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Internet Call Center

Version 2

Solution Guide

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Preface

Introduction

The *Internet Call Center Solution Guide* (585-215-094) document provides an overview of elements of the Internet Call Center (ICC) solution, such as operations and features, prerequisites and the baseline configuration, some troubleshooting items, and a glossary.

The Preface introduces the main elements of the document, including the following:

- Contents of This Document
- Conventions Used in This Document
- Using This Document
- Related Documents.

Audience

This solution guide is intended for anyone installing, configuring, administering or using the ICC solution, including agents, supervisors, trainers, Webmasters, and system administrators. This document should also be useful to Lucent Technologies personnel in Technical Service Centers (TSC), Sales, the Design Support Center, the International Technical Assistance Center (ITAC), the NetCare Services organization, and the Centers of Excellence. It should also be helpful for Webmasters, data networking security personnel, firewall administrators, and anyone else who might use or support an ICC solution.

This document is intended for anyone who needs to know:

- Overall configuration and connectivity of the ICC solution
- Data connectivity for the ICC solution with the call center's network
- Operational details about the ICC solution
- *DEFINITY*® Enterprise Communications Server (ECS) switch administration and connectivity for the ICC solution
- *CentreVu*® Call Management System (CMS) connectivity, installation, and database items for the ICC solution
- New *CentreVu*® CMS and Supervisor reports for the ICC solution
- *PassageWay*® Telephony Server connectivity and administration for the ICC solution
- Recommended Web page design guidelines for the ICC solution
- Firewall and security issues relative to the ICC solution
- Troubleshooting.

Contents of This Document

The *Internet Call Center Solution Guide* is organized into the following chapters:

Chapter 1, "About Internet Call Center" Introduces and briefly describes the Internet Call Center solution. Includes descriptions of components, features, requirements, and how it works.
Chapter 2, "How to Process Internet Calls" Provides descriptions of agent login and logout, agent/caller interactions on calls, and the "look and feel" of major ICC features.
Chapter 3, "ICC Connectivity Overview" Specifies the configuration and connectivity of the equipment required to use the ICC solution. Explains what pieces are necessary to install, configure, and administer the ICC solution.
Chapter 4, "Firewall and Security Guidelines" Provides a high-level overview of firewall and security for the ICC solution, including firewall administration.
Chapter 5, "DEFFINITY ECS Within ICC" Describes the *DEFINITY* ECS administration that supports the ICC environment.
Chapter 6, "Administration Guidelines" Covers installation, administration, and support of the Internet Control Manager (ICM) server for the ICC solution.
Chapter 7, "PassageWay Telephony Server Guidelines" Lists ICC-specific items to be added and administered on the *PassageWay* Telephony Server.

Chapter 8, “Call Management System for Internet (ICMS)” Provides ICC-specific details about connecting *CentreVu* CMS hardware and software, descriptions of new reports on ICC activity, and information on new ICC database items.
Chapter 9, “Web Page Guidelines” Contains guidelines for creating or modifying Web pages for the ICC.
Chapter 10, “Troubleshooting” Identifies problems that may occur during installation and operation of the ICC, and suggests diagnostic and corrective actions that can be taken toward their resolution.
Chapter 11, “Upgrading Your ICC Solution” Provides procedures on how to preserve your ICC administration when upgrading from ICC Release 1 to ICC Release 2.
Appendix A, “ICM Server Administration Field Descriptions” Contains ICC configuration files and administration on-line Help for the ICM server.
Appendix B, “Using Another CTI Application” Contains information about using another Computer-Telephony Integration (CTI) application to log in to the *DEFINITY* ECS.
Glossary Provides a list of terms and definitions that relate to the ICC solution.

Conventions Used in This Document

This document uses the following conventions:

Convention	Description
Initial Capital Letters	Names of windows and keyboard keys. Example: This field is in the Phone Settings window.
`Courier Text`	Text you are asked to enter, URLs, and system commands. Example: Enter `COM1` in the COM Port field.
KEY + KEY	Key combinations for which you must press and hold down one key while you press another. Example: **ALT+4**
Italic Text	References to other documents, trademarked names, file names, and for emphasis.
Bold Text	To identify keys and buttons. Example: the **Send Page** button
" "	Sections and chapters that are referenced. Example: See Chapter 1, "About Internet Call Center" for a discussion of features and requirements.
click and double click	Whenever you are asked to click or double click the mouse button, click the left-hand, or primary button, unless the right-hand, or secondary button, is specified.
Terms	For definitions of terms and acronyms used in this guide, please the "Glossary."

Using This Document

Basic Assumptions

This document includes stand-alone chapters for each major component of the ICC solution. This document only includes specific changes that apply to ICC. Standard installation and administration activities are covered in referenced documents for each component.

About Customer-Provided Equipment

This guide assumes that it is the call center's responsibility to procure, provision and maintain all customer-provided equipment.

About Customer Expertise

This guide assumes that the customer is familiar with basic call center operations and has the technical expertise to implement the changes for ICC described in this document.

Related Documents

Many documents other than the *Internet Call Center Solution Guide* pertain to the ICC solution. The most important documents are listed in this section. Each chapter references those documents related to the features and components discussed in that particular chapter.

- *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212)
- *BCS Product Security Handbook* (555-025-600)
- *CentreVu™ CMS R3V6 Administration* (585-215-850)
- *CentreVu™ Supervisor Version 6 Reports* (585-215-851)
- *CentreVu™ Report Designer Version 6 User Guide* (585-215-859)
- *CentreVu™ Supervisor Version 6 Installation and Getting Started* (585-215-860)
- *CentreVu™ CMS R3V5 Custom Reports* (585-215-822)
- *Lucent Call Center Change Description* (585-215-853)
- *CentreVu™ CMS R3V6 Upgrades and Migration* (585-215-856)
- *CentreVu™ CMS R3V6 Sun SPARCserver Computers Connectivity Diagram* (585-215-858)
- *CentreVu™ CMS R3V6 Sun SPARCserver Computers Hardware Installation (585-215-857)*
- *CentreVu™ CMS R3V6 Sun Enterprise 3000 Computer Connectivity Diagram (585-215-865)*
- *CentreVu™ CMS R3V6 Software Installation (585-215-866)*
- *CentreVu™ CMS R3V6 Sun Enterprise 3000 Computer Hardware Installation (585-215-867)*
- *CentreVu™ CMS R3V6 Hardware Maintenance and Troubleshooting (585-215-861)*
- *DEFINITY Enterprise Communications Server Release 5 Implementation* (555-230-302)

- *DEFINITY Enterprise Communications Server, Installation, Administration, and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway* (555-230-223)
- *DEFINITY Enterprise Communications Server Release 6 Call Vectoring/Expert Agent Selection (EAS) Issue 2 Guide* (555-230-521)
- *DEFINITY Communications System Implementation* manual (555-230-655)
- *DEFINITY Communications System Generic 3 Feature Description* manual (555-230-204)
- *DEFINITY Communications System Generic 3 System Description and Specifications* manual (555-230-206)
- *PassageWay Telephony Services Solution, Microsoft* Windows† NT‡ Telephony Services, DEFINITY ECS Network Manager's Guide* (555-201-505)—This document is available on the CD-ROM provided during installation.
- *PassageWay Telephony Services Solution, Microsoft Windows NT Telephony Services, Network Manager's Guide* (555-201-506)—This document is available on the CD-ROM provided during installation.
- *PassageWay Telephony Services Solution, Microsoft Windows NT Telephony Services Installation Guide* (555-201-116)—This document is available on the CD-ROM provided during installation.
- *DEFINITY ECS Callvisor ASAI DEFINITY LAN Gateway over MAPD Installation, Administration, and Maintenance* (555-230-114).

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About Internet Call Center

Introduction

The Internet Call Center (ICC) solution provides access, call management, transaction processing, and management information support to integrate World Wide Web (WWW) and call center functionality. The ICC solution accomplishes this by means of a combination of premises-based hardware, software, and NetCare Services for call center sales and service environments.

This chapter introduces the ICC solution, including discussions of major components, features, and system operations in general. Specific topics covered by this chapter include:

- What's New in This Release of the ICC Solution
- Elements of the ICC Solution
- ICC Features
- How ICC Works
- Caller Requirements
- Product Assistance.

Audience

This chapter is intended for anyone interested in an overview of the ICC solution, features and elements of the solution, and how it is supported before and after the sale.

What's New in This Release of the ICC Solution

Release 2 of the Internet Call Center Solution builds on the strengths of the previous release, thus enhancing established functionality while providing new features.

New Internet Call Center Solution features and functionality include the following:

- **Localization**

  Release 2 of the Internet Call Center Solution supports translations for multiple languages and provides the files needed to support seven specific languages. For more information about localization and the ICC Solution, see the "Localization" section in this chapter.

- **Browser Support**

  In release 1 of the ICC Solution, 3.02 or greater versions of *Microsoft*[*] Internet Explorer and 3.03 versions or greater of *Netscape Navigator*[†] prevented the use of the ICC Send Page feature in certain situations. Release 2 of the ICC provides solutions and support to remedy this problem by implementing one or more of three methods. To learn about the different methods, go to Chapter 6, "Administration Guidelines."

*Microsoft is a registered trademark of Microsoft Corp.
†Netscape Navigator is a trademark assigned to Netscape Communications Corp.

- **Internet Messages are Encrypted**

  With encryption, you can be confident that the transfer of information between agent and caller is protected from abuse.

  If your ICC software has encryption enabled, then the following types of messages between the Agent and the Caller applets will be encrypted:

  — Text Chat

  — URLs sent during Escorted Browsing

  — Displayed messages

  — Other application control messages not visible to the agent or caller.

  Internet telephony (voice) is not encrypted.

- **User-to-User Information (UUI)**

  Release 2 provides the ability to pass data (for example, a customer's account or phone number) from a web page to the Automatic Call Distribution (ACD) through UUI. The data designated as UUI data can then be used as input to a downstream telephony application. For example, in a call center this might involve automatically displaying customer data to an agent using the call center's existing screen pop application. See Chapter 9, "Web Page Guidelines" for more information about using the UUI parameter.

- **Conference and Transfer**

  ICC agents can transfer and / or conference Internet calls to an agent's extension, an agent ID, or a VDN within the call center.

- **Increased Capacity**

  Release 2 provides the ability to increase the capacity of your ICC solution through the following:

  — Multiple ITG Servers. Release 2 provides the ability to use multiple ITG servers. The multiple ITGs are controlled by a common Internet Control Manager (ICM) server. With the multi-ITG capability, your ICC can increase the capacity of additional simultaneous calls and enhance the reliability of your system through duplication. See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for more information about the use of multiple ITG servers.

  — TAP802 Voice-Processing Cards. You can now use a TAP802 ITG voice-processing card. (However, only one type of processing card [TAP801 or TAP802] may be used with one ITG server.) With the TAP802 voice-processing card, hardware costs are reduced because you need only two cards to support 40 calls. See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for more information about TAP802 voice-processing cards.

— Adjunct Switch Application Interface (ASAI) Phantom Call for Text Chat. Phantom call is a new ASAI feature (available with *DEFINITY* ECS 6.3) that is primarily used by applications that need to originate a call without the use of a physical device and without tying up unnecessary resources. The ICC solution can use this feature to eliminate the need for a Primary Rate Interface (PRI) channel for Text chat and consumer-initiated callback calls thus increasing call capacity while using fewer PRI channels. Phantom calls are distributed the same as voice calls; however, since there is no audio component to the call there is no need to use an Integrated Services Digital Network (ISDN)-PRI trunk.

- **Message Care**

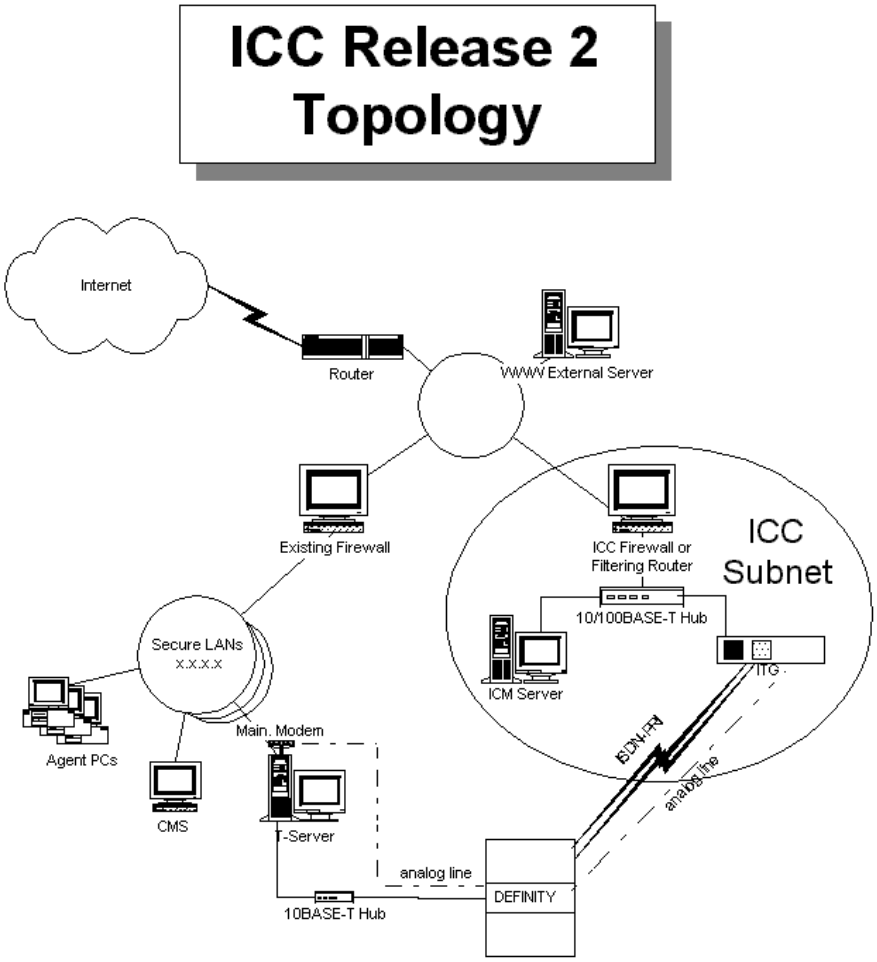
  The Internet Call Center Solution extends its capabilities (for example, agent login interface and PagePop feature) for use by the Message Care Solution. The Message Care Solution builds upon the existing functions of a call center to include receipt, distribution, tracking, and reports of email and fax messages (as attachments to email). For more information about the Message Care Solution, see the *Message Care Solution Guide Version 1* (585-215-093) document.

- **Upgrading Your ICC Solution**

  You can easily upgrade from Release 1 to Release 2 of the ICC Solution without the loss of administration data. See Chapter 11, “Upgrading Your ICC Solution” for details.

Elements of the ICC Solution

The ICC solution incorporates and integrates several new and existing platforms. This section presents solution components (see diagram below), a summary of associated requirements, and an overview of how they operate within the ICC solution.



Internet Telephony Gateway (ITG)

The ITG is an industrial grade, *Pentium*[*] based PC running *LynxOS*[†] (a *UNIX*[‡] compatible operating system). The ITG receives caller requests and launches calls into the call center over an Integrated Services Digital Network-Primary Rate Interface (ISDN-PRI) to the *DEFINITY*® Enterprise Communications Server (ECS). It uses special voice processing cards for transcoding voice between the Internet and the call center.

The ITG is supplied by Lucent Technologies as part of the ICC offer. It contains one or more voice processing boards to convert between packetized Internet voice and circuit-switched voice used by the *DEFINITY*® Enterprise Communications Server (ECS).

See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for details.

ICM Server

The ICM server (formerly known as the *Java*[**] sever) is an *NT*[††] 4.0 server with ICM software that interacts with *Java* applets running in caller and agent browser windows. It sends caller-initiated call requests to the *DEFINITY* ECS and passes call progress information back to the caller. Once an agent is selected in the call center, the ICM server provides ICC features (Text Chat and Escorted Browsing) during the session.

During ICC installation, Lucent Technologies personnel load the ICM server software used for ICC, scripts, and sample Web pages onto the ICM server. The requirements for this include:

- A 200 MHz *Pentium* based PC with at least 64MB of RAM, a CD-ROM drive and an interface card (NIC)
- *Microsoft Windows*[‡‡] *NT*[***] 4.0 Server operating system with Service Pack 3 or greater

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‡UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.
**Java is a registered trademark of Sun Microsystems, Inc.
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- *Microsoft* Internet Information Services (IIS) Version 3 software.

The ICM server hosts *Java** applets for the agent and caller, as well as sample Web pages and Common Gateway Interface (CGI) scripts.

See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for detailed information.

PassageWay Telephony Server

The ICC offer requires installation of a separate server supplied by the call center to host *PassageWay Telephony Services for Windows NT* (Release 2.32.14 or later) software and the Computer-Telephony Integration (CTI) process (CTI process can also be housed on the ICM server or another server on the same LAN as the ICM and Telephony servers). This process allows the ITG to log agents in and out of *DEFINITY* ECS skills, monitor calls placed into the *DEFINITY* ECS, and place outbound Callback calls. Requirements for this server include:

- A 200 MHz *Pentium* based PC with 64MB of RAM, a CD-ROM drive, one 10BASE-T NIC for connection to the DEFINITY LAN Gateway or the Multiple-Application Platform for *DEFINITY* (MAPD) TN800 board with LAN Gateway software, and one NIC card (10BASE-T, 100BASE-T, or Token Ring) for connection to the LAN. Packet routing between the two NICs should be disabled.

  NOTE:

  The MAPD board is available in *DEFINITY* ECS G3V5.4 or greater.

- *Microsoft Windows NT* 4.0 Server operating system with Service Pack 3 or greater.

*Java is a registered trademark of Sun Microsystems, Inc.

This server sends and receives information to and from the *DEFINITY* ECS, and provides a Telephony Services Application Programming Interface (TSAPI) to the ITG subnet. This server also provides a standard CTI interface which allows the ITG to monitor and control activities that take place in the *DEFINITY* ECS, acting somewhat like a proxy for all requests to and from the *DEFINITY* ECS. It serves to isolate the *DEFINITY* ECS Adjunct/Switch Applications Interface (ASAI) and provides a standard interface (TSAPI) with which the ITG controls ICC call functions.

See the documentation on the CD-ROM provided with the *PassageWay* Telephony Services software for details.

DEFINITY ECS

Requirements for *DEFINITY* ECS software include version G3V4 or greater (if ASAI Phantom calls are used, then *DEFINITY* ECS R6.3 is needed), Expert Agent Selection (EAS), vectoring, ASAI Proprietary Adjunct links, Primary Rate Interface (PRI) hardware and software, and the *DEFINITY* LAN Gateway or the MAPD TN800 board with LAN Gateway software.

The *DEFINITY* ECS is a digital switch that processes and routes voice communications. It also houses sophisticated Automatic Call Distribution (ACD) software that allows any voice terminal (telephone) on the *DEFINITY* ECS to act as a call center agent terminal. The ICC solution utilizes the *DEFINITY* ECS's advanced ACD features to process and route ICC calls to the appropriate endpoints. The ICC uses the ASAI feature on the *DEFINITY* ECS by way of a TSAPI to integrate the data networking portions of the ICC solution with the *DEFINITY* ECS CTI. This interface provides capabilities such as call progress monitoring, third party call control, and agent state changes (log in, log out, AUX mode, and so on).

There are ICC installation and administration requirements for the *DEFINITY* ECS. See Chapter 5, "DEFFINITY ECS Within ICC" for details.

CentreVu Call Management System (CMS) and Supervisor

ICC optionally supports *CentreVu* CMS for Internet (ICMS) software installed on a *CentreVu* CMS R3V5 (with load r3v5ai.f or later), R3V5u (with load r3v5ud.a or later), or R3V6. *CentreVu* CMS for ICC must be on a *Sun*[*] *SPARC*[†] server or Ultra *SPARC* server running *Solaris*[‡] which is LAN-connected. *CentreVu* Supervisor R3V5 or R3V5u with load bj.o2 or R3V6 with a load greater than bj.02, and CMS provide a call center with a series of reports on Internet-initiated call activity.

ICMS collects ICC-specific data such as Web page hits, call requests when there are no ISDN-PRI trunks available, call requests when calls are terminated by vector processing, voice call requests when there are no resources available, and text chat and callback requests when there are no ASAI phantom extensions (if enabled).

See Chapter 8, “Call Management System for Internet (ICMS)” for detailed information.

Call Center Data Infrastructure

The call center environment has LAN connectivity to agent PCs, to the Web server, between the *PassageWay* Telephony Server, the ICM server, and the ITG, and between the *DEFINITY* LAN Gateway (or the MAPD TN800 board with LAN Gateway software) and the *PassageWay* Telephony Server. The call center also has connectivity to the Internet with access through the firewall (if any) to the ITG, ICM server, and *CentreVu* CMS.

Firewall/Security

The ICC offer contains strong recommendations about the necessity of protecting organizational data and restricting access through the Internet and telephone lines.

See Chapter 4, “Firewall and Security Guidelines” for detailed information.

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‡Solaris is a registered trademark of Sun Microsystems, Inc.

NetCare Services

Because the ICC offer is complex to configure, spans several platforms, and is tightly integrated with individual call center environments, NetCare Services play a key role in integrating and supporting the ICC solution for each call center. They can be reached at 1-800-4NetCare.

ITG Capacities

The ITG can be ordered in configurations of the following licences to provide a maximize of 120 simultaneous Internet voice calls:

- 20 voice calls
- 40 voice calls
- 60 voice calls.

NOTE:

With sufficient T1 channels available, up to 180 calls (voice and chat) are available with E1 and up to 141 calls (voice and chat) with DS1.

Additional capacity can be acquired with the following:

- E1 channels—with sufficient E1 channels available, up to 60 calls (voice and chat) are available.
- ASAI Phantom Calls—enabling the use of ASAI phantom calls for text chat calls (available with *DEFINITY* ECS 6.3 or greater) will avoid using PRI resources (that is, Internet voice and phantom calls do not compete for PRI resources).
- Multiple ITGs—with the multi-ITG capability, your ICC can increase the capacity of additional simultaneous calls and enhance the reliability of your system.

ICC Features

This section lists and describes the significant functional features of the ICC solution.

- The ICC solution provides callers with several ways to contact an agent:
  - — Text Chat enables agent and caller to type and send messages to each other's desktops by means of the downloaded Agent and Caller Control Windows.
  - — Internet telephony enables callers to talk with agents through an existing Internet connection using the multimedia capabilities of their computers and only one phone line.
  - — Caller-requested Public Switched Network (PSTN) Callback enables callers whose computers are not equipped for Internet telephony, or who are located behind firewalls that block Internet voice traffic, to request that an agent call them on a regular telephone line.
  - — Agent-initiated PSTN Callback is useful if voice quality degrades during a call. In that case, the caller would provide a telephone number and the agent would call the caller back. With a second phone line, Text Chat and Escorted Browsing are available.
  - — Caller-initiated PSTN Callback with Collaboration enables callers who have two phone lines (one for the Internet session and one for the PSTN callback) to verbally communicate over the telephone while simultaneously communicating through the Internet (text chat and escorted browsing).
- ICC agents can answer both Internet-initiated and conventional (audio-only) telephone calls. Regular telephone calls as well as Internet telephony calls are delivered to the agent's voice terminal, so the agent answers all calls using a single headset or handset.
- ICC agents can transfer Internet calls to other agents.
- ICC agents can conference other agents on an Internet call.

- The PagePop feature provides Web-based information to the caller and agent throughout call setup:
  - The caller may browse the Internet while awaiting connection with an agent. PagePop can return the browser to an administered Web page when an agent is connected.
  - The content of the Web page presented to an agent when a call is connected is administrable by the call center. This may include the Web page that the caller called from or information that was entered by the caller prior to the call and / or information extracted from a database based on some caller identification.
- During a call, agent and caller can use their browsers to navigate to other Web pages or sites. The Escorted Browsing feature provides two ways in which the parties can share Web pages with each other.
  - Either party can use the **Send Page** button to synchronize the other's browser to the Web page they are currently viewing.
  - Either party can type (or copy and paste) a Uniform Resource Locator (URL) into the Text Chat window and send that message to update both parties' browsers with the contents of that URL. Note that a URL that is normally inaccessible to one party (for example, behind a firewall) remains inaccessible during Escorted Browsing.
- Call centers can collect data on Internet-initiated calls and then view reports to display Internet call statistics through *CentreVu* CMS and Supervisor.
- Both agent and caller have the ability to end a call.
- The ICC solution can take advantage of the ASAI phantom call feature (available with *DEFINITY* ECS 6.3) to eliminate the need for a PRI channel for Text chat calls and caller-initiated callback calls. Phantom calls are treated by the ACD like ordinary voice calls in that they are routed and have call statistics recorded about them without the use of a PRI trunk. The ASAI phantom call feature increases the number of Internet calls that the ICC solution can handle.

- Although the ICC has always been able to pass information about the consumer to web based applications, it now provides the support to pass information to telephony applications through the UUI data field. This information can be used as input to a downstream telephony application.
- The Internet Call Center Solution supports translations for multiple languages and provides the resource files needed to support seven specific languages.
- The ICC solution provides the ability to use multiple ITG servers. The multiple ITGs are controlled by a common Internet Control Manager (ICM) server. With the multi-ITG capability, your ICC can increase the capacity of additional simultaneous calls and enhance the reliability of your system through duplication.

  See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for more information about multiple ITGs.
- With the ICC Solution, the use of another CTI application to log in to the *DEFINITY* ECS is supported. See Chapter 2, "How to Process Internet Calls" for information on logging in to the *DEFINITY* ECS using another CTI application and Appendix B, "Using Another CTI Application" for information on using another CTI application.
- To address security concerns, the following are encrypted:
  - Text Chat
  - URLs sent during Escorted Browsing
  - Displayed messages
  - Other application control messages not visible to the agent or caller.

  Internet telephony (voice) however, is not encrypted.

How ICC Works

In a typical ICC facility, agents log into the call center by way of a Web page, using a *Java* enabled Web browser on a desktop. A *Java* based Agent Control Window is launched on the agent's desktop to complete the login process and, later, to provide an interface for Text Chat and Escorted Browsing during calls. After the agent logs in, an association is made by the ICM between the agent's phone, the Web browser, and the Agent Control Window.

A typical call starts with a person surfing the Web who discovers a need to contact the call center and selects a **Call Us** button on a Web page. The caller selects a type of call to request:

- Voice and Chat—an Internet telephony call with Text Chat,
- Chat Only—a Text Chat call with no voice
- Call Back Only—to have an agent call back using a regular telephone line (escorted browsing is not available with this option), or
- Callback and Collaborate—to establish an escorted browsing session and at the same time, have an agent call the caller back using a regular telephone line (this type of request requires that the caller has an available phone line that is not being used). This option is useful for callers that are not equipped to handle Internet telephony calls (that is, they do not have *Microsoft NetMeeting** 2.0 or greater software, or multimedia components, or the firewall does not allow Internet Telephony).

NOTE:

The caller's desktop must meet certain requirements in order to place an Internet telephony or Text Chat call successfully; see the "Caller Requirements" section of this chapter.

*NetMeeting is a registered trademark of Microsoft Corp.

If the caller requests a call type other than Call Back Only, a Caller Control Window is downloaded to the caller's desktop. The Caller Control Window provides call progress status, enables the Text Chat and Escorted Browsing functions, and allows the caller to end the call.

The ITG launches a call to the *DEFINITY* ECS, where the call is queued, awaiting an available agent with ICC skills.

When an agent becomes available, the call is delivered to the agent's phone (for example, a *CALLMASTER*® voice terminal). When the agent answers the phone, the *PassageWay*® Telephony Server sends a "call answered" message to the ICM server. The ICM server delivers a URL to the agent's browser by way of a PagePop, which displays information related to the call such as information entered by the caller. If administered, the ICM can also deliver a web page to the caller.

After the call is answered, the caller and agent communicate through the Text Chat box in their respective Control Windows and may share Web pages by means of the Escorted Browsing feature. If the call is an Internet telephony call, they may also talk to each other, the agent using a phone and the caller using a headset or microphone and speakers connected to the desktop. With the CallBack and Collaborate option, both the agent and the consumer are able to talk through their phones and share web pages (Escorted Browsing).

If a callback only is requested, a window opens on the agent's desktop displaying the phone number for the callback. The agent has the opportunity to screen and edit this number (for example, prefixing the number with a "1" for toll dialing), then clicks a button to launch a voice call over the PSTN to the caller.

During a session, statistics for ICC calls are collected using *CentreVu* CMS. In addition, page hits on ICC Web pages and other ICC-related statistics are collected on the *CentreVu* CMS server.

Either party has the capability to end the session.

See Chapter 2, "How to Process Internet Calls" for details on how ICC works from an agent's point of view.

Caller Requirements

The caller's environment should consist of a desktop or workstation with the following:

- *Microsoft Windows* 95 or *Windows NT* 4.0. Systems running Mac OS 7.1 or above, *Solaris*, OS/2, *Windows NT* 3.51, and *SunOS*[*] currently support Text Chat, Escorted Browsing and PSTN Callback but not Internet telephony (because *NetMeeting* is not available on those platforms).
- A *Java* enabled Web browser, such as *Microsoft* Internet Explorer 3.x or greater or *Netscape Navigator*[†] 3.x or greater (*Java* and *Java* Script must be enabled). Note that *Microsoft* Internet Explorer 3.02 and above and *Netscape Navigator* 3.03 and above currently support all features except the **Send Page** button. You can remedy this problem by implementing one or more of three methods. To learn about the different methods, go to Chapter 6, "Administration Guidelines."
- Multimedia components (a sound card, headset or speakers, and a microphone) to enable Internet voice.
- A single telephone line for Internet voice, Text Chat, and non-collaborative callback. A second phone line is required to support collaborative PSTN callback (Callback and Collaborate).
- Access to the Internet through a modem or other network connection. Internet voice sessions require a connection speed of 28.8kbps; Text Chat sessions require 14.4kbps.
- *Microsoft NetMeeting* 2.0 or greater software to provide Internet telephony capability.

NOTE:

The *Microsoft NetMeeting* software is available free of charge on the following *Microsoft* web site:
(`http://www.microsoft.com/netmeeting`).

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*SunOS is a registered trademark of Sun Microsystems, Inc.
†Netscape Navigator is a trademark assigned to Netscape Communications Corp.

Agent Environment

The agent's environment consists of the following:

- A desktop on the LAN.
- *Microsoft* Internet Explorer 3.x or greater or *Netscape Navigator* 3.x or greater, with *Java* and JavaScript enabled.

  NOTE:

  Microsoft Internet Explorer 3.02 and above and *Netscape Navigator* 3.03 and above currently support all ICC functionality except the **Send Page** button. You can circumvent this problem by implementing one or more of three methods. To learn about the different methods, go to Chapter 6, "Administration Guidelines."

- A voice terminal associated with the *DEFINITY* ECS call center.

  NOTE:

  PC speakers and microphones are not required because voice is carried through the telephone.

Localization

The Internet Call Center Solution supports the following languages:

- US English
- German
- French
- Colombian Spanish
- Brazilian Portuguese
- Italian
- Japanese.

To support Japanese, you must ensure the following:

- The ICM server must be running the Japanese version of *Windows NT* Server 4.0 to support Japanese fonts.
- Agents and callers wanting to use Japanese must run the 4.0 Japanese versions of *Netscape Navigator* or *Microsoft* Internet Explorer because earlier versions of *Netscape Navigator* or *Microsoft* Internet Explorer do not support *Java* code that correctly handles Japanese characters.
- The agent's workstation and the caller's workstation must have a Japanese operating system.

What Is Translated

The following list provides the information that is translated:

- All buttons and labels on the Agent Control Window and Caller Control Window
- Most user-visible messages between the ICM Server and Control Windows
- *CentreVu* Supervisor ICC reports
- Internet Call Center Version 2 Solution Guide (585-215-094).

What Is Not Translated

The following list provides the information that is not translated:

- ITG error messages
- *PassageWay* Telephony Server error messages
- ITG setup and administration screens
- Text based *CentreVu* CMS ICC reports
- Text displayed in the Text Chat box on the Agent Control Window and Caller Control Window. This text is displayed in the same language in which it is typed.

To Add Another Language

It is possible to add languages other than the languages the ICC solution provides. To add another language, do the following:

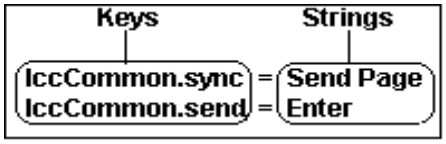
1. Go to the `itg\resources` folder located on the ICM Server. This folder contains the resource folders and accompanying `resource.txt` files for each language provided in Release 2 of the ICC solution.

2. Create the new resource folder for the language you are adding (for example, `itg\resources\<lang-code>`) and place the copied `resources.txt` file in the new resource folder. The naming convention used for the resource folders is: `language code-country code` (for example; in the `itg\resources\en-US` resource folder, `en` is the language code and `US` is the country code). Country codes are optional. For more information about International Standards Organization (ISO) language codes and ISO country codes, go to the following web sites:

   - `http://www.ics.uci.edu/pub/ietf/http/related/iso639.txt`
   - `http://www.chemie.fu-berlin.de/diverse/doc/ISO_3166.html`

3. To simplify the process, copy an existing resource file into the new folder. For example, you can copy the `resources.txt` file for US English (`itg\resources\en-US\resources.txt`).

4. In the `resources.txt` file, translate all the strings (information to the right of the "=" sign) to the preferred language (do not translate the Keys). Below is an example of a partial resource file:



5. Save and close the `resources.txt` file. Modify your caller and agent web pages to set the language parameter. See Chapter 9, "Web Page Guidelines" for information on using the `language` parameter to specify your language resource file.

6. To create the caller and agent applet setup files for various browser types and to update the ICM, go to the Internet Call Manager Control window. In the text entry box, type "`load resource lang-code`," where "lang-code" is the code for the language file that you just created.

CAUTION:

Not all strings in the resource file are translated. For example, the string for the IccCommon.font key is not translated (that is, IccCommon.font=system). A comment in the resource files provided by Lucent Technologies identifies those strings that should not be translated.

Product Assistance

Training Considerations

ICC training is provided on site, as part of the ICC installation process, to help agents learn how to operate the software.

ITG administration training is also conducted on site as part of the ICC installation process. The training is intended for those responsible for administration of the ITG server and for trouble resolution.

Training is available from Lucent Technologies for all other aspects of call center operations in a classroom, CD-ROM, or video format. The ICC solution is included as part of standard call center training.

For more information about training, contact Lucent Technologies on **1-800-255-8988**.

Optional Professional Services

Lucent Technologies provides a wide array of Professional Services offerings to assist with the Internet Call Center solution. These offers include:

- Network Integration Services—This offer provides engineering assistance in planning, provisioning, and upgrading an Internet Call Center.
- Call Center Application Integration Services—This offer provides an experienced Lucent Technologies Call Center consultant to evaluate a call center and engineer the optimum configuration for it.
- Call Center Tune-Ups—This service is provided on an as-needed basis or seasonally, to fine-tune a call center's configuration and translations based upon available reports and feedback.

- Firewall Offers—The Lucent Technologies Network Consulting Group can engineer, provision and maintain a new or existing firewall. They also offer testing of an existing infrastructure to ensure security. Equipped to provision and administer the leading enterprise firewall product offerings, the Network Consulting Group can help ensure that a network provides the access its callers require while protecting valuable internal resources.
- Data Networking Equipment and Services—The Lucent Technologies Advanced Data Networking Group can engineer and provision industry-leading solutions from Lucent Technologies, Agile (a Lucent Technologies Company), Bay Networks, Ascend, Paradyne, Hypercom, and other leading edge companies. Solutions are maintained and monitored by Lucent Technologies' NetCare Services, the oldest and largest network management service in the industry. Lucent's data networking solutions provide solid, highly available infrastructures on which to base business applications.

