will get an IP address and TFTP address through DHCP, and find the CUCM through the .CNF provided information.

Call Forward Busy Configurable feature that re-routes incoming calls to an alternate line when the first line is in use.

Call Forward No Answer Configurable feature that re-routes incoming calls from one phone to another phone when the first phone is not answered after a certain number of rings.

Call Park Call Park allows you to place a call on hold at an extension specified by your system administrator so that anyone on the IP Telephony network can retrieve it. For example, you could park a call at extension 3000. Anyone on the system can dial 3000 to retrieve the call.

Call Waiting Call Waiting lets you receive a second incoming call on the same line without disconnecting the first call. When the second call arrives, you hear a brief call waiting indicator tone.

Conference Conference allows you to connect three or more people into one phone conversation.

Configuration file An unformatted ASCII file that stores initialization information for an application. For CUCM, files in the .cnf format define the parameters for Cisco IP Phone connection.

Group Pick Up A feature that allows users to pick up incoming calls within their own group or within other call pickup groups by dialing the group call pickup number for that group.

Failover/Failback Failover describes the action a 3rd party phone must take to re-register to the Secondary CUCM if the Primary CUCM is no longer available. Failback describes what happens when the Primary CUCM becomes available again.

Forward All Forward All lets you set up a Cisco IP Phone so that all calls destined for that Cisco IP Phone automatically ring another phone. You can forward all calls to Cisco IP Phones or non-Cisco IP Phones. Forward All remains in effect until you cancel it.

Hold Hold lets you store a call on the line for later retrieval. While a call is on hold, you can place another call or use any of the other features of the phone. While on hold, the caller hears an intermittent tone.

Manual Registration Manual registration describes the process by which a user configures an IP telephone manually on the target CUCM Manager Manual registration also requires the following to be manually entered into the phone: IP, submask, DNS, TFTP, and Default Gateway.

Message Waiting MWI should be set to ON whenever a new message has been left in a

Indicator (MWI) user's voice mail and set to OFF whenever a new message has been listened to.

Mute Mute allows you to listen, but the other party cannot hear you.

Shared Line Extension A shared line extension is an extension shared by two or more phones similar to a POTS ‘party line’. However, unlike a ‘party line’, if one of the shared line IP phones makes or receives a call, the other phones cannot hear the conversation.

Speakerphone You can use speakerphone to place and answer calls without using the handset. Use speakerphone with any other feature.

Transfer Transfer allows you to send an existing call to another extension. You can cancel the transfer by pressing HOLD.

9 Attachments

None

This section documents the partner issues arising from this IVT and the action we expect them to take to rectify any issues. The second table is used to identify minor changes to documentation that we require.

1. Partner to resolve/advice:

Description	Test Table	Test Case
Please review Executive Summary		

2. Partner to reflect the following outcome in their documentation:

Description	Test Table	Test Case
None		

10 Internal Review

This document was reviewed internally by Cisco, comments can be found at

Appendix A 3rd Party Serviceability Information

3rd Party Support Contact Information

Please list in this section all support contact details as supplied in the IVT Questionnaire.

Team	Main Location	Additional Location	Additional Location
Phone			
Fax			
E-mail			
Hours			

The IP Telephony category requires 24x7 support contact. List all applicable after hours numbers.

3rd Party Product Isolation Procedures

Please describe in this section how to isolate your product from the CUCM to help in determining the cause of any issue.

Troubleshooting

In this section please provide the links or names of the appropriate PDF files to help in trouble shooting the application that was tested. You will have to also provide the PDF documents with this report in order to have coordinated support.

