

Migrating to Unity Connection

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Agenda

- **Why Are You Here?**
 - In fact, why am I here?
- **Voice Messaging Options**
 - Voicemail Only (VMO)
 - Unified Messaging (UM)
 - Integrated Messaging (IM)
- **Why is Unity Connection Cisco's flagship voice messaging product?**
- **Unity Connection Fundamentals**
- **Migrate from Unity to Unity Connection**
 - COBRAS Migration Tools

Everyone Is Here For A Reason

Why are we here?

Why Are You Here?

- **You like free refreshments.**
- **You'd rather be here than work.**
 - **That's fine. If it gets in you in the door then I'll take it.**
- **You are genuinely interested in Unified Communications topics.**
- **You are trying to decide on a voice messaging platform for your organization.**
- **You're curious as to why Unity Connection garners so much attention.**
- **You plan on or are considering migrating from Unity to Unity Connection.**

Why Am I Here?

- **I like free refreshments, too.**
- **I enjoy my job and today my job is to be here.**
- **I believe this presentation will be of interest to the following people:**
 - **Those genuinely interested in Unified Communications topics**
 - **Those trying to decide on a voice messaging platform**
 - **Those curious as to why Unity Connection garners so much attention**
 - **Those planning to or considering migrating from Unity to Unity Connection**

The Importance of Voice Messaging

A Brief Overview

What is Voice Messaging?

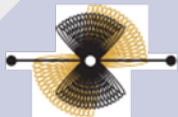
- **Essentially, VM is a way of managing telephone messages for a group of users.**
 - Legacy solutions:
 - Answering Machine
 - Octel (oh, they're still out there)
 - Today's solutions:
 - It's a complicated world...



AVAYA



Microsoft | Unified Communications



INTERACTIVE INTELLIGENCE



Why is Voice Messaging Important?

- **Voice Messaging has evolved into more than just a way to manage phone messages for users.**
 - **Integration with multiple PBX's, email systems, and even mobile devices**
 - **Increased Call Handling abilities**
 - **Automated Attendants**
 - **Interview Handling**
 - **Speech Recognition**
 - **As Voice Messaging capabilities have evolved, productivity gains for end users have become driving factors in selecting the right voice messaging solution for a given organization.**

Voice Messaging Options

The Cliffs Notes Version

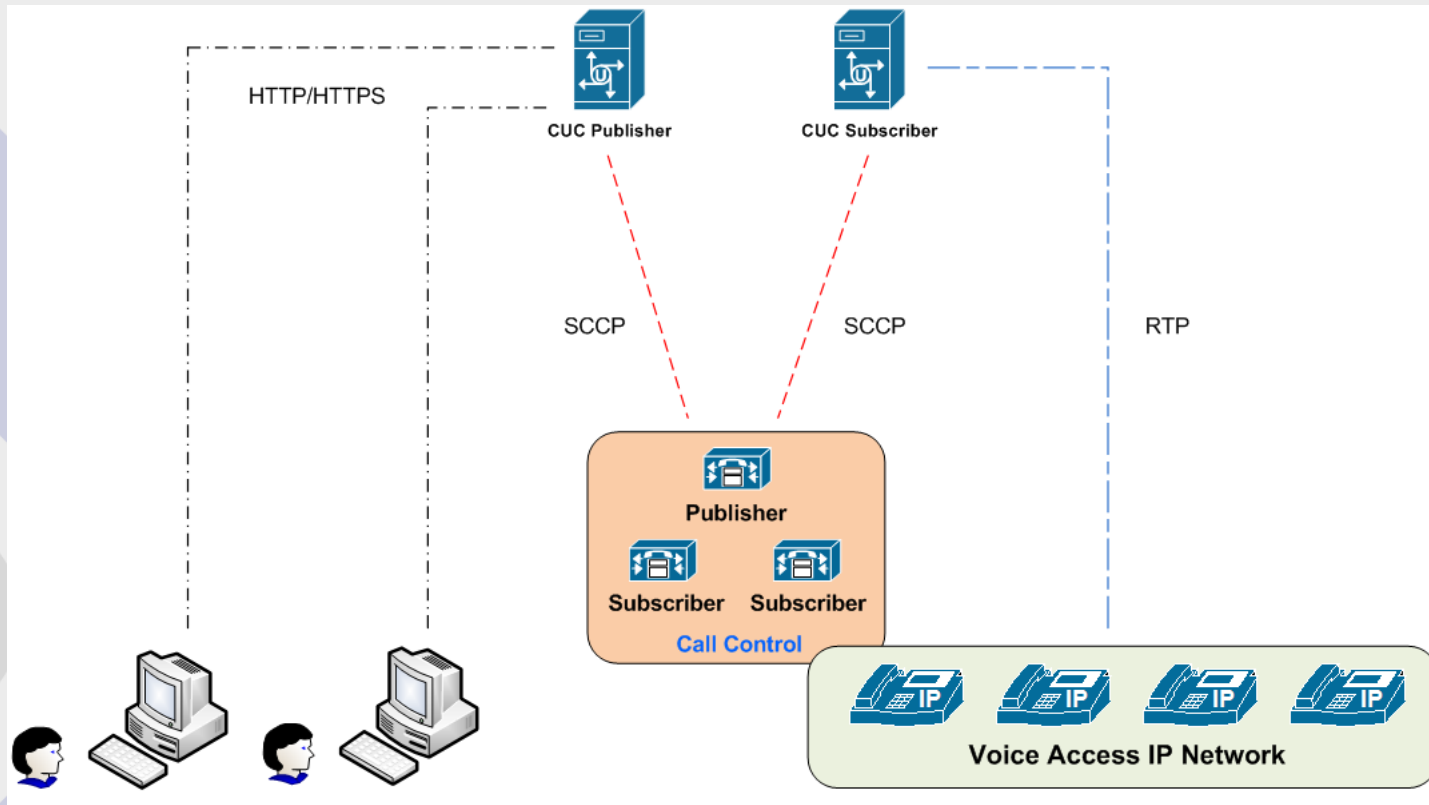
Voicemail Only

- VMO is the most basic messaging option in that users *primarily receive messages via the Telephone User Interface (TUI)* (a.k.a., over the phone).
 - Depending on the solution, there may also be some web-based access for users to manage VM settings and/or access voice messages via the web.
- **Tip:** Regulatory requirements are often a driving factor in the selection of a VMO solution.

Unity Connection: Voicemail Only

- **All of Cisco's voice messaging products can provide a VMO solution; however, Unity Connection is the preferred product.**
 - **Standalone solution and message store**
 - **Voicemail is stored separately from email, fax, etc.**
 - **Provides TUI and web-based access to messages for end users**

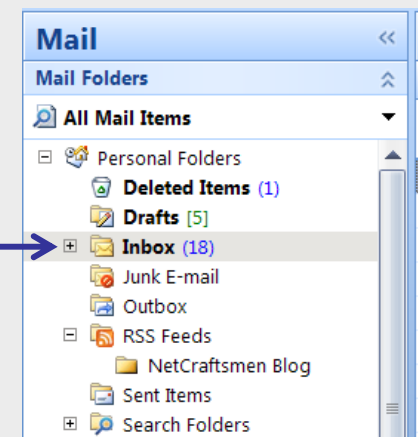
VMO Architecture



Unified Messaging

- With UM, there is a **single** message store where **all** messages (email, voicemail, fax) are stored.
 - e.g., Microsoft Exchange is the only message store.
- For users, this means there is a **single Inbox** where **all** messages (email, voicemail, fax) are received.

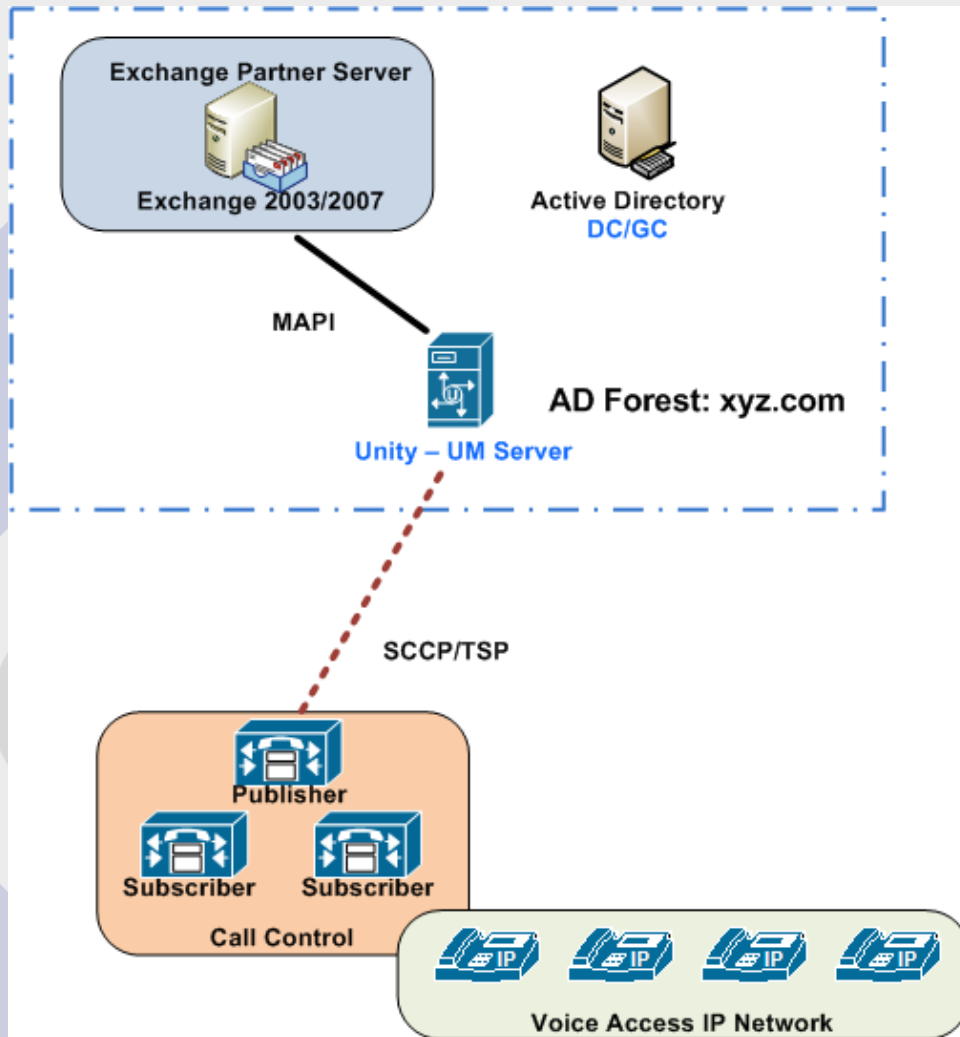
You've got mail and voicemail, too. Voila!