Lucent Technologies has highly trained and experienced resources ready to work for you. If you are interested in the above offers, or to inquire about other services, contact 1-800-4NetCare for details.

Technical Support Call

Contact the Lucent Technologies National Customer Care Center on **1-800-242-2121** for repair or assistance.

Customers calling this number are asked to identify the product or offer (such as ICC) involved and to describe the problem. A trouble ticket is generated so the problem can be tracked throughout the services organization.

Helpline services, with the exception of consultative services, are provided to customers whose product is covered by warranty or a valid maintenance contract during the hours specified by the contract. A customer whose product is not covered by warranty or a maintenance contract may still utilize these services for the appropriate time and materials charges.

2

How to Process Internet Calls

Introduction

This chapter details how an Internet Call Center (ICC) agent logs in, handles various types of incoming calls, and logs out. The call-handling information covers PagePop, Escorted Browsing, and Call Control Windows.

This chapter includes the following:

- Agent Login
- Agent Control Window
- Caller Control Window
- Receiving Calls
- Dropping Internet Calls
- Dropping Callback Calls
- Agent Logout.

Audience

This chapter is intended as an overview for anyone who needs to know how various types of incoming calls are handled by the ICC system and how they appear to the consumer and to the agent.

Agent Login

Agents can log in to the *DEFINITY* ECS through a CTI application. This CTI application can either be the ICC or another CTI application. If agents log in to the *DEFINITY* ECS using a CTI application other than the ICC, they must still register with the ICC by logging in to the ICC using the Agent Login window.

Logging in to the *DEFINITY* ECS through the ICC

In order to take Internet calls, an agent must first register with the Internet Call Manager (ICM). The following steps describe how an agent logs in. Pictures of screens in this section are examples used for demonstration purposes.

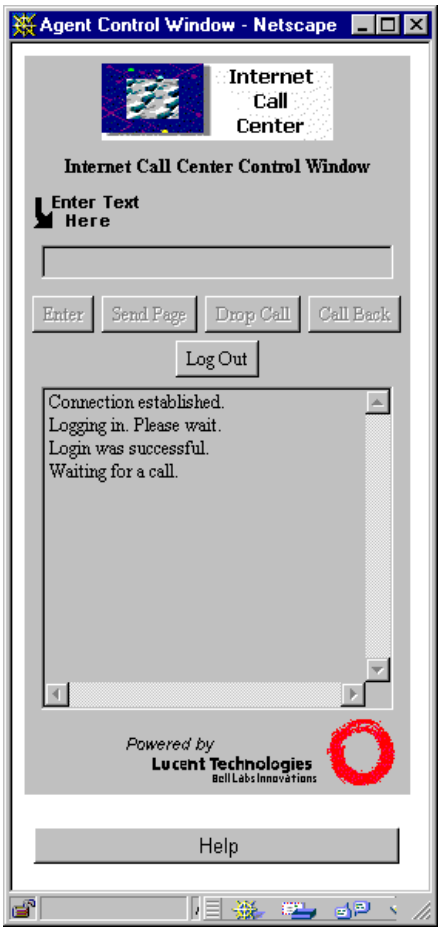
NOTE:

If your agents use another CTI application to log into the *DEFINITY* ECS, then log in to the *DEFINITY* ECS through that CTI application and then register with the ICC (Step 1).

1. In the location or address field of your Web browser, enter the Uniform Resource Locator (URL) for the Agent Login screen. The Agent Login screen opens. The following is a sample Agent Login screen:

2. Enter your agent ID, extension, your name, and any additional items requested.

A new window, the Agent Control Window, appears as follows:



Notice that most of the control buttons are greyed out (disabled). Appropriate control buttons become active when a call is connected (for example, the Log Out button is greyed (enabled) out when a call becomes active).

3. Enter your password, if any, into the text entry field labeled **Enter Text Here**, then select either **Enter** on the keyboard or the **Enter** button on the Agent Control Window.

4. If no password is required, select **Enter** on the keyboard or the **Enter** button on the Agent Control Window.

   A series of connection status messages is displayed. If the login process fails, an error message is displayed and you are prompted to try again. If login succeeds, the last status message you see is "Waiting for a call." The browser also indicates that you are in the "Agent Idle" state. At this point, you can either accept calls or log out.

5. When you are ready to take calls, put your voice terminal in Manual-In or Auto-In mode.

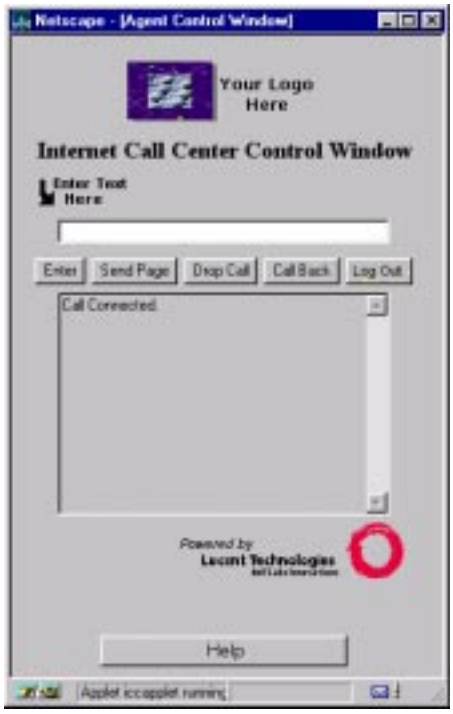
CAUTION:

If you are running your ICC on a *Mac*® O S, then you should be aware of the manner in which the ICC applets and browser windows interact. Whenever you have a browser window (web page) open and an ICC applet open with focus and then try to download a web page, the web page will overwrite the ICC applet. The call remains active; however, text chat and collaborative browsing will not function.

To keep this problem from occurring, you must verify that your ICC applet does not have focus when you download a web page. See Chapter 10, "Troubleshooting" for more information about this situation.

Agent Control Window

After an agent is logged in and a call is connected with that agent, the Agent Control Window appears as follows:



The top of the Agent Control Window optionally displays your company's logo and title.

NOTE:

The company logo is definable by each call center. See Chapter 9, "Web Page Guidelines," for information on how to change the logo.

The Agent Control Window has a text entry field indicated by an arrow and labeled **Enter Text Here**. Assuming default browser colors, the text entry field is white when it is active, indicating that text can be entered, and appears grey when it is inactive.

Information that can be entered into the text entry field includes: the agent's password (during agent login); text to be sent to the Caller Control Window (for Text Chat); and a URL to display the specified Web page in both the agent and caller's browser windows. The text entry field supports copy-and-paste entries.

The text entry field is only active when an agent is logging in or on a call. When finished typing in text, either click the **Enter** button with the mouse, or press the **Enter** key on the keyboard. The text is then sent to the ICM server for processing.

Below the text entry field is a row of buttons. The text of a button label is black when it is enabled and can be selected; otherwise it appears grey.

- The **Enter** button is used to submit information from the text entry field to the ICM server for processing.
- The **Send Page** button is used for Escorted Browsing. When a Web page of interest is displayed in the agent's Web browser window, pressing this button sends the URL of that Web page to the caller's Web browser, which attempts to load the URL. The Agent Control Window displays the status message "Sending URL to caller" and the Caller Control Window displays the status message "Loading URL in browser window." This button is only enabled when the agent is involved in an active call. Alternatively, URLs can be entered in the text entry field and sent like a message to support Escorted Browsing. After entering the URL, press the **Enter** button or the **Enter** key on your keyboard. Note that the URL must contain the Internet protocol (for example, `http://` or `ftp://`).

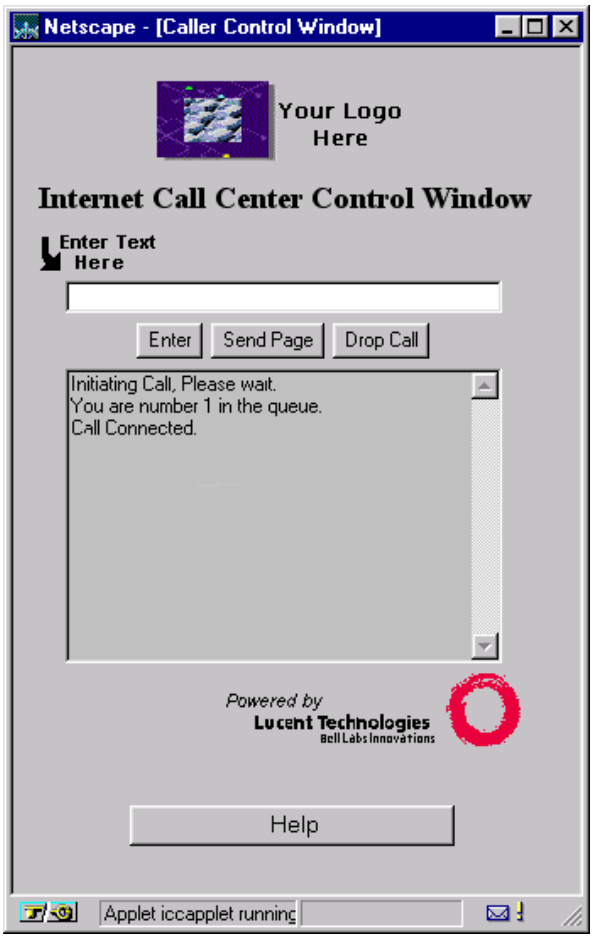
- The **Call Back** button is used to initiate a Public Switched Telephone Network (PSTN) callback to the caller. It is active when the agent is on a call and not already involved in a callback. Use of this button is explained in greater detail later in this chapter.
- The **Log Out** button is enabled (if so administered) to log out an agent from the Automatic Call Distribution (ACD) and disconnect the agent from the ICM server so that the agent can no longer receive Internet calls. This button is enabled only when an agent is logged in but is not active on an Internet call. (See Chapter 9, "Web Page Guidelines" for information.)

Below the row of buttons is the text display box. This is where text information is displayed, including Text Chat, prompts, status messages, and error messages.

- Below the text display box is the Lucent logo and, at the very bottom, the **Help** button. Press the **Help** button to display help information in a separate browser window.

Caller Control Window

The Caller Control Window resembles the Agent Control Window and enables the caller to view call status, perform Escorted Browsing and Text Chat, and drop calls. The following is a sample Caller Control Window:



The layout of the Caller Control Window is essentially the same as the Agent Control Window, except that it has neither a **Call Back** button nor a **Log Out** button. Caller-initiated callback and CallBack and Collaborate is requested from the Web "Call Us" page. (See the "Agent Control Window" section for a discussion of the **Enter**, **Send Page**, and **Drop Call** buttons and the **Enter Text Here** text field.)

Various status and error messages may appear in the text display box of the Caller Control Window. These include the following:

- "You are number <**n>** in the queue" is displayed when there are more callers than agents available to handle calls.

  NOTE:

  Number-in-queue information is displayed once and is not updated.

- "Call connected" is displayed when an agent has answered a call.
- "Sorry, no PRI facilities are currently available" is displayed when there are no Primary Rate Interface (PRI) lines available to complete the call.
- "No agents are currently available" is displayed when no agents are logged in, or no agents are staffed in the proper skills to handle a particular type of incoming call.
- "We are sorry, all lines are busy" is displayed when the limit of Internet voice calls has been reached.
- "Callback disabled" is displayed when the callback feature has been disabled on the Web administration page.

  NOTE:

  Callback is only disabled for caller-initiated Callback. Agent-initiated PSTN Callback is always available regardless of the Web administration setting.

- "We are sorry, all lines are busy" is displayed when the limit of ASAI phantom calls has been reached.

See Chapter 6, "Administration Guidelines" for information on how to administer the URLs for these messages.

Receiving Calls

There are four types of calls an agent can receive from the ICC:

- Voice and Chat
- Chat-Only
- Request for Callback (Caller-Initiated and Agent-Initiated)
- CallBack and Collaborate.

In all cases, when a call comes into the agent, the agent's voice terminal alerts the agent of an incoming call and is active for the call whether or not voice is used (for example, voice is not used during a Chat-Only call).

If the Vector Directory Number (VDN) of Origin Announcement (VOA) feature of that ACD is used, the agent hears a brief announcement to indicate the type of call that is coming in (for example, "Voice" or "Chat"), depending on how the VDN of Origin announcements are administered in a particular call center. The Agent Control Window displays the "call connected" message and the agent's browser updates with a PagePop.

Voice and Chat Calls

When a caller requests a call that involves both Internet telephony and Text Chat, the following occurs:

- The Caller Control Window is downloaded to the caller's desktop.
- *NetMeeting** is launched on the caller's desktop.

  If you are using *Netscape*, you must register *NetMeeting* with the browser as follows:

  NOTE:

  You need to register *NetMeeting* with *Netscape* only once.

*NetMeeting is a registered trademark of Microsoft Corp.

— When the "unknown file type" pop-up window appears, select the **Pick App** button.

— Under "configure external viewers", enter
`rundll32.exe msconf.dll,OpenConfLink`

CAUTION:

Spaces and capitalization are important when entering the above command.

— Select **OK**.

— *NetMeeting* launches after a delay. If *NetMeeting* does not launch, see Chapter 10, “Troubleshooting.”

- The call may be queued, with appropriate status message and Web pages being delivered to the caller’s desktop.
- The call is delivered to an agent.
- Call control functions on the Agent Control Window are enabled once the agent answers the phone.
- The agent and caller’s browsers update to the “call answered” URL if administered.
- The agent communicates with the caller by voice over the Internet by way of the voice terminal. The caller communicates with the agent through the PC’s microphone and speakers (or headset).
- The Text Chat and Escorted Browsing features work as described in Chapter 1, “About Internet Call Center.”

Chat-Only Calls

When a caller requests a Chat-only call, the following events occur:

- The Caller Control Window is downloaded to the caller's desktop.
- The call is queued and then delivered to the agent.
- Call control functions on the Agent Control Window are enabled once the agent answers the phone.
- Both agent and caller browsers update to the Call Answered URL if administered.
- Agent and caller can communicate through Text Chat by typing text into the text entry field and selecting either the **Enter** key or the **Enter** button.
- Escorted Browsing is supported in one of two ways:
  - — Clicking on the **Send Page** button in the Control Window. (*Microsoft* Internet Explorer 3.02 and above and *Netscape Navigator* 3.03 and above do not support the **Send Page** button. However, you can remedy this problem by implementing one or more of three methods. To learn about the different methods, go to Chapter 6, "Administration Guidelines.")
  - — Typing a URL (including the `http://designation`) in the text entry field in the Control Window and then pressing either the **Enter** button or the **Send Page** button.

  Either of these methods results in display of the same Web page to both the agent and the caller.

Request for Callback

There are three types of callbacks:

- Caller-initiated—with a caller-initiated callback, a caller can request a callback by an agent. In such a case, the caller wants to receive a call from an agent over the PSTN.
- Agent-initiated—with an agent-initiated callback, an Internet session is already established. However, an agent can request the caller on an existing ICC call to submit a phone number where the agent can reach the caller by way of the PSTN. The caller must have a second phone line (one for the Internet session and one for the PSTN callback).
- CallBack and Collaborate—with a caller-initiated CallBack and Collaborate call, the caller is requesting that the agent call back on the telephone (PSTN callback) while at the same time, communicating through text chat and Escorted Browsing. The caller can request a CallBack and Collaborate session if they have two phone lines (one for the Internet session and one for the PSTN callback).

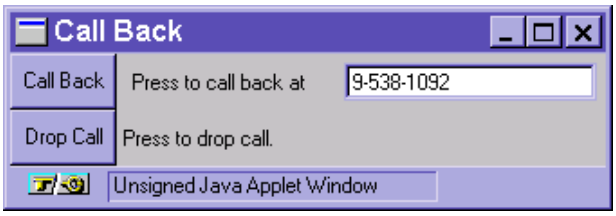
Callback calls are restricted in the *DEFINITY* ECS based on the Class of Restrictions assigned to the CTI extension. This extension is used to place the callback calls so it must have adequate calling permissions to place callback calls. Refer to the "*DEFINITY Communications System Generic 3 Feature Description*" manual (555-230-204) and the "*BCS Product Security Handbook*" (555-025-600) for information on securing *DEFINITY* ECS stations.

Caller-Initiated Callback

A caller can request a callback by an agent. In such a case, the caller wants to receive a call from an agent over the PSTN. Here is how caller-initiated callback works:

- The caller enters a telephone number and requests a callback from the "Call Us" Web page.
- Once the caller has submitted a request for callback and is awaiting a response from an agent, the caller sees a PagePop page with a message, such as "We will be calling you back shortly." If the caller has a single telephone line, then the caller should immediately disconnect from the Internet to make that line available for the callback.

- In the call center, an agent is selected and the callback request is delivered to that agent in the form of a window displaying the requested callback number, as follows:



- The agent has two options:
  - — Proceed with the callback. The agent selects the **Call Back** button to call the number displayed or edits the number and then selects the **Call Back** button.

    The agent has the option of editing the callback number provided by the caller. With this capability, the agent can add or remove digits from the callback number. For example, if the callback number is not a local number, the agent can add a "1" and / or a country code in front of the callback number so that long distance dialing can occur.
  - — Cancel the callback. Selecting the **Drop Call** button results in termination of the call. There is no indication to the caller that the callback is not being processed.
- If the agent proceeds with the callback, a conference between the Internet and PSTN call is established.
- The caller receives the PSTN call by telephone, and the caller and agent conduct voice communication.

NOTE:

When a caller requests a callback from the "Call Us" Web page, no Caller Control Window is downloaded to the caller's desktop; therefore, the Text Chat and Escorted Browsing features are not available. Text Chat and Escorted Browsing are available with CallBack if the caller selects the CallBack and Collaborate option.

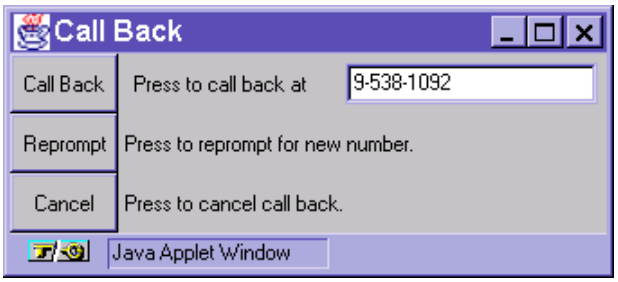
Agent-Initiated Callback

Sometimes Internet telephony voice quality deteriorates during a call, or for some other reason the agent and caller want to talk on a regular telephone line. The caller can request a callback in such instances; however, only the agent can initiate a callback during a call.

During Voice and Chat calls or Chat-Only calls, the **Call Back** button in the Agent Control Window is enabled. By pressing this button, an agent can request the caller to submit a phone number where the agent can reach the caller by way of the PSTN. Here is how the agent-initiated callback works:

- The agent clicks the **Call Back** button in the Agent Control Window.
- The caller is prompted to submit a phone number to the agent through a pop-up window, as follows:

- The caller enters a phone number and clicks on the **Enter** button.
- The agent receives a pop-up window that displays the submitted phone number, as follows:



- The agent has three options:

— Proceed with the callback. To proceed with the callback, the agent selects the **Call Back** button or edits the number and then selects the **Call Back** button.

  The agent has the option of editing the callback number provided by the caller. With this capability, the agent can add or remove digits from the callback number. For example, if the callback number is not a local number, the agent can add a “1” in front of the callback number so that long distance dialing can occur.

— Request the caller to resubmit a callback number. This request begins the agent-initiated callback process again. To ask the caller for another number, the agent selects the **Reprompt** button.

— Cancel the callback. Selecting the **Cancel** button results in termination of the call. There is no indication to the caller that the callback is not being processed. However, since the Internet call is still active, the agent can communicate the reason for cancelling the callback.

Proceeding with the call results in the following:

- On the agent’s voice terminal, the original Internet call line and the outbound call (PSTN) to the displayed number is conferenced.
- The caller receives the PSTN call, and the caller and agent conduct voice communications.
  — If the caller has more than one phone line, the caller can maintain an Internet connection and participate in Text Chat and Escorted Browsing with the agent while talking on the telephone.
  — If the caller has one telephone line, the caller must disconnect from the Internet to receive the callback, thereby losing the Text Chat and Escorted Browsing features.

CallBack and Collaborate

A request for a CallBack and Collaborate call can be made by the caller if the caller has two phone lines (one for the Internet session and one for the PSTN callback). When a caller requests a call that involves both a PSTN callback and collaboration, the following occurs:

- The Caller Control Window is downloaded to the caller's desktop.
- The call is queued and then delivered to an agent.
- Call Control functions on the Agent Control Window are enabled once the agent answers the phone.
- Both agent and caller browsers update to the Call Answered URL if administered.
- The callback request is delivered to the selected agent in the form of a window displaying the requested callback number. At this point, the agent can proceed with the callback in a manner to the Agent Initiated Callback.

Agent and caller can now communicate through the following methods:

- Text Chat by typing text into the text entry field and selecting either the **Enter** key or the **Enter** button
- Escorted Browsing
- Voice Communication over the caller's second phone line.

Dropping Internet Calls

There are several ways to drop calls for both the agent and the caller. Different methods of dropping a call may impact what part of a call is dropped.

Methods for Dropping Internet Calls

Voice and Chat and Text Chat-only calls may be dropped in several ways, as follows:

- Either the agent or the caller can drop the call by clicking the **Drop Call** button on the Control Window. In this case, the entire call is dropped and the agent is returned to the Agent Idle state.
- If either the agent or the caller exits the Web browser during a call, the entire call is dropped.
- The agent can drop the entire call by hanging up the voice terminal or by pressing the **Release** button (providing your voice terminal is administered with a Release button).

When a call is dropped with any of the above methods, a JavaScript alert dialog box will appear with the following message: `Press OK to Quit`. When you select the **OK** button, both the dialog box and the Caller Control Window close.

- Although it is not recommended, if either the agent or the caller closes the Control Window during a call, the entire call is dropped.

Dropping Callback Calls

Caller-Initiated Callbacks

During a caller-initiated callback, the caller can drop the entire call by hanging up the telephone. (There is no caller applet; therefore, there is no Text Chat or Escorted Browsing to disable.) Likewise, the agent can drop the entire call by hanging up the voice terminal.

If the agent clicks the **Drop Call** button in the Agent Control Window, the agent is presented with the option to either **Cancel** or **Drop Call**. Selecting **Cancel** results in cancelling the request to drop the call, and the call is unaffected. Selecting **Drop Call** results in the entire call being dropped and the agent's being returned to the Agent Idle state.

If for some reason a caller-initiated callback does not go through (such as a busy signal), the agent can press the **Drop Call** button and receive the following options:

- **Cancel**—to cancel the drop call request
- **Drop Call—**to drop the entire call and return to the Agent Idle state
- **Drop and Re-Dial**—to drop the entire call and automatically re-dial the number submitted by the caller.

Agent-Initiated Callbacks

During an agent-initiated callback, the following call drop scenarios are handled as indicated:

- If the caller hangs up the phone, only the PSTN portion of the call is dropped. The original Internet session is not terminated and Internet voice, Text Chat, and Escorted Browsing are unaffected and thus still available.
- If the caller closes the Caller Control Window or clicks on the **Drop Call** button, the entire call is dropped and the agent is returned to the Agent Idle state.

- If the caller exits the Web browser, the entire call is dropped and the agent is returned to the Agent Idle state.
- If the agent releases the call from the voice terminal, the PSTN portion of the call is dropped (because there are actually two active lines). Internet voice (if applicable), Text Chat, and Escorted Browsing are still available. The agent must again release the call to end the entire call.
- If the agent clicks the **Drop Call** button in the Agent Control Window, the following options are offered:
  - **Cancel**—to cancel the drop call request
  - **Drop Call**—to drop the entire call and return to the Agent Idle state
  - **Drop Callback**—to drop only the PSTN portion of the call and resume the Internet voice (if applicable), Text Chat and Escorted Browsing features.
- If for some reason an agent-initiated callback does not go through (such as a busy signal), the agent can press the **Drop Call** button and receive the following options:
  - **Cancel**—to cancel the drop call request
  - **Drop Call**—to drop the entire call and return to the Agent Idle state
  - **Drop and Re-Dial**—to drop the entire call and automatically re-dial the number submitted by the caller
  - **Drop Callback**—to drop only the PSTN portion of the call and resume using the Internet voice (if applicable), Text Chat and Escorted Browsing features.

CallBack and Collaborate

During a CallBack and Collaborate session, both the PSTN call and the Internet session are dropped.

Either the consumer or agent can drop the call by doing the following:

- Clicking the **Drop Call** button on the Control Window. In this case, the entire call is dropped (both PSTN and Internet) and the agent is returned to the Agent Idle state.
- If either the agent or the caller exits the Web browser during a call, the entire call is dropped.

Either the consumer or agent can drop the PSTN call by hanging up the telephone that is providing the PSTN call.

Agent Logout

There are two methods for logging out of the Internet Call Center:

- Agents can log out from the voice terminal or CTI application. This logout procedure is always available and logs the agent out of all Internet Call Center solution equipment as well as the *DEFINITY* ECS. If reason codes are administered and desired, the agent should log out this way.
- Using the **Log Out** button (when enabled) from the Agent Control Window is another method for logging out of the Internet Call Center. Enabling or disabling the **Log Out** button is an administrative option on the ICM. See Appendix A, “ICM Server Administration Field Descriptions” for details.

In either of these cases, the agent receives a "Connection terminated. Please quit" message on the Agent Control Window. Then, a JavaScript alert dialog box appears with the following message: `Press OK to Quit`. When you select the **OK** button, both the dialog box and the Caller Control Window close.

CAUTION:

Neither closing the Agent Control Window nor closing the browser is recommended as a logout method.

3

ICC Connectivity Overview

Introduction

This chapter provides an overview of how Internet Call Center (ICC) components are positioned into the existing local area network (LAN) and call center environment. It identifies hardware components and network integration considerations for installation and maintenance of ICC components.

This chapter includes the following sections:

- ICC Connectivity
- ICC Components and Connectivity
- Ancillary ICC Components
- Functional Descriptions.

Audience

This chapter is intended for installers, system administrators, or any other persons involved in connecting or installing hardware or software for the ICC. This includes Lucent Technologies' Technical Support Organizations.

References

The following documents contain information relevant to the connectivity of the ICC solution:

- *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212)
- *DEFINITY Communications System Generic 3 System Description and Specifications manual* (555-230-*206)*
- *DEFINITY Enterprise Communications Server, Installation, Administration, and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway* (555-230-223)
- *DEFINITY ECS CallVisor ASAI DEFINITY LAN Gateway over MAPD Installation, Administration, and Maintenance Issue 1* (555-230-114).

ICC Connectivity

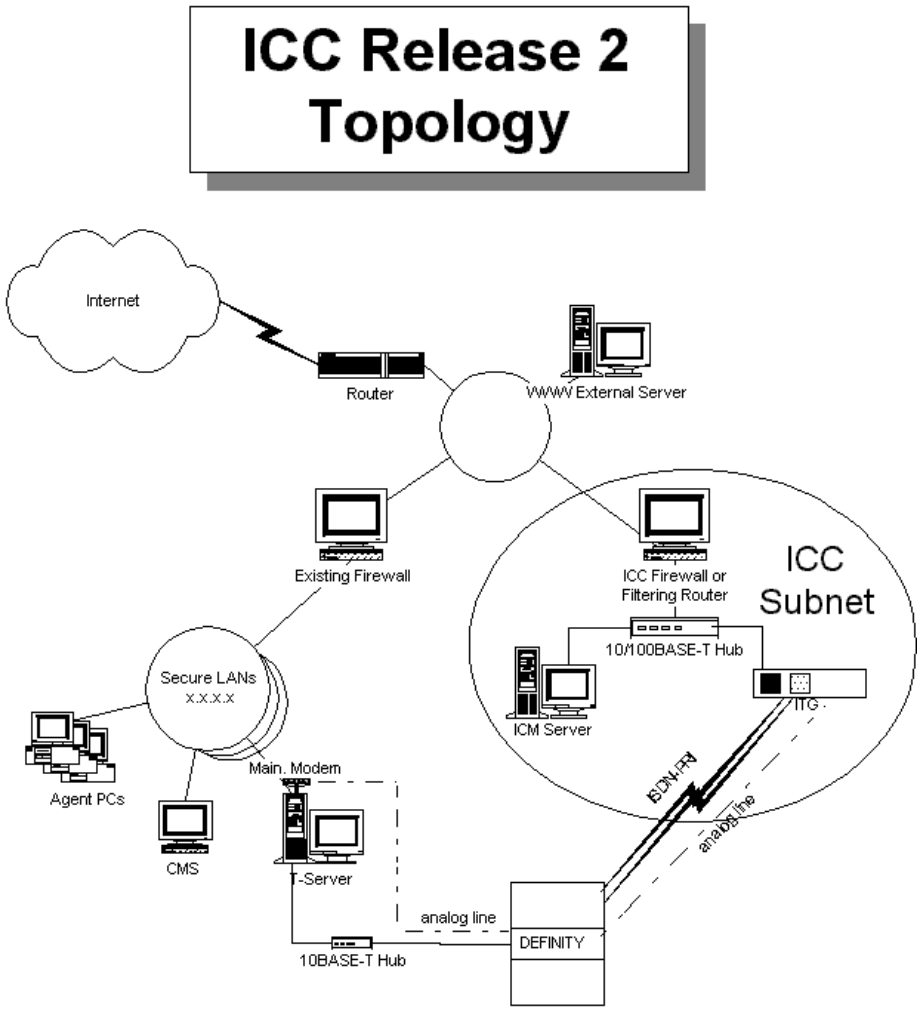
Topology Overview

The ICC solution involves several platforms and related offers, including:

- Internet Telephony Gateway (ITG)
- ICM server
- *DEFINITY*® Enterprise Communications Server (ECS)
- *Passageway*® Telephony Server
- *CentreVu*® Call Management System (CMS)
- *CentreVu* Supervisor
- The call center's local area network (LAN) consisting of intervening switches, routers, and hubs
- The call center's wide area network (WAN) consisting of intervening routers
- The call center's Web server
- The call center's firewall.

All of these components are involved in the ICC solution, and all must be managed correctly for full ICC functionality. Subsequent chapters detail how these components are administered and connected for the ICC solution.

The figure which follows represents a typical ICC topology. The ICC subnet is not firewalled from the Internet to the same extent that internal, secure LANs are.



Topology Discussion

Components of the ICC solution are best provisioned using the topology just shown. This topology is advantageous in several ways.

The first advantage is that ports and protocols required by ICC can be allowed to connect with the ICC subnet but not with other secure, internal networks.

See Chapter 4, “Firewall and Security Guidelines” for complete details of the ports and protocols required by ICC.

The second advantage of this topology is that it serves to keep all Internet voice away from internal, secure networks. Internet voice is sent to the ITG on the ICC subnet. The ITG then performs transcoding and passes the voice to the *DEFINITY* ECS over the ISDN-PRI. Voice traffic, although it is highly compressed, never touches internal networks; therefore, has no traffic implications.

The third advantage is that even though the ICC components only support Ethernet, they are confined to their own segment. This confinement allows call centers to use any LAN type for internal networks. The firewall, or a separate router, can route or bridge between Ethernet and whatever LAN type a call center chooses to use.

ICC Components and Connectivity

Each ICC component and its connections are discussed briefly in this section. Please refer to the specific chapter and/or referenced document on any specific component for more detailed preparation, installation, and operation information.

Internet Telephony Gateway

The ITG provides transcoding capabilities that convert Internet telephony audio.

The ITG is connected to the ICC subnet through 10BASE-T or 100BASE-T Ethernet. This allows the ITG to communicate with the ICM server, the *Passageway* Telephony Server, and the caller's PC (for Internet Voice calls).

The ITG is connected to the *DEFINITY* ECS through one or two ISDN-PRI spans (depending on the configuration purchased). This provides "PSTN-like" connectivity to the *DEFINITY* ECS call center.

The ITG also requires a direct-dialed analog line from the *DEFINITY* ECS for the Remote Maintenance Board (RMB). (This line can be provided from the *DEFINITY* ECS or through a dedicated line from the local exchange carrier). This connection allows the ITG to place alarm calls to the Lucent Technologies Technical Services Organization if maintenance routines detect an alarm, and allows off-site engineers to provision, upgrade, and troubleshoot the ITG. It is recommended that this dial-in port be protected using a Lucent Technologies Remote Port Security Device (RPSD) lock. The RPSD lock provides strong protection against unauthorized access to any dial-up port. Using security algorithms based on the Data Encryption Standard (DES), the RPSD lock helps ensure that this access point is secured while allowing the ITG to "call for help" while providing authorized callers with unhampered access.

Planning an ITG Server Configuration

The ITG is a rack-mountable *Pentium* PC equipped with Voice Processor Cards, an ISDN-PRI interface card (supporting one or two T-1 or E1 network connections), an Ethernet 10/100 Network Interface Card (NIC), and an RMB. Environmental requirements and technical specifications are available in the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document. You may increase the call-handling capacity of the ITG (up to system limits) by purchasing the appropriate hardware and software.

- The location of the ITG server should allow a half-duplex Ethernet 10BaseT or 100BaseT connection to your TCP/IP LAN. The ITG Server must be able to communicate with the ICM server and *Passageway*® Telephony Server.
- There must be access to the Internet (probably through your corporate firewall) from the ITG server. Lucent Technologies can help you plan your firewall configuration to maintain your secured corporate network.
- A CD-ROM drive must be accessible to the ITG and ICM server.
- An analog line is required for the RMB in order for Lucent Technologies to provide remote maintenance support.
- The *DEFINITY* ECS must support ISDN-PRI and have DS-1 card(s) available to connect to the ITG Server.
- The ITG is configured to support ICC Offer-based configurations supporting 120 Internet voice calls in increments of 20, 40, or 60.

Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for detailed information about ordering, configuration and installing the ITG. Your Lucent Technologies Account Team helps you to design and order and configure the ITG server in accordance with your business' unique needs and requirements. This team works closely with the Lucent Technologies MultiMedia Applications Customer Support (MACS) team who approves all ITG configurations before an order is placed.

ICM Server

The ICM server (formerly known as the *Java*[*] Server) is connected to the ICC subnet through a single 10BASE-T or 100BASE-T Ethernet NIC. The ICM server should be equipped with *pcANYWHERE*[†] software and a maintenance modem on an analog line to allow remote administration and diagnostics for this server.

The ICM server acts as an intermediary in ICC functions by processing data exchanges such as Text Chat between PCs. Agents connect to the ICM server (by way of hypertext transfer protocol [HTTP] and transmission control protocol [TCP]) to log in, log out, drop calls, conduct Text Chat sessions, and perform Escorted Browsing.

The ICM server and ITG communicate (through TCP) to launch ICC calls to the *DEFINITY* ECS, provide status on call progress, launch Callbacks, log agents in and out, and so on. The ICM server contacts the T-server to perform all CTI-related activities.

Planning an ICM Server Configuration

A *Pentium* PC, which the call center provides, is used as the ICM server. This *Java*-enabled PC should be connected to your LAN and able to communicate with the ITG. This PC should be running:

- *Microsoft Windows NT* 4.0 server with Service Pack 3 or greater.
- *Microsoft* Internet Information Server (IIS) 3.0 software

Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for detailed information about ordering, configuring and installing the ICM server.

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*Java is a registered trademark of Sun Microsystems, Inc.
†pcANYWHERE is a registered trademark of Symantec Corporation.