Installation and Configuration

Upgrades and patch application

Debugging and Diagnostics

Error Messages

Tools / Aids

List of Commands

Redundancy and Recovery

11 Appendix B Test Approach

The goal of the IVT is to test in a customer-like environment to ensure that it behaves in a reliable manner under conditions that reflect typical customer usage and product deployment. This includes the exercise of provisioning, generating call traffic of supported types, maintenance activities, troubleshooting, and fault insertion. The IVT will focus on the following seven main areas:

- Phase 1. Installation & Configuration
- Phase 2. Personal Assistant Reliability Verification
- Phase 3. Scalability, Stress, Performance and Load Testing
- Phase 4. Informational tests
- Phase 5. Network Management and Operations, Administration and Maintenance
- Phase 6. Negative Tests
- Phase 7. Voice Quality

IVT Entrance Criteria

General:

Partner Application needs to comply with the Cisco Developer Network (CDN) Partner program checklist.

Documentation:

- ❑ Product documentation needs to be available (drafts).
- ❑ Customer oriented documentation
- ❑ Provisioning documentation
- ❑ The following documents need to be in Approved state:
- ❑ IVT Questionnaire
- ❑ Test Plan

Software

- ❑ Component software needs to undergo Bug-Scrubs to have a clear idea of the active problems in the code.
- ❑ No severity 1 or 2 defects that affect the Application
- ❑ Acceptance of severity 3 defects depends on the impact in the test effort.
- ❑ 100% component code development complete.
- ❑ 100% component product specific feature test complete.
- ❑ Component test coverage and results documented and reviewed.

- ❑ Integration test complete. Results reviewed and approved by the CTDP Partner Team.
- ❑ Components successfully integrate into IVT lab.

<u>Hardware:</u>

- ❑ ONLY General Availability hardware will be used for IVT (prototypes are accepted by approval from Cisco).
- ❑ Components successfully integrate into IVT lab.

IVT Exit Criteria

1. All test cases executed and passed.
2. Release notes written and reviewed for all defects filed during the test.
3. Test results documented, reviewed and analyzed in an IVT Test Report (IVT Test Report Template, ENG-249889).

Error report handling (software and hardware)

1. Code corrections to defects found during the IVT should be tested before being introduced in the test-bed(s).
2. Workarounds that deviate from the test end goals are not to be accepted.
3. IVT Test engineers should understand and agree on the bug cause, effect, and solution.
4. Test cases that were affected by the bug should be executed again. These extra test case executions should be documented. Proper documentation should indicate the new version of code and/or hardware used.

Defect Tracking Information/Problem Reporting and Severity Levels

The following table lists the defined alarm categories and description that are being used by Cisco's DEFECT (Distributed Defect Tracking System).

Sev		Defect Documentation	Description

1	Catastrophic	Reasonably common circumstances cause the entire system to fail, or a major subsystem to stop working, or other devices on the network to be disrupted, and there's no workaround. Example: turning on DECNET causing the router to crash after sending gratuitous IP ARP replies claiming the addresses of all the neighboring routers.	Common circumstance causes the entire system or a major subsystem to stop working affects other areas/devices no workaround
2	Severe	Important functions are unusable, and there's no workaround but the router's other functions and the rest of the network work normally. Example: IP helper addresses being ignored.	Important functions are unusable does not affect other areas/devices no workaround
3	Moderate	Things fail under very unusual circumstances, or minor feature doesn’t work at all, or things fail but there's a low-impact workaround. This is the highest level for documentation bugs. Example: LAT not working unless you have an IP address on the interface.	Very unusual circumstances cause failure minor feature doesn't work at all there's a low impact workaround This is the highest level for documentation bugs.
4	Minor	Things fail under very unusual circumstances, and recover pretty much by themselves. Users don't need to install any work around, and performance impact is tolerable. Example: The first segment for each TCP connection is always retransmitted.	Very unusual circumstances cause failure Automatic recovery without workaround Any performance impact is tolerable
5	Cosmetic	No real detrimental effect on system functionality. Example: "connection" spelled "connection" in a display. Enhance requests should normally get "cosmetic".	No detrimental effect on system functionality Enhance requests

It is expected that any problems witnessed by IVT testing teams will result in the opening of a Defect. The following information is required to successfully create the Defect:

Severity (use the guidelines listed above to determine the severity)

In addition to a severity level, Defects are also given a priority status. Priorities are used to indicate the urgency of fixing a problem. This is especially important for issues facing products that are in the deployment phase of their lifecycle. The DE-Priority field helps to set, monitor, and communicate business priorities that allow appropriate response to customer problems. For example, customer-affecting Defects will be fixed before Defect of equal severity that does not affect a customer.