Cisco Unity: Unified Messaging

- **Unity is Cisco's UM application.**
 - For all versions up to 7x, Unity is compatible with Exchange 2003/2007 and Lotus Domino.
 - Unity 8x no longer supports Lotus Domino.
- **Unity is tightly integrated into an existing Active Directory and Exchange environment.**
 - Schema extension
 - Extensive permissions set for service accounts
 - Highly dependent upon availability of DC/GC and Partner Exchange server

UM Architecture



A Hot Topic: Microsoft UM

- **A preemptive strike...a word about Microsoft**
 - **Do any of your customers use Microsoft UM?**
 - **Yes**
 - **What do you think about it?**
 - **It leverages SIP for integration with CUCM and it works but may also require 3rd-party application(s), server(s), media termination point (MTP), and etc.**
 - **It's free, right?**
 - **Free doesn't always mean zero cost. Understanding your licensing agreement is the key to what "free" means for your business.**

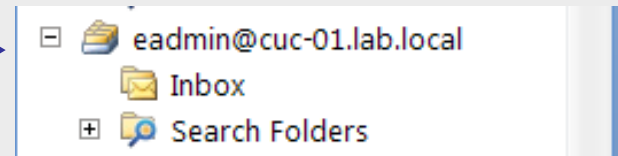
Integrated Messaging

- With IM, voicemail and email are stored ***separately***.
 - Microsoft Exchange is the email message store
 - Unity Connection is the voicemail message store
- For users, this means there are ***separate*** folders for email and voicemail.

Unity Connection: Integrated Messaging

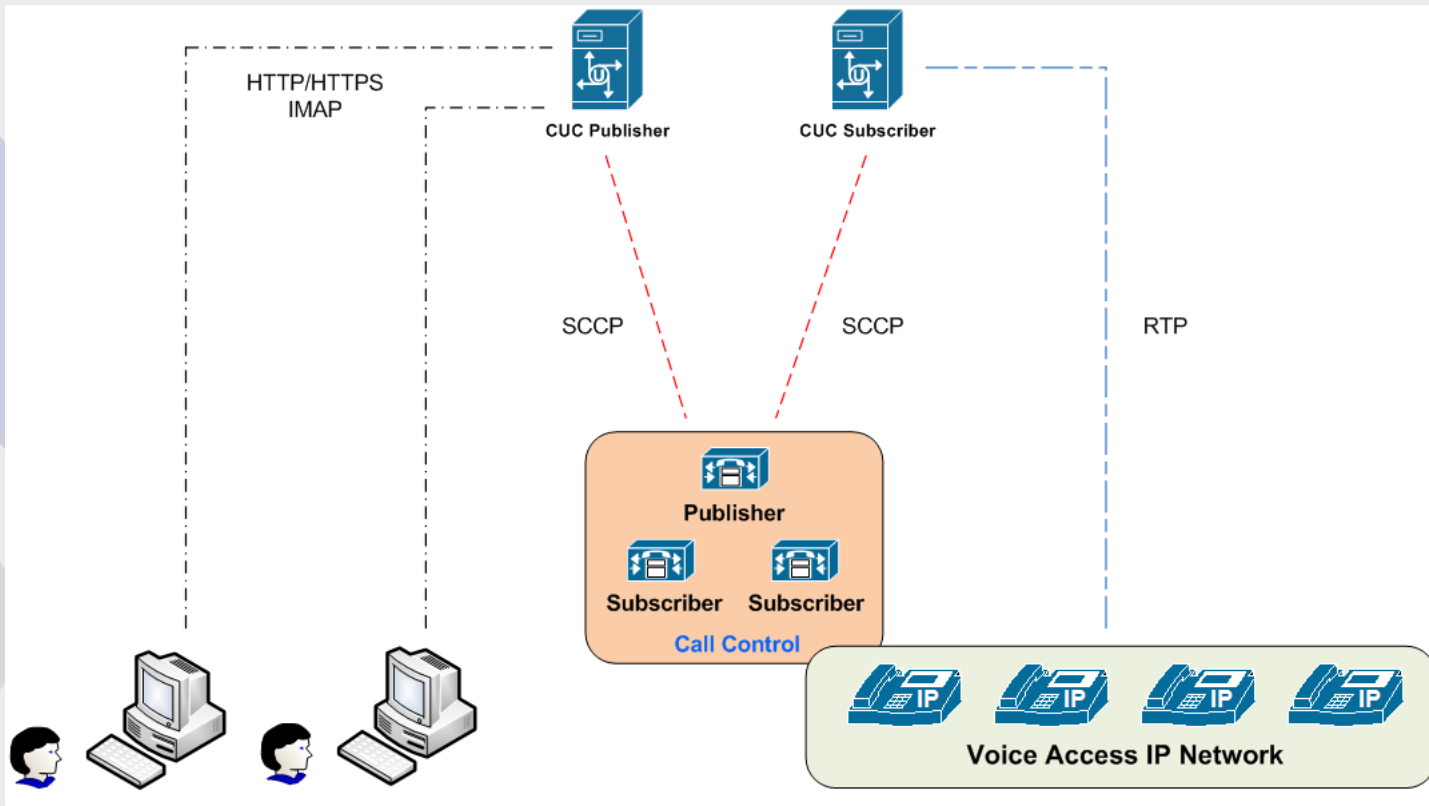
- **Unity Connection is Cisco's IM application.**
 - **Leverages IMAP to allow users to receive voicemail within a separate folder (not the Inbox)**

You've got voicemail right here.



- **Integrated Messaging is assigned via Class of Service but can also be controlled on a per user basis. Administrators have the flexibility to provide end users with a choice in how they prefer to receive voice messages.**

IM Architecture



What About the Other Cisco Products?

- **Cisco Unity Express (CUE)** is a router-based solution that supports less than 275 users.
- **Cisco UC Manager Business Edition (CUCM-BE)** provides a co-resident install of CUCM and CUC that supports up to 500 users.

Unity Connection: Cisco's Flagship Voice Messaging Product

Why Customers Are Hearing So Much About CUC

Unity Connection: Reduced Complexity

- **Separate Message Store**
 - No dependence on Exchange or Active Directory
 - Reduces complexity for voice engineers who may not have sufficient experience with AD/Exchange
 - With UM, calculating the size of the mail store to accommodate what essentially is just more email can be very difficult
 - Eases legal concerns over UM but still offers a UM-like experience via IMAP

Unity Connection: Simple, Efficient, and Flexible

- **Simplicity and Efficiency**
 - System setup can take up to 80% less time than Unity
 - Sustainment/maintenance can take up to 50% less time than Unity
- **Flexible Messaging Options**
 - VMO
 - IMO
 - Store and Forward
 - Message Relay
 - RSS Feed

Unity Connection: Familiar Platform and High-Availability

- **Same platform as Cisco Unified Communications Manager (CUCM)**
 - Same version, same image
 - Lock step releases of CUCM and CUC
 - Common platform services
- **Active-Active Redundancy**
 - CUC redundancy model is Active-Active clustering
 - Intended to provide 100% failover of services between nodes
 - All data, including messages, is replicated between nodes

Unity Connection: Scalable and Capable

- **Scalability**

- 10k users/288 ports in VMO deployment
- 7500 users/144 ports in IM deployment
- Digitally network 10 standalone servers/clusters to support up to 100k users (requires 7.1)
- CUC 8x brings significant enhancements
 - 20k users/500 ports
 - 20 digitally networked nodes, 100k user global directory
 - Parity between VMO and IMAP users

Unity Connection: Loaded with Features

- **Flexible Administration Options**
 - Import users from LDAP or CUCM
 - BAT or manual configuration
- **Feature Rich Application**
 - Dial Plan (Partitions, CSS)
 - Speech Connect (Speech Enabled Auto Attendant)
 - Virtualization via Unified Computing System (UCS, CUC 8x)
 - Optional integration with Exchange, MP, MPE, etc.
 - Visual Voicemail for IP Phones
 - SpeechView (feature not yet released)

Unity Connection Fundamentals

The “Skinny” on CUC

Unity Connection Fundamentals

- **Current shipping release is 8.0**
- **Current CNC recommended version 7.1(3b)SU2**
- **Can be deployed as standalone server or as Active-Active cluster**
 - **Cluster can only exist of 2 nodes: Publisher and Subscriber**
 - **During normal operations, Publisher is primary and Subscriber is secondary.**
 - **Clusters should be designed to provide 100% redundancy between servers.**

Unity Connection Fundamentals

- **Server Functions**

- Publisher handles HTTP/HTTPS traffic, IMAP connections (essentially all administrator and user sessions).
- Subscriber should primarily handle calls, if there are no ports available then calls can rollover to the Publisher.