DEFINITY ECS

The *DEFINITY* ECS connects to the ITG by way of one or two ISDN-PRI connections. These are generally cabled from the *DEFINITY* ECS DS1 card (through a 356A adapter) directly to the ITG using a D8W (8-conductor) cable. If the distance exceeds the supported range, Channel Service Units (CSUs) may be required. See Chapter 5, “DEFFINITY ECS Within ICC” for complete details.

The *DEFINITY* ECS connects to the *Passageway* Telephony Server by way of a *DEFINITY* LAN Gateway card or a MAPD TN800 board with LAN Gateway software. This *DEFINITY* LAN Gateway card and the MAPD TN800 board provide a 10BASE-T connection which is either directly cabled to the *Passageway* Telephony Server through an Ethernet cross-over cable, or is cabled to a 10BASE-T hub to which the *Passageway* Telephony Server is also connected.

The *DEFINITY* LAN Gateway or MAPD board should ***not*** be connected to the ICC subnet or any other network. The Ethernet connection between the *DEFINITY* ECS and the *Passageway* Telephony Server carries the *DEFINITY* ECS Adjunct/Switch Applications Interface (ASAI) message set, which should remain local to these two devices. The *Passageway* Telephony Server terminates this message set and provides the standard Telephony Services Application Programming Interface (JTAPI) to the ICC subnet.

See the *DEFINITY Enterprise Communications Server, Installation, Administration, and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway* (555-230-223) document for complete details.

PassageWay Telephony Server

The *PassageWay* Telephony Server has two NICs to enhance security between the *DEFINITY* ECS and the data network. The NIC used to connect the *PassageWay* Telephony Server to the *DEFINITY* LAN Gateway card must be a 10BASE-T NIC.

NOTE:

(Note: a 10/100BASE-T card is not supported even if it is optioned for 10BASE-T only).

As just mentioned in the "*DEFINITY* ECS" section, this connection must be isolated to these two servers. The other NIC provides the standard TSAPI to the ICC subnet.

The *PassageWay* Telephony Server also contains the Computer Telephony Integration (CTI) process provided with ICC software. The CTI process provides an interface between the Internet domain and telephony functions of the switching domain of the call center. The CTI process interfaces with the ICM to pass incoming Internet requests to the call center and to pass call center status and responses back to the ICM. The CTI process interfaces with the *PassageWay* Telephony Server to monitor call progress information within the call center domain and launch calls through the call center.

CMS for Internet (ICMS)

CentreVu CMS is software that resides on a *Sun** workstation running the *Solaris*† operating system. The CMS workstation is equipped with a LAN NIC to provide LAN-based supervisory terminals and/or connectivity to ICC components for the collection of statistics. The CMS collects call data from the *DEFINITY* ECS and creates management reports.

The ICMS software is an add-on package that collects ICC data such as Web page hits, call requests when there are no ISDN-PRI trunks available, call requests when vector processing disconnects or returns forced busy, and voice call requests when there are no resources available to perform the Internet Voice-to-PSTN Voice transcoding.

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*Sun is a registered trademark of Sun Microsystems, Inc.
†Solaris is a registered trademark of Sun Microsystems, Inc.

The minimum version of *CentreVu* CMS supported for ICC is *CentreVu* CMS R3V5 (with load r3v5ai.f or later), R3V5u (with load r3v5ud.a or later), or R3V6 running on a *Sun SPARCserver*[*] or Ultra *SPARC* server computer. See the *DEFINITY Enterprise Communications Server, Installation, Administration, and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway* (555-230-223) document. Also see Chapter 8, "Call Management System for Internet (ICMS)," for administration and configuration information.

*SPARCserver is a registered trademark of Sun Microsystems, Inc.

Ancillary ICC Components

The components discussed below are considered ancillary. They play an important role in providing transport and protection of Internet calls but do not contribute directly to feature functionality of the ICC offer.

LAN

The LAN, composed of hubs, routers, and possibly switches, is used to connect ICC components, including agent PCs. The LAN that agents reside on can be of any type, but ICC components (apart from the CMS) are only supported using an ethernet interface. The LAN ***must*** provide dependable transport between agent PCs, the Internet, the Web server, and ICC components. ICC communications between the agent and the ICM server use TCP connections that must remain up for the duration of an agent's logged-in time.

Lucent Technologies' Advanced Data Networking specialists or NetCare Services can assist in provisioning and tuning data networks. Contact your Lucent Technologies account team for information and assistance.

WAN

The WAN, composed of routers and possibly switches, is used to connect the Internet to ICC components. It may also be used to connect agents to the ICM server if the agents are on remote *DEFINITY* ECS expansion port networks (EPNs). The WAN ***must*** provide dependable transport of Internet calls between agent PCs, the ICM server, and any servers (including those on the Internet) the agent uses to service ICC calls.

As for the LAN, ICC communications between the agent and the ICM server use TCP connections that must remain up for the duration of an agent's logged-in time. In addition, the Internet connection, perhaps once an educational tool or even a luxury, is now a mission-critical business application. Internet callers must be able to reach agents, and agents must be able to pull up Web pages to share with callers. This requires a robust Internet connection that reflects the availability required of a business application.

Lucent Technologies' Advanced Data Networking specialists can assist in provisioning and tuning data networks. Contact your Lucent Technologies account team for information and assistance.

Web Server

A Web server may be on site behind a firewall, in a minimally firewalled subnet, on the Internet and not firewalled, or even across the country, hosted and managed by another organization. A Web server contains the Web pages that make up a call center's Web site. One of these pages may be the login page for agents. This page should not be known outside the organization or may be housed on a separate Web server.

The Web server is the first point of contact for any ICC activity. When agents log in, they generally access the login page from this Web server. When callers place ICC calls, they invariably do so from a page on this Web server. For this reason, the Web server and services surrounding it must be as robust as any of the other ICC components. Just as the LAN and WAN must provide reliable transport, the Web server must provide reliable services.

Domain Name Server (DSN)

Domain Name Servers are used to reconcile machine names to IP addresses. Since names are almost always used in URLs, the failure of a DNS can prevent connectivity to these web servers. This can cause problems with logins, web page access, and caller communications. The reliability of DNSs can affect the overall ability of the call center to service the Internet.

Firewall

One of the most important components of a call center's Internet connection is the firewall. The firewall protects a call center's internal assets from the general public on the Internet. It also helps to protect against malicious damage to internal networks.

The firewall must also secure ICC components from unauthorized access, and should be administered to deny all ports and protocols not explicitly identified in Chapter 4, "Firewall and Security Guidelines."

ICC components are generally placed on their own subnet (as illustrated in the ICC Topology figure). This placement keeps ICC traffic off the call center's network and allows the firewall to pass the ports necessary for ICC functionality without significantly disrupting existing firewall rules for internal networks. The firewall port to the ICC subnet allows ICC-required TCP and User Datagram Protocol (UDP) traffic (as detailed in Chapter 4, "Firewall and Security Guidelines"), while firewall ports to the internal, secure LANs drop such traffic.

Lucent Technologies' Network Consulting Group can provide an enterprise firewall. This group can also test firewalls for security, lock down Intranets, and provide ongoing, periodic security checks. Call (972) 419-3803 or email `security@lucentncg.com` for details on these and other offers.

Functional Descriptions

This section describes the activities that take place during an ICC session, and in particular how the various components play a role. The numerous operations that are part of these activities but do not affect overall connectivity are not discussed.

Agent Login

An ICC agent accesses the agent login form from a Web server using a browser. The agent populates the form and submits the information to the ICM server. The ICM server downloads the Agent Control Window by way of HTTP, establishes a TCP connection to the ICM server on TCP port 8101, and when it receives the agent's password (if any), it contacts the CTI process with a request to log the agent in. If the request is successful, the agent is logged into the *DEFINITY* ECS, the *DEFINITY* ECS notifies the *PassageWay* Telephony Server, the *PassageWay* Telephony Server notifies the ICM server, and then the ICM server updates the agent's Agent Control Window with a message that login was successful. The ICM server also instructs the Agent Control Window to "pop" the "Agent Idle" Uniform Resource Locator (URL) into the browser on the agent's desktop.

Caller

Through a browser from the Web server, a caller brings up a Web page that has a **Call Us** button administered. When the caller selects this button, it submits a string of information (administered on the Web page) to the ICM server. This information is sent directly from the caller's browser, not by way of the Web server. The submitted information identifies the type of call (Voice and Text, Text-Only, CallBack, or CallBack and Collaborate) and what Vector Directory Number (VDN) in the *DEFINITY* ECS the call should be placed to. The ICM server performs certain checks (such as making sure an ICC agent is logged in) and contacts the ITG to check for available trunks, available resources to handle the call, and so on. After these checks, in the case of an Internet telephony voice call, the ICM server executes a script that causes the caller's PC to establish a *Microsoft NetMeeting** conference with the ITG. The ICM server also instructs the ITG to place a call to the specified VDN in the *DEFINITY* ECS over the ISDN-PRI and to monitor the progress of that call. When the call is answered in the *DEFINITY* ECS, the *DEFINITY* ECS notifies the *PassageWay* Telephony Server, the *PassageWay* Telephony Server notifies the CTI process, and the CTI process notifies the ICM server. The ICM server updates the Caller Control Window and Agent Control Window on their respective PCs, and "pops" administered pages to their respective browsers. Text Chat and Escorted Browsing occur between the caller's PC and the ICM server and between the agent's PC and the ICM server. Voice communications to and from the caller's PC are encoded and decoded by the ITG.

ICC Administration

ICC administrators use a browser to access Web pages for ICC administration. Administrators then populate or edit various administrable parameters. When these options are saved (from the browser), the ICM updates appropriate ICM server files. See Chapter 6, "Administration Guidelines" for details.

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*NetMeeting is a registered trademark of Microsoft Corp.

4

Firewall and Security Guidelines

Introduction

This chapter provides a high-level overview of firewall and security for the Internet Call Center (ICC) solution. This chapter includes the necessary ports and protocols required for the ICC solution.

Audience

Network administrators, system administrators, or other persons who need to understand how firewalls impact the ICC solution should read this chapter.

Background Information

“Firewall” is a term that represents a network component designed to protect an internal network (an intranet) from unauthorized network requests. For example, most corporate sites on the Internet have a firewall between the Internet and their corporate intranet to protect internal systems and information from malicious or casual access. Many intranets also have firewalls between subnets to protect sensitive information.

Firewall Administration

Firewall administration for an ICC varies from customer to customer. You must understand the ports and protocols that are used by the various ICC components in order to properly configure your own firewall rules.

A firewall **must** be configured with an appropriate length of timeout on Transmission Control Protocol (TCP) connections. Many firewalls have a parameter that sets the maximum amount of time a TCP connection can remain idle before the firewall drops the session. ICC agents who have gone on break or stepped away from their desks can incur significant idle time and may lose their connection to the ICM server. If the firewall causes the TCP connection between the agent and the ICM server to be lost, the next call to the agent will be lost and the agent will be placed in the Auxiliary (AUX) work mode.

The ICC does offer the option of providing “keep-alive” packets between the agent PC and the ICM server. These may be required to avoid firewall time outs. This option is enabled by Lucent Technologies support personnel as necessary. If you have a problem with time outs, contact the Lucent Technologies Technical Services Organization at 1-800-242-2121 to open a trouble ticket.

See Chapter 9, “Web Page Guidelines” for details about the Agent Login Web page.

ICC-Specific Ports and Protocols

This section provides the ports and protocols used to administer minimum firewall requirements for the ICC solution:

Source	Destination	Protocol	Purpose
>1023 Internet	8001 CMS	TCP	Page hit counts CMS
8001 CMS	>1023 Internet	TCP	Response to Browser from CMS
>1023 ICM server	80 CMS	TCP	ICC Event Data No Trunks, No Voice Channels
80 CMS	>1023 ICM server	TCP	Response to Above
>1023 Agent PC	80 ICM server	TCP (HTTP)	Download of Call Control Window
80 ICM server	>1023 Agent PC	TCP (HTTP)	Download of Call Control Window
>1023 Agent PC	8101 ICM Server	TCP	Agent login & Communications
8101 ICM Server	>1023 Agent PC	TCP	Response to Above
>1023 Internet	80 ICM server	TCP (HTTP)	Download of Call Control Window
80 ICM server	>1023 Internet	TCP (HTTP)	Download of Call Control Window
>1023 Internet	8102 ICM Server	TCP	Caller Interactions
8102 ICM Server	>1023 Internet	TCP	Response to Above
8103 CTI	>1023 ICM server	TCP	CTI Process Communication
>1023 ICM Server	8103 CTI	TCP	CTI Process Communication
>1023 PC	8104 ICM Server	TCP	ICM Administration
8104 ICM Server	8104 PC	TCP	Response to Above
>1023 PC	8105 CTI	TCP	CTI Administration
8105 CTI	>1023 PC	TCP	Response to Above
>1023 CTI	>1023 T-Server	TCP	CTI Communications
>1023 T-Server	>1023 CTI	TCP	CTI Communications
>1023 Internet	>1023 ITG	TCP	*NetMeeting* Call Setup Control
>1023 ITG	>1023 Internet	TCP	*NetMeeting* Call Setup Control
>1023 Internet	>60000+voice ITG	UDP	G.723.1 Voice
>60000+voice ITG	>1023 Internet	UDP	G.723.1 Voice
>1023 CTI	450 T-Server	TCP	Call Control
450 T-Server	>1023 CTI	TCP	Call Control

NOTE:

>1023 ports are dynamically assigned.

Data Communications Detail

This section details the communications between ICC components. This information is targeted at data communications personnel who have an in-depth knowledge of Transmission Control Protocol / Internet Protocol (TCP / IP). This is a more detailed reference than the matrix on the previous page and should be helpful when developing firewall rules.

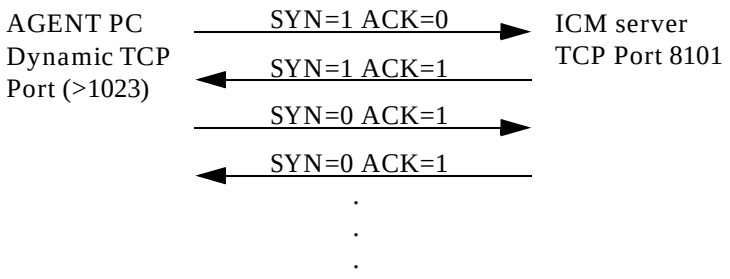
Agent PC to ICM Server Data Communications

Agent PCs only need to communicate with the ICM server and whatever Web servers the agent uses in the course of a call (at a minimum, the Web server the agent uses to log in). The agent logs in by accessing a Web page, populating a form with agent ID and phone extension information (and any other information requested), then submitting the form to the ICM process running on the ICM server (TCP port 80) by way of Hypertext Transfer Protocol (HTTP). The agent then communicates with the ICM server using a dynamic TCP port from the agent PC to TCP port 8101 on the ICM server.

The agent PC conducts all ICC communications with the ICM process on the ICM server, **not** directly with the caller's PC. As mentioned above, if the firewall or a network error causes the TCP connection between an agent's PC and the ICM process to be lost, then the next call to that agent causes the agent to be placed in Auxiliary (AUX) work mode and the call to be lost.

TCP port 8101 must be blocked from unauthorized sources (for example, the Internet) so that hackers cannot log into the *DEFINITY*® Enterprise Communications Server (ECS). HTTP sessions (TCP port 80) and TCP sessions to port 8101 on the ICM server must be allowed from agent PCs.

The following diagram illustrates agent PC-to-ICM server communications. It illustrates all data communications necessary for an agent to log in, conduct Text Chat and Escorted Browsing activities, initiate a callback, and so on. The only other data communication taking place from the agent's PC during an ICC session is Internet browsing.



Caller Communications

When a caller initiates a call to an Internet Call Center, the ICC system downloads a Caller Control Window to the caller's desktop from the ICM server using World Wide Web HTTP, then the Agent Control Window establishes a TCP connection to port 8102 on the ICM server. All text chat and escorted browsing functionality is done through this connection. The caller communicates with the ICM server (and the ITG if voice is used), never directly with the agent computer. Once an agent is connected to the caller, both can send and receive Text Chat and Escorted Browsing data using a dynamic TCP port to contact TCP port 8102 on the ICM server.

The caller is also the source of a request made to *CentreVu*® Call Management System (CMS) that records page hit statistics. Coding on the Web page includes a request for an image (a 1x1 transparent pixel) from the CMS on TCP port 8001 when the caller accesses that web page. (A page hit to the CMS is triggered when the page is accessed by the caller, not when the caller selects the "Call Us" button.) *CentreVu* CMS runs Web page software that listens only on port 8001 and is programmed to provide only this pixel on this port (for security). Any request to port 8001 other than for this image results in an error. The request for the image is recorded as a page hit to increment *CentreVu* CMS data.

Internet voice calls use *Microsoft*[*] *NetMeeting*[†] on the caller's desktop to set up a conference with the Internet Telephony Gateway (ITG). *NetMeeting* requires dynamic TCP ports for call setup and control, and dynamic User Datagram Protocol (UDP) ports to carry the voice. The caller must be able to get TCP and UDP traffic to the ITG for Internet voice calls. Internet voice is carried from the ITG starting at UDP port 60000 (administrable) and continuing upward.

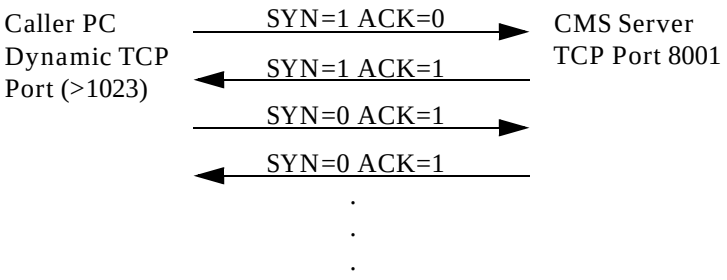
The ITG must be able to respond to the caller's dynamic TCP ports for *NetMeeting* setup and to the caller's dynamic UDP port for voice.

In summary, the firewall must allow Internet sources to reach the ICM server on TCP port 8102, and the ICM server must be able to respond to that dynamic (>1023) TCP port. The firewall must allow Internet sources to reach the ITG on dynamic (>1023) TCP ports and on UDP ports 60000 or higher (or whatever is administered in the ITG if the default is not used), and the ITG must be able to respond. Internet sources must be able to access the CMS on port 8001 to get page hit statistics. The CMS must be able to respond to the dynamic TCP port that initiated the request.

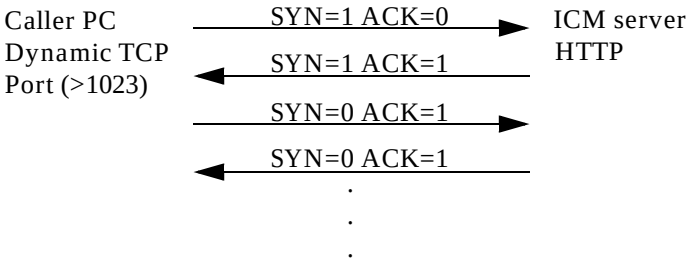
*Microsoft is a registered trademark of Microsoft Corp.
†NetMeeting is a registered trademark of Microsoft Corp.

The following illustrates TCP traffic to and from a caller's PC during an ICC call.

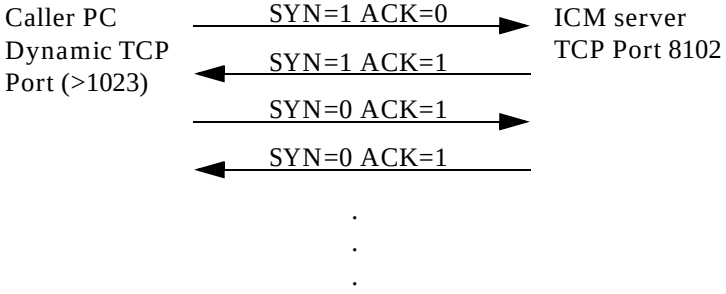
Web Page Directs Caller to CMS Graphic



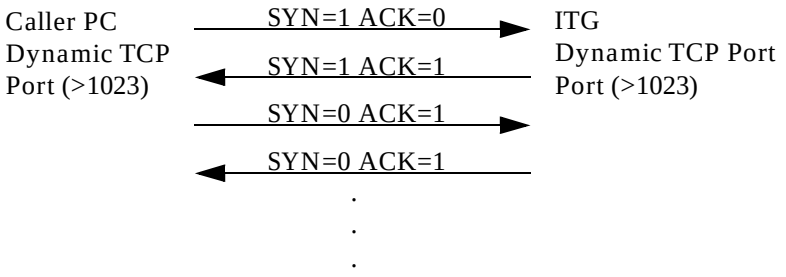
Caller Submits Call-Us Page



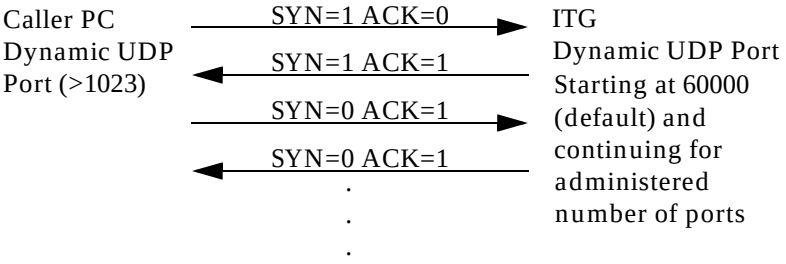
Caller Connects to ICM Server



NetMeeting Initiation and Call Control of Audio Conference

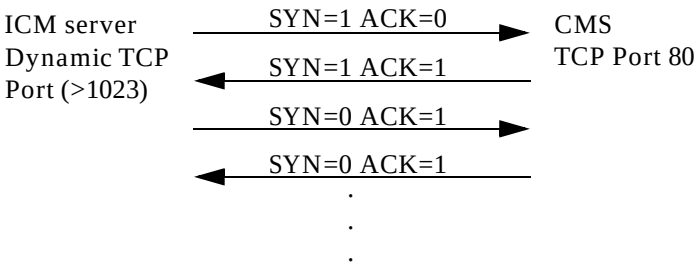


Audio Between Caller's PC and ITG



Server-to-Server Communications

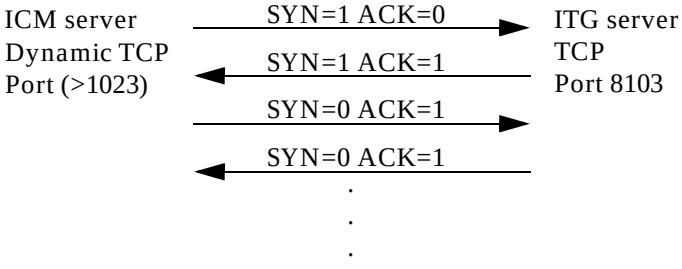
ICM Server to CMS



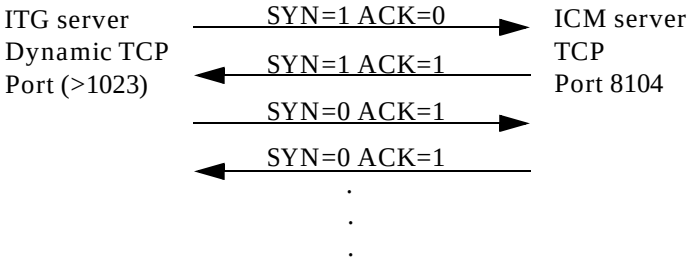
NOTE:
If Agent Web page hits are to be included in Internet CMS reports (along with caller hits), then the agent computer must be able to communicate with port 8001 on the CMS. If the agent and CMS are on opposite sides of a firewall, this port must be opened to allow this functionality. If there is no firewall between the agents and the CMS, then agent page hits are recorded.

The following communications would not normally cross the firewall, but are included for your information.

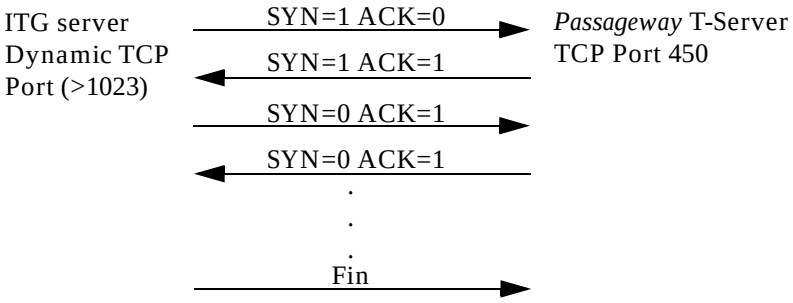
ITG Communications with the ICM Server
(During Boot / Operation)



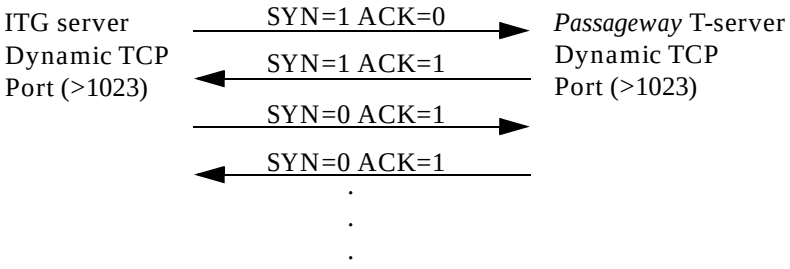
ITG Communications with the ICM Server
(During Administrative Update)



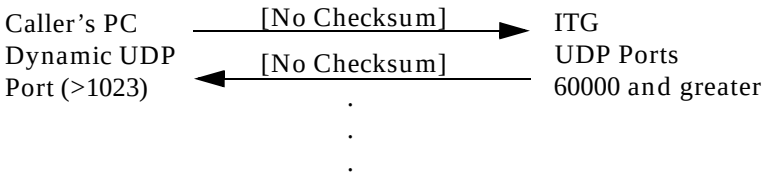
ITG Communications with the *Passageway*® Telephony Server



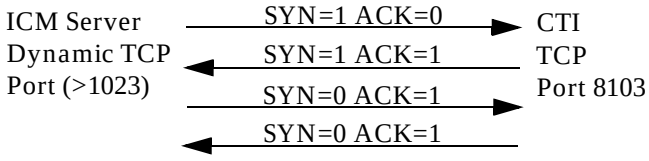
ITG Communications with the *Passageway* Telephony Server



Audio Between Caller's PC and ITG



CTI Communications with the ICM Server



Security

The ITG requires a direct-dialed analog line for the Remote Maintenance Board (RMB). This connection allows the ITG to place alarm calls to the Lucent Technologies Technical Services Organization if maintenance routines detect an alarm, and allows remote engineers to provision, upgrade, and troubleshoot the ITG. It is recommended that this dial-in port be protected using a Lucent Technologies Remote Port Security Device (RPSD) lock. The RPSD lock provides strong protection against unauthorized access to any dial-up port. Using security algorithms based on the Data Encryption Standard (DES), the RPSD lock helps ensure that this access point is secured while allowing the ITG to "call for help" and provide authorized callers with unhampered access.

The ICM server and *PassageWay*® Telephony Server require direct-dialed analog lines as well. The *pcANYWHERE** software and a modem are used to provide remote maintenance, diagnostics, and support for the ICM server and the *PassageWay* Telephony Server. This software is very important for the maintenance and support of these servers. It does, however, offer an access point into your server and, possibly, into your network.

It is also recommended that the *pcANYWHERE* software be, at a minimum, password protected. Please consult the *pcANYWHERE* documentation for additional security recommendations.

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*pcANYWHERE is a registered trademark of Symantec Corporation.

5

DEFFINITY ECS Within ICC

Introduction

This chapter covers requirements and changes to the *DEFINITY*® Enterprise Communications Server (ECS) that are specific to the Internet Call Center (ICC) solution. Sections in this chapter are as follows:

- References
- Functional Overview
- Planning
- Installation and Administration.

Audience

This chapter is intended for *DEFINITY* ECS system administrators or persons responsible for translating the *DEFINITY* ECS for ICC functions. This includes Lucent Technologies' Technical Support Organizations.

References

The following list represents documents that contain information relevant to the Internet Call Center (ICC) solution:

- *DEFINITY Enterprise Communications Server Release 6 Call Vectoring/Expert Agent Selection (EAS) Issue 2 Guide* (555-230-521)
- *DEFINITY Communications System Implementation* manual (555-230-655)
- *DEFINITY Enterprise Communications Server, Installation, Administration, and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway* (555-230-223)
- *DEFINITY Communications System Generic 3 Feature Description* manual (555-230-204)
- *DEFINITY Communications System Generic 3 System Description and Specifications* manual (555-230-*206)*
- *BCS Product Security Handbook* (555-025-600)
- *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212)
- *DEFINITY ECS CallVisor ASAI DEFINITY LAN Gateway over MAPD Installation, Administration, and Maintenance Issue 1* (555-230-114).

Functional Overview

The *DEFINITY* ECS accepts calls from the Internet Telephony Gateway (ITG) over an ISDN-PRI, performs call routing through vectoring and world class routing, delivers calls to agents, notifies the ITG (through the *PassageWay* Telephony Server) that a call is answered by an agent, and identifies which agent answered the call. ICC functionality uses Automatic Call Distribution (ACD) functionality, it does not replace it.

The *DEFINITY* ECS accepts calls from the ITG over an ISDN-PRI trunk group. The first E1 ISDN-PRI can carry up to 30 simultaneous voice, text, and callback calls; the second E1 ISDN-PRI adds 30 channels. The maximum number of simultaneous Internet voice calls is bounded by the ICC package that was purchased—20, 40, or 60 with a maximum single site configuration of 120 Internet voice calls.

Text Chat and Callback calls are not restricted and are limited only by the number of available ISDN-PRI channels. All calls—whether they are voice and chat, text-only, agent-initiated callback, caller-initiated callback, or callback and collaborate—use one B channel between the ITG and the *DEFINITY* ECS. Callbacks also require a channel on an outgoing trunk from the *DEFINITY* ECS to the PSTN.

NOTE:

Enabling the use of ASAI phantom calls for text chat and callbacks (available with *DEFINITY* ECS 6.3 or greater) will avoid using PRI resources. This is because the calls are launched using ASAI, and are kept completely internal to the *DEFINITY* ECS. Voice calls still require the use of PRI B channels because there is an audio component which must come from the ITG over the *DEFINITY* PRI trunks.

The actual functionality of the *DEFINITY* ECS can be described in the context of agent operations during ICC calls. To staff an ICC agent position, an agent uses a browser to access a login Web page and inputs their Expert Agent Selection (EAS) agent ID and the physical extension where they will take calls. The agent submits the completed form to the ICM server. The ICM server sends a login request containing the agent's ID and extension to the *PassageWay* Telephony Server, which uses Adjunct/Switch Applications Interface (ASAI) to log the agent in. This lets the *DEFINITY* ECS know about the agent. Refer to the *DEFINITY Enterprise Communications Server Release 6 Call Vectoring/Expert Agent Selection (EAS) Issue 2 Guide* (555-230-521) document for details on EAS.

When the ICM server receives a call request from the Internet, it launches a call over an available B channel on the ISDN-PRI trunk between the *DEFINITY* ECS and the ITG. This call is sent to the Vector Directory Number (VDN) extension specified by the "Call Us" button selected by the caller. The *DEFINITY* ECS uses vectoring to process the call and EAS skills to deliver the call to an agent's voice terminal.

NOTE:

If phantom extensions are used for ICC text and/or callback calls, the CTI process launches a call from one of the administered phantom extensions to the VDN specified by the "Call Us" button. No ISDN-PRI trunks from the ITG are used for the call.

Throughout this process the *DEFINITY* ECS is reporting the progress of the call to the *PassageWay* Telephony Server. When the agent answers the call, their phone extension is sent to the ICM server by way of the *PassageWay* Telephony Server so that the ICM server knows which agent to connect to the Caller Control Window and enables Text Chat and Escorted Browsing.

Once a call is connected, if the agent hangs up using the voice terminal, rather than dropping the call through the Agent Control Window, the *DEFINITY* ECS notifies the ITG / ICM server by way of the *PassageWay* Telephony Server that the call has been dropped. If the agent drops the call through the Agent Control Window, the ICM server notifies the *DEFINITY* ECS by way of the *PassageWay* Telephony Server that the call has been dropped.

When the agent logs out by way of the browser, the ICM server notifies the *DEFINITY* ECS through the *PassageWay* Telephony Server by issuing a logout request. If the agent logs out by way of the *DEFINITY* ECS using the voice terminal, the ICM server is notified through the *PassageWay* Telephony Server.

Planning

The *DEFINITY* ECS is connected to the *PassageWay* Telephony Server through a LAN Gateway card or a MAPD board and a dedicated LAN connection. The *DEFINITY* ECS components must meet the following requirements:

- *DEFINITY* G3V4 switch or later

  NOTE:

  If a MAPD TN800 board is used then *DEFINITY* ECS G3V5.4 or greater is needed. If the ASAI Phantom calls feature is used, then *DEFINITY* ECS R6.3 or greater is needed.

- Five contiguous slots available for the LAN Gateway card. (These slots cannot be in carrier C of a multi-carrier cabinet, nor in a carrier already containing a LAN Gateway or *DEFINITY AUDIX*® system.)

  NOTE:

  If you are using a MAPD TN800 board, three slots are required instead of five.

- ASAI Proprietary Adjunct Links software enabled (to support the *PassageWay* Telephony Server).

An existing LAN Gateway card (or MAPD board) and / or an existing *PassageWay* Telephony Server may be used. However, discussions regarding security and interoperability of this design must take place prior to implementation. Such designs should be configured and technically assured by a Lucent Technologies account team through normal channels for *PassageWay* Telephony Server support.

The *DEFINITY* ECS and ITG are connected using ISDN-PRI circuits. Requirements for this connection include:

- One ISDN-PRI DS1 circuit pack per ISDN-PRI (TN464 or TN767, depending on system type and configuration). If you are using an E1 line, then the *DEFINITY* ECS requires a TN464 circuit pack and the hardware switch on the circuit pack must be set to 32.

- One 356A adapter per ISDN-PRI (if the ITG and *DEFINITY* ECS are co-located within direct cabling distance). See the *DEFINITY Communications System Implementation* (555-230-655) document for details. Otherwise, Channel Service Units (CSUs) must be used on both the *DEFINITY* ECS side and the ITG side, along with appropriate cabling for the *DEFINITY* ECS-to-CSU connection and the ITG-to-CSU connection.
- ISDN-PRI must be enabled on the *DEFINITY* ECS.
- If you are going to use phantom call queueing, then you must create phantom extensions. The number of phantom extensions translated depends upon the number of simultaneous calls required. Each of these extensions counts toward *DEFINITY* ECS right to use pricing. You must make sure that you have enough available extensions under your right to use pricing agreement for these additional stations.

Installation and Administration

Software installation of ICC-related *DEFINITY* ECS hardware and software is included in the ICC offer. Physical installation of hardware is included in the installation charges for individual components. The PBX engineering offer from Lucent Technologies' Multimedia Applications Customer Support (MACS) group (part of the ICC offer) includes designing the appropriate *DEFINITY* ECS translations for connecting the ITG, remotely entering the translations into the switch (with customer permission), and assuring proper operation. This installation does not include any ACD / Call Center translations other than those listed in this section. The MACS works closely with customers to acquire the necessary data and to advise on recommended procedures and translations.

Installation activities for ICC-related *DEFINITY* ECS components are detailed through the associated documents for individual components. The remainder of this section gives an overview of installation activities.

DEFINITY LAN Gateway

DEFINITY LAN Gateway implementation consists of installing the five-slot circuit pack and translating a station of type ADJLK against a port on the card. When translating the ADJLK station in the *DEFINITY* ECS, use the following options:

Event Minimization? `N`

XID? `N`

Fixed TEI? `Y`

TEI: `3`

MIM Support? `N`

CRV Length: `2`

The LAN Gateway is then optioned, separately from the *DEFINITY* ECS, with an IP address, subnet mask, and so on, and cabled to the Ethernet LAN.