Priority Level	Definition
1	(Showstopper) Testing cannot continue. The problem requires immediate resolution. Current development may be interrupted. There is a high impact to a customer or shipping products. There are regular status updates sent to the project management. Response time 24 hours.
2	(High) Testing may continue but must be modified. Resolution is required in the current product release. There is significant urgency. Full time resources are assigned to resolving the problem. There are regular status updates sent to the project management. Response time 48 hours.
3	(Medium) Testing continues in other areas. A resolution is required before the next scheduled product release. An out-of-cycle phase-in is required. There are regular status updates sent to the project management. Response time 5 days.
4	(Low) No customer, testing, or development impact. Problem is obviously an error but does not cause confusion; problem is intermittent. A fix can be phased into a scheduled release.
5	(Very Low) Problem is so rare or minor it is likely to be missed by most users and has no real impact.

Although there is a close relationship between severity and priority, the levels do not have to match. Customer-affecting Defect with a low severity can have a high priority to indicate the urgency of needing to have the Defect fixed. Problem resolution times depend on the priority, various attributes of software/hardware and the development team; hence it is not predictable.

12 Appendix C IVT Troubleshooting Tools and Default configurations

Trace Utility for CUCM

This trace provides the greatest level of detailed information of a call. This can be enabled with follow available trace levels:

Error – Traces alarm conditions and events

Special – Traces all error conditions plus process and device initialization messages.

State Transition – Traces all Special conditions plus subsystem state transitions that occur during normal operation.

Significant – Traces All State Transition conditions plus media events that occur during normal operation.

Entry/Exit – This trace level is not currently used.

Arbitrary – Traces all significant conditions plus low-level debugging information.

Detailed – Traces all Arbitrary conditions plus detailed debugging information.

Note – *Phases 3 (Performance) and 6 (Failover) should have trace settings configured for the CTI Manager and CUCM services for each CUCM machine. Use the following instructions to configure this tracing:*

Open CUCM Administration > Personal Assistant > CUCM Serviceability.

Click Trace > Configuration and select the server/service you would like to enable tracing for.

Verify that “Tracing On” is enabled and that the Debug Trace Level is set to Error.

Verify that, for each service where tracing is being enabled, the Enable File Trace Log option has been enabled and configured.

Repeat for each service and each CUCM machine.

For all testing the following traces will be set on:

CDR ON, CCM ON, SDL ON

Trace Utility for TAPI/JTAPI

Turning on tracing for the TAPI Service Provider

Go to "Start", "Settings", "Control Panel" and select "Phone and Modem Options". Go to "Advanced" tab. Select the "CiscoTSP0XX" and click "Configure" button.

Go to "Trace" tab.

Select "Trace On" check box and select the

1. "TSP Trace" to trace the TSP internal messages. Select Error to just log errors in the TSP Select Detailed to log internal messages for debugging purposes.

2. "CTI Trace" to trace the messages sent between CTI and TSP

3. "TSPI Trace" to trace the requests and events sent between TSP and TAPI

Directory : is the path for the trace log. For example, c:\Temp No. of Files: Set this to a value greater than or equal to 1 enables rolling log files. For example, a value of 10 will cause up to

10 log files to be used in a cyclic fashion. Max lines/file: specifies the maximum number of trace statements that will be written to each log file. For example, a value of 1000 will cause up to 1000 trace statements to be written to each log file.

Event Log

CUCM events are logged in the Windows 2000 Event Log. User can use the Event Viewer to see the system, security, and Personal Assistant events for the Windows 2000 Server and CUCM services. The CUCM errors are logged under Personal Assistant logs.