- **Cluster Servers Deployed in Separate Sites**

- Bandwidth requirements based on number of ports
 - 48 ports/server = 50Mbps, 96 ports/server = 100 Mbps, 144 ports/server = 150 Mbps
 - 20ms RTT latency between sites

Unity Connection Fundamentals

- **Sizing and Scalability Notes**
 - 288 ports per cluster (7x), 500 ports per cluster (8x) for VMO
 - IM deployments support reduced number of ports due to additional load for IMAP clients, 144 ports per cluster (7x)
 - IMAP reduces the total number of supported users from 10k to 7500 in 7x – this assumes the IMAP Idle protocol is used
 - Standard IMAP connections reduce capacity by 75%
 - Parity in VMO/IM users to come in 8x release

Unity Connection Fundamentals

- **Sizing and Scalability Notes**
 - CUC supports a number of CODECS including G.722 and Internet Low Bandwidth Codec (iLBC); however, these CODECS reduce port capacity by 50%.
 - CNC recommendation is to use G.711 whenever possible
 - CODEC used affects the total storage capacity of message storage minutes.
 - 240k message minutes when using G.711
 - 480Kb/min when using G.711

Unity Connection Fundamentals

- **CUCM Integration**
 - Supported via SCCP or SIP
 - Cluster configuration:
 - 2 Line Groups – one for Subscriber ports, one for Publisher
 - 1 Hunt List – Subscriber Line Group preferred, Publisher Line Group is secondary
 - **Tip:** Do not include MWI ports (i.e., ports that do not answer calls) in VM line groups

Unity Connection Fundamentals

- **Telephony Integration Configurations in CUC**
 - **3 Basic Components**
 - **Define a Phone System integration**
 - **Add Port Group(s)**
 - 1 for Publisher
 - 1 for Subscriber
 - **Add Ports**
 - **Tip:** Add Subscriber ports then Publisher ports – add ports in groups based on function.

Unity Connection Fundamentals

- **Telephony Integration Configurations in CUC**
 - **Example Port Configuration**
 - **CUC Cluster, 144 ports/server**
 - **Plan port usage – We want to reserve 25% of the ports to Perform Message Notification, Send MWI Requests, and provide TRAP connections**
 - **Subscriber – Add 108 ports that only Answer Calls then add 36 ports with “Answer Calls” disabled (all other functions enabled)**
 - **Repeat the same process for the Publisher**
 - **Tip:** If CUC ports initially register with private IP addresses, reboot the CUC cluster.

Unity Connection Fundamentals

- **SMTP**
 - Essential to a number of CUC services and features
 - Digital Networking
 - Message Relay
 - Store and Forward
 - **Tip:** The term “SMTP Smart Host” is used throughout all of the CUC documentation and can be a source of confusion. An SMTP Smart Host is simply an SMTP Relay host. During the platform configuration, if you specify an SMTP server then it is automatically populated as the SMTP Smart Host within CUC.

Unity Connection Fundamentals

- **SMTP**
 - **Why is it important?**
 - **Networked servers use SMTP to communicate. For CUC clusters, an SMTP Smart Host is required to resolve the SMTP domain name on a cluster to both the Publisher and Subscriber servers in order for message traffic to reach the Subscriber if the Publisher is offline.**
 - **CUC relies on an SMTP Smart Host to provide message relay features as well as Fax Server integration.**

Unity Connection Fundamentals

- **SMTP**
 - **Why is it important?**
 - **CUC can receive/process SMTP messages generated by IMAP clients.**
 - **When clusters are networked together, message relay can be configured so that messages are sent between IMAP clients on different clusters.**
 - **Security Considerations**
 - **Configure ACL's within CUC to control access via SMTP or allow untrusted connections.**
 - **If untrusted connections are allowed, will you require authentication?**

Unity Connection Fundamentals

- **SMTP**
 - **Security Considerations**
 - **Authentication can be configured to require Transport Layer Security (TLS).**
 - **By default, CUC will use the self-signed certificate or you can install a certificate generated by an internal or external CA.**
 - **The trust certificate of the CA should be added to the Trusted Root Store on workstations to avoid security alerts.**

Unity Connection Fundamentals

- **Mailstore and Message Management**
 - By default, CUC creates a DB for configuration information and a mailstore DB.
 - It is possible to create up to 4 additional mailstores; however, it is best to use this cautiously.
 - **Tip:** CUC Mailstore configurations include a “Maximum Size Before Warning” configuration set to 15 MB, by default. When this size is reached, an error is logged BUT the mailstore is not affected. Assuming you have adequate disk space, this value can be modified on the fly with no impact to the mailstore.

Unity Connection Fundamentals

- **Mailstore and Message Management**
 - Since the mailstore is independent of Exchange (or Domino), administrators have more control over mailbox size.
 - **Tip:** By default, Unity and CUC are configured to automatically purge deleted messages. In return, users stop deleting anything. The CNC recommendation with CUC is to disable this setting.
 - Class of Service > Message Options > Uncheck “Delete Messages Without Saving to Deleted Items Folder”

Unity Connection Fundamentals

- **Mailstore and Message Management**
 - **Mailbox Quotas**
 - **Specifies a mailbox size in MB for Warning, Send, and Send/Receive Quotas on mailboxes**
 - **Can be applied system-wide and customized on a per-user basis (maximum mailbox size is 2GB)**
 - **Default Warning Quota = 12 MB (25 min of recording with G711)**
 - **Default Send Quota = 13 MB (27 min of recording with G711)**
 - **Default Send/Receive Quota = 14 MB (29 min of recording with G711)**

Unity Connection Fundamentals

- **Mailstore and Message Management**
 - **Message Aging Policy**
 - If enabled, it applies system-wide but can be disabled on a per-user basis.
 - If disabled, no message aging policies are applied and cannot be enabled on a per-user basis.
 - **Tip:** Use Mailbox Quotas and Message Aging Policies in conjunction with the Deleted Items folder to encourage users to manage their mailbox. By default, messages in Deleted Items are purged in 15 days (customize as needed).

Unity Connection Fundamentals

- **Mailstore and Message Management**
 - **Message Aging Policy**
 - **Tip:** Should you need to be more aggressive in your Message Aging Policy, you can optionally choose to move saved messages to the Deleted Items folder within a specified timeframe. This is disabled by default.

Unity Connection Fundamentals

- **Service Management**
 - **Unified Services**
 - **Built into CUCM/CUC application platform and accessed via Cisco Unified Serviceability**
 - **AXL & UXL Web Services**
 - **Serviceability Reporter**
 - **DirSync**
 - **CUC Services**
 - **Specific to CUC and accessed via Cisco Unity Connection Serviceability**
 - **Services are divided into 4 major groups**

Unity Connection Fundamentals

- **Service Management**
 - **CUC Services**
 - **Database Services**
 - **Critical Services**
 - Services that are critical for a server based on cluster role (Primary or Secondary).
 - **Base Services**
 - Services started during system startup.
 - Not controlled by SRM
 - **Optional Services**
 - Primarily feature-based services that can run on one or both servers in a cluster

Unity Connection Fundamentals

- **Server Roles**
 - Within a cluster, cluster roles are controlled by the SRM process.
 - There are 2 primary roles:
 - **Primary**
 - Master DB
 - Runs all 4 critical services
 - **Secondary**
 - Writes to the master DB on the Primary
 - Runs 2 critical services: Conversation Manager and Connection Mixer

Why Are My Customers Migrating to CUC?

How many of you are considering Unity Connection (new install or migration)?

Why Are My Customers Migrating to CUC?

- **Organizational Support Issues**
 - **Voice and AD/Exchange engineers are not engaged with each other.**
 - **If problems with Unity arise, the finger pointing begins.**
 - **Many Voice engineers do not have the necessary Microsoft skills to fully understand Unity (and vice versa).**

Why Are My Customers Migrating to CUC?

- **Technical decisions are often made by non-technical managers blinded by “the cool factor”.**
 - **“Wow, voicemail in my Inbox? I want it!”**
 - **(6 months later) “Hailey, is there a way to not get all these voicemails in my email?”**
 - **Some companies fail (or just skip) the requirements definition phase of a project. Further, they often don’t account for what the end users would like to have.**

Why Are My Customers Migrating to CUC?

- **Regulatory Factors**

- With UM, *everything* is email.
- It's not uncommon for a company to go with a UM solution and, shortly after implementation begins, the legal department starts asking lots of questions about electronic records, retention policies, and so forth.
- Sometimes the rules change when email is email and voicemail is voicemail.

Why Are My Customers Migrating to CUC?

- **The advent of the appliance model has companies moving away from Windows-based server applications.**
 - **Reduced maintenance**
 - **Increased uptime**
 - **Active and Inactive partitioning of CUCM/CUC simplifies upgrades and reduces associated risk.**
 - **There really is no such thing as an “upgrade” as far as Unity is concerned.**

Why Are My Customers Migrating to CUC?

- **Unity and Microsoft Interoperability**
 - MS is trying to make an impact in the UC space so collaboration has shifted to competition.
 - Changes to MAPI in Exchange 2010 brought about some challenges for Cisco and interoperability with Unity.
 - **Thought:** What if CUC could provide a UM experience without being so dependent upon AD and Exchange?

Why Are My Customers Migrating to CUC?

- **Timing**

- **Many companies are refreshing older hardware platforms and the migration tools available from Cisco make migrating to CUC fairly easy.**
- **Many companies are still on Unity 4x and, as I said earlier, the words “Unity” and “upgrade” do not go hand in hand. CUC appliances are pre-loaded (like CUCM) and the migration tools available from Cisco make migrating to CUC fairly easy (yes, I said that twice already).**

How Do I Migrate from Unity to Unity Connection?

COBRAS – not the snakes, the Consolidated Object Backup and Restore Application Suite Migration tools from Cisco.