See the *DEFINITY Enterprise Communications Server, Installation, Administration, and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway* (555-230-223) document for details.

MAPD

Refer to the *DEFINITY ECS Callvisor ASAI DEFINITY LAN Gateway over MAPD Installation* (555-230-114) document for installation and administration instructions for MAPD.

The ADJLK station in the *DEFINITY* ECS is administered in the same manner as the *DEFINITY* LAN Gateway. See the previous section "*DEFINITY* LAN Gateway."

DS1 Circuit Pack

Installing the *DEFINITY* ECS DS1 circuit pack consists of installing the circuit pack and translating it for `esf` framing, `b8zs` zero code suppression, and as signaling type `isdn-pri`. See the *DEFINITY Communications System Implementation* manual (555-230-655) for details. When translating an E1, use the *DEFINITY* ECS "`add Ds1 xxxx`" command with the following settings:

- Line Coding: `hdb3`
- Signaling Mode: `isdn-pri`
- CRC? `y`
- Connect: pbx
- Interface: network.

If the ITG and *DEFINITY* ECS are within direct cabling distance, connect the 356A adapter to the back of the *DEFINITY* ECS carrier on the amphenol connector corresponding to the slot in which the DS1 circuit pack was installed. Use a shielded or unshielded 8-conductor cable with RJ45 connectors on each end (a D8W cable) to connect port 8 of the 356A adapter with the appropriate port (A or B) on the ITG ISDN-PRI card.

If the *DEFINITY* ECS and ITG are not within direct cabling distance, CSUs need to be used on both the *DEFINITY* ECS and ITG sides, along with appropriate cabling. See the *DEFINITY Communications System Generic 3 System Description and Specifications* (555-230-*206)* and *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) documents for details.

ISDN-PRI Trunk Group

The ISDN-PRI trunk group connecting the *DEFINITY* ECS and the ITG is translated as an `isdn-pri` trunk type, with a service type of `tie` and a direction of `incoming`. On page 2 of the trunk group form, the data restriction value should be `Y` so that music is not played across the Internet during an agent-initiated Callback. See the *DEFINITY Communications System Implementation* (555-230-655) document for details.

ISDN-PRI trunk group security ***must*** be addressed. Because the extension number used to launch an ICC call is actually submitted by a browser, there is the risk that a hacker may attempt to submit a false dial string in order to compromise call center security. Therefore, the ISDN-PRI trunks ***must*** be restricted from placing outbound calls. Unless so restricted, the `vdn_ext` parameter submitted by a consumer's browser could be changed to dial a long distance number through the *DEFINITY* ECS. Additionally, to limit other malicious activities, the ISDN-PRI trunks should be restricted from destinations in the *DEFINITY* ECS that are not intended for Internet calls (such as individual agent stations, non-Internet VDNs, and so on).

There are two ways by which an ICC ISDN-PRI trunk group can be secured. The first is within the ITG itself, denying fraudulent calls before they are placed to the *DEFINITY* ECS. The second is within the *DEFINITY* ECS, denying calls to locations other than those specified as valid endpoints. This provides a two-tiered security plan. See Chapter 6, "Administration Guidelines" for details on securing the ITG dial plan.

The *DEFINITY* ECS is secured using Classes of Restriction (CORs) to restrict destinations from the ITG trunk group. The COR for this trunk group specifies, among other things, what calls the trunk group is able to complete. In this way the ISDN-PRI trunk group can be restricted from making any outbound (off the *DEFINITY* ECS) calls and can be restricted to only calling a resource with a COR which is used uniquely for Internet destinations.

As an example, the ISDN-PRI trunk group to the ITG could be assigned a COR of 49, which is outward restricted, and limited to only calling COR 48 (assuming both 48 and 49 are previously unused CORs). COR 48 is then used for any VDN extension expected to receive Internet traffic. If a call comes across the ISDN-PRI trunk group destined for any other extension, that call is denied by the *DEFINITY* ECS (assuming that the destination extension is assigned a COR other than 48). The permissions assigned to this COR (COR 48) should reflect the security the call center would normally assign to VDNs.

Naturally, as Internet calls are "blended" with Public Switched Telephone Network (PSTN) calls, the CORs discussed above may need to be modified to reflect all the requirements of the call center. When establishing CORs, administrators should thoroughly review Class of Restriction instructions and guidelines found in the *DEFINITY Communications System Generic 3 Feature Description* document (555-230-204), the *DEFINITY Communications System Implementation* manual (555-230-655), and the *BCS Product Security Handbook* (555-025-600).

Phantom Extension Administration

Phantom extensions should be given the same COR as the ITG trunk group, with same precautions.

ACD Translations

The MACS group inputs standard *DEFINITY* ECS ACD translations as part of ICC installation. These include:

- Three standard, measured VDNs. See the *DEFINITY Enterprise Communications Server Release 6 Call Vectoring/Expert Agent Selection (EAS) Issue 2 Guide* (555-230-521) for a complete description. The first VDN is for Internet Text Chat, the second is for Internet Voice Calls, and the third is for Callback. The MACS obtain necessary extensions from the customer.
- Two standard vectors. The first is for Internet Voice. This vector queues the call to the Internet skill and optionally plays a delay announcement. The second is for Internet Text Chat and Callback requests. This is a single-step vector that contains a queue to the main skill command. Both vectors queue an Internet-initiated call to a customer-assigned skill. The MACS obtain these vector numbers from the customer.

The customer is responsible for translating Internet skills, Expert Agent IDs, and agent telephones. Lucent Technologies personnel can provide this design work, as well as enhanced vector designs, as part of the Call Center Application Integration NetCare Services offer. Call your account executive or 1-800-4NetCare for details.

Some general guidelines to consider when translating skills and agents include the following.

- The implementation of stroke counts can be used to help track conditions such as bad voice quality, no one on the other end of a call, collaboration did not work, and so on.
- The Multiple Call Handling feature is ***not*** supported by the ICC solution.
- Multi-switch call centers are ***not*** supported at this time. All agents must be on the same *DEFINITY* ECS. Agents on remote Port Networks are supported.

Some general guidelines to consider when translating VDNs and vectors for ICC include the following.

- Do ***not*** use the "wait with music" vector step. It would add unnecessary processor usage to the caller's PC and traffic to the Internet circuit.
- Do ***not*** use the "converse" vector step. It is incompatible with ICC functionality.
- Do ***not*** use digit collection in ICC vectors. There is currently no good way to pass Dual Tone Multi Frequency (DTMF) tones (touchtones) across the Internet; therefore, there are no digits to collect.
- VDN of Origin Announcements (VOAs) are strongly recommended. When an agent receives an ICC Text Chat call, there is no audio for that call. With VOA, the agent hears an identifying message (such as "Voice Call" or "Text Chat Call") and knows whether to answer audibly or through Text Chat. Without VOA, the only way the agent has to identify a call type is to note the VDN name on the terminal display. Agents' class of service must be set to receive VOAs.

- It is recommended to use a different vector for Text Chat and Callback calls than for Internet voice calls. The voice call vector can provide in-queue announcements, which are unnecessary for Text Chat and Callback calls. In addition, the initial setup delay for *Microsoft*[*] *NetMeeting*[†], used for Internet voice, requires a unique strategy to be used in the voice call vector (see the "Voice Call Vector Strategy" section); that strategy is not needed for Text Chat or Callback calls. Finally, voice calls can be routed to a voice mail box, whereas Text Chat and Callback calls cannot.

Voice Call Vector Strategy

In order to provide the best experience to the caller, write vectors to answer each Internet voice call with an announcement that does not exceed five seconds. (This is a "null" announcement in a way, since it is not heard by anyone.) Such a setup serves to establish an audio connection so that any follow-up announcements should be heard in full and, more importantly, as soon as the agent answers the call, they can begin speaking with the caller.

The vector could look like the following:

1. announcement 2000 (a normal delay announcement that is less than five seconds in length)
2. queue to main skill 10 priority m
3. wait time 10 seconds hearing silence
4. announcement 2000
5. goto step 3 if unconditional

NOTE:

The announcement in steps 1 and 4 can be the same if it is less than 5 seconds in length.

*Microsoft is a registered trademark of Microsoft Corp.
†NetMeeting is a registered trademark of Microsoft Corp.

When an Internet voice call is requested, the audio connection is not set up until answer supervision is returned from the *DEFINITY* ECS. As a result, the following may occur:

- There is a lag of approximately five seconds (on a dial-up connection) between the time the agent answers the call and the time when the agent can be heard by the caller.
- If a time-in-queue announcement is used, the caller does not hear the first five seconds of the announcement.

Ongoing Operations

Once the *DEFINITY* ECS has been set up for ICC functionality, it requires very little administration. Call capacity may be increased up to system limits at any point by adding additional ITGs and ISDN-PRI trunks to handle more ICC calls.

ISDN-PRI administration is described in the "Installation" section of this chapter. Additional voice call capacity requires the purchase of additional software and may require additional hardware. Contact your Lucent Technologies account team for configuration assistance.

When translating additional VDNs, be sure to assign them the ICC VDN COR, the same COR as initially established for Internet destinations. Otherwise, the *DEFINITY* ECS will reject call attempts from the ITG to the new extensions. When adding VDNs, also remember to add the new extension numbers to the ITG dial plan. See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for details.

VDNs should be established for each entry point (Call Us button) the customer wishes to measure. This may be one VDN per Web page, or one VDN for each logical grouping (such as women's slacks, disk drive problems, NYSE inquiries, and so on). Different VDNs can also be used to track call type (such as Text Chat or Internet voice or Callback).

6

Administration Guidelines

Introduction

This chapter covers the administration and support of the following:

- Administration for the ICM Server (for ITG administration, see the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document
- Administration for the Send Page Feature Using a 4.x Browser.

Audience

This chapter is intended for system administrators, support personnel and anyone who wants an overview of administering and maintaining the ICM server in an ICC environment.

Reference

See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for more information about the ITG and ICM servers.

For information about the Message Care Solution, see the *Message Care Solution Guide* (585-215-093).

Administering the ICM Server

The ICM server must be administered to customize each call center's configuration. Basic ITG server administration and connectivity to a *DEFINITY* ECS are described in the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document.

This section describes the administration specific to the ICC offer. A Web-based interface is provided to assist in making these administrative changes.

Prerequisites

It is assumed that the following items have been completed or are available for ICC offer administration. Consult the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for details.

- The ITG server, ICM server, and *Passageway* Telephony Server must be installed, connected, and functioning on the LAN.
- The ICM application must be running on the ICM server.
- A console or terminal connection must be available on the ITG.
- A Web browser must be available for administrative access.
- IP addresses for the ITG server, ICM server, and *Passageway* Telephony Server must be known.

Web Administration of the ICM Server

To access the main administration page for the ICM server, enter the page location in the browser window as follows:

```
http://<ICM_server_name>/admin
```

The administration Web page may be protected (see the "Administration Security" section later in this chapter), requiring a login ID and password. If the administration web page is protected and you do not know your login ID or password, contact your system administrator. The main administration Web page (Internet Call Center System Administration Menu) appears:

This page shows the available administration categories. Each category links to another page for administration and is described in the following sections. Click on the text link of a category to begin the administration. For information on administering Message Care, see the *Message Care Solution Guide Version 1* (585-215-093) document.

Most of the administration Web pages have similar characteristics. These characteristics are as follows:

- All administration web pages provide Help information for each field. To access help information about a particular field, click on the underlined field description.
- You can edit fields by doing the following:
  1. Highlight the portion of the field you want to change.
  2. Enter the new information.
  3. Select the Save button to store the new values.
- You can confirm that a URL is correct and accessible by clicking on the Verify link. For example, clicking on the Verify link to the right of the URL should bring up the associated page in a separate browser window.

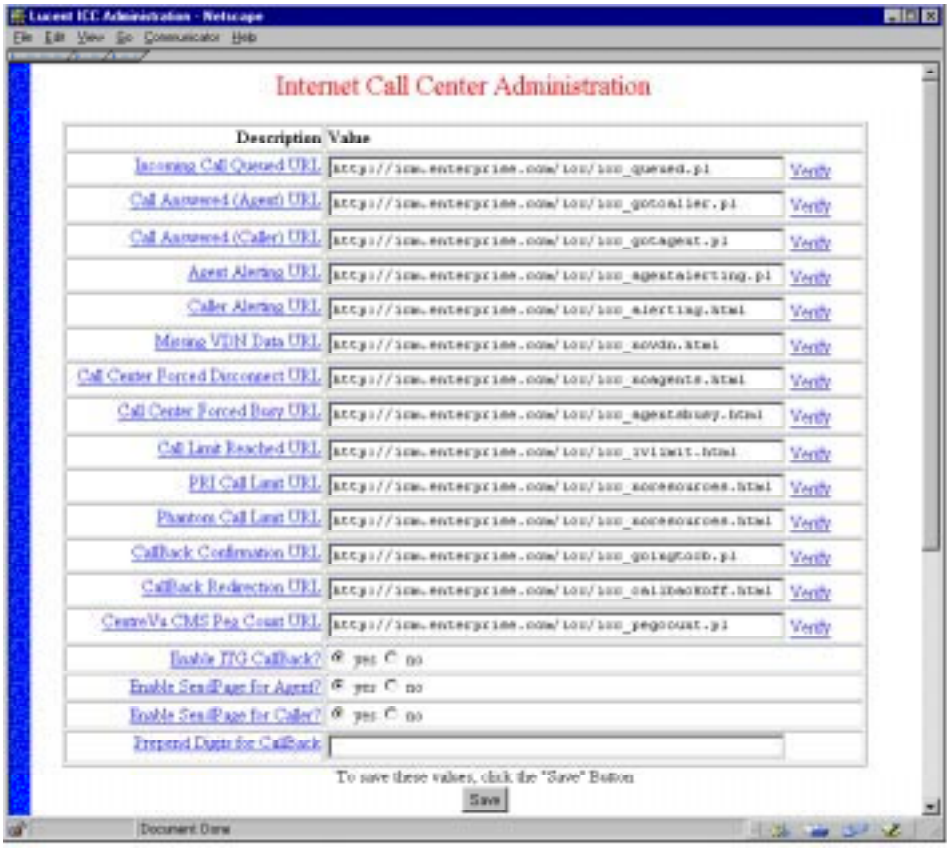
- The buttons and their associated actions are as follows:

Buttons	Action(s)
	Redisplays the current page with any updated values.
	Links to the Help page associated with this page. All Help selections open a separate browser window so that Help can be viewed simultaneously with the page being administered. Help browser windows can be closed at any time without affecting the administration process.
	Activates the new administration changes made on this screen. Each specific section identifies the action taken or necessary steps to ensure that the administrative changes are in effect.

Refer to the Appendix A, “ICM Server Administration Field Descriptions” for associated Help pages, or to Chapter 9, “Web Page Guidelines,” for more information about administrable fields.

Internet Call Center Administration

The Internet Call Center Administration page is shown below. It allows administration of the URLs associated with call progress or failure events. These are the Web pages or scripts to be used whenever a specific event occurs.

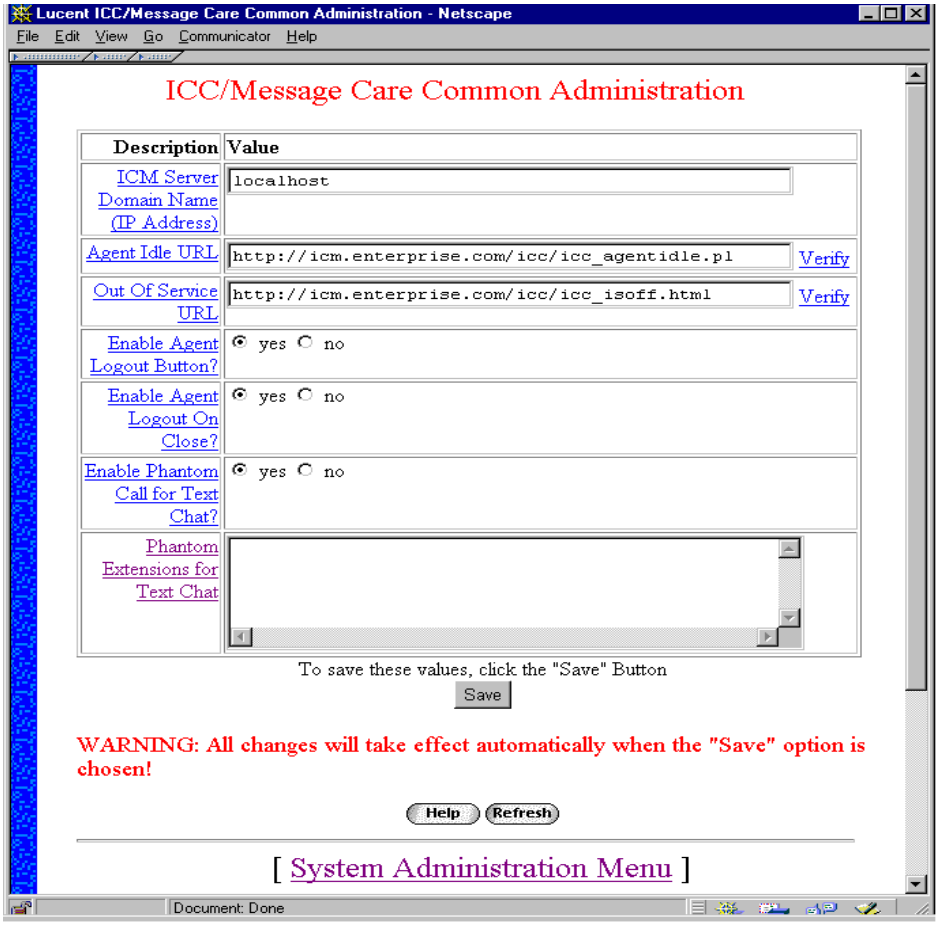


CTI Administration

The CTI Administration Web page is shown below. It allows administration of the telephony server IP address, login ID, password, and identifier. In addition, it allows the identification of hunt groups (or Skill Set extensions in an EAS environment) that the *Passageway* Telephony Server will be requested to monitor.

ICC/Message Care Common Administration

The ICC / Message Care Common Administration web page is shown below. It allows administration that is common to both the ICC and Message Care offers. The Phantom Extensions for Message Care parameter (not shown below) is available only if you have Message Care installed on your system. For more information about the Message Care offer, see the *Message Care Solution Guide Issue 1* (585-215-093) document.



Updating CTI Devices

The preferred method for updating devices (for example, phantom extensions and monitored hunt groups) is to update the *PassageWay* Telephony Server and then update the Administration web pages.

NOTE:

If you do not following the preferred method and attempt to update devices using the Administration web pages, the CTI process will be informed of the update; however, the *PassageWay* Telephony Server will not be informed of the update. To ensure the *PassageWay* Telephony Server is aware of the update, you must do the following:

1. After you have updated devices using the Administration web pages, update the *PassageWay* Telephony Server.
2. Open the CTI Manager. From the Update menu, select the **tserverAdmin** menu item. Selecting the **tserverAdmin** menu item updates the *PassageWay* Telephony Server with the correct information.

Administration Security

You can restrict access to the ICC administration web pages to only authenticated clients. By using authentication, only those clients having a valid user name and password are permitted to access the administration web pages.

If you want to restrict access to the ICC administration web pages, you must ensure the following:

- The ITG installation directory (`c:\itg`) must be installed on an NTFile System (NTFS) file system.
- The IIS software must be configured to handle authentication. There are two methods of authentication:
  - — **Basic (Clear Text)**. This method of authentication sends the client's *Windows** *NT*† user name and password over the networks unencrypted.
  - — ***Windows NT* Challenge/Response**. This method of authentication protects the password thus providing for a secure login over the network. However, this method of authentication is supported only by *Microsoft* Internet Explorer 2.0 or greater.

  By default, both Basic and *Windows NT* Challenge/Response are enabled. If your browser supports *Windows NT* Challenge/Response, then it uses that form of authentication. If your browser does not support the *Windows NT* Challenge/Response method, then is uses Basic authentication.

Once you have ensured the above, you can add users and allocate permissions on the ICM server.

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*Windows is a registered trademark of Microsoft Corp.
†NT is a registered trademark of Microsoft Corp.

Supporting the ITG and ICM Server

Various commands and log files are available for monitoring and maintaining the ITG and ICM server for the ICC solution. This section describes how to monitor and maintain the servers, references the commands and log files, and shows examples. Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for more information.

Because the ITG and ICM server are separate units, supporting them requires dealing with each separately, as discussed in the following sections.

Prerequisites

There are multiple access methods available to the ITG and ICM server. These methods are listed below and described when appropriate.

Call center and Lucent support personnel should determine which access methods they use from the following:

1. ITG
    - Console connected to the serial port on the Central Processing Unit (CPU) card (a special cable shipped with the ITG is required for this method)
    - Terminal connected over a Local Area Network (LAN)
    - Remote terminal connected through the Remote Maintenance Board (RMB).
2. ICM server
    - Console connected directly to the server (that is, the NT service's monitor)
    - Telnet session from the ITG or another computer on the LAN
    - Remote connection through *pcANYWHERE*[*].

*pcANYWHERE is a registered trademark of Symantec Corporation.

Supporting the ITG

Log Files on the ITG

The ITG has one main log file where all system processes log information about call progress or system status. The log file name is `logfile0` and it is located in the `/mmcs/log` directory on the ITG. It can grow to 10MB of data, then logging continues into `logfile1`. When `logfile1` reaches its maximum size, `logfile0` is cleared and again used for logging.

The log file is not intended to be readable, easily understood, or for general consumption. It is a software development log that provides cryptic descriptions of what is occurring, and it is useful for software developers to determine the cause of a problem.

Logging levels can be turned up and down for specific processes during operation, which is not recommended, but it may be needed when troubleshooting a problem.

The following command allows the MIP process to log all of its information:

```
reset level=mask loc=MIP
```

The following command turns the MIP logging level down to its default logging level:

```
reset level=mask loc=MIP
   type=DEBUG_LVL2:DEBUG_LVL3 enable=off
```

Status on the ITG

Numerous commands exist on the ITG for obtaining status information. Some useful commands for an ICC environment are shown below:

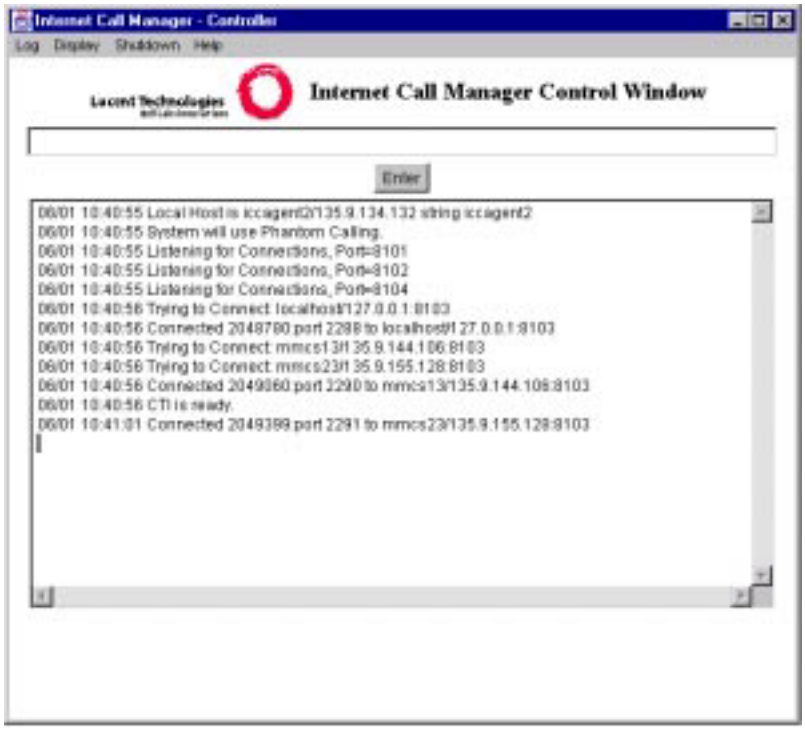
- `showstatus`—shows the current status of processes running on the ITG, and overall system status (for example, IS=In Service, OOS=Out of Service, OOS-FLT=Out of Service due to a fault).
- `showalarm`—lists any alarms on the server. This command can also give information about repair actions for the alarm.
- `showdp`—shows the current dial plan administration.
- `showpri`—displays the current PRI interface administration and status.
- `showptg`—displays current PRI trunk group administration, channel status and usage.

Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for detailed information and additional commands.

Supporting the ICM Server

Access to the ICM Server

There are several methods to access the ICM server. The support capabilities differ depending on the access method. The most complete support access is available from the console terminal and keyboard on the ICM server. This displays the Internet Call Manager Control Window. This control panel displays the ICM log file, controls the logging level of this file, and allows an administrator to enter commands to obtain status information.



Another support access method is a telnet session from the ITG (or any other server with LAN access) into the maintenance and administration ICM Utility Connection port 8104 supported by the ICM application on the ICM server. In a manner similar to the control panel, the ICM log is actively displayed and commands can be entered.

An example of access to the ICM server over port 8104 is as follows:

1. On ITG server, enter:

   ```
   telnet <address of ICM server> 8104
   id mtce ext none
   ```

2. After no response or a prompt, enter:

   ```
   patchmein
   ```

The ICM log file begins to display as the information is logged. Commands can be entered at any time (see the "Commands on the ICM Server" section in this chapter). The session can be ended by normal telnet termination (press the tilde "~" followed by a period ".") or by using the `status` command.

The *pcANYWHERE* package allows full access to the ICM server functions and all ICM commands. The *pcANYWHERE* package is required for full-remote support of the ITG and ICM server.

Log Files on the ICM Server

The log file available on the ICM server is the `icmlog.txt` which is maintained in the ITG installation directory (default is `c:\itg`). Once this log file reaches 2MB, it is copied to the `icmlog.bak` file and logging continues in the `icmlog.txt` file.

The log file contains all events that occur for agent login, caller access, and agent/caller interactions. The log file also contains the results of any status commands executed.

Information contained in the log file is not intended for general consumption. It is useful for experienced support personnel to obtain status information and call events from the server. Information logging levels can be controlled from the pulldown menu on the Internet Call Manager Control Panel or from a remote command over the telnet (`patchmein`) session from the ITG (see the "Commands" section in this chapter). The normal logging level displays errors and connection events as agents, callers, or calls interact with the ICM application. The debugging logging level displays all the events that occur for an agent, caller, or call.

Status on the ICM Server

Status information available on the ICM server consists of the current agent, caller, and call connections maintained by the ICM application.

Commands on the ICM Server

Commands are available on the ICM server through the Internet Call Manager Control Window's menu bar (Log, Display, Shutdown, and Help) or over a telnet session to the maintenance and administration port of the ICM application. These commands are intended for use by experienced support personnel to help monitor and troubleshoot the ICM application on the ICM server. These commands are identified in the following table:

Command	Description
`close <connection ID>`	Clears (drops) the identified connection.
`debug <on/off>`	Changes the ICM logging level for more/less detail.
`display calls`	Displays the current calls that are known to the ICM application. Also displays the connection ID of the parties on the call.
`display connections`	Displays all the available agents and callers that are known to the ICM application. A connection ID is given for each and may be useful for following all the events for that ID or for subsequent commands.
`sendagents <text>`	Broadcasts text to all active agent's control windows.
`sendto cti logout <agent extension> <group extension> <agend id>`	Forces the logout of the indicated agent in the call center through the CTI process. The <group extension> is typically "none."
`display agents`	Displays information about the agents that are logged in to the ICC.
`display counts`	Displays information on the current number of calls.

Command	Description
`display itgs`	Displays the service state of each ITG. The service states are: INSERV—ITG is in service and accepting calls OOS—ITG is out of service and is safe to shut down. FOOS—ITG is not connected to the ICM MANOOS—ITG is out of service, but still processing an active call(s).
The following commands are used for remote connections only. Do not use these commands in the ICM server text box.	
`id <description> <type> <parameters>`	Identifies the incoming connection over the administration and maintenance port. Use only: id mtce ext none.
`patchmein`	Directs ICM log file output to the administration and maintenance port and recognizes commands over this port.

The Help menu contains two menu items: Version and Commands. The Version menu item displays ICM version information and the Commands menu items lists all the available ICM commands.

The Shutdown menu is used to gracefully shut down the ICM and/or to shut down individual ITGs (in a multi-ITG environment) that are controlled by the ICM. The Shutdown menu consists of two or more menu items:

- Incoming Calls—to shut down the ICM, check the Incoming Calls menu item. When the Incoming Calls menu item is checked, the ICM will not allow any type of Internet call to be processed. For example, when a call comes in from the Internet, the "`outofservice`" web page will appear on the caller's browser along with an "out of service" message on the Caller Control Window and the connection will be terminated.

  To inform all agents that you are going to shut down the ICM, use the "`sendagents`" command. To ensure that there are no active calls prior to shutting down the ICM, use the "`display itgs`" command.

- Itg #x through Itg #x (where x equals the number for the administered ITG)—to shut down an individual ITG, select the appropriate ITG from the list of ITGs. When a specific ITG is shut down, all calls are then routed to the other administered ITGs. If you shut down all ITGs, the ICM will operate as if it has run out of voice capacities. However, Text Chat calls will still work providing the ASAI Phantom Call feature is available.

  To check the status of the ITGs, use the "display itgs" command.

  To put an ITG back in service, uncheck the appropriate ITG from the list of ITGs.

Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for information and additional commands.

Supporting the CTI Process

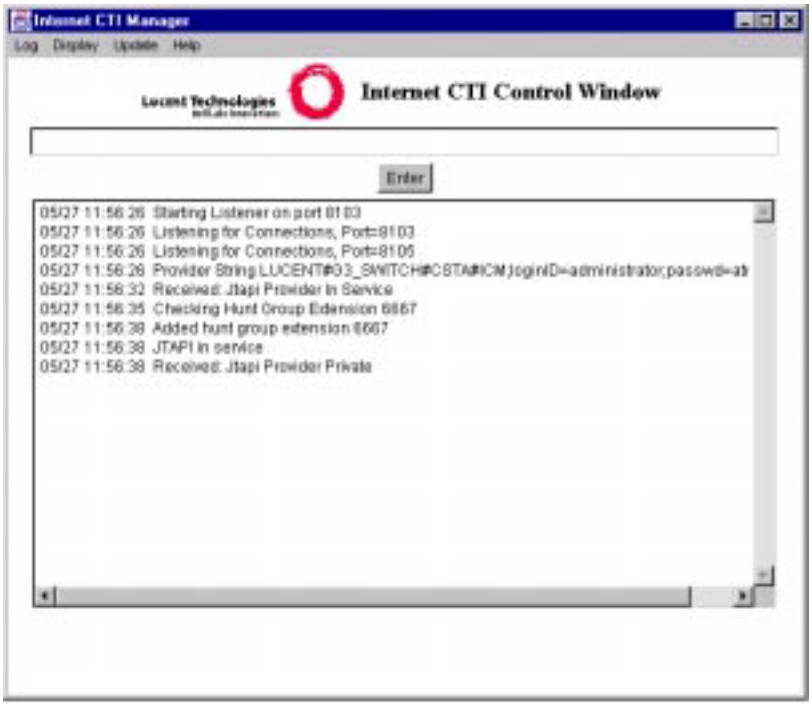
Various commands and log files are available for monitoring and maintaining the CTI process for the ICC solution. Monitoring and maintaining the CTI process is conducted through the Internet CTI Manager Control Window.

This section describes how to monitor and maintain the CTI process and also references commands and log files. Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for more information.

Access to the Internet CTI Manager Control Window

To access the Internet CTI Manager Control Window, do the following:

1. Click on the *Windows* **Start** button, and then click on the Lucent ITG menu entry.
2. From the Lucent ITG menu entry, click on the Lucent Internet CTI Manager entry. The Internet CTI Manager Control Window appears.



Log Files for the CTI Process

The log file available on the ICM server for the CTI process is the `icmctilog.txt` which is maintained in the ITG installation directory (default is `c:\itg`). Once this log file reaches 2MB, it is copied to the `icmcitglog.bak` file and logging continues in the `icmctilog.txt` file.

The log file contains all events that occur for agent login, caller access, and agent / caller interactions. The log file also contains the results of any status commands executed.

Information contained in the log file is not intended for general consumption. It is useful for experienced support personnel to obtain status information and call events from the server. Information logging levels can be controlled from the pulldown menu on the Internet CTI Manager Control Window.

Commands on the Internet CTI Manager Control Window

Commands are available on the CTI process through the Internet CTI Manager Control Window. These commands are intended for use by experienced support personnel to help monitor and troubleshoot the CTI application. These commands are identified in the following table:

Command	Description
`display acds`	Displays the list of ACDs that are being monitored for agent state changes ("Monitored ACD Extensions") and a list of ACDs being monitored for call state changes ("Called ACD Extensions").
`display administration`	Displays the administration parameters the CTI process uses for establishing a connection to the Telephony Server and displays the version of the JTAPI client.
`display calls`	Displays the calls currently being tracked by the CTI process. Calls in the CTI process are stored by both the JTAPI CALL object ("ICM Calls In Call Hash Table") and by the ICM call ID (“ICM Calls In ICMCallID Hash Table").
`display connections`	Displays the status of the ports on which the CTI process listens for connections. The CTI process listens on a port for the ICM process and listens on another maintenance port which is used to control the CTI process when it is run as an NT service.
`display phantomExts`	Displays the list of phantom extensions the CTI process using to launch calls. The "Message Type Phantom Extensions" list shows the phantom extensions used for Message Care calls and the "Chatter Type Phantom Extensions" are used for ITG chat calls.

Command	Description
`update chatterPhantom`	Causes the CTI process to reload the list of “Chatter Type Phantom Extensions" from the ctiparms.txt file.
`update messagePhantom`	Causes the CTI process to reload the list of “Message Type Phantom Extensions” from the ctiparms.txt file.
`update monitorAcds`	Causes the CTI process to reload the list of “Monitored ACD Extensions" from the ctiparms.txt file.
`update tserverAdmin`	Causes the CTI process to resynchronize the set of valid devices with the T-server. This must be done if the T-server administration is changed after updating the CTI process administration for phantom extensions or monitored ACD devices.
`version`	Displays the version information for the CTI process.
`commands`	Displays the list of valid commands.
`quit`	Causes the CTI process to stop.
`stop`	Causes the CTI process to stop.
`Reset`	Causes the CTI process to reset.
`SendICM[message]`	Sends the ICM process the indicated "message" string.

Administration for the Send Page Feature Using a 4.x Browser

Microsoft[*] Internet Explorer 3.02 and above and *Netscape Navigator*[†] 3.03 and above versions do not support the ICC Send Page feature as did their predecessors. If you have such a browser and select the **Send Page** button, you may receive an error message or the Send Page operation may silently fail. You can remedy this problem through one of following three methods:

- Move scripts—if you place the `clientpop.pl` script on the same web server as the web pages, the **Send Page** button will work correctly.
- Remove the **Send Page** button—if you do not have a need for the Send Page feature, then you can administer the feature to be disabled.
- Embed URL parameter—embedding a URL parameter in each web page will ensure the proper operation of the **Send Page** button.

NOTE:

Note that regardless of the browser version, you can still type or copy the URL into the **Enter Text Here** field to display the specified Web page in both the agent and caller's browser window.

Moving Scripts

This method works well if the escorted browsing session is confined to the web page server where `clientpop.pl` script resides.

On the web server that serves the web pages that you will be using escorted browsing with, do the following:

1. Ensure that the web server is able to run perl scripts.
2. On the web server, set up a virtual directory called `/itg`.