What to collect when preparing for and reporting CM related problems

When you are collecting information to report or troubleshoot a CCM problem please use the following procedure to ensure you are gathering the correct information.

1) Make sure the SDL (SDLxxx_100_xxxxxx files) trace settings are set appropriately. Check/set the following "CUCM" service parameters from the CM administration. Under Service->Service Parameters select the IP address of the server. Then select the CUCM service from the list of services.

- SdlTraceDataFlags, set to 0x00000110
- SdlTraceFlag, set to T
- SdlTraceMaxLines - set to between 10000 and 20000.
- SdlTraceTotalNumFiles - set it to at least 100. If you are running high traffic, this number should be increased significantly. The best thing to do is after running for a while; see how much time looking at the date/time of the SDL files is capturing. If the files are being overwritten before you would be able to

save it off, increase the SdlTraceTotalNumFiles appropriately.
- SdlTraceTypeFlags, set to 0x8000EB15

Important: When changing the parameters. Don't forget to click the "update" button" after making any changes.

2) Make sure the SDL (SDLxxx_200_xxxxxx files) trace settings are set appropriately. Check/set the following "CTI Manager" service parameters from the CM administration. Under Service->Service Parameters select the IP address of the server. Then select the Cisco CTIManager service from the list of services.

- SdlTraceDataFlags, set to 0x00000110
- SdlTraceFlag, set to T
- SdlTraceMaxLines - set to between 10000 and 20000.
- SdlTraceTotalNumFiles - set it to at least 100. If you are running high traffic, this number should be increased significantly. The best thing to do is after running for a while; see how much time is being captured by looking at the date/time of the SDL files. If the files are being overwritten before you would be able to save it off, increase the SdlTraceTotalNumFiles appropriately.
- SdlTraceTypeFlags, set to 0x0000CB15

Important: When changing the parameters. Don't forget to click the "update" button" after making any changes.

3) Make sure the CUCM serviceability (ccmxxxxxxxx files) trace settings are setup for the "CUCM" service. In the CM administration under Personal Assistant->CUCM Serviceability, select Trace->Configuration. Select the IP address of the server from the list of servers. Select CUCM from the list of Configured Services.
The Trace On check box should be checked.

Under Trace Filter Settings:
The Debug Trace Level should be set to Detailed.
Under CUCM Trace Fields make sure the check boxes for the trace related to the problem are checked. For example, if the problem has to do with a call made through a DT-24+ gateway, check the check box labeled Enable DT-24+/DE-30+ Trace.

Under Trace Output Settings:
The Enable File Trace Log check box should be checked.
The File Name edit box should contain a valid path and file name.
The default for Maximum No. of Files is 250.
The default for Maximum No. of Lines per File is 10000.
The default for Maximum No. of Minutes per File is 1440.

As with the SDL traces, after the test has been running a while, check to see if the CUCM trace files are being overwritten too soon (before they can be copied). If they are, increase the Maximum No. of Files parameter appropriately.

4) Make sure the CTIManager serviceability (ccmxxxxxxxx files) trace settings are setup for the "CTIManager" service. In the CM administration under Personal Assistant->Cisco CUCM Serviceability, select Trace->Configuration. Select the IP address of the server from the list of servers.

Select Cisco CTIManager from the list of Configured Services.
The Trace On check box should be checked.

Under Trace Filter Settings:
The Debug Trace Level should be set to Detailed.
The Cisco CTIManager Trace Fields check box should be checked.
The Enable All Trace check box should be checked.

Under Trace Output Settings:
The Enable File Trace Log check box should be checked.
The File Name edit box should contain a valid path and file name.
The default for Maximum No. of Files is 250.
The default for Maximum No. of Lines per File is 10000.
The default for Maximum No. of Minutes per File is 1440.

As with the SDL traces, after the test has been running a while, check to see if the CUCM trace files are being overwritten too soon (before they can be copied). If they are, increase the Maximum No. of Files parameter appropriately.

END