Unity to Unity Connection Migration

- **What can be migrated?**
 - **Subscribers (including messages, if required)**
 - **Call Handlers**
 - **Interview Handlers**
 - **Public Distribution Lists (including membership, if required)**
 - **Schedules**

Unity to Unity Connection Migration

- **What cannot be migrated?**
 - **Contacts**
 - **Class of Service**
 - **Subscriber Templates**
 - **Directory Handlers**
 - **Restriction Tables**
 - **Password Policies**
 - **Holidays**
 - **Locations**
 - **Secure messages**
 - **Miscellaneous (switch info, advanced settings, etc.)**

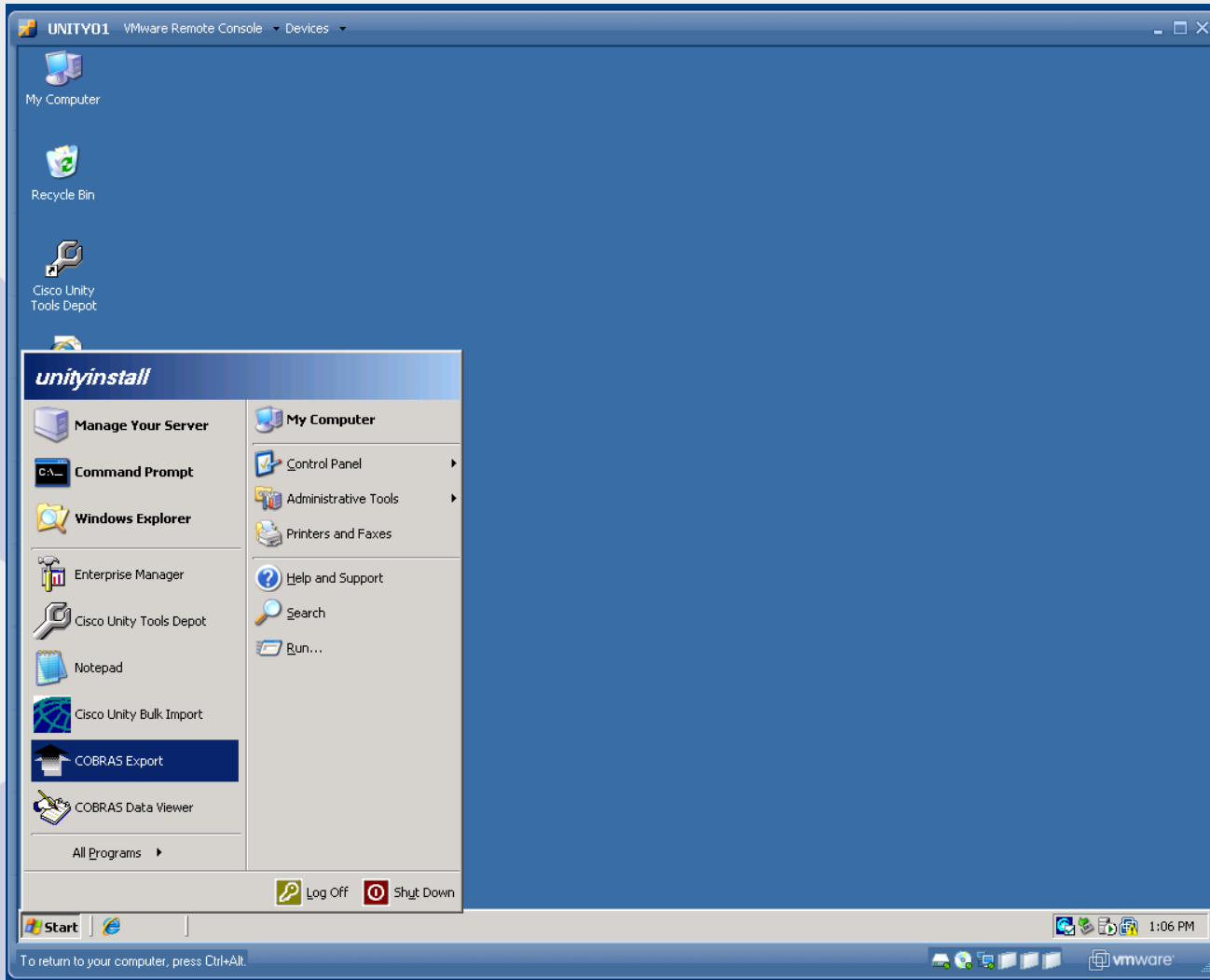
Unity to Unity Connection Migration

- **High-Level Process**
 - Build and verify health of CUC server or cluster
 - Configure general settings
 - Time Zone
 - System Services
 - Build settings that cannot be migrated
 - Class of Service
 - Subscriber Templates
 - Restriction Tables
 - Password Policies

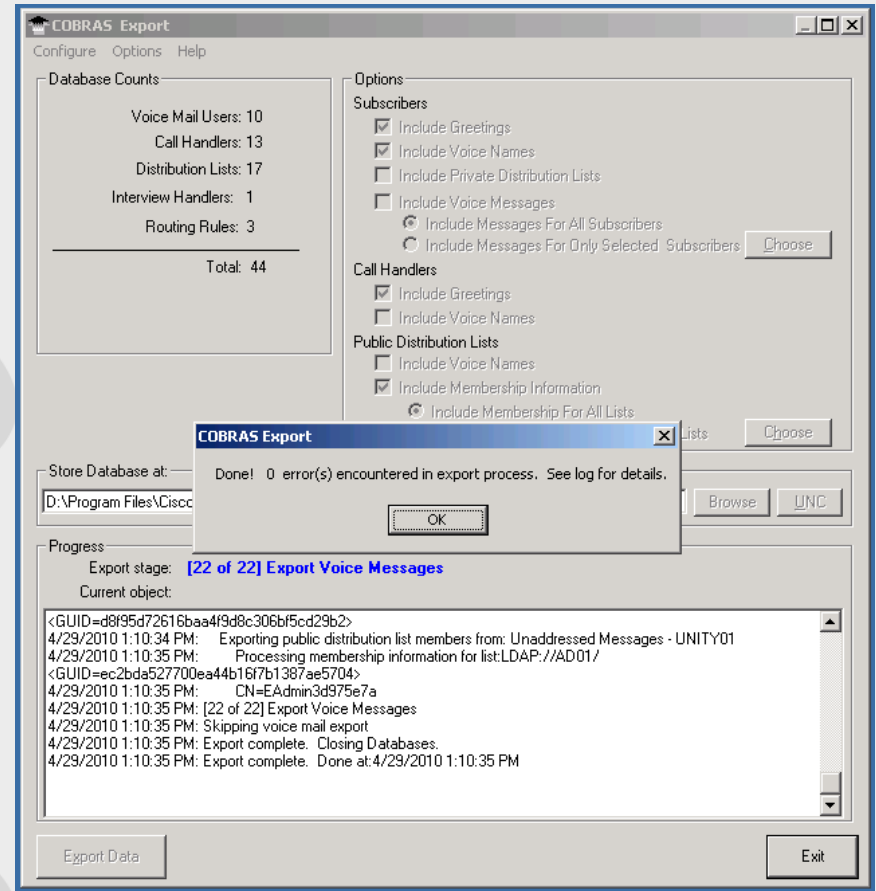
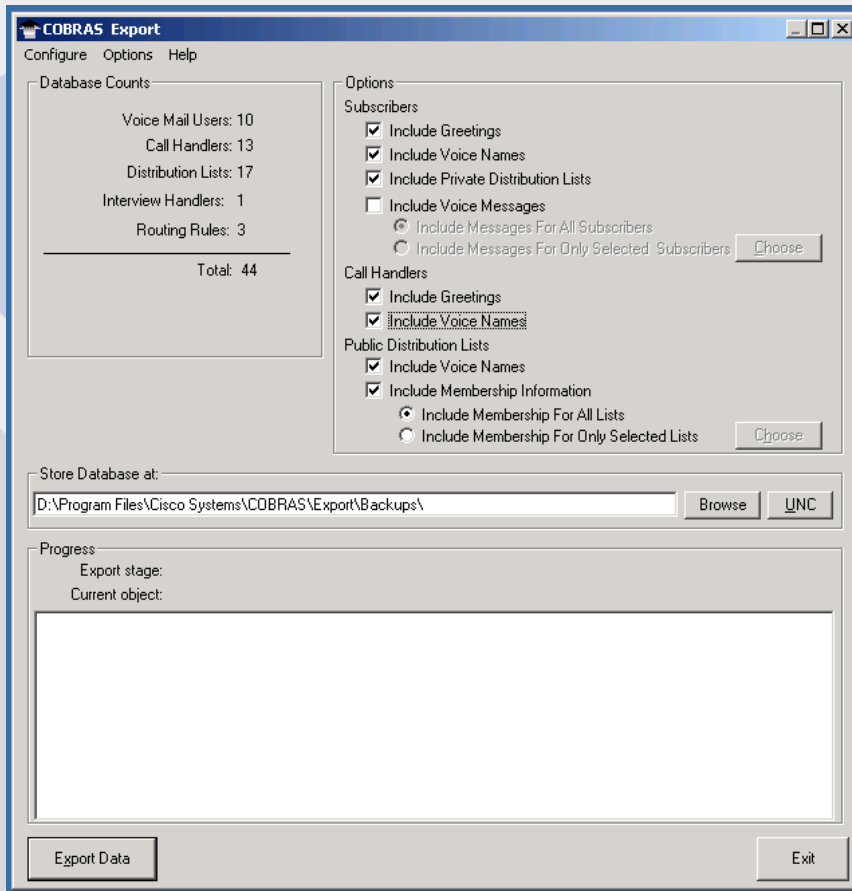
Unity to Unity Connection Migration

- **High-Level Process**
 - Activate DB Proxy service
 - Configure DB Proxy service and SMTP parameters
 - Disable local firewall and/or antivirus
 - COBRAS Installation
 - Export and Data Viewer (Unity)
 - Informix ODBC Drivers and Import (Win XP or Win 2003 Server)
 - Export data from Unity via COBRAS Export
 - Import data via COBRAS Import
 - Verification and post-migration tasks