---

*Microsoft is a registered trademark of Microsoft Corp.
†Netscape Navigator is a trademark assigned to Netscape Communications Corp.

3. Copy the `clientpop.pl` perl script into the `/itg` directory on your web server. The `clientpop.pl` perl script can be found in the ITG installation directory `\itg` on the ICM server.

4. Modify the `AppletTemplate.txt` file located on the ICM server (in the ITG installation directory `\itg`) by doing the following:

   Under the Modification Alert note in the `AppletTemplate.txt`, there are two lines:

   ```
   #($clientpop) = $ENV{ 'HTTP_REFERER' }
   =~/(^http:\/\/[^\/]*)/;
   $clientpop = "";
   ```

   Remove the "#" symbol from the first line and add it in front of the second line such that the lines look like the following:

   ```
   $($clientpop) = $ENV{ 'HTTP_REFERER' }
   =~/(^http:\/\/[^\/]*)/;
   #clientpop = "";
   ```

5. Go to the Internet Call Manager Control window. In the text entry box, type "`load resource lang-code`," where "lang-code" is the code for each language file. You can load multiple languages by entering the different language codes separated by a space. For example, `load resource en-US de fr`. This updates scripts built from the `AppletTemplate.txt` file.

Considerations

The following provides you with information to consider before implementing this method:

- If one party surfs to a web server where the `clientpop.pl` script does not reside, this method will not work.

Remove the Send Page Button

Removing the **Send Page** button is the best method if you require the use of multiple web servers and you do not want agents or consumers to use a feature that may or may not work (for example, the call center cannot guarantee the browser used by their customers). This method can be independently set for the Agent Control Window and the Caller Control Window. To remove the **Send Page** button, do the following:

1. From your browser, go to the Internet Call Center Administration web page and select the Administer Internet Call Center link.
2. If removing the **Send Page** button from the Agent Control Window, set the **Enable the SendPage for Agent?** parameter to No.

   If removing the **Send Page** button from the Caller Control Window, set the **Enable the SendPage for Caller**? parameter to No.

Considerations

The following provides you with information to consider before implementing this method:

- If you disable the Send Page feature, it will not be available to any agent in your call center even if you have a browser that supports it.
- Escorted browsing is always available by typing or pasting URLs in the Enter Text Here field located on the Agent and Caller Control Windows.

Embed URL Parameter

The concept behind this method is to provide the URL that is to be displayed when the **Send Page** button is selected. This is accomplished by embedding a URL parameter in each web page through the following Javascripting information:

```
<script language="Javascript">
var syncToLoc = location.href;
</script>
```

The `syncToLoc` variable is set to the current URL by using the `location.href` environment variable.

Considerations

The following provides you with information to consider before implementing this method:

- Consider web pages that have frames. See Chapter 9, "Web Page Guidelines" for more information about frames.
- If the agent or caller surfs to a web page that does not have scripting information and tries to use the **Send Page** button, it may not work.

7

PassageWay Telephony Server Guidelines

Introduction

This chapter includes the following:

- Background Information
- Administering *PassageWay*® Telephony Services Software.

Audience

This chapter is intended for installers, system administrators, and anyone involved in connecting, installing, administering, and integrating hardware or software at the system level for the Internet Call Center (ICC) solution.

References

Complete documentation containing information on *PassageWay* Telephony Services software is provided to customers in .pdf format on the CD-ROM that accompanies the software. The document set includes the following:

- *PassageWay Telephony Services Solution, Microsoft* Windows NT Telephony Services, DEFINITY ECS Network Manager's Guide* (555-201-505)
- *PassageWay Telephony Services Solution, Microsoft Windows NT Telephony Services, Network Manager's Guide* (555-201-506)
- *PassageWay Telephony Services Solution, Microsoft Windows NT Telephony Services Installation Guide* (555-201-116).

Background Information

PassageWay Telephony Services is a software application that runs on a server (a dedicated PC) to track and associate various elements of calls between callers and agents. It also helps other components of the ICC solution administer call elements.

PassageWay Telephony Services has an open architecture, based on the European Computer Manufacturers Association (ECMA) Computer Supported Telephony Application (CSTA) international standard, which allows customers to employ the communications system and Computer-Telephony Integration (CTI) software that best meet their needs. *PassageWay* Telephony Services enhances the functionality of existing communications and computer equipment.

*Microsoft is a registered trademark of Microsoft Corp.

Major components of *PassageWay* Telephony Services include the following:

- The *PassageWay* Telephony Server—The *PassageWay* Telephony Server acts as a conduit between individual client/server applications and the *DEFINITY*® Enterprise Communications Server (ECS). It routes return messages from the *DEFINITY* ECS to the client/server that expects them. It also ensures that agents log in using a valid login ID and password and that they have the required permissions to perform whatever action they are requesting.
- The Security Database (SDB)—This *PassageWay* Telephony Services database stores information about callers and the devices they control. Telephony Services uses this information for validation. Administrators can control caller access to *PassageWay* Telephony Services by placing restrictions on the types of requests callers can make. Telephony Services Release 2.32 uses Btrieve for the Security Database engine (the underlying software that controls data).
- Telephony Services Library (TSLIB)—A set of functions that acts as an interface between client or server applications and the *PassageWay* Telephony Server.

The Private Branch eXchange (PBX) driver resides on the *PassageWay* Telephony Server. It receives TSAPI messages from the *PassageWay* Telephony Server and routes them to the PBX over CTI links, performing any necessary conversions in the process. It receives messages from the PBX, reformats them, and sends them back to the *PassageWay* Telephony Server. The PBX driver is supplied by a PBX vendor.

Direct connections between other ICC solution components and the *PassageWay* Telephony Server include:

- TCP/IP to the CTI process
- TCP/IP to the *DEFINITY* ECS.

Installation and connection of the *PassageWay* Telephony Services application are performed by the Lucent Technologies' Professional Services Organization.

Administering *PassageWay* Telephony Services Software

When the *PassageWay* Telephony Server is installed, some administration is required to integrate it with the ICC. The following are administered in the Security Database during ICC installation:

- The ICC phone devices and Automatic Call Distribution (ACD) devices (VDNs and lead extensions of the ACD group extensions) are added.
- A device group(s) is added and all phone devices are added to the group.
- The ICC User (TMAN) is added, and the Classes of Service for the ICC device group is administered.
- The *DEFINITY* ECS switch setting is administered.
- Alarm parameters are administered.
- Message trace parameters are administered.
- Error log parameters are administered.

The ICC User must also be administered in the *NT** User Domain Manager.

> NOTE:
>
> No additional administration is required specifically for the ICC solution. Refer to the installation documentation on the CD-ROM provided with the software for details.

On-site training is conducted for persons who will maintain the *PassageWay* Telephony Server after installation.

*NT is a registered trademark of Microsoft Corp.

8

Call Management System for Internet (ICMS)

Introduction

This chapter provides details about the following:

- Installing ICC-specific *CentreVu* CMS software
- Using standard reports for ICC call statistics—call centers can use these reports to get regular Internet call statistics (for example, ASA, Hold Time, ACD Time, and so on)
- Using Internet Call Management System (ICMS) and Supervisor reports
- Database items specific to ICC.

Audience

This chapter is intended for installers, system administrators, Call Center Supervisors, or anyone else involved in connecting, installing, administering hardware or software, setting up reports, or maintaining database items for the ICC solution. This chapter also describes the *CentreVu* CMS and *CentreVu* Supervisor ICC enhancements.

References

The following documents include additional information about *CentreVu* CMS or Supervisor:

- *CentreVu™ Supervisor Version 6 Installation and Getting Started* (585-215-860)
- *CentreVu™ Report Designer Version 6 User Guide* (585-215-859)
- *Lucent Call Center Change Description* (585-215-853)
- *CentreVu™ CMS R3V6 Administration* (585-215-850)
- *CentreVu™ CMS R3V5 Real-Time and Historical Reports* (585-215-821)
- *CentreVu™ CMS Version 6 Reports* (585-215-851)
- *CentreVu™ CMS R3V6 Upgrades and Migration* (585-215-856)
- *CentreVu™ CMS R3V6 Sun SPARCserver Computers Hardware Installation* (585-215-857)
- *CentreVu™ CMS R3V6 Sun SPARCserver Computers Connectivity Diagram* (585-215-858)
- *CentreVu™ CMS R3V6 Sun Enterprise 3000 Computer Connectivity Diagram* (585-215-865)
- *CentreVu™ CMS R3V6 Software Installation* (585-215-866)
- *CentreVu™ CMS R3V6 Sun Enterprise 3000 Computer Hardware Installation* (585-215-867)
- *CentreVu™ CMS R3V6 Hardware Maintenance and Troubleshooting* (585-215-861).

Background Information

About *CentreVu* CMS and Supervisor

CentreVu CMS is a software product used by customers who have Lucent Technologies telecommunication switches and receive telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch. *CentreVu* CMS collects call-traffic data, formats management reports, and provides an administrative interface to the ACD feature in the switch.

CentreVu Supervisor software is a Lucent Technologies *Windows*[*] based interface to the *CentreVu* CMS. The Supervisor software runs on any *IBM*[†] compatible PC running a *Microsoft*[‡] *Windows* based operating system.

See the *CentreVu* Supervisor and *CentreVu* CMS documentation described in the "References" section of this chapter for details.

About *CentreVu* CMS for Internet Software

CentreVu CMS for Internet (ICMS) is a new software package that works in conjunction with the standard *CentreVu* CMS and Supervisor software and provides new features designed specifically for the ICC solution.

The *CentreVu* CMS for Internet software package allows you to do the following:

- Gather Internet call statistics
- Correlate the number of page hits with the calls that are launched from the corresponding Web pages
- Determine staffing needs for the ICC solution
- Determine capacity needs for the ICC solution.

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*Windows is a registered trademark of Microsoft Corp.
†IBM is a registered trademark of International Business Machines Corporation
‡Microsoft is a registered trademark of Microsoft Corp.

The ICMS package runs on top of the standard CMS package. *CentreVu* CMS R3V5 (with load r3v5ai.f or later), R3V5u (with load r3v5ud.a or later), or R3V6 is required to support these new ICC features. Also, if *CentreVu* Supervisor is used, then R3V5 or R3V5u with load bj.o2 or R3V6 with a load greater than bj.02 is the minimum required load.

About *CentreVu* CMS and Supervisor Enhancements

CentreVu CMS and Supervisor enhancements and reports provide additional statistics for Web page hits and calls launched from web pages. *CentreVu* CMS enhancements for ICC include the following:

- New ICC data items—CMS collects the Internet calls offered, page hits for ICC-enabled Web pages, and statistics for situations where a call could not be launched to the ACD.
- New ICC reports—New reports for *CentreVu* CMS and Supervisor are provided which relate to the ICC. Access to the new ICC reports uses the same mechanisms that are already in place for *CentreVu* CMS. *CentreVu* Supervisor reports appear as Purchased Reports in the Designer category.
- Standard collection of call-related statistics—Regular call statistics (for example, speed of answer, talk time, and so on) are collected for Internet calls.

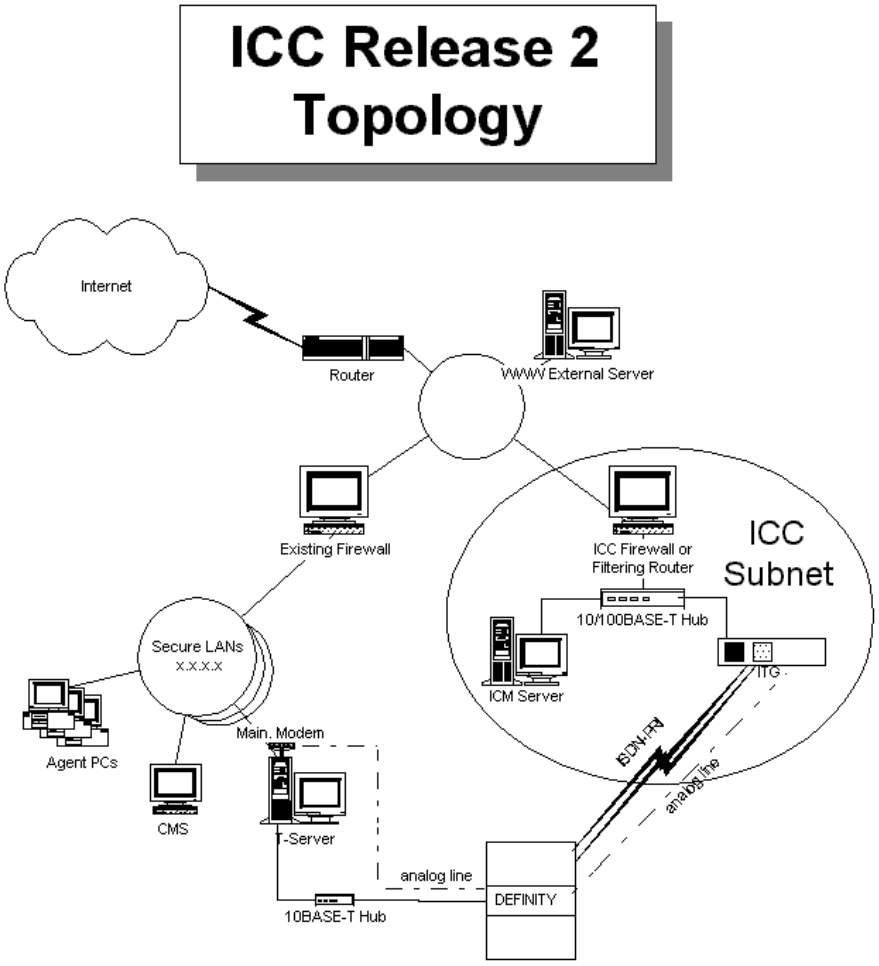
NOTE:

BCMS and *BCMS Vu*™ are not supported for Internet statistics. However, normal call statistics (for example, speed of answer, talk time, and so on) can still be collected using unmodified versions of *CentreVu* CMS, BCMS, or *BCMS Vu*. Only Internet-specific data items require the special *CentreVu* CMS software.

Connecting *CentreVu* CMS Hardware

To use *CentreVu* CMS for Internet software, the *CentreVu* CMS must be on a LAN and have specific ports on the firewall administered to allow collection of ICC information. For information about *CentreVu* CMS and firewalls, see Chapter 4, “Firewall and Security Guidelines.”

The following diagram shows the relationship of *CentreVu* CMS to the Internet Call Center.



Installing the ICMS Software

Software Prerequisites

Support for the ICC is provided as an add-on package to standard *CentreVu* CMS. This ICC add-on package software is delivered on a separate CD-ROM and uses standard `pkgadd/pkgrm` commands.

NOTE:

A previous version of ICMS required that a separate disk partition be used to contain the ICMS software and data. This is no longer enforced; however, the ICMS base directory, `/webcms`, may not be located on the root file system. Therefore, the directory must be a separate file system or it may be a symbolic link to a directory on a non-root file system:

(# `mkdir /cms/webcms`)

(# `ln -s /cms/webcms /webcms`).

The following ICC-required software must be installed for *CentreVu* CMS and Supervisor for the Internet database:

- *CentreVu* CMS Software—any of the following configurations can be used:
  - — R3V5 (with load r3v5ai.f or later)

    This load is required on the *CentreVu* CMS server if the customer wishes to run or create ICC reports. Although the R3V5 load is required, it can be received as a maintenance patch for the G3V4 CMS load.
  - — R3V5u (with load r3v5ud.a or later)
  - — R3V6.
- *CentreVu* Supervisor Software—any of the following configurations can be used for viewing ICC reports:
  - — R3V5 or R3V5u (with load bj.o2)
  - — R3V6 (with a load greater than bj.o2).

Installing ICC-Specific Software

Allow about 30 minutes of CMS downtime when installing ICC-specific software. To install ICC-specific software, do the following:

1. Log in to the CMS server as `root`.
2. If not already installed, install either the *CentreVu* CMS R3V5 (with load r3v5ai.f or later), R3V5u (with load r3v5ud.a or later), or R3V6.

   Also,if not already installed, install either the *CentreVu* Supervisor R3V5 or R3V5u (with load bj.o2) or *CentreVu* Supervisor R3V6 (with a load greater than bj.o2). See the *CentreVu* CMS and *CentreVu* Supervisor installation documents for details.
3. You must turn `off` CMS before beginning the ICMS installation. To do this, select option number 3 from the `cmssvc` menu.
4. Insert the CD-ROM with the ICMS package into the CD- ROM drive. Wait a minute or so for the volume manager to mount it.
5. At the *UNIX** prompt, enter the following command:

   ```
   $ mount
   ```

   The system lists all the mounted drives including `/cdrom`.
6. Verify that the ICMS package is available on the CD-ROM by entering the following command at the *UNIX* prompt:

   ```
   $ ls -F /cdrom/cdrom0/
   ```

   This command displays the presence of an `icms` directory.
7. Add the software package by entering the following command at the *UNIX* prompt:

   ```
   $ pkgadd -d /cdrom/cdrom0 icms
   ```

   Release numbers and the names of the files in the package displays.
8. If you are using more than one ACD, the system prompts you for information about which ACD is collecting the ICMS data.

---

*UNIX is a registered trademark of X/Open Company, Ltd.

NOTE:

The ICMS can be installed for a single ACD only.

9. Select option number 3 from the `cmssvc` menu to turn CMS `on` and verify that processes are running.

   `The ***CMS is now up*** message displays.`

10. Verify that the Web server is running on *CentreVu* CMS by entering the following command at the *UNIX* prompt:

    ```
    $ ps -ef | grep http
    ```

    One or more lines of process information displays for the Web server.

NOTE:

If process information does not display, you must reboot your machine and repeat step 10.

11. Verify that you can reach the *CentreVu* CMS machine from the ICM server. To do this, enter the following URL into a Web browser on the ICM server:

```
http://<cmshost>/cgi-bin/uncgi/inc_data?
 vdn=<xxxx>&page_url=<yyyy>&<parameter>=<zzz>
```

<cmshost>	The CMS server.
<xxxx>	*<xxxx>* is a VDN value.
<yyyy>	*<yyyy>* is a URL value.
<parameter>	The *<parameter>* can be icalls_offered, pri_limit, phantom_limit, vector_discon, vector_busy, or ivoice_limit.
<zzz>	*<zzz>* is the amount you want to increment this parameter.

12. Verify that at least port 8001 is accessible from external sites if the Web page counter is to be used. To do this, enter the following URL into your Web browser from a connection outside of the firewall:

```
http://<cmshost>:8001/cgi-bin/uncgi/pgcnt?
     callUsSrcPage=<"pageid">
```

<cmshost>	*<cmshost>* is the CMS server.
<"pageid">	*<pageid>* is a URL value.

Every time you send this URL (or select **Reload**) you get a blank screen. If errors are present, check Chapter 4, "Firewall and Security Guidelines," for details. The installation is now complete.

13. Eject the CD-ROM using the following command:

```
$ eject -d
```

If you are using *CentreVu* Supervisor V6, you will also need to run the installation script for *CentreVu* Supervisor found on the ICMS CD-ROM. Run this script on your *Windows* based system in the same manner that you ran the original installation of *CentreVu* Supervisor.

The installation of the ICMS software is complete.

NOTE:

Adding ACDs after your ICMS software has been installed on the CMS server requires that you remove the ICMS software package (answer "Y" to the "preserve the data?" question), add the new ACD(s), and then reinstall the ICMS software package.

Internet Call Center Report Summary

New reports that support the ICC are available for *CentreVu* CMS and Supervisor. Details about these reports can be found in the sections that follow. In addition, customers can create their own custom and designer ICC reports.

NOTE:

Real-Time and Historical reports can be created for *CentreVu* CMS, but only Historical or Snapshot reports can be created for *CentreVu* Supervisor. (All Supervisor report descriptions appear in the Historical tabbed folder.)

The following table summarizes the standard ICC reports available for *CentreVu* CMS and *CentreVu* Supervisor:

Report Name	Type[a]	Page Hit Information[b]
CMS Reports		
VDN Call Attempts	Real-Time	No
Web Page Call Attempts	Real-Time	Yes
Call Attempts	Real-Time	Yes
VDN Call Attempts	Historical	No
VDN and URL	Historical	Yes
Page Hits	Historical	Yes
Supervisor Reports		
Graphical Internet VDN Call Attempts (Snapshot)	Snapshot	No
Internet Web Page Call Attempts (Snapshot)	Snapshot	Yes
Internet Call Attempts (Snapshot)	Snapshot	Yes

Report Name	Type[a]	Page Hit Information[b]
Graphical Internet VDN Call Attempts	Historical	No
Internet VDN and URL	Historical	Yes
Internet Page Hits	Historical	Yes
Graphical Internet VDN Calls Summary	Historical	No

a. The “Type” column refers to the type of report: Real-Time, Historical, or Snapshot. (Snapshot reports display a snapshot of the Real-Time data but do not automatically refresh.)

b. The “Page Hit Information” column indicates whether page hit information is displayed in the report. If page hit data is not collected, the content of the reports may be affected.

About ICMS Database Items

The following are new database items for Internet-specific data:

- `icalls_offered`—Refers to the number of Internet Calls that are offered by the ITG. This data item is associated with the VDN and URL sent with the VDN and URL sent with the message.
- `ivoice_limit`—Refers to the number of Internet voice calls that could not be serviced because the administered limit for simultaneous Internet Voice calls was reached. This data item is associated with the VDN and URL sent with the message. Text Chat only and PSTN Callback calls shall not affect this database item.
- `page_hits`—Refers to the number of times ICC enabled pages were accessed.

  Data is collected for this item only if access to the CMS server is allowed through the firewall and proper changes are made to the Web page. See Chapter 4, “Firewall and Security Guidelines” or Chapter 9, “Web Page Guidelines” for details.
- `pri_limit`—Refers to the number of calls that could not be serviced because there where insufficient PRI channels available. This data item is associated with the VDN and URL sent with the message.
- `page_url`—Refers to a unique identifier for the ICC enabled Web page (this may be the Web page’s URL).
- `phantom_limit`—Refers to the number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row’s vdn / page_url pair. If phantom calls are not used, this database item will be zero.
- `vector_discon`—Refers to the number of Internet calls that were “force disconnected” from vector processing.
- `vector_busy`—Refers to the number of Internet calls that received busy treatment from vector processing.

Internet CMS Reports

This section provides a description of the standard reports to be provided for the ICC on *CentreVu* CMS.

Things to Know About These Reports

For the ICC, a set of standard reports is available to present and correlate data from Internet calls. Custom reports can also be created by the customer.

- An Internet category is available from the Reports menu within the Real-Time and Historical submenus.
- For standard *CentreVu* CMS report information and details about input windows, see the *CentreVu Supervisor Version 6 Reports* (585-215-851) document.

CMS Internet Real-Time Reports

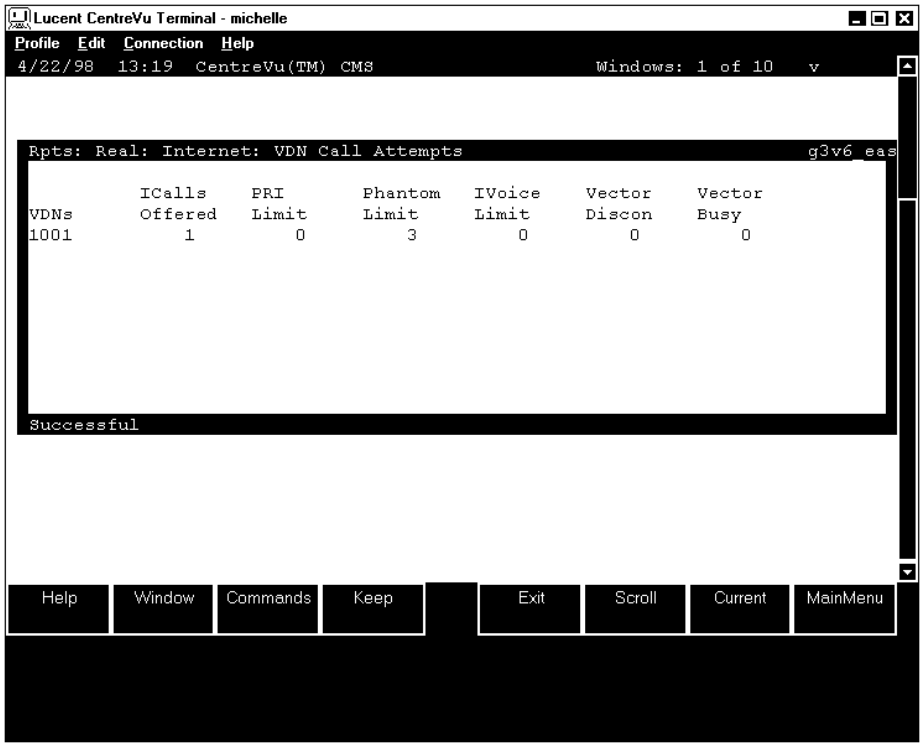
Internet VDN Call Attempts Report

This report provides a real-time summary of calls offered by the ICM for each of the specified Internet VDNs during the current interval. The report includes the number of calls offered by the ICM along with the number of calls that had to be turned away due to PRI Limit, Phantom Limit, Vector Disconnect, Vector Busy, and IVoice Limit conditions.

Things to Know About This Report

- Sorts data by VDN extension
- Uses stored database items in the `r_vdnsum` view.
- Requires Administrators to specify inputs:
  - One or more VDNs
  - Refresh rate.

Report Example



Report Heading	Description	Database Item/ Calculation
VDNs	The number or name of the VDN for which the report shows data (selected in the report input window).	VDN
ICalls Offered	The number of the calls launched for the specified VDN(s) across all pages.	icalls_offered

Report Heading	Description	Database Item/ Calculation
PRI Limit	The number of calls turned away due to a lack of PRI facilities.	pri_limit
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row's vdn / page_url pair. If phantom calls are not used, this database item will be zero.	phantom_limit
IVoice Limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded.	ivoice_limit
Vector Discon	The number of Internet calls that were "force disconnected" from vector processing.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy

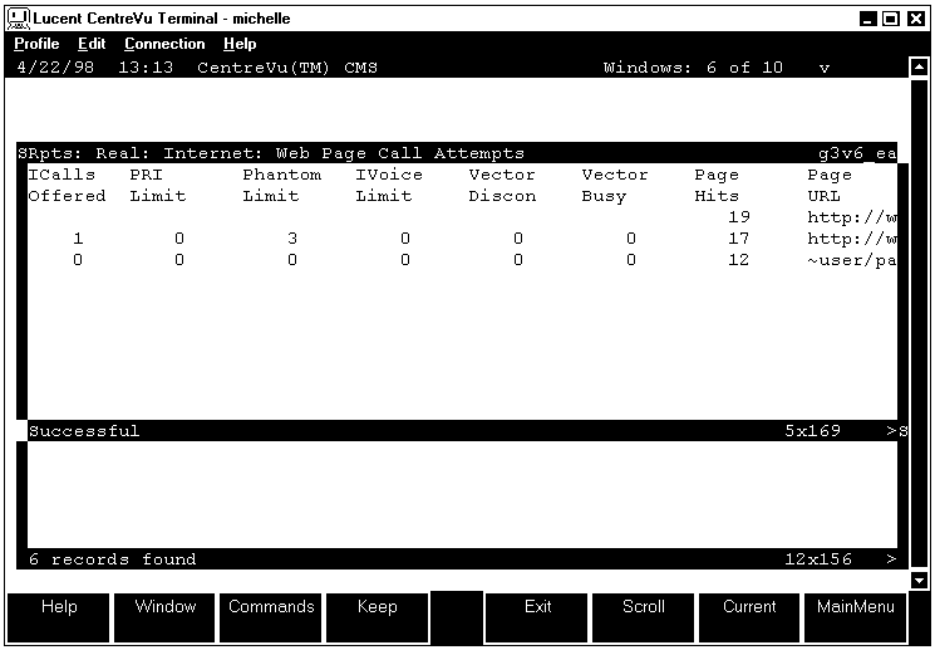
Internet Web Page Call Attempts Report

This report provides real-time Internet call information for all of the ICC enabled Web pages during the current interval. The report includes the number of calls offered by the ICM, the number of page hits, and the number of calls that had to be turned away due to PRI Limit, Phantom Limit, Vector Disconnect, Vector Busy, and IVoice Limit conditions.

Things to Know About This Report

- Sorts data alphabetically by UR
- Displays data only for URLs which are visited during the interval (in other words, URLs which are not accessed during the interval are not displayed).
- Uses stored database items in the `r_pagesum` view
- Requires one input field—Refresh rate
- Displays no data when page hit information is not available (for example, if the firewall prevents external access to CMS).

Report Example



Report Heading	Description	Database Item/ Calculation
ICalls Offered	The number of the calls offered for each URL during the current interval.	icalls_offered
PRI Limit	The number of calls turned away due to a lack of PRI facilities.	pri_limit

Report Heading	Description	Database Item/ Calculation
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row's vdn / page_url pair. If phantom calls are not used, this database item will be zero.	phantom_limit
IVoice Limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded.	ivoice_limit
Vector Discon	The number of Internet calls that were "force disconnected" from vector processing.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy
Page Hits	The number of page hits counted for the page_url during the current interval.	page_hits
Page URL	A unique identifier for the ICC enabled Web page (may be the Web page's URL)	page_url

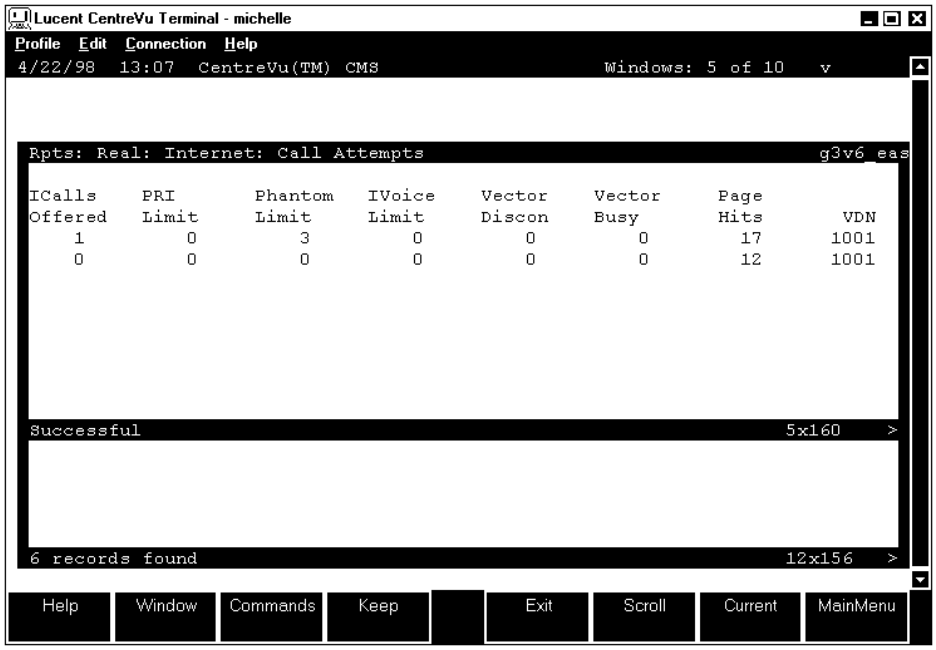
Internet Call Attempts Report

This real-time report provides real-time Internet call information for the specified VDN(s) along with page hit and URL information during the current interval. The report includes the number of calls offered by the ITG along with the number of calls that had to be turned away due to PRI Limit, Phantom Limit, Vector Disconnect, Vector Busy, and IVoice Limit conditions.

Things to Know About This Report

- First sorts data alphabetically by URL, then numerically by VDN
- Uses stored database items in the `r_pagevdn` view
- Displays "Page URLs" multiple times with the "Page Hits" data being the same for each entry. This is due to the fact that multiple VDNs can be assigned to the same page.
- Requires inputs:
  - One or more VDNs
  - Refresh rate.

Report Example



Report Heading	Description	Database Item/ Calculation
ICalls Offered	The number of the calls offered for the table row's `vdn/page_url` pair during the current interval.	icalls_offered
PRI Limit	The number of calls turned away due to a lack of PRI facilities during the current interval. This value is tracked based on the table row's `vdn/page_url` pair.	pri_limit

Report Heading	Description	Database Item/ Calculation
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row's `vdn/page_url` pair. If phantom calls are not used, this database item will be zero.	phantom_limit
IVoice Limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded. This value is tracked based on the table row's `vdn/page_url` pair.	ivoice_limit
Vector Discon	The number of Internet calls that were "force disconnected" from vector processing.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy
Page Hits	The number of page hits counted for the `page_url` during the current interval.	page_hits
VDN	The number or name of the VDN for which the report shows data (selected in the report input window).	VDN

Report Heading	Description	Database Item/ Calculation
Page URL	A unique identifier for the ICC enabled Web page (may be the Web page's URL).	page_url

CMS Internet Historical Reports

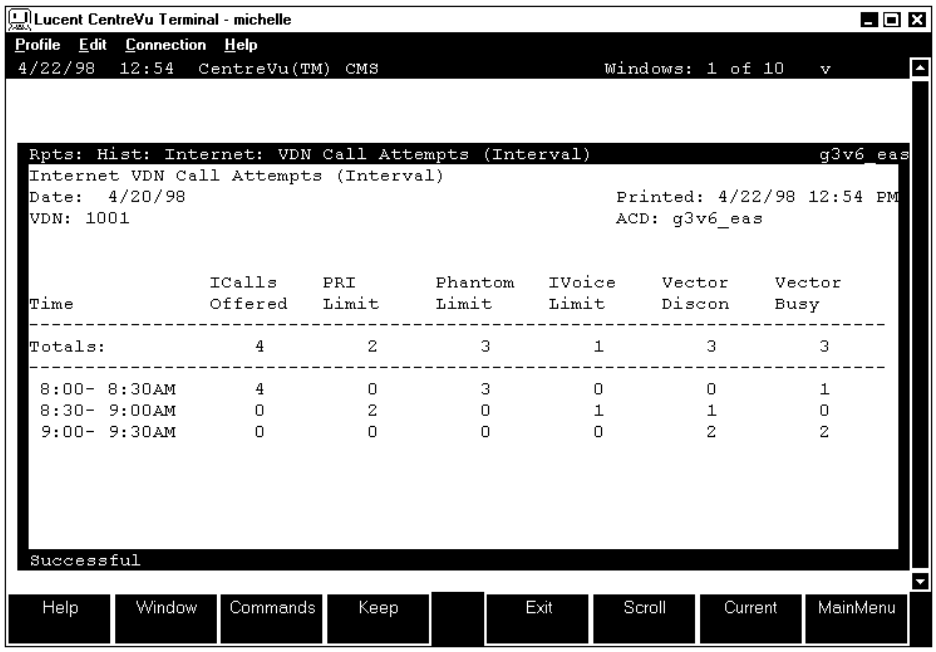
Internet VDN Calls Attempts Report

This historical report displays the sum of the Internet calls offered and PRI Limit, Phantom Limit, Vector Disconnect, Vector Busy, and IVoice Limit situations for the specified VDN during each recorded interval.

Things to Know About This Report

- Provides interval, daily, weekly, and monthly report formats
- Uses stored database items in the `h_vdnsum` (interval), `d_vdnsum` (daily), `w_vdnsum` (weekly), or `m_vdnsum` (monthly) views
- Requires inputs:
  - A single VDN
  - Time range and date for Interval report
  - Date range for daily, weekly, and monthly reports.