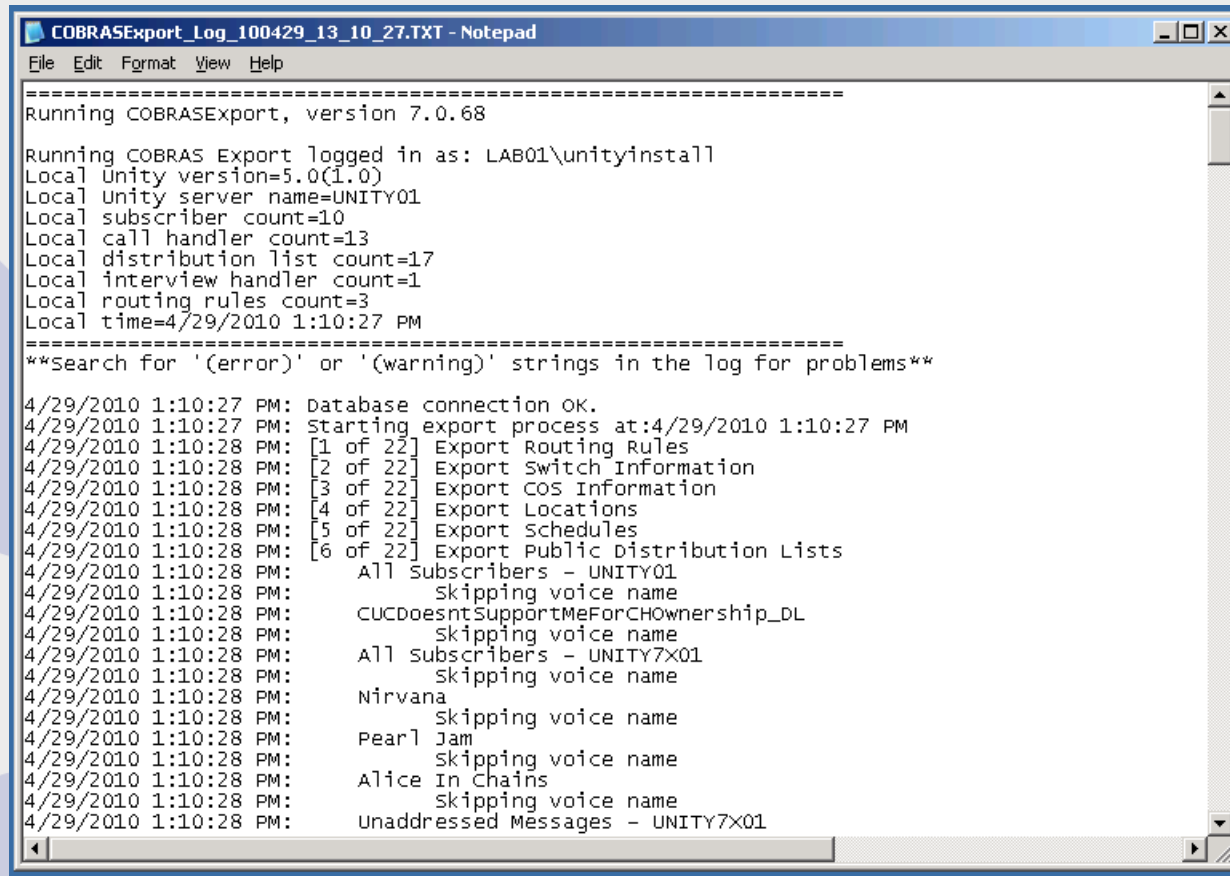
Unity to Unity Connection Migration



Unity to Unity Connection Migration



Unity to Unity Connection Migration

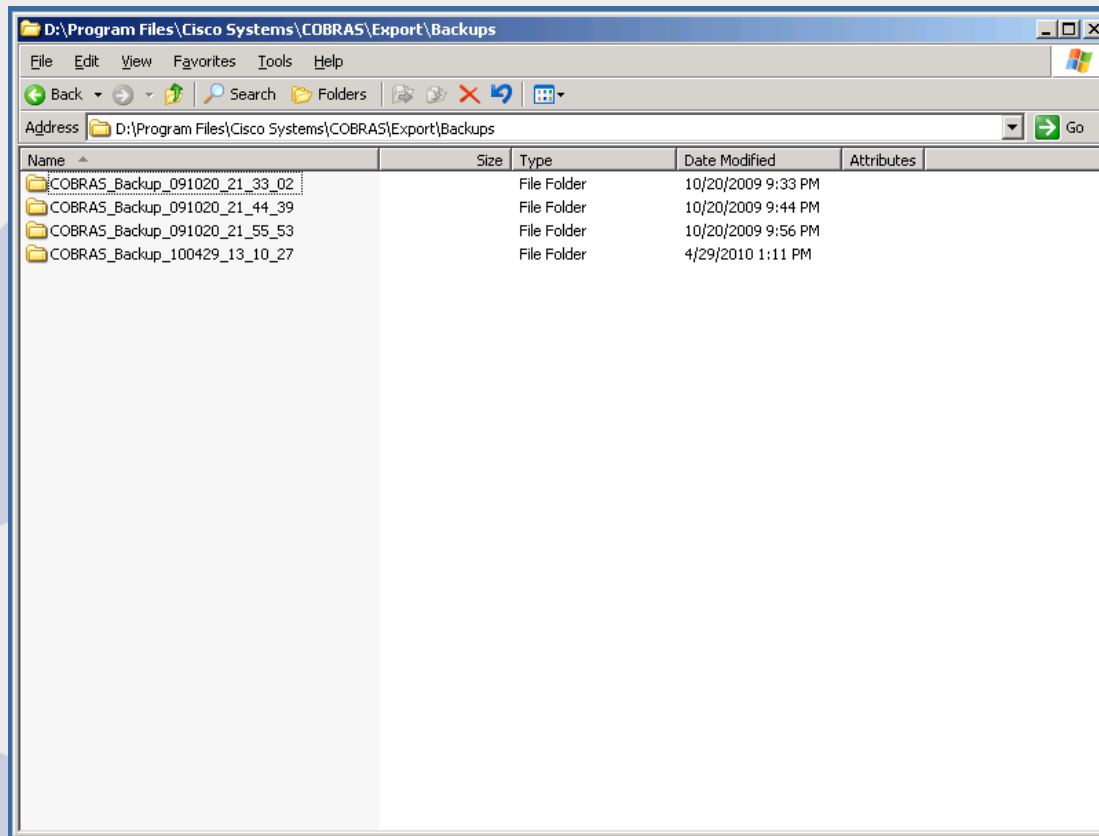


```
COBRASExport_Log_100429_13_10_27.TXT - Notepad
File Edit Format View Help
=====
Running COBRASExport, version 7.0.68

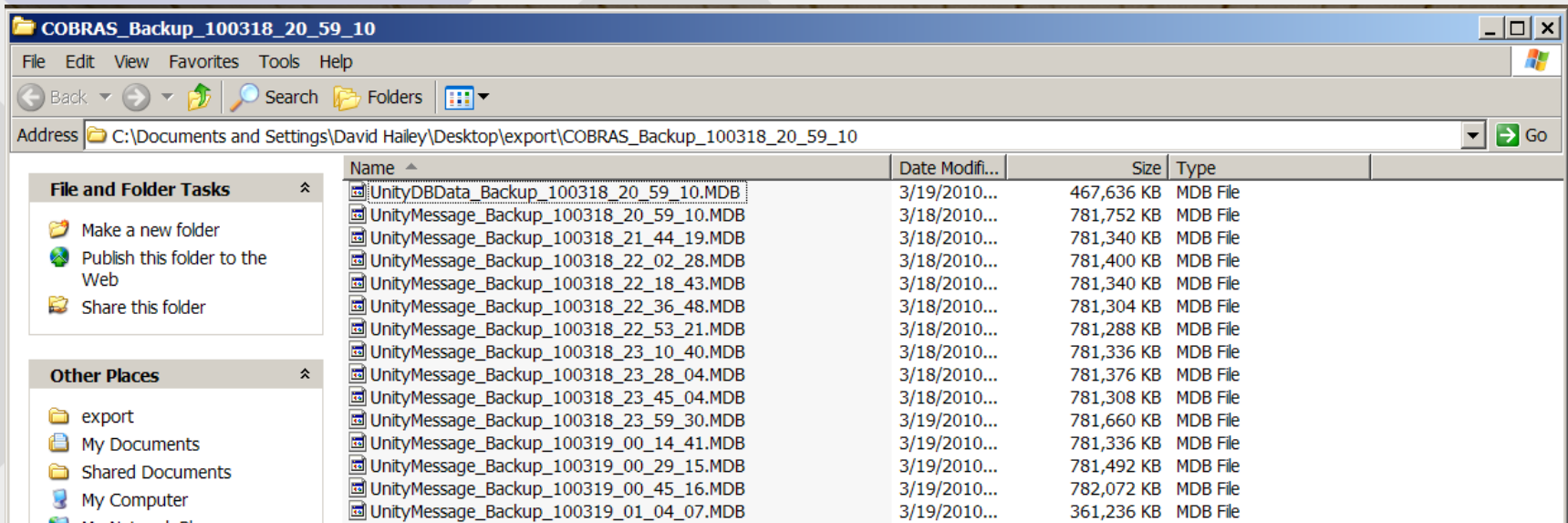
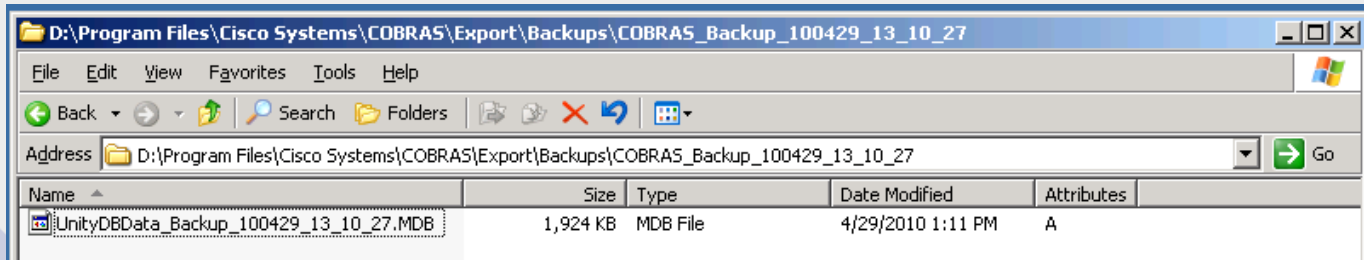
Running COBRAS Export logged in as: LAB01\unityinstall
Local Unity version=5.0(1.0)
Local unity server name=UNITY01
Local subscriber count=10
Local call handler count=13
Local distribution list count=17
Local interview handler count=1
Local routing rules count=3
Local time=4/29/2010 1:10:27 PM
=====
**Search for '(error)' or '(warning)' strings in the log for problems**

4/29/2010 1:10:27 PM: Database connection OK.
4/29/2010 1:10:27 PM: Starting export process at:4/29/2010 1:10:27 PM
4/29/2010 1:10:28 PM: [1 of 22] Export Routing Rules
4/29/2010 1:10:28 PM: [2 of 22] Export Switch Information
4/29/2010 1:10:28 PM: [3 of 22] Export COS Information
4/29/2010 1:10:28 PM: [4 of 22] Export Locations
4/29/2010 1:10:28 PM: [5 of 22] Export Schedules
4/29/2010 1:10:28 PM: [6 of 22] Export Public Distribution Lists
4/29/2010 1:10:28 PM: All subscribers - UNITY01
4/29/2010 1:10:28 PM: skipping voice name
4/29/2010 1:10:28 PM: CUCDoesntSupportMeForChOWnership_DL
4/29/2010 1:10:28 PM: skipping voice name
4/29/2010 1:10:28 PM: All subscribers - UNITY7X01
4/29/2010 1:10:28 PM: skipping voice name
4/29/2010 1:10:28 PM: Nirvana
4/29/2010 1:10:28 PM: skipping voice name
4/29/2010 1:10:28 PM: Pearl Jam
4/29/2010 1:10:28 PM: skipping voice name
4/29/2010 1:10:28 PM: Alice In Chains
4/29/2010 1:10:28 PM: skipping voice name
4/29/2010 1:10:28 PM: Unaddressed Messages - UNITY7X01
```