Report Example (Interval)



Report Heading	Description	Database Item/ Calculation
Date: (for Interval)	The date of the report.	ROW_DATE
Printed:	Day and time *CentreVu* CMS printed or displayed the report.	No database item or calculation.
VDN:	The VDN requested from the input window.	vdn
ACD:	The ACD name or number for which the data was collected.	syn(ACD)

Report Heading	Description	Database Item/ Calculation
Time (for Interval reports only)	Intervals which the data applies.	<STARTTIME, STARTTIME + INTRVL>
Date (for Daily, Weekly, and Monthly)	Day, week, or month for which the report was run.	ROW_DATE
ICalls Offered	The number of the calls offered for the specified VDN.	icalls_offered
PRI Limit	The number of calls turned away due to a lack of PRI facilities for the specified VDN.	pri_limit
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the specified VDN. If phantom calls are not used, this database item will be zero.	phantom_limit
IVoice Limit	The number of Internet telephony calls turned away because the administered maximum was exceeded.	ivoice_limit
Vector Discon	The number of Internet calls that were “force disconnected” from vector processing.	vector_discon

Report Heading	Description	Database Item/ Calculation
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy

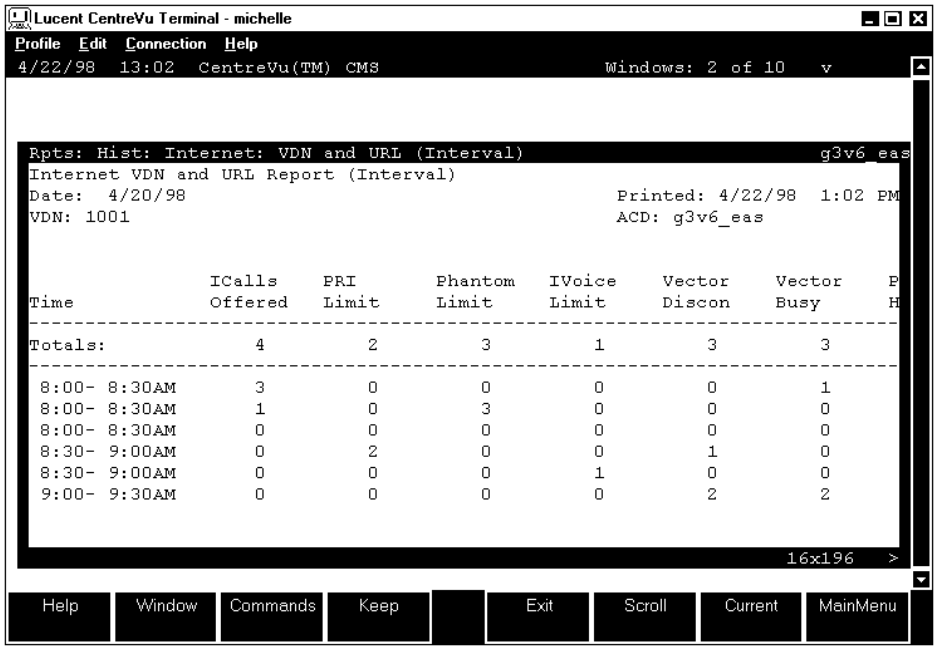
Internet VDN and URL Report

This historical report displays the number of the Internet Calls Offered, PRI Limit, Phantom Limit, Vector Disconnect, Vector Busy, and IVoice Limit situations, page hits and page URLs for Web pages associated with the specified VDN during each recorded interval.

Things to Know About This Report

- Provides interval, daily, weekly, and monthly report formats
- Uses stored database items in the `h_pagevdn` (interval), `d_pagevdn` (daily), `w_pagevdn` (weekly), or `m_pagevdn` (monthly) views
- Requires inputs:
  - A single VDN
  - Time range and date for Interval report
  - Date range for daily, weekly, and monthly reports.
- Differs from the Historical Internet VDN Call Attempts report in that it also provides URL information for the associated VDN (multiple URLs may map to the same VDN)
- Determines which pages result in the most calls.

Report Example



Report Heading	Description	Database Item/ Calculation
Printed:	Date and time *CentreVu* CMS printed or displayed the report.	No database item or calculation.
Date: (Interval, Daily, Weekly, and Monthly)	The day for which the report was run.	ROW_DATE
ACD:	Name or number of the ACD for which the report was run.	syn (ACD)
VDN:	The specified VDN.	vdn

Report Heading	Description	Database Item/ Calculation
Time (for interval reports only)	Intervals which the report covers.	<STARTTIME, STARTTIME+ INTRVL>
ICalls Offered	The number of Internet calls offered for the table row's `vdn/page_url` pair.	icalls_offered
PRI Limit	The number of calls turned away due to a lack of PRI facilities. This value is tracked based on the table row's `vdn/page_url` pair.	pri_limit
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row's `vdn/page_url` pair. If phantom calls are not used, this database item will be zero.	phantom_limit
Vector Discon	The number of Internet calls that were "force disconnected" from vector processing. This value is tracked based on the VDN / URL pair.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.This value is tracked based on the VDN / URL pair.	vector_busy

Report Heading	Description	Database Item/ Calculation
IVoice Limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded. This value is tracked based on the table row's `vdn/page_url` pair.	ivoice_limit
Page Hits	The number of page hits counted for the `page_url`.	page_hits
Page URL	A unique identifier for the ICC enabled Web page (may be the Web page's URL).	page_url

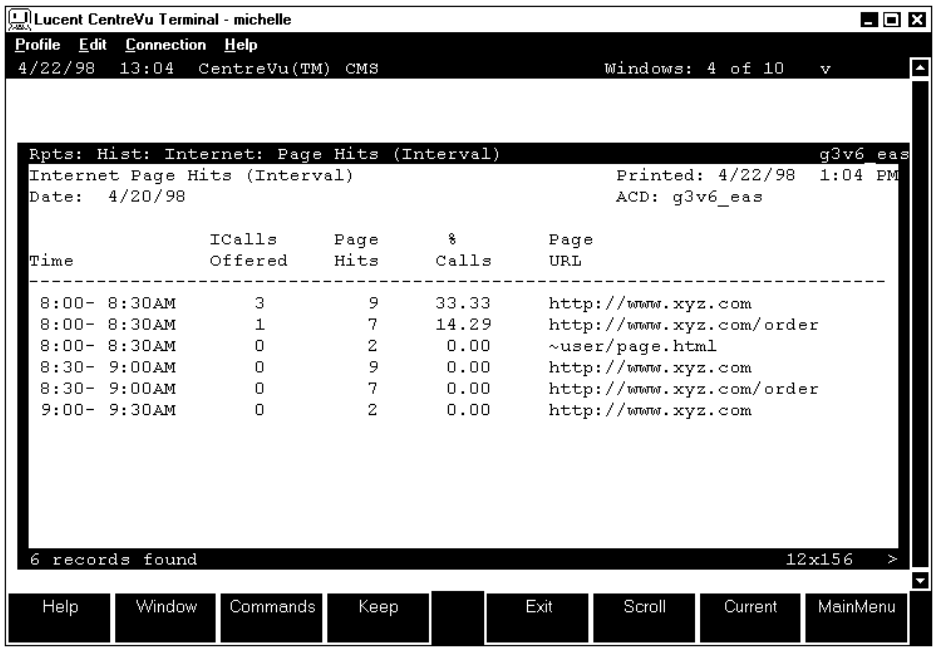
Internet Page Hits Report

This historical report displays the number of page hits for each ICC enabled URL and the number of calls launched from that page.

Things to Know About This Report

- Provides interval, daily, weekly, and monthly report formats
- Displays the number of ACD calls, the number of page hits, and the ratio of calls to page hits for each ICC-enabled URL. Data for the URL displays only if the page was loaded by a consumer.
- Uses stored database items in the `h_pagesum` (interval), `d_pagesum` (daily), `w_pagesum` (weekly), or `m_pagesum` (monthly) views
- Requires inputs:
  - Time range and date for Interval report
  - Date range for daily, weekly, and monthly reports.
- Displays no data in the event that page hit information is not available (for example, if a firewall prevents external access to CMS).

Report Example



Report Heading	Description	Database Item/ Calculation
Date:	The day for which the report was run.	ROW_DATE
Printed:	The day and time *CentreVu* CMS printed or displayed the report.	No database item or calculation.
ACD:	The ACD that contains the associated VDN in the report.	syn(ACD)

Report Heading	Description	Database Item/ Calculation
Time: (Interval only)	The time the report captured data.	<ROW_TIME, STARTTIME, STARTTIME+ INTRVL>
Date: (Daily, Weekly, Monthly)	The day for the data.	ROWDATE
ICalls Offered	The number of Internet calls launched for all VDNs associated with the `page_url`.	icalls_offered
Page Hits	The number of page hits counted for the `page_url`.	page_hits
% Calls	The ratio of calls offered to page hits.	icalls_offered / page_hits
Page URL	A unique identifier for the ICC enabled Web page (may be the Web page's URL)	page_url

CentreVu Supervisor Internet Reports

Things to Know About These Reports

- *CentreVu* Supervisor does not support Internet real-time reports. However snapshots of information can be displayed. These ICC-specific Supervisor reports are called “Snapshot” reports and can be found in the Designer category of the Historical table folder (for example, Internet Calls Denied Snapshot, Internet Page Hits Snapshot). These reports do not refresh automatically. It is therefore up to the administrator to restart the report manually to get a current snapshot.
- For information on how to use standard *CentreVu* Supervisor report information, and for details about input windows, see the *CentreVu Call Management System Release 3 Version 6 Administration* (585-215-850) document.
- Three new graphical historical *CentreVu* Supervisor reports are available for ICC:
  - Graphical Internet VDN Calls Attempts (Snapshot)
  - Graphical Internet VDN Call Attempts
  - Graphical Internet VDN Calls Summary.
- *CentreVu* CMS reports are also available in *CentreVu* Supervisor, but with differences. The following table maps the CMS report names to the Supervisor report names.

CMS Report Name	Supervisor Report Name
Real-Time Web Page Call Attempts	Internet Web Page Call Attempts (Snapshot)
Real-Time Call Attempts	Internet Call Attempts (Snapshot)
Historical VDN and URL	Internet VDN and URL
Historical Page Hits	Internet Page Hits

- See the “Internet CMS Reports” section of this document for details about equivalent *CentreVu* Supervisor reports.
- All Supervisor Internet reports are available from the Designer Category in the Historical tab for *CentreVu* Supervisor V5 and from the Internet Category in the Historical tab for *CentreVu* Supervisor V6.
- Only historical or snapshot designer reports can be created using *CentreVu* Supervisor’s Report Designer.

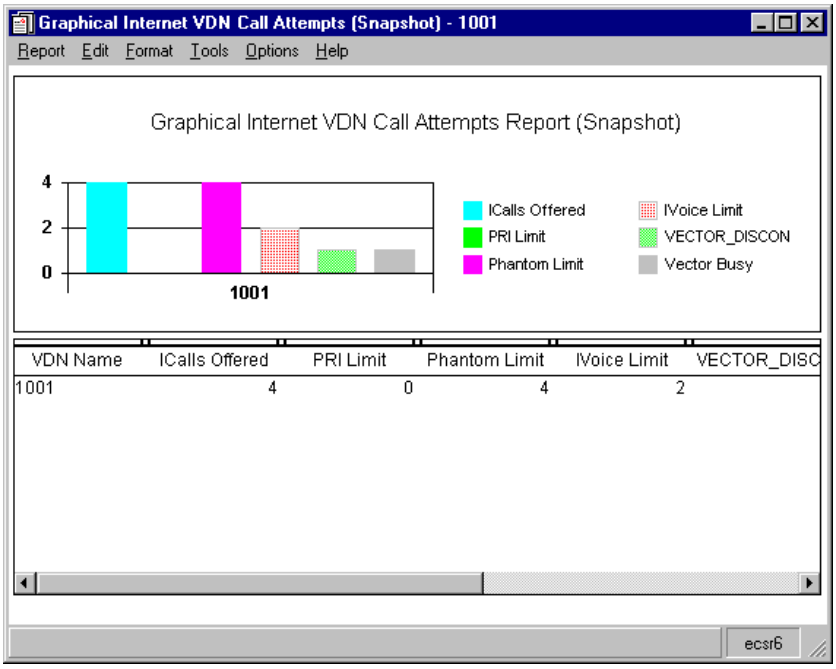
Graphical Internet VDN Call Attempts (Snapshot) Report

This historical report graphically displays data regarding the number of Internet calls-offered and the number of calls that had to be turned away for one or more VDNs during the current interval.

Things to Know About This Report

- Displays a graphical version of the *CentreVu* CMS Real-Time VDN Call Attempts report
- Displays a snapshot of the data for the current interval and does not automatically refresh
- Uses stored database items in the `r_vdnsum` table
- Requires input for one or more VDN.

Report Example



Report Heading	Description	Database Item/ Calculation
VDN	The VDN requested on the input page.	vdn
ICalls Offered	The number of Internet calls offered for the current interval for the specified VDN.	icalls_offered
PRI Limit	The number of calls turned away due to a lack of PRI facilities for the current interval for the specified VDN.	pri_limit

Report Heading	Description	Database Item/ Calculation
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the specified VDN. If phantom calls are not used, this database item will be zero.	phantom_limit
Vector Discon	The number of Internet calls that were “force disconnected” from vector processing.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy
IVoice Limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded for the current interval for the specified VDN.	ivoice_limit

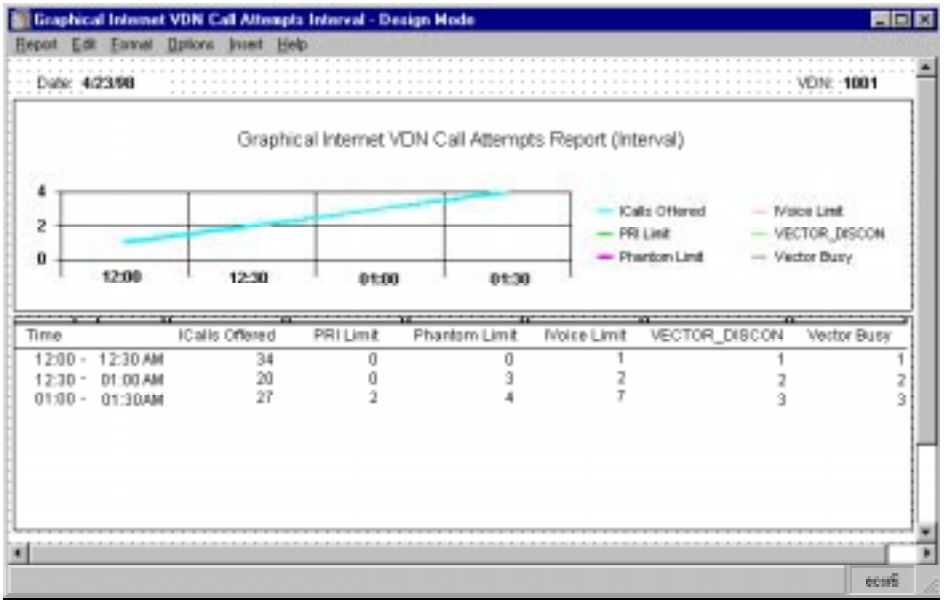
Graphical Internet VDN Call Attempts Report

This historical report graphically displays the number of calls offered by the ITG and the number of calls turned away for a particular VDN over the specified interval.

Things to Know About This Report

- Displays a graphical version of the *CentreVu* CMS VDN Call Attempts report
- Provides interval or daily report formats
- Uses stored database items in the `h_vdnsum` (interval), `d_vdnsum` (daily) tables
- Displays the number of calls offered by the ITG and the number of calls turned away due to PRI Limit, Phantom Limit, Vector Disconnect, Vector Busy, and Ivoice Limit data for the specified VDN
- Requires inputs:
  - A single VDN
  - Time range and date for Interval report
  - Date range for daily reports.

Report Example



Report Heading	Description	Database Item/ Calculation
Date: (Interval and Daily)	The day for which the report was run.	ROW_DATE
Time: (Interval only)	The time that the report covered.	STARTTIME
VDN:	The VDN requested on the input page.	vdn
Time (for Interval reports only)	Intervals which the data applies.	<STARTTIME, STARTTIME + INTRVL>

Report Heading	Description	Database Item/ Calculation
ICalls Offered	The sum of the number of Internet calls offered for the specified VDN.	icalls_offered
PRI Limit	The number of calls turned away due to a lack of PRI facilities.	pri_limit
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the specified VDN. If phantom calls are not used, this database item will be zero.	phantom_limit
Vector Discon	The number of Internet calls that were “force disconnected” from vector processing.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy
IVoice Limit	The sum of Internet Telephony calls turned away because the administered maximum was exceeded.	ivoice_limit

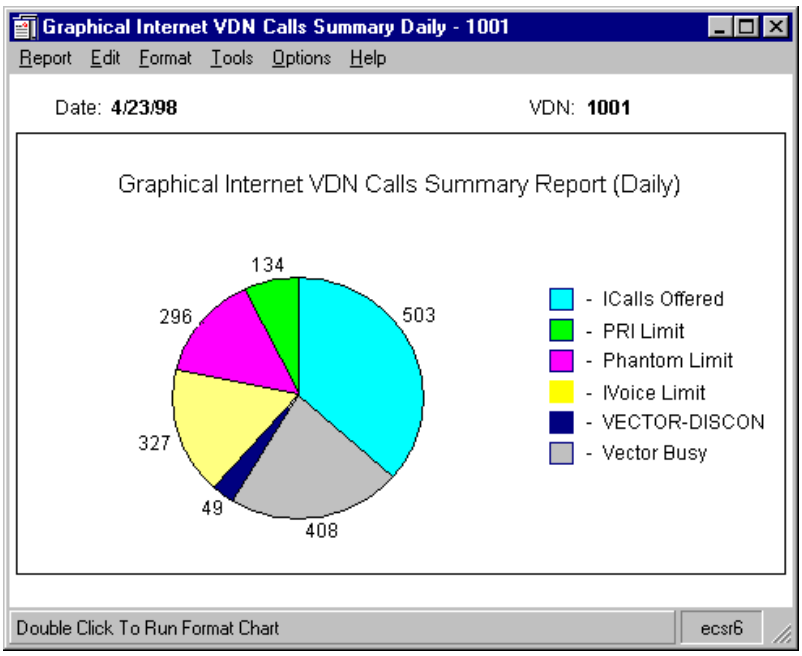
Graphical Internet VDN Calls Summary Report

This historical report shows a graphical summary of the number of Internet calls offered and the number of calls that had to be turned away for a particular VDN during the specified interval. This statistical information for a specified Internet VDN is displayed in a pie chart.

Things to Know About This Report

- Provides interval or daily report formats
- Requires inputs:
  - A single VDN
  - A single date according to interval and daily data.
- Uses stored database items in the `h_vdnsum` (interval), `d_vdnsum` (daily) tables
- Graphs a pie chart of Internet Call statistics for a specified Internet VDN, in particular, the number of calls offered by the ITG, the number of calls turned away due to a lack of PRI facilities, the number of calls turned away due to lack of phantom extensions, the number of calls turned away due to Vector Disconnect, the number of calls turned away due to Vector Busy, and the number of calls turned away due to the Internet Voice limit being reached.
- Displays no chart if no data is found for the specified VDN.

Report Example



Report Heading	Description	Database Item/ Calculation
Date:	The day for which the report was run.	ROW_DATE
VDN:	The VDN requested on the input page.	vdn
ICalls Offered	The number of calls offered by the ITG for the specified VDN.	icalls_offered

Report Heading	Description	Database Item/ Calculation
PRI Limit	The number of calls turned away due to a lack of PRI facilities for the specified VDN.	pri_limit
Phantom Limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the specified VDN. If phantom calls are not used, this database item will be zero.	phantom_limit
Vector Discon	The number of Internet calls that were “force disconnected” from vector processing.	vector_discon
Vector Busy	The number of Internet calls that received busy treatment from vector processing.	vector_busy
IVoice Limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded for the specified VDN.	ivoice_limit

ICMS Database Tables

This section contains the tables and items that support the *CentreVu* CMS enhancements for the ICC.

NOTE:

Database tables and items that are standard to *CentreVu* CMS and *CentreVu* Supervisor are described in the standard *CentreVu* CMS and *CentreVu* Supervisor documentation.

page table

The "page" table stores URL and page hit information. This information, based on data embedded in the ICC-enabled Web pages, is sent to *CentreVu* CMS any time the page is loaded for viewing. The table names are r_page, c_h_page, c_d_page, c_w_page, and c_m_page. These names identify the real-time, interval, daily, weekly, and monthly tables, respectively.

Database Item	Description
page_url	A unique identifier for the ICC-enabled Web page (may be the Web page's URL).
page_hits	The number of page hits counted for the page_url.
row_date	Date on which data was collected.
starttime	The start time for the interval data that was collected (only applies to the r_page and c_h_page tables).

ivdn table

The "ivdn" table stores information associated with a VDN / URL pair such as the number of calls offered by the ITG and the number of calls turned away for various reasons. This information is sent to *CentreVu* CMS by the ITG. The table names shall be r_ivdn, c_h_ivdn, c_d_ivdn, c_w_ivdn, and c_m_ivdn. These names identify the real-time, interval, daily, weekly, and monthly tables, respectively.

Database Item	Description
page_url	A unique identifier for the ICC enabled Web page (may be the Web page's URL).
vdn	A VDN associated with the Web page.
icalls_offered	The number of Internet calls offered by the ITG for the table row's vdn/page_url pair.
pri_limit	The number of calls turned away due to a lack of PRI facilities for the table row's vdn/page_url pair.
phantom_limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row's vdn/page_url pair. If phantom calls are not used, this database item will be zero.
vector_discon	The number of Internet calls that were "force disconnected" from vector processing.
vector_busy	The number of Internet calls that received busy treatment from vector processing.
ivoice_limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded for the table row's vdn/page_url pair.
acd	The ACD number for which data was collected.

row_date	Date on which data was collected.
starttime	The start time for the interval data that was collected (only applies to the r_ivdn and c_h_ivdn tables).

pagesum view

The "pagesum" view is generated from the data in the page and ivdn tables. This view sums the number of calls for each URL. The names of this view shall be r_pagesum, h_pagesum, d_pagesum, w_pagesum, and m_pagesum. These names identify the real-time, interval, daily, weekly, and monthly tables, respectively.

Database Item	Description
page_url	A unique identifier for the ICC enabled Web page (may be the Web page's URL).
icalls_offered	The number of Internet calls offered by the ITG. This value is summed across all VDNs associated with the page_url.
page_hits	The number of page hits counted for this page_url.
pri_limit	The sum of the number of calls turned away due to a lack of PRI facilities. This value is summed over all VDNs for the specified URL.
phantom_limit	The sum of the number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions . This value is summed over all VDNs for the specified URL. If phantom calls are not used, this database item will be zero.

vector_discon	The number of Internet calls that were “force disconnected” from vector processing. This value is summed over all VDNs for the specified URL.
vector_busy	The number of Internet calls that received busy treatment from vector processing. This value is summed over all VDNs for the specified URL.
ivoice_limit	The sum of the number of Internet Telephony calls turned away because the administered maximum was exceeded. This value is summed over all VDNs for the specified URL.
acd	The ACD number for which data was collected.
row_date	Date on which data was collected.
starttime	The start time for which the interval data that was collected (only which applies to the r_pagesum and h_pagesum tables).

vdnsum view

The "vdnsum" view is generated from the data in the page and ivdn tables. This view sums the number of calls that were processed and denied for each VDN. The names of this view shall be r_vdnsum, h_vdnsum, d_vdnsum, w_vdnsum, and m_vdnsum. These names identify the real-time, interval, daily, weekly, and monthly tables, respectively.

Database Item	Description
vdn	A VDN associated with the Web page.
icalls_offered	The number of Internet calls offered by the ITG. This value is summed over all URLs for the specified VDN.
pri_limit	The number of calls turned away due to a lack of PRI facilities. This value is summed over all URLs for the specified VDN.

phantom_limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions. This value is summed over all URLs for the specified VDN. If phantom calls are not used, this database item will be zero.
vector_discon	The number of Internet calls that were “force disconnected” from vector processing. This value is summed over all URLs for the specified VDN
vector_busy	The number of Internet calls that received busy treatment from vector processing. This value is summed over all URLs for the specified VDN
ivoice_limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded. This value is summed over all URLs for the specified VDN.
acd	The ACD number for which data was collected.
row_date	Date on which data was collected.
starttime	The start time for which the interval data that was collected (only applies to the r_vdnsum and h_vdnsum tables).

pagevdn view

The "pagevdn" view is generated from the data in the page and ivdn tables. The names for this view shall be r_pagevdn, h_pagevdn, d_pagevdn, w_pagevdn, and m_pagevdn. These names identify the real-time, interval, daily, weekly, and monthly tables, respectively.

Database Item	Description
vdn	A VDN associated with the Web page.

page_url	The ICC enabled Web page's URL identifier.
icalls_offered	The number of calls offered by the ITG for the table row's vdn/page_url pair.
pri_limit	The number of calls turned away due to a lack of PRI facilities for the table row's vdn/page_url pair.
phantom_limit	The number of text chat or PSTN call back calls turned away due to insufficient administered ASAI phantom extensions for the table row's vdn / page_url pair. If phantom calls are not used, this database item will be zero.
vector_discon	The number of Internet calls that were "force disconnected" from vector processing.
vector_busy	The number of Internet calls that received busy treatment from vector processing.
ivoice_limit	The number of Internet Telephony calls turned away because the administered maximum was exceeded for the table row's vdn/page_url pair.
page_hits	The number of page hits counted for the page_url.
acd	The ACD number for which data was collected.
row_date	Date on which data was collected.
starttime	The start time for which interval data that was collected (only applies to the r_pagevdn and h_pagevdn tables).

Cross-Product Information

Page Hit Data

In order to receive page hit information, access from the consumer's browser to the *CentreVu* CMS unit is needed through the call center's firewall. The counter used on the *CentreVu* CMS system is on a well-defined port and requests for other services on this port shall be denied. See Chapter 4, "Firewall and Security Guidelines" or see Chapter 9, "Web Page Guidelines" for more details.

CentreVu CMS and ICM

Internet call data is also sent from the ICM to the *CentreVu* CMS server. A dynamic TCP port from the ICM to TCP port 80 on the CMS is required.

CentreVu Supervisor

As noted earlier, Real-Time Internet reports are not supported by Supervisor. Therefore, all that is available are Historical and Snapshot reports. Snapshot reports provide a snapshot of the Real-Time data, but do not automatically refresh. All reports (including Snapshot reports) are found in the Historical tabbed folder.

9

Web Page Guidelines

Introduction

This chapter contains guidelines for designing, creating, modifying, or enhancing Web pages to work in conjunction with the Internet Call Center (ICC) solution. Sections in this chapter include:

- Agent Login Web Page
- Consumer Web Pages.

For additional examples of Web pages, see the “itg” Web directory on the ICM server by entering the following URL:

```
http://<icm_server_name>/itg/icc/icc_samples.html.
```

Audience

This chapter is intended for supervisors, system administrators, and persons responsible for designing and implementing Web pages for an Internet Call Center. Audiences for this chapter should already be familiar with Hypertext Markup Language (HTML) and want to make their Web pages ICC-enabled. Contact Lucent Technologies’ NetCare Services for assistance in developing Web pages. Otherwise, developing a Web site is the responsibility of the call center.

Agent Login Page

An Agent Login Web page must be developed so that agents can log into the ICC. This page may provide the agent with instructions, but more importantly, a form must be constructed to collect agent information and pass it to the CGI script: `agentapplsu.pl`.

The following is a list of required and optional parameters that are passed to the `agentapplsu.pl` script located in the `itg` directory on the ICM server.

Input Name	Value	Description
`agentId`	Numeric	Expert Agent Selection (EAS) Login ID for the agent.
`agentExt`	Numeric	Extension of the agent's voice terminal.
`agentName` (optional)	Text	Agent's name.
`agentPassword` (optional)	Numeric	Agent login password.

Input Name	Value	Description
`language` (optional)	Text	This parameter determines the language of the Agent Control Window. The default is US English (en-US). The values provided in the ICC solution for Release 2 are: • US English (en-US) • Columbian Spanish (es-CO) • French (fr) • German (de) • Italian (it) • Brazilian Portuguese (pt-BR) • Japanese(ja).
`browseWinURL` (optional)	URL	This URL is displayed to the agent while the agent applet is downloading. It defaults to `/itg/icc/icc_welcome.html` (if not specified).
`helpURL` (optional)	URL	This URL is displayed when the Help button found on the Agent Control Window is pressed. The default is `/itg/cphelp.html`.

Input Name	Value	Description
showLogout (optional)	yes/no	This parameter controls the visibility of a Logout button on the Agent Control Window. If set to yes, a Logout button is displayed on the agent's applet. If set to no, the Logout button is not visible. **NOTE:** This parameter must be used in conjunction with the Agent Logout Button Administration. If the Agent Logout option is disabled, the button on the Agent Control Window does not work even though it may be visible. The default for the showLogout parameter is no.

Additional customer-defined parameters can be submitted to the agentapplsu.pl script. These parameters do not affect the login process but are passed to the URL administered for the Agent Idle event.

NOTE:

The Agent Name parameter is optional because it does not affect the login process. However, this parameter is special in that it is also passed to the URL associated with the Caller's Call Answered event message. Using this parameter, a script can display the agent's name to the customer when the call is answered.

The following is an example HTML code used to create an Agent Login Web page:

```
<html>
<head>
<title>ICC - Agent Login</title>
</head>
```

```
<center>
<img src="/icc/images/logo.gif" alt="Lucent Technologies">
<p>
<img src="/icc/images/animphon.gif" hspace=0 border=0 alt="Internet Call
Center"><img src="/icc/images/icctr.gif" hspace=0 alt="Internet Call Center">
</center>
<center>
<h3>Agent Login</h3>
</center>
<strong>Agent: Please Log in.</strong>
<p>
Enter the telephone extension at which you are sitting and your agent identification.
<p>
<form action="/itg/agentapplsu.pl" method="post">
<center>
<table>
<tr>
    <th align=left>Agent ID:
    <TD><input type=text name="agentId" size="15" maxlength="50">
<tr>
    <th align=left>Extension:
    <TD><input type=text name="agentExt" size="15" maxlength="50">
<tr>
    <th align=left>Name:
    <TD><input type=text name="agentName" size="25" maxlength="50">
</table>
<br>
<strong>Select your preferred language</strong>
<SELECT NAME="language">
<OPTION VALUE="en-US" SELECTED>US English
<OPTION VALUE="es-CO">Columbian Spanish
<OPTION VALUE="fr">French
<OPTION VALUE="de">German
<OPTION VALUE="it">Italian
<OPTION VALUE="ja">Japanese
<OPTION VALUE="pt-BR">Brazilian Portuguese
</SELECT>
<br>
<input type=hidden name="agentGroup" value="none">
<input type=hidden name="browseWinURL" value="/icc/icc_welcome.html">
<input type=hidden name="showLogout" value="yes">
<input type=submit name="Login" value="Log In">
<input type=reset name="Reset" value="Reset">
</center>
```

```
<p>
</body>
</html>
```

The preceding HTML code creates the following sample Agent Login Web page:

Consumer Web Pages

This section describes the ICC enhancements necessary to enable a call center's ICC Web pages:

- Enhancements for Access
- Example of a Call Us page
- Enhancements to Support *CentreVu* ICMS
- Customer-Defined Parameters
- Special Considerations About Frames
- Other ICC Web Pages and Scripts
- Call Control Window Logo.

Enhancements for Access

Customers can access a call center agent from the Web by requesting a Voice and Chat (Internet telephony), Chat Only (Text Chat), CallBack Only (customer-initiated callback), or CallBack and Collaborate session. For example, the call center can provide one or more methods of access on any Web page by passing certain parameters to the `itg/callerapplsu.pl` script found on the ICM server in the installation.

The following is a list of required and optional parameters that are passed to the `callerapplsu.pl` script:

Input Name	Value	Description
`vdn_ext`	Numeric	VDN to which the Internet call should be routed. If the `vdn_ext` parameter is not set, the call cannot be processed (the ITG does not know where to launch the call) and the consumer is taken to the “Missing VDN Data” URL that tells the consumer that something is wrong and to try a different method of contacting the call center. This page can be created and administered by the call center. See Chapter 6, “Administration Guidelines” for administration details.
`type` (optional)	Text	Type of call. Valid values include "`voice`" for Voice and Text Chat calls, "`chatter`" for Text Chat-only calls, "`callback`" for PSTN Callback, and “`cbncoll`” for Callback and Collaboration calls. If the `type` parameter is not set, the call is processed, but the input defaults to a Text Chat-only call as “`chatter`.”

Input Name	Value	Description
`language` (optional)	Text	This parameter determines the language of the Caller Control Window. The default is US English (en-US). The values provided in the ICC solution for Release 2 are: • US English (en-US) • Columbian Spanish (es-CO) • French (fr) • German (de) • Italian (it) • Brazilian Portuguese (pt-BR) • Japanese(ja).
`callUsSrcPage` (optional)	Text	The URL of the Web page that originated the call request (used for tracking call statistics). Can also be used for a PagePop when the call is connected to bring both parties to the originating page. If the `callUsSrcPage` parameter is not set, the call is processed and a message is sent to *CentreVu* CMS to increment the counter for the URL as the default "none."

Input Name	Value	Description
`browseWinURL` (optional)	Text	As soon as the ITG receives a call request, this URL displays on the consumer's browser while the Caller Control Window downloads and opens. If the `browseWinURL` parameter is not set, the call is processed and the Web page found at `/itg/icc/icc_welcome.html` is the default page displayed to the consumer while the Caller Control Window is downloading.
`cbno` (optional)*	Numeric	This is the number to be dialed when a callback is requested* (only required for the Callback options).
`uui_data` (optional)	Alphanumeric	This parameter provides the capability to pass data (for example, a consumer's account or phone number) into the `uui_data` field for the call. The data designated as UUI data can then be used as input to a downstream CTI application. UUI in ISDN - 128 bytes of data supported. UUI in ASAI (phantom calls) - 32 bytes of data supported.

Input Name	Value	Description
helpURL (optional)	Text	This page is displayed when the Help button on the Caller Control Window applet is selected. When the consumer selects the **Help** button on the Caller Control Window, the Web page at /itg/cphelp.html is displayed. If the helpURL parameter is not set, the default Web page found at /itg/cphelp.html is displayed.
The default uses relative addressing to locate the cphelp.html file. This is done because each ICC installation has a different name for the ICM server. *Netscape Navigator*[a] assumes that addressing is relative to the server that downloaded the applet (the icmhost.com machine). However, *Microsoft*[b] Internet Explorer assumes the addressing is relative to the server that downloaded the current Web page. Therefore, it is highly recommended that a full URL path name be provided for this parameter (for example, http://...).		

a. Netscape Navigator is a trademark assigned to Netscape Communications, Inc.
b. Microsoft is a registered trademark of Microsoft Corp.

Example of a Call Us Page

In the following example of HTML code used for creating a "call us" page, icm.enterprise.com refers to the name or IP address of the ICM server. Text links, image buttons, image maps, and other methods of creating hypertext links can be used.

```
<html>
<head>
<title>ICC - Call Us</title>
</head>
<body>
<center>
```

```
<img src="/icc/images/logo.gif" alt="Lucent Technologies">
<p>
<img src="/icc/images/animphon.gif" hspace=0 border=0 alt="Internet Call
Center"><img src="/icc/images/icctr.gif" hspace=0 alt="Internet Call Center">
</center>
<center>
<h3>Call Us</h3>
</center>
<p>
So that we can serve you better, please enter the information below
and press the call us button
<p>
<form name="form1" action="/itg/callerapplsu.pl" method="post">
<center>
<table>
<tr><th align=left>Your Name:</th>
    <td><input type=text name="cname" size="15"
maxlength="50"></td></tr>
<tr><th align=left>Your Phone:</th>
    <td><input type=text name="cbno" size="15" maxlength="50"></td></tr>
<tr><th align=left>Call type:</th>
    <td>
        <input type=radio name="type" value="voice" checked
onClick="form1.vdn_ext.value = '6902'">Voice and Chat
        <input type=radio name="type" value="chatter"
onClick="form1.vdn_ext.value = '6902'">Chat Only
        <input type=radio name="type" value="callback"
onClick="form1.vdn_ext.value = '6902'">Call Back Only
        <input type=radio name="type" value="cbncoll"
onClick="form1.vdn_ext.value = '6902'">CallBack and Collaborate
    </td></tr>
<tr>
</table>
<br>
<strong>Select your preferred language</strong>
<SELECT NAME="language">
<OPTION VALUE="en-US" SELECTED>US English
<OPTION VALUE="es-CO">Columbian Spanish
<OPTION VALUE="fr">French
<OPTION VALUE="de">German
<OPTION VALUE="it">Italian
```

```
<OPTION VALUE="ja">Japanese
<OPTION VALUE="pt-BR">Brazilian Portuguese
</SELECT>
<br>
<input type=hidden name="vdn_ext" value="6902">
<input type=hidden name="callUsSrcPage"
value="http://icm.enterprise.com">
<input type=hidden name="browseWinURL" value="/icc/icc_welcome.html">
<input type=submit name="Call Us" value="Call Us">
<input type=reset name="Reset" value="Reset">
</center>
</form>
</body>
</html>
```

The preceding HTML creates the following sample Call Us page:

Enhancements to Support *CentreVu* CMS

If the ICC enhancements have been installed on a call center's *CentreVu* CMS, then Web page hits and call statistics can be correlated and integrated into a single report. This saves the call center from having to retrieve page hit statistics from the Web server and call statistics from the *CentreVu* CMS. In order for *CentreVu* CMS to collect these statistics, the following enhancements must be made to the Web pages. It is assumed that HTTP access to the *CentreVu* CMS server has been provided through the call center's firewall on the well-defined port of 8001. See Chapter 4, "Firewall and Security Guidelines" for details.

Page hit statistics are collected by sending the `callUsSrcPage` parameter to the `pgcnt` CGI script found on the *CentreVu* CMS server. Each ICC-enabled page references this script through the use of the IMG tag. In order for page statistics to be accurate, the value of the `callUsSrcPage` parameter must be the same as the `callUsSrcPage` parameter passed to the `callerapplsu.pl` script. See the Enhancements for Access section in this chapter for details.

The following example of HTML shows the code that must be embedded into the Web page.

```
<img src="http://cms-host.com:8001/cgi-bin/
   uncgi/pgcnt?callUsSrcPage=http://catalog.com/
   shirts/thispage.html" WIDTH=1 HEIGHT=1>
```

Although it appears that this places a 1x1 pixel image on the page, the reference is really accessing a script that counts the number of hits to the ICC-enabled Web page.

Customer-Defined Parameters

In addition to the input parameters that the ICC requires, a call center can also define its own parameters that can be passed to the `callerapplsu.pl` script. The ICC forwards them to the URLs administered to be associated with call progress messages and events. For example, a call center may request that the consumer enter a registration or account number into a Web form. If this information is sent to the `callerapplsu.pl` script, it is forwarded to the URLs associated with all of the events triggered by the call (for example, Incoming Call Queued, Call Answered, and so on).

This account number can then be used in a CGI script to perform a database lookup to present a personalized message to the consumer (for example, "Thank you, David, for calling us via the Internet…"), or account information can be accessed and presented in the Agent's Call Answered URL. However, additional CGI programming is required to access a call center's customer database.

NOTE:

The support for customer-defined inputs is available until a call is connected to an agent. After the call is connected, URLs and input parameters are no longer directed to the browsers by the ICC. However, because the call is connected, the agent should be able to get any further information from the consumer by way of the communication path (that is, Text Chat, Internet telephony, or Callback).

Special Considerations About Frames

Frames introduce complex interactions to support Escorted Browsing. This involves changes to frame-based Web pages.

With Escorted Browsing, the consumer can press the Send Page button on the Caller Control Window, and the agent's browser is updated to display the same URL (and vice versa). This update is accomplished using a technique called URL sharing wherein the URL that is visible in one party's browser toolbar is sent to the other party's browser. The receiving browser then accesses the URL to display the same screen.

The challenge arises when a frame-based Web page is being viewed, because the URL visible in the toolbar is the frame definition file. Although a consumer may surf around within a frame, thereby changing the frame's contents, the URL displayed remains that of the frame definition file. When the **Send Page** button is pressed, the URL that is sent is the one for the frame definition file. As a result, pages are loaded based on the defaults specified in the frame definition file, not based on the current contents of the frames.

The ICC solution to support frames requires some Javascript to be added to both the frame definition file and the frame content files.

In the frame definition file, add the following script:

```
<script language="Javascript">
   var syncToFrameNo = -1;
   var syncToLoc = location.href;
   </script>
```

This piece of Javascript defines the scripting variables used by the frame content files. `SyncToFrameNo` is used to store which frame has changed and `syncToLoc` stores the frame content's URL.

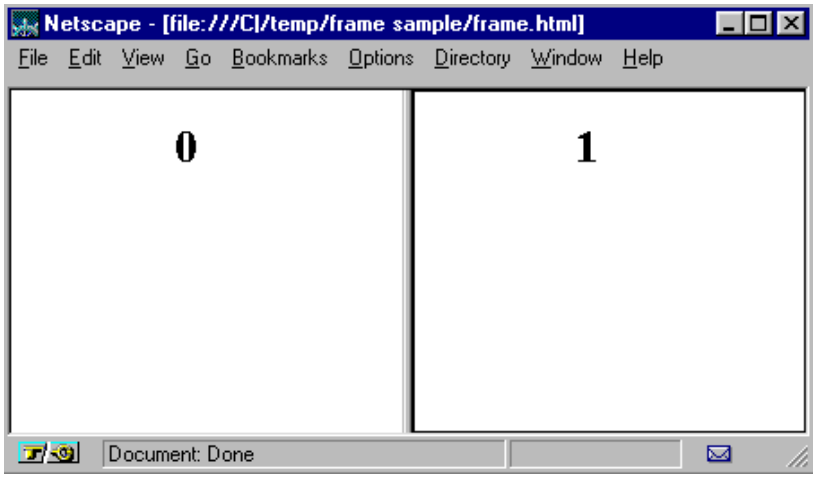
In the frame content files, some Javascript is used to set these variables. The `syncToLoc` variable is set to the current URL by using the `location.href` environment variable. However, to understand how to set the `syncToFrameNo` variable, some explanation is needed to describe how frames are numbered.

Numbering for a Single Frameset

The following HTML code is an example for a simple two-frame Web page:

```
<FRAMESET COLS="*, *">
<FRAME src="frame0.html">
<FRAME src="frame1.html">
</FRAMESET>
```

The following image appears:



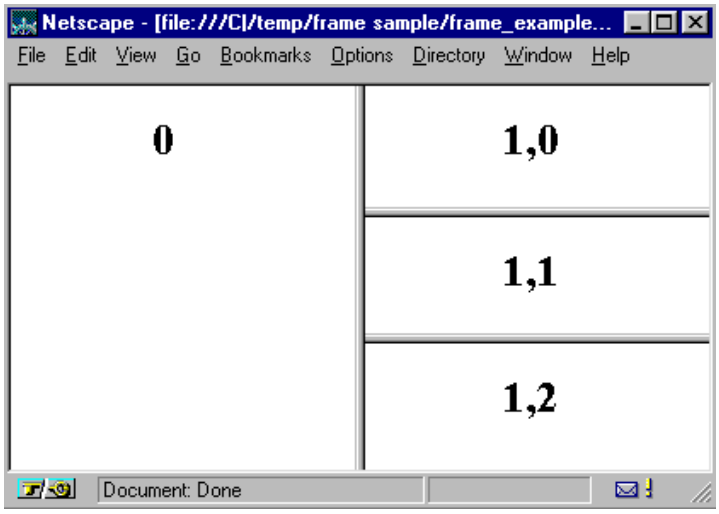
The code uses a single Frameset and the frames are numbered from left to right starting at 0 (zero).

Numbering for Two Framesets

The following HTML code divides one of the frames into three subframes:

```
<FRAMESET COLS="*, *">

<FRAME src="frame0.html">

  <FRAMESET ROWS="*,*,*">

    <FRAME src="frame10.html">
    <FRAME src="frame11.html">
    <FRAME src="frame12.html">

  </FRAMESET>

</FRAMESET>
```

The following image appears:



In this example, two framesets are used.

The frame numbering for the left frame is still 0, but the right half has a numbering scheme that resembles how an array is indexed. The first number indicates the right half of the first frameset and the second number indicates the frame within the frame. For example, the frame number 1,2 is the second frame (1) of the first frameset and the third frame (2) of the second frameset. Notice that frame numbering always starts at 0.

Adding Javascript to Frame Content Files

When the contents of a frame change, Javascript in the frame content files is needed to update the ITG with the new information.The code to add to the frame content files looks like the following:

```
<script language="Javascript">
parent.syncToLoc=location.href;
parent.syncToFrameNo="1,1";
</script>
```

The `syncToLoc` variable informs the ITG of the new URL to display in the frame designated by the `syncToFrameNo` variable.

NOTE:

The frame number is in quotation marks and has no spaces (for example, “1,1”). Also note that the variables are prefixed with the keyword “parent.”

Other ICC Web Pages and Scripts

Web pages can be displayed or CGI scripts executed for various event and error conditions (for example: Incoming Call Queued, Call Answered, Call Limit Reached, and so on). See Appendix A, “ITG and ICM Server Administration Field Descriptions,” for a complete list of these administrable Web pages.

Sample HTML pages and Perl scripts (files with a `.pl` extension) are available in the `/itg` and `/itg/icc` directories on the ICM server. You can use these samples to assist you in meeting your unique call center needs. The following lists some unique situations where the sample HTML pages and Perl scripts can be of value; in particular, see the scripts named `pop_*.pl` and `sw_*.pl` (where the “*” is a wild card character):

- When your call center supports multiple companies (see `swt_ao.pl` as an example of a script that switches on “arena-only,” where “arena” might be a company name)
- When you want to pop web pages based on specific events, known as pop types (for example, `swt_to.pl` pops a page based on the value of the “poptype” parameter passed to the script; see “poptypes.html”)
- When you want to pop a web page written in a particular language (for example, `swt_lo.pl` pops a web page based on the language of an agent or caller using the passed “language” parameter)
- When you want the ability to pass user-defined fields (all the sample scripts will pass user-defined fields).

For help in meeting your unique call center needs, contact Lucent Technologies Professional Services on 1-800-4NetCare.

The ICC solution provides sample web pages and scripts translated into the supported language. You can located these files in the `/itg/icc/language-code` folders on the ICM server.

Below is an example of a sample Perl Script (`swt_tl.pl`) that pops a web page based on both the passed ”poptype” and “language” parameters:

```
# this script handles pops for different pop types and languages
require "cgi-lib.pl";
&ReadParse;
# in general, the "language" parameter should be used to select the language
# of the page to pop; however, in a few cases, an agent page is popped
# with the caller’s parameters, so the "agentlanguage" parameter contains
# the agent’s language and should be used for the page pop.
if (defined $in{’agentlanguage’})
{
$language = $in{’agentlanguage’}
}
else
{
if (defined $in{’language’})
{
$language = $in{’language’}
}
}
if (defined $in{’poptype’})
{
if (defined $language)
{
$url = ’/icc/’ . $language . ’/pop_’ . $in{’poptype’} . ’.pl’;
}
else
{
$url = ’/icc’ . ’/pop_’ . $in{’poptype’} . ’.pl’;
}
}
else
{if (defined $language)
{
$url = ’/icc/’ . $language . ’/pop_gen.pl’;
}
else
```

```
{
$url = '/icc'. '/pop_gen.pl';
}
}
print "Location: $url?", $in, "\n\n";
```

Call Control Window Logo

The logo that appears at the top of the Call Control Window can be changed. Simply create a `.gif` image no larger than 300x150 pixels, name it `customer.gif` and place it in the `\itg\images` directory on the ICM server.

NOTE:

You will be overwriting the ICC provided default `customer.gif` file.

10

Troubleshooting

Introduction

This chapter provides troubleshooting guidelines for the Internet Call Center (ICC) solution. Information in this chapter represents a compilation of known problems and suggested solutions, based on actual installations.

Audience

This document is intended for installers, administrators, agents, and anyone who uses the ICC solution.

References

- *DEFINITY® Communications System Call Vectoring/EAS Guide* (555-230-520)
- *PassageWay® Telephony Services Solution, Microsoft* Windows† NT‡ Telephony Services Installation Guide* (555-201-116) (provided on the *PassageWay* Telephony Services CD)
- *PassageWay Telephony Services for Microsoft Windows NT Telephony Services DEFINITY Enterprise Communications Server Network Manager's Guide* (555-201-505) (provided on the *PassageWay* Telephony Services CD)
- *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212).

Background Information

This chapter documents problems that might occur, offers suggestions for isolating and fixing problems, lists reference documents for solution components, and identifies items to check before calling the Lucent Technologies National Customer Care Center on **1-800-242-2121**.

*Microsoft is a registered trademark of Microsoft Corp.
†Windows is a registered trademark of Microsoft Corp.
‡NT is a registered trademark of Microsoft Corp.

Call Center Trouble Scenarios

The following sections describe typical call center trouble scenarios and list actions to take when troubleshooting them. In general, each action builds on the previous ones.

Administration Web Pages Cannot Be Accessed

Description

An attempt to access the ICC Web-based administration at `http://<icm_server_name>/admin` produces an error or else no Web page appears.

Action

1. From the *Microsoft* Internet Information Server (IIS) Manager, verify that the WWW service is running on the ICM server. If the WWW service is not running, select the WWW service and start it from the Properties menu.
2. From the IIS Manager, verify that the alias for the `c:\itg\admin` directory (your directory may be different depending on where the ITG software was installed) is set to `/admin` and that the Read and Execute Access permissions are selected.
3. Verify that you have permission to access the administration web pages.
4. If there is a connectivity problem between the current browser and the ICM server, troubleshoot LAN connectivity. Verify that the ICM server is accessible on the LAN and from the computer running the browser.

Agent Control Window Fails to Launch Properly

Description

The Agent Control Window fails to download or display properly after the agent fills out the form on the login page and submits it.

Actions

1. Verify that the agent's Web browser is *Java*[*] and Javascript enabled:
   - On *Netscape Navigator*[†] 3.x, from the **Options** menu select the **Network Preferences** item, and then select the **Languages** tab to display its contents. On *Netscape Navigator* 4.x, from the **Edit** menu select the **Preferences** item, and then select **Advanced** to display its contents. Both the "Enable Java" and "Enable JavaScript" items should be checked.
   - On *Microsoft* Internet Explorer 3.x, from the **View** menu select the **Options** item, and then select the **Security** tab. The "Enable Java Programs" and "Run ActiveX Scripts" items should be checked.

     On Internet Explorer 4.x, from the **View** menu select the **Internet Options** menu item, and then select **Advanced**. The "Java JIT compiler Enabled under Java VM" should be checked

*Java is a registered trademark of Sun Microsystems, Inc.
†Netscape Navigator is a trademark assigned to Netscape Communications Corp.

2. Check for error messages on the browser window. Also open the *Java* Console window and look for errors:
   - On *Netscape Navigator*, use **Options->Show Java Console**.
   - On Internet Explorer, check the "Enable Java Logging" box on the **View->Options->Advanced** tab. Stop and restart Internet Explorer, then periodically use a text editor (such as Notepad) to examine the `c:\windows\javalog.txt` file.
3. Check whether network settings have been changed. The browser may need to be changed to reflect "no proxy" settings for the ICC components on the network.
4. Connect a PC to the same LAN segment as the ICM server and verify that the agent can log in. If so, then examine the administration of the firewall and other intermediate equipment, using the rules in Chapter 4, "Firewall and Security Guidelines," as a reference.

Agent Cannot Log In

Description

The initial download of the Agent Control Window occurs properly, but the login sequence fails.

Action

1. If no further progress is seen after the applet downloads in the Agent Control Window, verify that the ICM server is up and the Internet Call Manager (ICM) application is running.
2. Check that the firewall is administered to allow TCP connections from a dynamic TCP port (>1023) on the agent's PC to the ICM server, TCP port 8101. Review Chapter 4,"Firewall and Security Guidelines," for further details on firewall rules and the port required by ICC components.
3. If Agent Control Window activity stops after the "Logging In, Please Wait" message, perform the following:
   - Verify that the specified Agent extension is in use. If so, hang up the phone and enter the password again**.**
   - Verify *DEFINITY* ECS status for station xxxx, using the adjunct link (ADJLK) extension. Check the status of the *DEFINITY* LAN Gateway board. If the status station command reveals that the ADJLK station is "disconnected," refer to *PassageWay* documentation to troubleshoot the *DEFINITY* ECS-to-*PassageWay* Telephony Server connection.
   - Confirm that the ITG, the *PassageWay* Telephony Server, and the ICM server are communicating. See the "System Problems"section elsewhere in this chapter.

4. If a “Login failed” message is displayed in the Agent Control Window with one of the following additional messages, perform the indicated action:
    - “Agent_Already_Logged_Into_Switch” means that the specified agent ID or extension has been logged into the *DEFINITY* ECS by way of a voice terminal rather than through the Web login page. Use the *DEFINITY* ECS `list agent-id` command to determine whether the agent ID or the extension is in use.
    - “Requested_AgentID_Ext_Mismatch” means that the specified agent ID has been logged into the *DEFINITY* ECS at the specified extension rather than through the Web login page. Log off from the voice terminal and log in again through the Web login page.
    - “Agt_Not_Split_Member_Or_Bad_Passwd” means that an incorrect password was entered.
    - “Invalid_Skill/Split” means that an invalid agent ID was entered. The agent ID was either entered incorrectly or the *DEFINITY* ECS administration is incorrect. Be sure that the agent is administered with the ICC skill, then have the agent try to log in manually from a phone. If the login attempt fails, troubleshoot the *DEFINITY* ECS. If the login attempt works, have the agent log out and try to log in again by way of the browser.
    - “Tsrv_Device_No_Admin” means that the specified extension was entered incorrectly or that it is not administered in the *Passageway* Telephony Server’s Security Database.
5. If a pop-up window appears stating “You are already logged in at Extension xxx. What would you like to do?”, perform the following:
    - The ICM Control Window shows that the specified agent ID is logged in at the indicated extension. Select the **Force Log Out** button on the pop-up window to log the other session out, or select the **Quit** button to abort the login attempt.
    - If the **Force Log Out** button is used but the message “Force Out FAILED Agent_Is_Busy**”** is displayed, then a call is in progress at the other agent station. When that call terminates, the agent is logged out.

- If the forced logout does not work, then on a *DEFINITY* ECS console enter `list agent-id xxxx`. If it shows as "unstaffed," then there may be a ICM server or *Passageway* Telephony Server problem.

6. Check the *PassageWay* Telephony Server hardware to make sure that it is fully in service and does not have any status windows showing a problem. Verify that the agent's physical phone extension is administered as a device in the *Passageway* Telephony Server's Security Database.

   NOTE:

   Shut down any software packages running on the *PassageWay* Telephony Server (except for CTI). Do not run any other applications on the server until the problem is resolved.

7. Check the status of the ICM server:

   - Verify that the ICM application is running by clicking on the Services icon in the Control Panel. The Internet Call Manager service should be started. Display the ICM Control Window by clicking on the Start menu, and then selecting the Lucent Internet Call Manager program. Once opened, look for errors that may describe why an agent cannot log in.
   - Enter the command `display agents` in the text entry field or from the Display menu, select the Agents menu item. Determine if the ICM thinks the agent is already logged in, as shown by a line listing the `Agent` with the specified ID.
   - If the agent is shown to be logged in, issue the ICM command `sendto cti logout extension passageway_group agent-id`. (The `passageway_group` is typically "none.") Reissue the `display agents` command to verify the agent is logged out, and have the agent try logging in again from the Web page. If the command does not log the agent out, verify the phone extension and group in the *PassageWay* Telephony Server.

Agent Cannot Receive Calls

Description

Once an agent is logged in and the Agent Control Window is open on the desktop, calls should be able to reach the agent. If it becomes apparent that the agent is not receiving calls, follow these steps to identify the problem. Also see the *DEFINITY Communications System Call Vectoring/EAS Guide* (555-230-520) for more detailed *DEFINITY* ECS troubleshooting guidelines.

Action

1. Confirm that the agent is logged into the *DEFINITY* ECS ACD by entering the `list agent_id xxxx` command on a *DEFINITY* ECS console. Also note whether the agent is administered with the Internet skill(s).
2. Verify that the agent is in the Auto-In or Manual-In mode on the voice terminal.
3. If the call center has BCMS, enter the command `monitor bcms skill <Internet skill>`. Verify that the agent is staffed, has the correct physical extension, and is in the "Available" state.
4. On the ICM server, confirm that the ICM lists the agent as logged in by selecting the agent menu item from the Display menu. Look for a line listing the agent with the specified ID.
5. Verify that the VDN is processing the call correctly by placing a test call from another phone to an Internet VDN. Check vector steps for the correct call flow.

6. Verify that the trunks between the *DEFINITY* ECS and the ITG are in service. On the ITG console, use the `showptg` and `showpri` commands. On the *DEFINITY* ECS console issue the command `test trunk-group xx long`. Troubleshoot any trunk problems using ITG or *DEFINITY* ECS documentation.

7. Verify the caller Web page has the correct URL reference with the correct VDNs and call types. See Chapter 9, “Web Page Guidelines” for details.

8. Place a call from a browser inside the firewall. If the call completes, there may be a firewall issue. See Chapter 4, “Firewall and Security Guidelines” for further information.

Agent Gets Voice Call But No Audio Connection

Description

If an agent is getting calls from the Voice VDN (as indicated by the phone display and/or the VDN of Origin announcement) without any audio connection to the caller, use these suggestions to identify the problem.

Action

1. Check the caller Web page to verify that `type=voice` for the radio button used to select a voice call. See Chapter 9, "Web Page Guidelines" for information about the type parameter.
2. Verify that the Telephony Application URL references a script that correctly launches the *NetMeeting* application. The default URL is `http://icm_server_name/itg/nmit.pl`.

   You can modify this field by executing the `c:\itg\admin\updatePARM.pl` script on the ICM server. To modify the `telephonyAppURL` parameter, do the following:

   CAUTION:

   Before executing the updatePARM.pl script, you may want to make a backup of the `c:\itg\itgparms.txt` and `c:\itg\admin\itgadmin.txt` files. Backing up these files will ensure that you have intact files should the originals get damaged.

   a. From the c:\itg\admin directory on the ICM server, click on the `updatePARM.pl` perl script. A window appears.

b. Press enter on your keyboard. An edit window appears with the currently administered parameters.

c. Modify the `telephonyAppURL` parameter, and then save the file. The edit window closes and the new parameter value is updated.

If the `telephonyAppURL` parameter is not updated after you save the file, then it could mean that the ICM service is not running. From the Services icon in the Control Panel, start the ICM service, and then perform Steps a-c again.

3. Verify whether the firewall is passing User Datagram Protocol (UDP) packets to the ITG. See Chapter 4, “Firewall and Security Guidelines” for details. If the caller’s firewall is not passing UDP packets, the Callback feature may be useful.

Agent Gets a Call But No PagePop

Description

As part of the process of connecting with an incoming Internet-initiated call, the browser should display a PagePop (the page the caller initiated the call from, or some other page as defined by the call center). If no PagePop occurs when a call comes in, use the following steps to identify the problem.

Action

1. Verify that the call was a Web-initiated call.
2. Confirm that the caller page is programmed correctly. See Chapter 9, “Web Page Guidelines” for details.
3. Confirm that the Call Progress and Features URL administration on the ICM is correct. See Chapter 6, “Administration Guidelines” for details.

Escorted Browsing Does Not Work

Description

The caller (or agent) attempts to send a URL using the **Send Page** button on their Control Window but the other party does not receive the page.

Action

1. If the receiver gets a Web page with an error such as “Access Denied,” verify whether the person has permission to access a particular URL (for example, if it is behind a firewall).
2. Determine which version of the Web browser is being used. The 4.0 and greater versions of *Netscape Navigator* and Internet Explorer have blocked the feature that supports the **Send Page** operation. However, Escorted Browsing can still be accomplished in a 4.x browser environment by entering the URL to be shared in the Text Chat entry box on the Control Window, by typing or by cutting and pasting, and sending it like a regular text message. See Chapter 6, “Administration Guidelines” for more information about the Send Page feature.

No Calls Arrive at a New VDN

Description

A new VDN is added to the system (for example, for a new call type or to direct calls for a specific product), but no calls arrive at that VDN.

Action

1. Verify by way of the *DEFINITY* ECS administration that the new VDN has been assigned the same Class of Restriction (COR) as other Internet VDNs.
2. Verify that the VDN has been administered in the *PassageWay* Telephony Services Security Database. See *PassageWay* documentation for details.
3. Use the `showdp` command on the ITG console to verify that the new VDN has been added to the ITG dial plan. See the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document for details on how to add a VDN to the dial plan.
4. Examine the caller Web page to confirm that the new VDN is specified appropriately as the `vdn_ext`.

Caller Is Unable to Launch *NetMeeting*

Description

A caller must have *NetMeeting* 2.0 or greater to launch an Internet telephony call to an Internet Call Center. The *NetMeeting* application is launched on the caller's machine as a helper application associated with the browser.

If the caller is using Internet Explorer, then the helper application is launched automatically. If the caller is using *Netscape Navigator*, then the caller must identify the helper application to the browser the first time an ICC call is launched.

Action

If the caller is unable to launch *NetMeeting*, try the following:

1. Identify which browser the caller is using.
2. Verify that the caller has installed *NetMeeting* 2.x. It can be downloaded at no charge from `http://www.microsoft.com`.
3. If the caller's browser is *Netscape Navigator*, the caller must identify the helper application to the browser when the "Unknown File Type" dialog box appears:
   - Select the **Pick App** button.
   - Under "Configure External Viewer," enter

     `rundll32.exe msconf.dll,OpenConfLink`.

     The entry field is case sensitive, so the entry must be typed exactly as shown.
   - Select **OK**.

4. Verify that the Telephony Application URL references a script that correctly launches the *NetMeeting* application. The default URL is `http://<icm_server_name>/itg/nmit.pl`.

   You can modify this field by executing the `c:\itg\admin\updatePARM.pl` script on the ICM server. To modify the `telephonyAppURL` parameter, do the following:

   CAUTION:

   Before executing the updatePARM.pl script, you may want to make a backup of the `c:\itg\itgparms.txt` and `c:\itg\admin\itgadmin.txt` files. Backing up these files will ensure that you have intact files should the originals get damaged.

   a. From the `c:\itg\admin` directory on the ICM server, click on the `updatePARM.pl` perl script. A window appears.

   b. Press enter on your keyboard. An edit window appears with the currently administered parameters.

   c. Modify the `telephonyAppURL` parameter, and then save the file. The edit window closes and the new parameter value is updated.

   If the `telephonyAppURL` parameter is not updated after you save the file, then it could mean that the ICM service is not running. Start the ICM service, and then perform Steps a-c again.

   If you are still unable to launch *NetMeeting*, verify that it is associated with *Netscape* by doing the following:

   1. From *Netscape's* Preferences dialog box, select the Navigator Category if you have *Netscape* 4.x or the Helpers tab if you have *Netscape* 3.x.
   2. Click *NetMeeting* from the list of helper applications, and then select the **Edit** button.
   3. Select the Application radio button.
   4. Click the **Browse** button to select the location of the *NetMeeting* application.
   5. Select OK.

Caller Is Unable to Connect to an Agent

Description

If a caller launches a call but is not connected with an agent, this may be due to a firewall restriction on the caller side. If the caller is behind a firewall, the firewall may block the messaging needed to establish an Internet call session.

Action

1. Verify that the call center's firewall is not the problem by placing an Internet call from outside the firewall.
2. If the caller's firewall is the problem, nothing can be done from within the call center. However, the caller can still request a PSTN Callback. See the "Agent Cannot Receive Calls" section in this chapter for more suggestions.

Status Messages for Callers

Description

Sometimes a caller cannot connect with an agent due to various reasons within the call center. In those cases, the caller sees one of the following status messages:

- “No facilities are currently available.” This is displayed when there are no PRI lines available to complete the call.
- “Internet telephony capacity exceeded.” This is displayed when the limit of Internet voice calls has been reached.
- “We are sorry, all lines are busy.” This is displayed when the limit of ASAI phantom calls has been reached.
- “Call disconnected by call center.” This is displayed when the number of Internet calls that were “force disconnected” from vector processing.
- “Call center returned busy signal.” This is displayed when an Internet call receives a busy treatment from vector processing.

Action

Any of these conditions prevents a caller from being connected on the type of call requested. It is advisable to incorporate additional information and options for the caller on the Web page (such as hours of operation, an 800 number, an e-mail address, and so on), and to consider adding extra capacity, more agents and/or longer staffed hours of operation.

Control Window Closes During a Call

Description

In general, if the Caller Control Window closes during a call, the call is dropped. (A PSTN Callback voice call, however, stays up.) This can happen, for instance, if the caller explicitly closes the window or uses the **Back** button on Internet Explorer to back up past the page that launched the call.

If the Agent Control Window closes while the agent is still staffed, the current call, if any, ends and the agent is logged out. The agent needs to log in from the Agent Login Web page again, then put the voice terminal into Manual-In or Auto-In work mode.

There is no way to reconnect or recover the original call.

“Connection Lost” Message Appears on the Agent Control Window

Description

A “Connection Lost” message appears in the Text Chat region of the Agent Control Window. A pop-up window also appears with the message “Your connection has been lost. Would you like to reconnect?” These actions indicate that the TCP connection between the agent’s PC and the ICM server has been dropped, so the agent has no communication channel to the ICC for browser-based activities.

Action

1. Select the **Yes** button on the pop-up window. If there are no further error messages, there was probably a temporary LAN glitch.
2. Verify that the ICM server is up and the ICM application is running.
3. Check the firewall administration for a rule that causes TCP connections to time out after a certain interval of inactivity. Consider increasing this timeout parameter. If increasing the timeout on the firewall is not feasible, contact the Lucent Technologies Technical Services Organization (TSO) to see about using “keep-alive” packets between the ICM server and the agent computer.
4. Troubleshoot LAN problems. Inspect all intermediary equipment (hubs, switches, routers) for errors. Check for excessive LAN congestion. To have the LAN inspected by a Lucent Technologies Network Consultant, contract for this work by calling 1-800-4NetCare.

Agent Hears an Echo

Description

An agent hears an echo of the agent's own voice when talking with a caller.

Action

1. Determine whether the caller is using an external microphone and speakers. If so, it is likely that the echo is caused by the caller's microphone picking up sound from the speakers. Ask the caller to change the location of the microphone to minimize the echo. For the best sound quality in Internet telephony connections, callers should use a headset.
2. The echo may be coming from the caller's sound card due to a crosstalk problem.

Internet Voice Quality Is Poor

Description

Internet telephony voice quality or audio delay during a call starts out poor or becomes poor during a call.

Action

1. Determine whether the caller's PC is equipped with a half-duplex, rather than full-duplex, sound card. This type of card does not support two-way voice very well.
2. Verify that the caller has a *Pentium* PC and at least 16Mb of RAM. CPU- or network-intensive activity can reduce voice quality. Such activities include downloading large files or graphic-rich Web pages, playing music on the PC, or running another application on the PC. Have the caller shut down other applications that may be occupying the CPU.
3. Verify the caller has at least a 28.8kbps connection to the Internet. A low-speed Internet connection, or heavy Internet traffic, or other disruptions from the Internet Service Provider, can cause voice quality to be poor or deteriorate, or produce long audio delays.

The agent may wish to use only text chat or to initiate a PSTN callback for better voice quality.

The Agent or Caller Control Window Does Not Use Specified Language

Description

The Agent or Caller Control Window used the US English resource file (strings and error messages) for its labels and text instead of the resource file for the language specified on the Agent Login web page or Call Us page.

When the resource file for a specified language cannot be opened, the US English resource file is used instead. When the US English resource file cannot be opened or the resource file does not contain the correct Key=String pairs, then an error message is displayed in place of a string. See the "Erroneous Label on a Control Window Button" problem on next page.

Action

1. Verify that the language value specified in your web page is correct. For example,

   ```
   <SELECT Name="language">
   <OPTION VALUE="de" SELECTED>Danish
   ```

2. Go to the `itg/resources` folder located on the ICM server.
3. In the `itg/resources` folder, verify that the resource folder and associated resource.txt file for the language parameter value specified in your web page is present. For example, if you entered "de" as the language parameter value, then there must be a `resources.txt` language resource file in the `itg/resources/de` folder. If there is not, you must create one with the strings translated appropriately. See the Localization section in Chapter 1, "About Internet Call Center" for information on creating additional language resource files.
4. Verify that the resource file contains Key=String pairs as described in Step 3.

Erroneous Label on a Control Window Button or Text Area

Description

This indicates that the applicable string is missing from the resource file.

Action

1. Determine the language that is being used when the button label appears with erroneous data.
2. Go to the `itg/resources` folder located on the ICM server.
3. In the `itg/resources` folder, locate the resource file for the language that is causing the label to appear incorrectly (for example, `<lang-code>/resources.txt`).
4. In the `resources.txt` file for the language that is causing the label to appear incorrectly, locate the key that is missing the string (perhaps by examining another resource file), and then enter the key=string pair in the correct language.
5. Save and close the `resources.txt` file.
6. Go to the Internet Call Manager Control window. In the text entry box, type "`load resource lang-code`," where "lang-code" is the code for the language file that you updated. For example, "it" is the code for Italian.

A Web Page Overwrites an ICC Applet

Description

If you are running your ICC on a *Mac*® O S, then whenever you have a browser window (web page) open and an ICC applet open with focus and then try to download a web page, the web page will overwrite the ICC applet. The call remains active; however, text chat and collaborative browsing will not function.

Action

To correct this problem, the agent must close the applet. Closing the applet will disconnect the call and log the agent out of the ICM. The agent may also have to manually log off of the *DEINIFTY* ECS.

To keep this problem from occurring, you must verify that your ICC applet does not have focus when you download a web page.

“Permission Denied” Error Messages When Using MS Internet Explorer 4.x

Description

If you are using *Microsoft* Internet Explorer 4.x and you get a “Permission Denied” message when you try to send a web page using the Send Page button it is because you are trying to send a page that is not on your web site.

Action

1. Choose Yes to the question ”Do you want to continue running scripts on this page?”
2. Enter he URL in the Agent Control Window’s text box.
3. Select the **Enter** button on the Agent Control Window or the **Enter** key on your keyboard to send the web page.

System Problems

ITG Cannot Connect to the ICM Server

Description

The problem appears when the Internet Call Manager (ICM) process is not running, or the ICM server is not available on the LAN. This problem is alarmed by the Computer-Telephony Integration (CTI) process in the ITG.

Action

Refer to the repair action for the CTI alarm in the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document.

ICM Server Cannot Connect to the ITG

Description

If the ICM process on the ICM server is not able to connect to the ITG, it displays the message “Connection failed, will try again in 10 seconds” in the Internet Call Manager window. Agents are blocked from logging in or out, and callers are not able to place calls.

This connection may fail due to administration or LAN problems, or because the ITG is not in service. The ICM process periodically attempts to re-establish the connection.