Unity to Unity Connection Migration



Unity to Unity Connection Migration




Unity to Unity Connection Migration

Search Users Search Users

User Refresh Help

Status

 Found 5 User(s)

Search Limits

Limit search to

Users (1 - 5 of 5) Rows per Page

Find Users where

<input type="checkbox"/>	Alias ^	Extension	First Name	Last Name	Display Name
<input type="checkbox"/>	ccadministrator				ccadministrator
<input type="checkbox"/>	operator	99990			Operator
<input type="checkbox"/>	Replication		Replication	Agent	Replication Agent (cuc01)
<input type="checkbox"/>	undeliverablemessagesmailbox	99999			Undeliverable Messages
<input type="checkbox"/>	UnityConnection		Unity Connection	Messaging System	Unity Connection Messaging System

Unity to Unity Connection Migration

Edit User Basics (ccadministrator) Search Users ▶ Edit User Basics (ccadministrator)

User Edit Refresh Help

Prev

Name

Alias* _____

First Name _____

Last Name _____

Display Name _____

SMTP Address _____ @cuc01.lab01.local

Initials _____

Title _____

Employment _____

Location

Address _____

Building _____

City _____

State _____

Postal Code _____

Country _____

Use External Service Accounts

Time Zone _____ Eastern Time (US & Canada)

Language Use System Default Language English(United States)

Department _____

Manager _____

Billing ID _____

Corporate Email Address _____

Corporate Phone Number _____

Previous Next

Fields marked with an asterisk (*) are required.

- User Basics
- Password Settings
- Change Password
- Roles**
- Message Waiting Indicators
- Transfer Rules
- Message Settings
- Caller Input
- Mailbox
- Phone Menu
- Playback Message Settings
- Send Message Settings
- Message Actions
- Greetings
- Notification Devices
- Alternate Extensions
- Edit Alternate Names
- Private Distribution Lists
- External Service Accounts
- SMTP Proxy Addresses

Edit Roles Search Users ▶ Edit User Basics (ccadministrator) ▶ Edit Roles

User Edit Refresh Help

Save

Roles

Assigned Roles Remote Administrator System Administrator

Available Roles Audio Text Administrator Greeting Administrator Help Desk Administrator Technician User Administrator

Save

Unity to Unity Connection Migration

Connection Administration Configuration Connection Administration Configuration

Connection Administration Configuration Refresh Help

Connection Administration Configuration	
Name	Value
Cisco Unified Mobile Advantage: Accept Self-signed Certificates for Event Service Subscription Notifications	<input type="checkbox"/>
Voice Mail Web Service: Applications Can Cache the Cisco Unity Connection Password	<input checked="" type="checkbox"/>
Voice Mail Web Service: Session Timeout (in Seconds)	<input type="text" value="300"/>
Voice Mail Web Service: Pilot Number for Voice Mail	<input type="text"/>
Administration Session Timeout (in Minutes)	<input type="text" value="20"/>
Display Schedules in 24-hour Format	<input type="checkbox"/>
Host Name/Address for Link to Cisco PCA in Notification Messages	<input type="text"/>
Database Proxy: Service Shutdown Timer (in Days)	<input type="text" value="999"/>
Database Proxy: Maximum Simultaneous Connections	<input type="text" value="10"/>
Voice Mail Web Service: Pilot Number for TRAP Connections	<input type="text"/>

Unity to Unity Connection Migration

SMTP Server Configuration

SMTP Server Configuration Edit Refresh Help

Save

SMTP Server Configuration

SMTP Port #

SMTP Domain* **Change SMTP Domain**

Limit Number of Simultaneous Client Connections

Limit Size of Message Kilobytes

Limit Messages Accepted per SMTP Session

Limit Number of Recipients per Message

Delivery Retry Timeout Override Default Minutes

Allow Connections From Untrusted IP Addresses

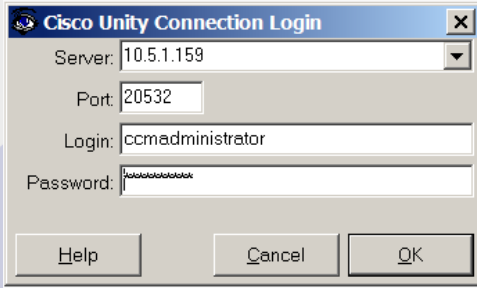
Require Authentication From Untrusted IP Addresses

Transport Layer Security From Untrusted IP Addresses is:

Save

Fields marked with an asterisk (*) are required.

Unity to Unity Connection Migration



Cisco Unity Connection Login

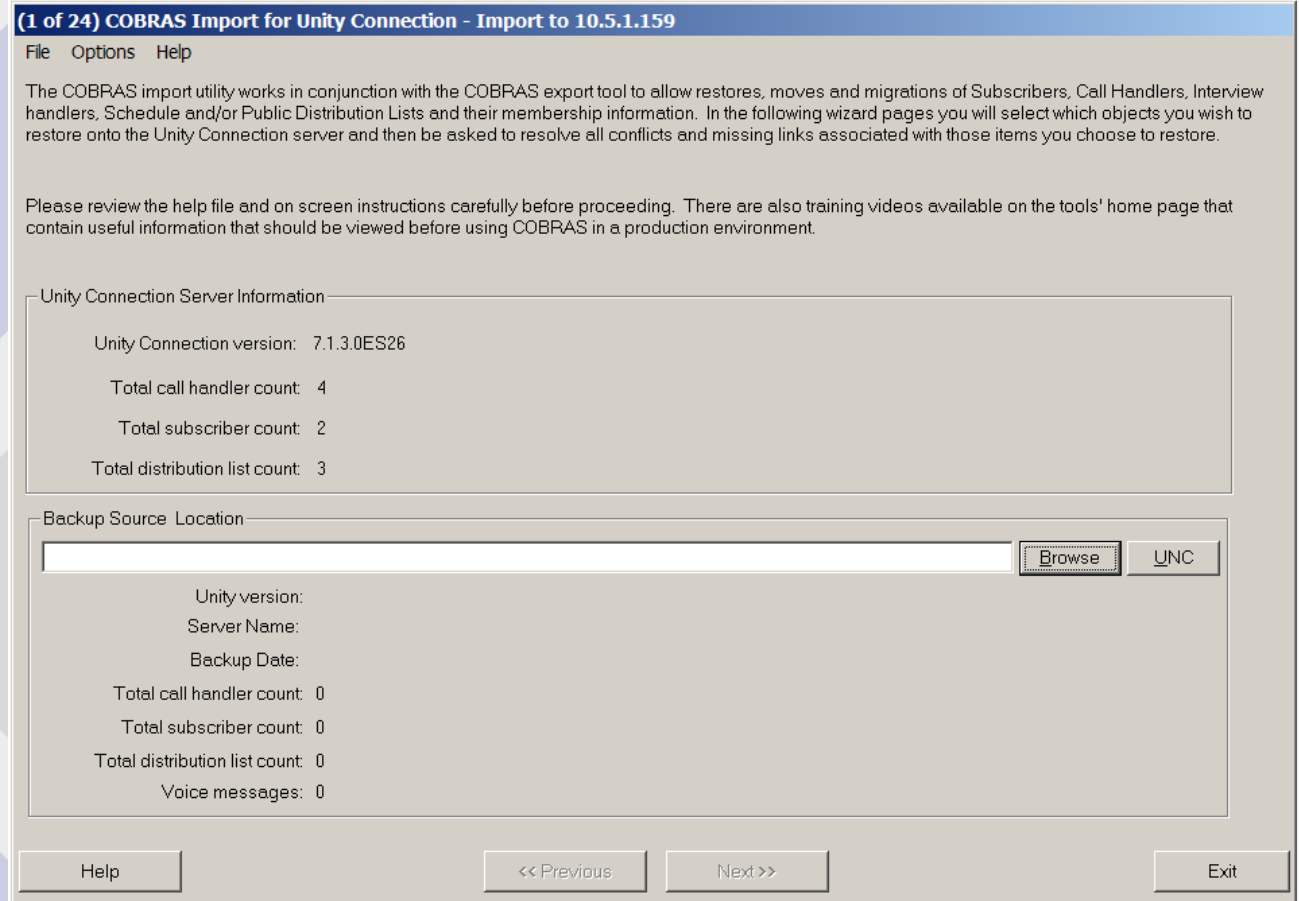
Server: 10.5.1.159

Port: 20532

Login: ccmadministrator

Password: [masked]

Buttons: Help, Cancel, OK



(1 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

File Options Help

The COBRAS import utility works in conjunction with the COBRAS export tool to allow restores, moves and migrations of Subscribers, Call Handlers, Interview handlers, Schedule and/or Public Distribution Lists and their membership information. In the following wizard pages you will select which objects you wish to restore onto the Unity Connection server and then be asked to resolve all conflicts and missing links associated with those items you choose to restore.

Please review the help file and on screen instructions carefully before proceeding. There are also training videos available on the tools' home page that contain useful information that should be viewed before using COBRAS in a production environment.

Unity Connection Server Information

- Unity Connection version: 7.1.3.0ES26
- Total call handler count: 4
- Total subscriber count: 2
- Total distribution list count: 3

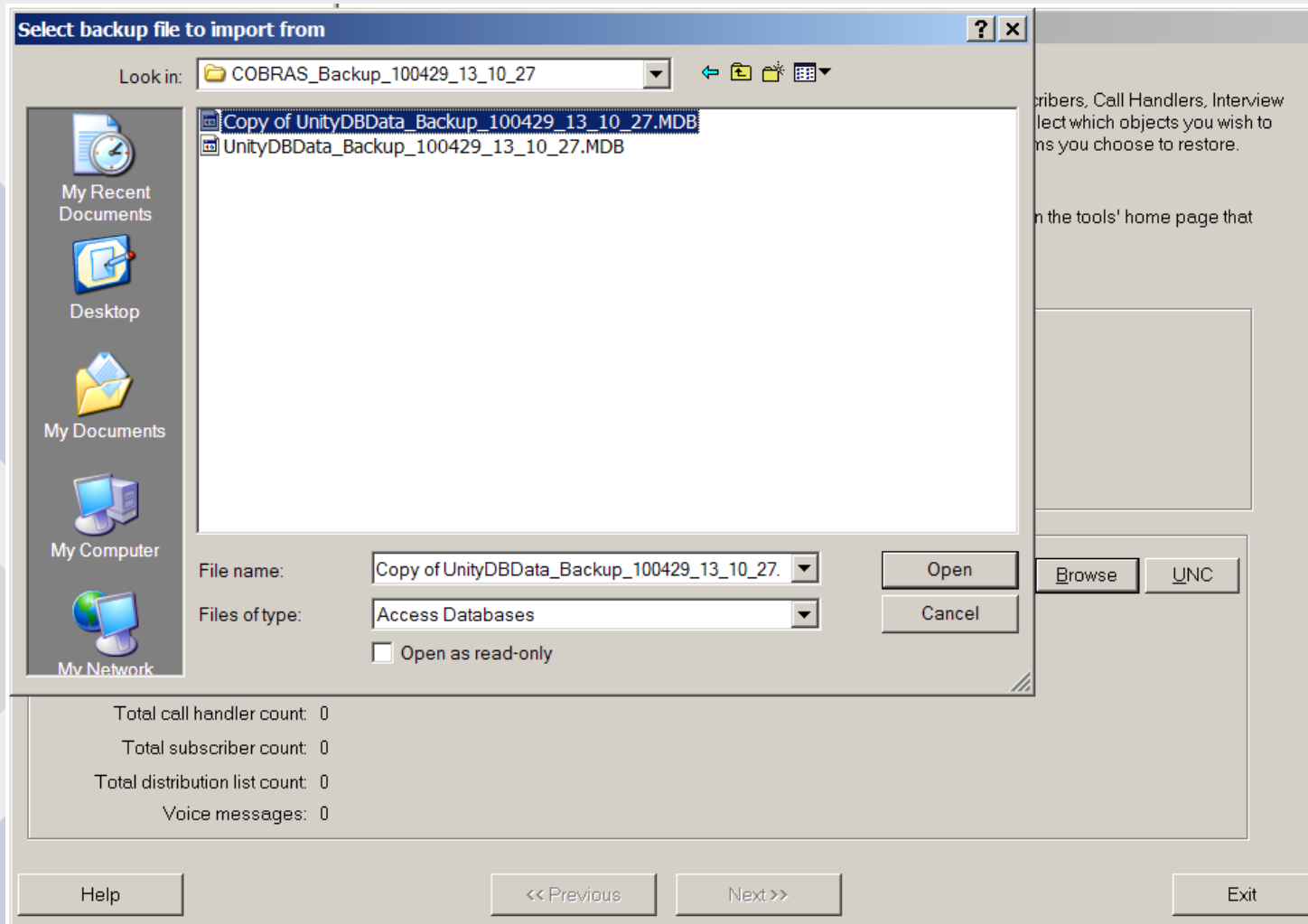
Backup Source Location

[Empty text box] Browse UNC

Unity version:
Server Name:
Backup Date:
Total call handler count: 0
Total subscriber count: 0
Total distribution list count: 0
Voice messages: 0

Buttons: Help, << Previous, Next >>, Exit

Unity to Unity Connection Migration



Unity to Unity Connection Migration

(1 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

File Options Help

The COBRAS import utility works in conjunction with the COBRAS export tool to allow restores, moves and migrations of Subscribers, Call Handlers, Interview handlers, Schedule and/or Public Distribution Lists and their membership information. In the following wizard pages you will select which objects you wish to restore onto the Unity Connection server and then be asked to resolve all conflicts and missing links associated with those items you choose to restore.

Please review the help file and on screen instructions carefully before proceeding. There are also training videos available on the tools' home page that contain useful information that should be viewed before using COBRAS in a production environment.

Unity Connection Server Information

- Unity Connection version: 7.1.3.0ES26
- Total call handler count: 4
- Total subscriber count: 2
- Total distribution list count: 3

Backup Source Location

Z:\COBRAS_Backup_100429_13_10_27\Copy of UnityDBData_Backup_100429_13_10_27.MDB

- Unity version: 5.0(1.0)
- Server Name: UNITY01
- Backup Date: 4/29/2010 1:10:27 PM
- Total call handler count: 13
- Total subscriber count: 10
- Total distribution list count: 17
- Voice messages: [No message backup file found]

Help << Previous Next >> Exit

Unity to Unity Connection Migration

(2 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select Subscribers to Restore

Select subscribers for import

All subscribers

Add Subscribers To Grid ONLY restore messages for a single selected subscriber Users in Grid 10

<input checked="" type="checkbox"/>	Alias	Display Name	First Name	Last Name	Extension	COS
<input checked="" type="checkbox"/>	EAdmin	Example Administrator - UNITY01	Example	Administrator	99999	{Default Administrator}
<input checked="" type="checkbox"/>	JRamone	Joey Ramone	Joey	Ramone	7031090001	{Default Subscriber}
<input checked="" type="checkbox"/>	EVedder	Eddie Vedder	Eddie	Vedder	7031090002	{Default Subscriber}
<input checked="" type="checkbox"/>	CCornell	Chris Cornell	Chris	Cornell	7031090003	{Default Subscriber}
<input checked="" type="checkbox"/>	LStaley	Layne Staley	Layne	Staley	7031090004	{Default Subscriber}
<input checked="" type="checkbox"/>	JBuckley	Jeff Buckley	Jeff	Buckley	7031090005	{Default Subscriber}
<input checked="" type="checkbox"/>	JCash	Johnny Cash	Johnny	Cash	7031090006	{Default Subscriber}
<input checked="" type="checkbox"/>	KCobain	Kurt Cobain	Kurt	Cobain	7031090007	{Default Subscriber}
<input checked="" type="checkbox"/>	DGrohl	Dave Grohl	Dave	Grohl	7031090008	{Default Subscriber}
<input checked="" type="checkbox"/>	SPants	Mr. Scrypty Pants	Scrypty	Pants	7031090009	{Default Subscriber}

Help << Previous Next >> Exit

Unity to Unity Connection Migration

(3 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select Call Handlers to Restore

Select call handlers for import

All call handlers

Add Handlers To Grid

Handlers in Grid 13

<input checked="" type="checkbox"/>	Display Name	Extension	Message Recipient
<input checked="" type="checkbox"/>	BeatUpTheBrat_CH		Joey Ramone
<input checked="" type="checkbox"/>	Jeremy_CH		Eddie Vedder
<input checked="" type="checkbox"/>	FolsomPrisonBlues_CH		Johnny Cash
<input checked="" type="checkbox"/>	IAmJustACHWithADLowner_CH		CUCDoesntSupportMeForCHOwnership_DL
<input checked="" type="checkbox"/>	BlackHoleSun_CH		Chris Cornell
<input checked="" type="checkbox"/>	LastGoodbye_CH		Jeff Buckley
<input checked="" type="checkbox"/>	ManInTheBox_CH		Layne Staley
<input type="checkbox"/>	Opening Greeting		Example Administrator - UNITY01
<input checked="" type="checkbox"/>	WhereIsMrScriptPantsWhenYouNeedHim_CH		Mr. Scripty Pants
<input checked="" type="checkbox"/>	SmellsLikeTeenSpirt_CH		Kurt Cobain
<input checked="" type="checkbox"/>	Everlong_CH		Dave Grohl
<input type="checkbox"/>	Goodbye		Example Administrator - UNITY01
<input type="checkbox"/>	Operator	0	Unaddressed Messages - UNITY01