Action

1. If there have been administration changes to the ITG or ICM server, then first verify that the administration information is correct:
   - Refer to the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) or the Web-based administration on-line Help on the ITG at `http://<icm_server_name>/admin` for a description of the administration.
   - Examine the “CTI Administration” web page at `http://<icm_server_name>/admin` and verify that all the IP Address fields have valid entries.
   - Verify that the components can communicate across the network. Any firewalls or routers must be administered to allow these components to communicate through the administered port number. Refer to specific router or firewall documentation to verify this functionality.

- Verify that the ITGPort and ITGPHost parameters have the correct number suffix (that is, ITGPort**1** and ITGPHost**1** for a single ITG server environment). In a multi-ITG server environment, there must be one MIPPort and MIPHost parameter combination for each ITG server. For example:
  - — ITGPort1 and ITGHost1—for the first ITG server
  - — ITGPort2 and ITGHost2— for the second ITG server
  - — ITGPort3 and ITGHost3—for the third ITG server.

2. If the connection has been working but has recently gone down, then:
   - Verify that the ITG is in service by entering the `showstatus` command on the console. It should show a system state of `IS`. If the ITG is not in service, then follow standard procedures to bring it into service.
   - Verify that the components can communicate with each other across the network by pinging each component.

CTI Cannot Connect to the *PassageWay* Telephony Server

Description

The CTI process log (icm`ctilog.txt`) on the ITG installation directory (`c:\itg`) displays alarms when it is unable to connect with the *PassageWay* Telephony Server. When this connection is not available, agents are not able to log in or out, and caller requests are not routed to agents.

The CTI process periodically attempts to reconnect with the server.

Action

Refer to the repair action for the CTI alarm in the *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document.

No CMS Pegs From the Web

Description

Whenever the ICC solution is working but no data is being recorded in CMS regarding Web page hits, use these suggestions to help identify the problem.

Action

At any time during the following steps, you can restart the page counter with the logging option. To do this, stop the page counter, and restart it with the following logging option:

```
$ ps -ef | grep pgcounter

$ kill process_id_from_ps_command

$ nohup /webcms/rdonly/bin/pgcounter -l &
```

Reload the page from the browser (or manually generate a page hit) then check the log file:

```
/webcms/db/log.pgcounter
```

1. Access the Web page to verify that it is up and in service. If you cannot access the page, notify the System Administrator.
2. If you can access the Web page, look for a “broken image” icon. If one appears, notify the System Administrator.

3. Test whether the counter script on the CMS server is accessible from the browser from inside the firewall. Enter the URL below into the browser:

   ```
   http://<CMS_address>:8001/cgi-
   bin/uncgi/pgcnt?callUsSrcPage=<pageid>
   ```

   where `<pageid>` is the URL of the Web page that is being counted.

4. Check the HTTP address of the CMS server and the parameters on the Web page to be sure they are correct.

5. Check that the reference to the CMS host uses port 8001. If not, notify the System Administrator.

6. Verify that the firewall allows the CMS TCP port to be passed. Test this by repeating Step 3 from outside the firewall.

No CMS Reports for Call Attempts/Failures

Description

If the ICC solution is working but no data is being recorded in CMS for call attempts, voice call attempts when no resources are available, or call attempts when no trunks are available, then use these suggestions to help identify the problem.

Action

1. Verify network connectivity by sending a ping from the ICM server to CMS. (This test may fail if there is an intervening firewall or filtering router.)
2. Verify that the firewall is administered to allow HTTP requests from the ICM server to Port 80 on the CMS.
3. Verify, from the Internet Call Center Administration web page, that the ICM is administered with the correct CentreVu CMS Peg Count URL.
4. Verify that the Web pages have the correct page count script. Refer to Chapter 9, “Web Page Guidelines,” for more details.
5. Verify that call data messages are coming in correctly. See log file `/webcms/db/apache/logs/access_log` on the CMS.

VDN Is Not Pegging Call Data from the *DEFINITY* ECS to CMS

Description

If the ICC solution is working but no call data is being recorded in CMS from the *DEFINITY* ECS, use these suggestions to help identify the problem.

Action

1. Check *DEFINITY* ECS administration to verify that the VDN is measured. The “measured” field on the VDN should be set to “both” or “external.”
2. Verify that CMS is in service.
3. Confirm that the maximum number of VDNs measured on the CMS has not been exceeded.
4. Verify that the X.25 link is up between CMS and the *DEFINITY* ECS.

11

Upgrading Your ICC Solution

Introduction

This chapter explains how to upgrade from Release 1 to Release 2 of the Internet Call Center (ICC) Solution without the loss of administration or functionality.

The following steps are required to upgrade your ICC:

- Preserve your ICC administration
- Upgrade your Internet Telephony Gateway (ITG) and ICM software
- Upgrade your CMS and ICMS software.

Upgrading Your ITG Software

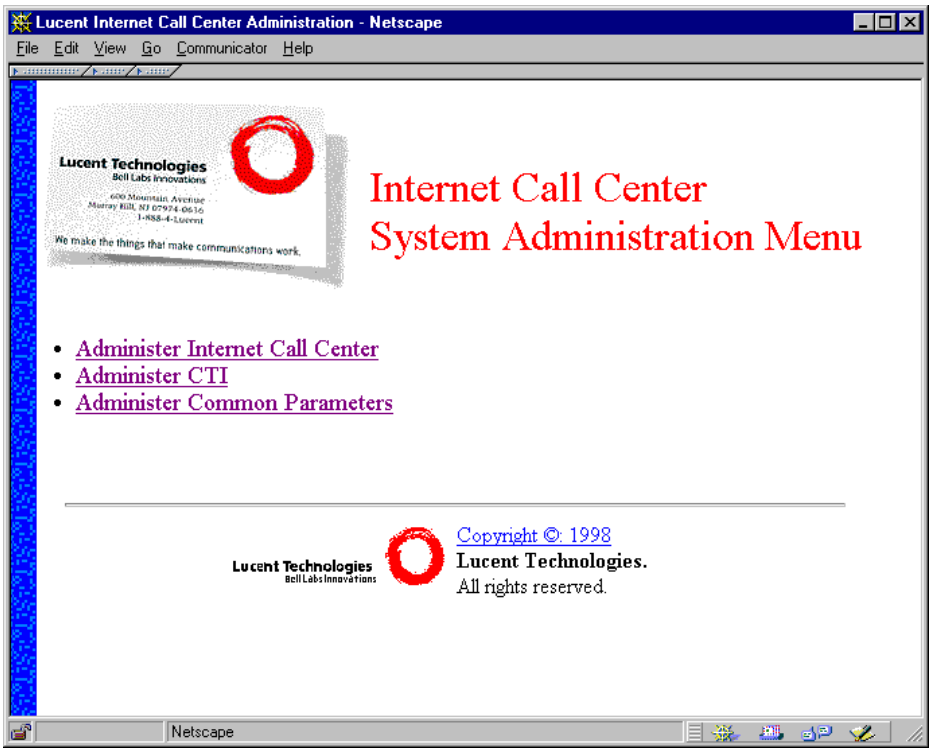
Before restoring your previous ICC administration, you must upgrade your ITG software. For procedures on upgrading ITG software, see the *Internet Technical Reference Issue 2* (555-027-212) document. Once you have successfully upgraded your ITG software, you can restore your previous ICC administration. Go to the next section “Preserving Your ICC Administration” in this chapter.

Preserving Your ICC Administration

To preserve your previous ICC administration settings, you must use the main administration web page. To access the main administration page, enter the page location in the browser window:

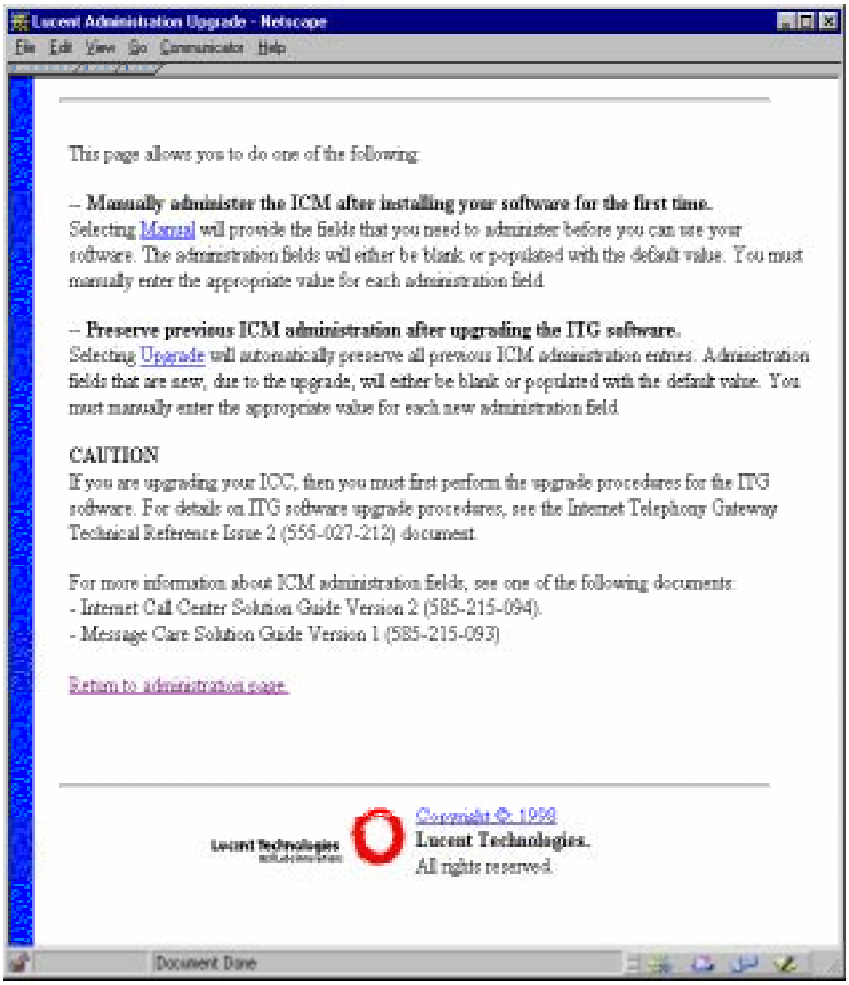
```
http://<icm_server_name>/admin
```

The administration Web page may be protected, requiring a login ID and password. If the administration web page is protected and you do not know your login ID or password, contact your system administrator. The main administration Web page (System Administration) appears:



To maintain previous administration settings, do the following:

1. Click on the Administer Internet Call Center link from the main administration web page. The following web page appears:



2. Click on the Upgrade link. This link automatically preserves all previous administration settings. When the upgrade is complete, you will receive the following message:

   ```
   Parameter update has been processed.
   ```

   Administration fields that are new, due to the upgrade, will either be blank or populated with the default value.

3. Go back to the Administer Internet Call Center web page by clicking on the “Return to Administration Page” link.

4. Click on the following links one at a time to verify that all previous administration fields and new fields are populated with the appropriate values:

   - Administer Internet Call Center
   - Administer Telephony Server
   - Administer Common Parameters.

Upgrade CMS and ICMS

You must upgrade your R1 ICMS to R2 to make full use of release 2 of the Internet Call Center solution.

Upgrading your ICMS involves migrating your existing ICMS data. Contact the Lucent Technologies National Customer Care Center on **1-800-242-2121** for assistance on upgrading your ICMS.

A

ICM Server Administration Field Descriptions

Introduction

This appendix describes ICM server administration fields for the ICC offer.

Audience

This appendix is intended for system administrators, support personnel and anyone who wants an overview of the administration fields.

References

- Chapter 6, “Administration Guidelines”
- *Internet Telephony Gateway Technical Reference Issue 2* (555-027-212) document.

Internet Call Center Administration

The Internet Call Center Administration page defines the URLs to be used by the ICC offer for Web page display to agents or callers during call processing or failure events. A URL may refer to an html file, perl script, or other CGI executable.

Incoming Call Queued URL

This field contains the URL of the page to be displayed to a caller when they are placed in queue for the next available agent.

Format	URL
Example	`http://www.enterprise.com/itg/callqued.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

Call Answered (Agent) URL

This field contains the URL of the page to be displayed to an agent receiving an incoming Internet call.

Format	URL
Example	`http://www.enterprise.com/itg/agentans.html`
Default	`None`
Notes	This field must be a fully qualified URL.

Call Answered (Caller) URL

This field contains the URL of the page to be displayed to the caller whose call is received by an agent.

Format	URL
Example	`http://www.enterprise.com/itg/callerans.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

Agent Alerting URL

This field contains the URL of the page to be displayed to an agent when the agent is alerted of a new call.

Format	URL
Example	`http://www.enterprise.com/itg/agentalerting.html`
Default	`None`
Notes	This field must be a fully qualified URL.

Caller Alerting URL

This field contains the URL of the page to be displayed to a caller when the caller is alerted of a new call.

Format	URL

Example	`http://www.enterprise.com/itg/calleralerting.html`
Default	`None`
Notes	This field must be a fully qualified URL

Missing VDN Data URL

This field contains the URL of the page to be displayed to the caller when a call request is submitted but the VDN extension information is missing.

Format	URL
Example	`http://www.enterprise.com/itg/missingdata.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

Call Center Forced Disconnect

This field contains the URL of the page to be displayed to the caller in the event that vector processing returns a forced disconnect.

Format	URL
Example	`http://www.enterprise.com/itg/disconnect.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

Call Center Forced Busy URL

This field contains the URL of the page to be displayed to a caller in the event that vector processing returns a forced busy.

Format	URL
Example	`http://www.enterprise.com/itg/busy.html`
Default	`None`
Notes	This field must be a fully qualified URL.

Call Limit Reached URL

This field contains the URL of the page to be displayed to the agent when the ITG is currently processing the maximum number of Internet voice calls, as defined by the purchased system limits.

Format	URL
Example	`http://www.enterprise.com/itg/calllimit.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

PRI Call Limit URL

This field contains the URL of the page that is displayed to the caller when their Internet call cannot be placed into the call center due to insufficient PRI resources between the ITG and the call center.

Format	URL
Example	`http://www.enterprise.com/prilimit.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

Phantom Call Limit URL

This field contains the URL of the page that is displayed to the caller when an ASAI Phantom call cannot be placed due to a lack of resources (for example, all extensions or extensions in the hunt group are in use).

Format	URL
Example	`http://www.enterprise.com/phantomcalllimit.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may not be empty.

CallBack Confirmation URL

This field contains the URL of the page to be displayed to the caller to confirm a request for callback.

Format	URL
Example	`http://www.enterprise.com/itg/callbackoff.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

CallBack Redirection URL

This field contains the URL of the page to be displayed to the caller when they request a callback call but the feature has been turned off.

Format	URL
Example	`http://www.enterprise.com/itg/callbackoff.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

CentreVu CMS Peg Count URL

This field contains the URL of the script for reporting call-related peg counts to CMS.

Format	URL
Example	`http://www.cms_host.com/itg/peg_count.pl`
Default	`None`
Notes	This field must be a fully qualified URL. If this field is empty, no CMS peg counting is performed.

Enable ITG CallBack

This field controls the ability for callers to request an outgoing call from the call center to a specified number.

Format	Radio Button for yes Radio Button for no
Default	`yes`

Enable SendPage for Agent?

This field controls the ability for Agents to use the SendPage button.

Format	Radio Button for yes Radio Button for no
Default	`yes`

Enable SendPage for Caller?

This field controls the ability for Callers to use the SendPage button.

Format	Radio Button for yes Radio Button for no
Default	yes

Prepend Digits for Callback

This field contains the digit(s) that must be prepended to any requested callback number in order to place an outgoing call from the call center.

Format	Dial String
Example	9
Default	None
Notes	An empty field indicates that no digits are to be prepended. The dial string may contain any telephone keypad digit (0-9,*,#).

CTI Server Administration

The CTI Server Administration page allows administration of the telephony server IP address, login ID, password, and identifier. In addition, it allows the identification of hunt groups (or skill set extensions in an EAS environment) that the *PassageWay*® Telephony Server will be requested to monitor.

CTI IP Address

This field contains the IP address or the network name of the server where CTI is installed. We recommend that the CTI server be installed on the *PassageWay* Telephony Server.

Format	Alphanumeric Network Name or IP Address
Example	`cti.enterprise.com` `127.9.101.121`
Default	`None`
Notes	This field may **not** be empty.

Telephony Server IP Address

This field contains the IP address or the network name of the *PassageWay* Telephony Server.

Format	Alphanumeric Network Name or IP Address
Example	`tserver.enterprise.com` `127.9.101.2`
Default	`None`
Notes	This field may **not** be empty. A change to this field will require the Telephony Server to be restarted.

Telephony Server Login ID

This field contains a valid *PassageWay* Telephony Server Login-ID to be used by the CTI process.

Format	Alphanumeric
Example	`tsrv`
Default	`None`
Notes	This field may **not** be empty. A change to this field will require the Telephony Server to be restarted.

Telephony Server Password

This field contains a valid *PassageWay* Telephony Server password (associated with the login-ID) to be used by the CTI process.

Format	Alphanumeric (hidden password)
Example	`tsvrpw`
Default	`None`
Notes	This field may **not** be empty. A change to this field will require the Telephony Server to be restarted.

Telephony Server Identifier

This field contains the link type description and *PassageWay* Telephony Server identification name to be used by the CTI process.

Format	Alphanumeric
Example	LUCENT#G3_SWITCH#CSTA#STRVICC
Default	`LUCENT#G3_SWITCH#CSTA#STRVICC`
Notes	This field must match (exactly) an administered Tlink Name on the *PassageWay* Telephony Server. This field may **not** be empty. A change to this field will require the Telephony Server to be restarted.

Monitored Hunt Groups

This field identifies the set of hunt groups (or Skill Set extensions in an EAS environment) that the *PassageWay* Telephony Server is requested to monitor.

Format	Comma-delimited list
Example	`5014,5015,2442`
Default	`None`
Notes	This field can contain multiple entries. This field may **not** be empty.

ICC/Message Care Common Administration

The ICC / Message Care Administration web page allows administration that is common to both the ICC and Message Care offers.

ICM Server Domain Name (IP Address)

This field contains the full domain name or IP address of the server where the ICM application is executing.

Format	Alphanumeric Domain Name or IP address
Example	`icm.enterprise.com` `127.9.101.122`
Default	`None`
Notes	This field may not be empty.

Agent Idle URL

This field contains the URL of the page to be displayed to an agent who is logged in but not currently active on a call.

Format	URL
Example	`http://www.enterprise.com/itg/agentidle.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

OutOfService URL

This field contains the URL of the page to be displayed when the ICM is taken out of service.

Format	URL
Example	`http://www.enterprise.com/itg/outofservice.html`
Default	`None`
Notes	This field must be a fully qualified URL. This field may **not** be empty.

Enable Agent Logout Button?

This field enables / disables the Logout button on the Agent Control Window.

Format	Radio Button for yes Radio Button for no
Default	`yes`

Enable Agent Logout On Close?

This field enables or disables the automatic agent logout from the call center if the agent connection to the ICM application on the ICM server is lost or dropped.

Format	Radio Button for yes Radio Button for no
Default	yes

Enable Phantom Call for Text Chat?

This field enables or disables the ASAI Phantom call feature. If this feature is not enabled, calls will be launched using PRI trunks through the Internet Telephony Gateway.

Format	Radio Button for yes Radio Button for no
Default	yes

Phantom Extensions for Text Chat

A list of the extensions or hunt groups used if the ASAI Phantom Call feature is enabled. These must be extensions of stations administered without hardware (AWOH).

Format	Comma-delimited list
Example	`1234,4321` `1000-1030`
Default	`None`
Notes	None.

B

Using Another CTI Application

Introduction

The use of another CTI application to log in to the *DEFINITY* ECS is supported. However, in order to register with the ICC, agents are still required to log in to the ICC using the Agent Login window.

Administration of ITG and ICM Server

To utilize the CTI enhancements, the following tasks must be performed:

- The preferred method for an agent logout is to use the logout button on the ICC Agent Control Window. This logs the agent out of the ICC solution as well as the *DEFINITY* ECS. Other CTI applications should be monitoring at least one of the agent's skills and should detect the logout, thereby logging the agent out of the CTI application. Or, you may elect to do the following:

  Disable the "Agent Logout on Close" option located on the ICC / Message Care Common Administration web page. See Chapter 6, "Administration Guidelines" for information on how to access the ICC / Message Care Common Administration web page.

When disabled, this option places the agent in the AUX work state if the connection to the ICM application on the ICM server is lost or dropped (for example, the connection to the ICM application on the ICM server can be lost or dropped if the agent closes the Agent Control Window); thus, the agent will only be required to log back in to the ICC by way of the Agent Login window.

When enabled, this option will log the agent out of the *DEFINITY* ECS if the connection to the ICM application on the ICM server is lost or dropped; thus, the agent will have to log back in to the *DEFINITY* ECS by way of the CTI application and log back in to the ICC by way of the Agent Login window.

- Disable CTI monitoring of ICC skill in your CTI application.

  The ICC must be notified when an agent logs out of the skill. If another CTI application is monitoring the ICC skill, logout events may not get sent to the ICC.

  If you desire to have your CTI application monitor the ICC skill, then you will have to add a "substitute" skill (one that does not appear in a vector and is **not** CTI enabled) to the agents skill set, and then add it to the list of Monitored Hunt Groups. The ICC will monitor the "substitute" skill to keep track of when agents log in and log out of the *DEFINITY* ECS.

  To add a skill to the list of Monitored Hunt Groups, use the Telephony Server Administration web page.

- Ensure that agents are not automatically put into an available ACD state (manual-in or auto-in) before logging in to the ICC.

  If agents are automatically placed into an available ACD state prior to logging in to the ICC, they may receive calls that they are unable to handle (for example, if a text-chat call is delivered, the agent will have no method of handling this call without the ICC interface).

- Optional—Disable the “Agent Logout” option located on the ICC / Message Care Common Administration web page.

  When disabled, this option does not allow you to log out of the *DEFINITY* ECS by way of the Agent Control Window. When you use another CTI application to log in to the *DEFINITY* ECS, you should log out of the *DEFINITY* ECS by way of the same CTI application.

  If you choose to enable this option, the agent will be able to log out of the *DEFINITY* ECS by way of the Agent Control Window. If you are using another CTI application to monitor the agent, then this CTI application must be able to detect that the agent logged out and to handle it appropriately.

If you do not use another CTI application to log in to the *DEFINITY* ECS, do the following:

- Enable the “Agent Logout on Close” option located on the ICC / Message Care Common Administration web page.
- Enable or disable “Agent Logout” option depending on whether agents should log out from the Agent Control Window or from the voice terminal.

Helpful Tips

This section provides information that may be helpful when using another CTI application.

Incorrect Agent Login Information Entered in ICC Agent Login Web Page

Problems could arise if the agent uses incorrect login information to log in to the ICC Agent Login web page after logging in to the *DEFINITY* ECS by way of another CTI application.

For example, the agent logs into the *DEFINITY* ECS by way of another CTI application and then logs in to the ICC (through the Login web page) but in doing so, enters someone else's Agent ID or extension. Since the agent is already logged in, there is no validation through the *DEFINITY* ECS, and the login appears successful. However, internet data may be delivered to the wrong agent (or may not be delivered at all) since different login information was used for logging in to the *DEFINITY* ECS and the ICC.

Table B-1 lists some things that you can do (or Lucent Technologies Professional Services can do for you) that will ensure that the correct login information is used upon each login.

Table B-1:Solutions to Ensure Correct Login

Solution	Disadvantage(s)
1. Create a Login Web page for each agent that contains his / her ID, extension, and *password (if required). If storing agent IDs or passwords in the web page is a security issue for your call center, then you may want to use Solution 2.	Agent may not have the same extension each day. HTML source is easily viewable; therefore, passwords and agent IDs can be copied.

Table B-1:Solutions to Ensure Correct Login (Contd)

Solution	Disadvantage(s)
2. Modify the CTI application so that it automatically generates and launches a web page containing the same login information that was entered in the CTI application. This web page will automatically submit the login information for logging into the ICC, and then be deleted for password security. You can use the `autoquik.html` file located in the samples directory on the ICM server as an example of a self-submitting login web page.	The CTI application must support the generation and launching of the login web page.
3. Have the CTI application launch the browser and in the command line, add the URL for the `agentapplsu.pl` script followed by the required parameters. Example of command line: `"C:\netscape"` http://ICC.host.com/cgi-bin/itg/agentapplsu.pl?agentId=1234&agentExt=8265&agentName=Bob&agentPassword=1234... For information on the parameters that must be passed to the agentapplsu.pl script, see Chapter 9, "Web Page Guidelines."	The CTI application must support the generation and launching of the login web page.

Solutions 2 and 3 automate the login process.

The remainder of this section describes the situations that could occur if web administration and login procedures for using a CTI application are not followed as stated in this document.

Logging in to the ICC before the Other CTI Application

When the agent logs in to the ICC first, the ICC will automatically log the agent in to the *DEFINITY* ECS. Then, when the agent attempts to log in to the *DEFINITY* ECS by way of another CTI application, the CTI application denies login because the agent is already logged in to the *DEFINITY* ECS.

To rectify this situation, the agent will have to do the following:

1. Log out of the ICC (thus logging out of the *DEFINITY* ECS).
2. Log back in to the *DEFINITY* ECS by way of the other CTI application.
3. Log back in to the ICC.

Manual-In or Auto-In Modes Activated upon Logging in to *DEFINITY* ECS via CTI Application

When you administer the agent to begin receiving calls immediately upon login, internet calls may be directed to the agent, but the agent will not have the tools necessary to service the call because the agent has not logged in to the ICC. ICC features such as Web Pop, Escorted Browsing, Text Chat, and Agent-Initiated PSTN Callback will not be available. Therefore, it may be necessary to modify your CTI application to ensure the agent is placed in the AUX work mode upon login.

Lost Connection Logs Agent out of *DEFINITY* ECS

If you have enabled "Agent Logout on Close," and the agent is logged out of both the ICC and the *DEFINITY* ECS, then the agent will have to perform the following:

1. Log back in to the *DEFINITY* ECS by way of your CTI application.
2. Log back in to the ICC.

Another CTI Application Is Monitoring the ICC Skill

The ICC must monitor the ICC skill to keep track of when agents log in and log out of the *DEFINITY* ECS.

If a CTI application other than the ICC is monitoring the skill, then the ICC will not receive necessary status messages. This will result in inconsistent states between the ICC and the *DEFINITY* ECS, thus causing the ICC not to function as designed.

For example, if another CTI application is monitoring the skill and an agent logs out of the *DEFINITY* ECS, the ICC will not be made aware of the logout and the connection between the ICC and the *Java* applet will not be relinquished.

Glossary

GL

ACD	Automatic Call Distribution—A switch feature that distributes incoming calls to available agents.
Agent	A call center employee who services calls from the call center's customers.
Agent Control Window	The Internet Call Center (ICC) Control Window downloaded to the agent's browser.
ANI	Automatic Number Identification—A telecommunications industry term referring to knowledge of the calling party's number.
Applet	A small application that is downloaded from the Internet and executed in a browser on a desktop.
ASAI	Adjunct/Switch Applications Interface—Lucent's Computer Telephony Integration (CTI) offering or recommendation for interfacing data adjuncts and communications systems. ASAI supports activities such as event notification and call control.

ASAI Phantom Call A phantom call is a call placed through ASAI as a third_party make_call. A phantom call is originated from a non-physical device and may be placed anywhere. In all other ways, a phantom call is treated like a voice call.

BCMS Basic Call Management System—A *DEFINITY* ECS feature that provides a variety of measurements that may be used to monitor the ACD.

Call Center A business that provides service to its customers through agents. Traditionally, requests for service have come through the use of the telephone, but modern technology has broadened that channel to include fax, voice mail, e-mail, and the Internet.

Caller A call center's customer; the person requesting contact with an agent.

Caller Control Window The Internet Call Center Control Window downloaded to the caller's browser.

CGI Common Gateway Interface—The programming interface for executing programs on Web (HTTP) servers. CGI defines the structure for passing data from the server to the server's gateway program, which does the processing, and returns the results from the gateway program to the HTTP server back to the requesting client.

CGI Script A program that is run on a Web server, triggered by a request from a browser.

CMS — *CentreVu*® Call Management System—An application which runs on an adjunct processor to collect, store, and report call statistics from the ACD. CMS enables call centers to monitor and manage their operations by generating reports on the status of agents, splits / skills, trunks, trunk groups, vectors, and VDNs.

CODEC — COder / DECoder—An electronic circuit that converts audio or video into digital code, and vice versa. An example of a codec is an analog / digital and digital / analog converter. A codec can also be software that converts packets or streams from one protocol to another.

Collaborative Browsing — A feature of the ICC solution that includes PagePop and Escorted Browsing.

CSTA — Computer Supported Telephony Application—An international standard interface between a network server and a telephone switch established by the European Computer Manufacturers Association (ECMA).

CSU — Channel Service Unit—A device residing between the customer and Central Office equipment that serves to terminate and recondition the digital signal on a circuit. CSU generally refers to equipment terminating a DS1 circuit.

CTI — Computer-Telephony Integration—The integration of services provided by a computer and a telephone (data adjuncts and communication systems).

Designer Reports *CentreVu* Supervisor reports that are developed by Lucent associates and generally sold to customers. ICC-specific Supervisor reports are specially tagged to appear and run even if the Report Designer feature is not purchased.

DNIS Dialed Number Identification Service—An ACD capability that enables calls to be routed based on the number dialed by the caller.

DS1 Digital Signal, level 1—A 1.544Mbps digital circuit, generally split into 24 64Kbps channels (trunks), with 8Kbps reserved for signaling.

DSP Digital Signal Processor—A high-speed chip (specialized microprocessor) that is customized for specific applications such as voice / video encoding / decoding.

EAS Expert Agent Selection—A *DEFINITY*® ECS feature that provides a group of capabilities, including assigning skills to VDNs and agents. This is a skills-based form of call routing.

ECMA European Computer Manufacturers Association—An organization devoted to international standards for the computer manufacturing industry.

ECS Enterprise Communications Server—A *DEFINITY* switch providing features and capabilities specially designed to enhance call center operations.

EPN Expansion Port Network—A *DEFINITY* ECS cabinet that holds *DEFINITY* ECS circuit packs. This cabinet may be attached to the Processor Port Network (PPN). The cabinet that houses the switch processing element by way of fiber or DS1.

Escorted Browsing The ability for one party's Internet browser session to cause another's browsing session to display the same information that is currently being viewed (also known as "URL sharing").

Ethernet An industry standard, high-speed data network protocol commonly used in a LAN environment.

Firewall A network node set up as a boundary to prevent traffic on one segment from crossing over to another segment based on a set of administered rules. Firewalls are used to improve network traffic as well as for security purposes. A firewall may be implemented in a router or it may be a device specialized for such purposes.

Hacker A person who tries to gain unauthorized entrance into a corporate network for the purpose of theft, malicious destruction, and/or amusement. A hacker may try to gain access to computer systems by electronic or brute force means.

HTTP HyperText Transport Protocol—The client/server protocol used to connect to servers on the World Wide Web. Addresses of Web sites begin with an "http://" prefix.

Hunt Group A group of trunks / agents selected to work together to provide specific routing of special purpose calls.

ICC Internet Call Center—An offer that provides a caller with the ability to communicate with an agent over the Internet. Communications can take place by way of Text Chat, Internet telephony, PSTN Callback, and / or by collaboratively browsing the Web.

ICM Server Platform from which the ICC *Java* applets are served and where the *Java* call control code executes. The ICM server also proxies data between the Agent and Caller Control Windows.

ICMS Call Management System for Internet—The software added to CMS to support the gathering and reporting of ICC-specific statistics.

IIS Internet Information Services—A *Microsoft*[a] software package that runs on a *Microsoft NT*[b] server and allows it to perform Web server functionality, among other services.

Internet Telephony The capability to communicate verbally across the Internet. Also known as Voice On the Net (VON) and Voice Over Internet Protocol (VOIP).

IP Internet Protocol—The underlying protocol used to pass data from one Internet host to another.

ISDN Integrated Services Digital Network—International telecommunications standard for transmitting voice, video, and data over a digital communications line.

ISO International Standards Organization—An organization that sets international standards.

ISP Internet Service Provider—A business that members subscribe to in order to gain access to the Internet (examples include AT&T WorldNet, America On-Line, NetCom, and Compuserv).

ITG Internet Telephony Gateway—The server providing the connection between the *DEFINITY* ECS and the Internet for the purpose of converting packetized voice to circuit-switched voice and vice versa.

***Java*[c]** A cross-platform programming language developed by Sun Microsystems.

LAN Local Area Network—A short-range data communication network linking computers and peripherals, such as printers. Ethernet is a common LAN protocol.

MACS Multimedia Applications Customer Support—A group of engineers within Lucent Technologies who perform pre-sale, installation, and post-sale escalated support for the ICC and MultiMedia Communications eXchange (MMCX).

MAPD Multi-Application Platform—An open platform which allows direct integration of applications into the *DEFINITY* ECS product line and which also provides integrated connectivity to 10BaseT legacy LANs.

NCG Network Consulting Group—A Professional Services group within Lucent Technologies composed of data engineers who provide data networking consulting services, including firewall provisioning, configuration, and maintenance.

NIC Network Interface Card—A circuit board inserted into a computer to allow communication with other systems on a network or access to a network.

Packet-Switched Network A network that divides messages into smaller packets, each with its own identifying and routing information. Packets travel to their destinations by a variety of routes. For data transmissions, a packet-switched network does not dedicate a channel for the duration of a call like a circuit-switched network. Instead, it queues packets and sends them on a standby basis as channel capacity becomes available. The Internet is an example of a packet-switched network.

PagePop A feature that automatically displays Web pages to the caller and / or agent based on call events (for example, call queued, call answered, and so on).

PBX Private Branch eXchange—A customer premises telephone-switching system that interconnects telephone extensions to each other as well as to the outside telephone network.

Ping Software command that can test data connectivity to a remote system.

PRI Primary Rate Interface—An ISDN standard interface which specifies B and D channels for T1 and E1 trunks.

PSTN Public Switched Telephone Network—The traditional medium for telephone communications.

RTDBM Real-Time Database Manager—The real-time data manager for *CentreVu* CMS.

TCP Transmission Control Protocol—A protocol that enables different computer hardware and operating systems (such as PCs, Apple computers, *UNIX*[d] workstations, and mainframes) to communicate.

Telephony Server *PassageWay*® Telephony Services server. This software interprets proprietary CTI signaling and converts it into an industry-standard TSAPI and/or JTAPI interface to the LAN.

TSAPI Telephony Services Application Programming Interface—A telephony programming interface based on the international CSTA standard. TSAPI is designed to interface a PBX with a server to provide interoperability between PCs and telephone equipment.

UDP User Datagram Protocol—A TCP/IP protocol used to transmit data on data networks; commonly used to transmit Internet telephony voice packets.

URL Uniform Resource Locator—Address used to locate information on the World Wide Web.

VDN Vector Directory Number—A switch extension that provides a software link between trunk groups and vectors, enabling incoming ACD calls to be processed by specified vectors.

VOA VDN of Origin Announcement—An identifying message sent by *DEFINITY* ECS to an agent about the source of an incoming call so that the agent knows how to answer the call.

Voice Terminal Another term for a telephone.

WAN Wide Area Network—A network usually connecting Local Area Networks (LANs).

The Web A shortened term for the World Wide Web; the body of information available on the Internet. Also called WWW.

Work Mode One of several different states an agent can be in while logged into a call center. Work modes include Auto-In, Manual-In, Auxiliary, and After Call Work (ACW).

WWW World Wide Web—The body of information available on the Internet. Also referred to as "the Web."

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