Help << Previous Next >> Exit

Unity to Unity Connection Migration

(4 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select Interviewers to Restore

Select interviewers for import

All interview handlers

Handlers in Grid

<input type="checkbox"/>	Display Name	Extension	Message Recipient
--------------------------	--------------	-----------	-------------------

Unity to Unity Connection Migration

(5 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select Distribution Lists to Restore

Select distribution lists for import

All distribution lists

Add DLs to grid

Handlers in Grid 17

<input checked="" type="checkbox"/>	Alias	Extension	Display Name
<input checked="" type="checkbox"/>	Alice In Chains		Alice In Chains
<input type="checkbox"/>	allsubscribers	99991	All Subscribers - UNITY01
<input type="checkbox"/>	allsubscribers		All Subscribers - UNITY7X01
<input type="checkbox"/>	allsubscribers		All Subscribers - UNITY7X01
<input checked="" type="checkbox"/>	CUCDoesntSupportMeForCHOwnership_DL		CUCDoesntSupportMeForCHOwnership_DL
<input checked="" type="checkbox"/>	Foo Fighters		Foo Fighters
<input checked="" type="checkbox"/>	Mr. Scripty Pants Fan Club		Mr. Scripty Pants Fan Club
<input checked="" type="checkbox"/>	Nirvana		Nirvana
<input checked="" type="checkbox"/>	Pearl Jam		Pearl Jam
<input checked="" type="checkbox"/>	Soundgarden		Soundgarden
<input type="checkbox"/>	systemeventmessages		System Event Messages - UNITY7X01
<input type="checkbox"/>	systemeventmessages		System Event Messages - UNITY01
<input type="checkbox"/>	systemeventmessages		System Event Messages - UNITY7X01
<input checked="" type="checkbox"/>	The Ramones		The Ramones
<input type="checkbox"/>	unaddressedmessages		Unaddressed Messages - UNITY7X01
<input type="checkbox"/>	unaddressedmessages		Unaddressed Messages - UNITY7X01
<input checked="" type="checkbox"/>	unaddressedmessages		Unaddressed Messages - UNITY01

Help << Previous Next >> Exit

Unity to Unity Connection Migration

(6 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select Schedules to Restore

Select schedules for import

All schedules

Add Schedules to grid

Handlers in Grid 4

<input checked="" type="checkbox"/>	DisplayName
<input type="checkbox"/>	All Hours - All Days
<input checked="" type="checkbox"/>	MrScriptyPantsWork_Hours
<input checked="" type="checkbox"/>	RockAndRoll_Hours
<input type="checkbox"/>	Weekdays

Help << Previous Next >> Exit

Unity to Unity Connection Migration

(7 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select Templates to Use

COBRAS will use the following templates or partitions when creating new objects only - they will be used to fill in information not included in the backup. For instance when restoring from an older Unity installation many data items in Connection will not be represented in the backup and the template will be used to fill those in. In particular the partition that an object's extension will be created when creating new objects from a Unity restore are determined by your selections on this page. Note that when updating existing objects COBRAS will restore data in the backup over those corresponding values in the Connection directory but will not change anything else.

Subscriber template for new user creation:

Handler template for new call handlers:

Dial partitions for new interview handlers:

Dial partitions for new distribution lists:

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(9 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Call Handler Conflicts

Select what action to take for all call handlers selected for restore that conflict with existing objects in the voice mail database. All conflicts with extensions or display names must be resolved before continuing. You can use the 'previous' button to go back and unselect a handler you do not wish to restore, however any options you've made for overwriting existing call handlers on this page will be lost.

Extension	Display Name	Status
	BeatUpTheBrat_CH	[CREATE NEW HANDLER]
	Jeremy_CH	[CREATE NEW HANDLER]
	FolsomPrisonBlues_CH	[CREATE NEW HANDLER]
	IAmJustACHWithADLOwner_CH	[CREATE NEW HANDLER]
	BlackHoleSun_CH	[CREATE NEW HANDLER]
	LastGoodbye_CH	[CREATE NEW HANDLER]
	ManInTheBox_CH	[CREATE NEW HANDLER]
	WhereIsMrScriptPantsWhenYouNeedHim_CH	[CREATE NEW HANDLER]
	SmellsLikeTeenSpirt_CH	[CREATE NEW HANDLER]
	Everlong_CH	[CREATE NEW HANDLER]

Update

In Conflict (must resolve to continue)

Create As New Call Handler

Extension: in partition:

Display Name:

Overwrite an existing call handler on the voice mail system:

Select

Extension: in partition:

Display Name:

Refresh

Save

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(10 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Subscriber Conflicts

Select what action to take for all subscribers selected for restore that conflict with existing objects in the voice mail database. All conflicts with extensions or alias must be resolved before continuing. You can use the 'previous' button to go back and unselect a subscriber you do not wish to restore, however any options you've made for overwriting an existing subscriber on this page will be lost.

Alias	Extension	Display Name	Status
JRamone	7031090001	Joey Ramone	[CREATE NEW SUBSCRIBER]
Evedder	7031090002	Eddie Vedder	[CREATE NEW SUBSCRIBER]
CCornell	7031090003	Chris Cornell	[CREATE NEW SUBSCRIBER]
LStaley	7031090004	Layne Staley	[CREATE NEW SUBSCRIBER]
JBuckley	7031090005	Jeff Buckley	[CREATE NEW SUBSCRIBER]
JCash	7031090006	Johnny Cash	[CREATE NEW SUBSCRIBER]
KCobain	7031090007	Kurt Cobain	[CREATE NEW SUBSCRIBER]
DGrohl	7031090008	Dave Grohl	[CREATE NEW SUBSCRIBER]
SPants	7031090009	Mr. Scripty Pants	[CREATE NEW SUBSCRIBER]

Update

In Conflict (must resolve to continue) Refresh

Create As New Subscriber

Extension: in partition:

Display Name:

Alias:

Overwrite an existing subscriber on the voice mail system:

Extension: in partition:

Display Name:

Alias: Save

Unity to Unity Connection Migration

(11 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Distribution List Conflicts

Select what action to take for all public distribution lists selected for restore that conflict with existing objects in the voice mail database. All conflicts with extensions, alias or display names must be resolved before continuing. You can use the "previous" button to go back and unselect a distribution list you do not wish to restore, however any options you've made for adding members to an existing list on this page will be lost.

Alias	Extension	Display Name	Status
Alice In Chains		Alice In Chains	[CREATE NEW DISTRIBUTION LIST]
CUCDoesntSupportMeForCHOwnership_DL		CUCDoesntSupportMeForCHOwnership_DL	[CREATE NEW DISTRIBUTION LIST]
Foo Fighters		Foo Fighters	[CREATE NEW DISTRIBUTION LIST]
Mr. Scripty Pants Fan Club		Mr. Scripty Pants Fan Club	[CREATE NEW DISTRIBUTION LIST]
Nirvana		Nirvana	[CREATE NEW DISTRIBUTION LIST]
Pearl Jam		Pearl Jam	[CREATE NEW DISTRIBUTION LIST]
Soundgarden		Soundgarden	[CREATE NEW DISTRIBUTION LIST]
The Ramones		The Ramones	[CREATE NEW DISTRIBUTION LIST]

Update

In Conflict (must resolve to continue)

Create As New Public Distribution List

Extension: in partition:

Display Name:

Alias:

Add members to an existing public distribution list on voice mail server:

Extension: in partition:

Display Name:

Unity to Unity Connection Migration

(13 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Schedule Conflicts

Select what action to take for all schedules selected for restore that conflict with existing objects in the voice mail database. All conflicts with extensions or display names must be resolved before continuing. You can use the 'previous' button to go back and unselect a schedule you do not wish to restore, however any options you've made for overwriting existing schedules on this page will be lost.

Display Name	Status
MrScriptyPantsWork_Hours	[CREATE NEW SCHEDULE]
RockAndRoll_Hours	[CREATE NEW SCHEDULE]

Update

In Conflict (must resolve to continue)

Create As New Schedule:

Display Name:

Overwrite an existing Schedule on the voice mail system:

Display Name:

Select

Refresh

Save

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(14 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Schedule References

This table includes a list of Schedules that are referenced by the subscribers and call handlers you've selected to restore that are not being restored themselves. COBRAS attempts to make a best-fit guess for which Schedules on the voice mail system to use for these and preselects them for you which are presented in green. Others it cannot resolve are noted as "[UNMAPPED]". Please resolve all unmapped entries by selecting a Schedule on the voice mail system to use for that item before continuing.

Backed Up Schedule Name	Existing Schedule Name on Voice Mail Server
Weekdays	Weekdays

Copy to all Unmapped Rows

Refresh

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(15 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Switch References

This table includes a list of Switches that are referenced by the subscribers and call handlers you've selected to restore. If more than one switch is installed on the voice mail system, they can be found in the drop down in the list by clicking on the down arrow on the right. Please resolve all unmapped entries by selecting a Switch on the voice mail system to use for that item before continuing. The Refresh button can be used to force the grid to update the list of available switches if you change this on the voice mail server while COBRAS is running.

Backed Up Switch Name	Existing Switch Name on Voice Mail Server
LAB01	PhoneSystem

Copy to all Unmapped Rows

Refresh

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(16 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve COS References

This table includes a list of Class of Service objects that are referenced by the subscribers you've selected to restore. COBRAS includes all the COS objects on the voice mail server in the selection dialog that comes up when you double click on an entry in the grid. COBRAS attempts to make a best-fit guess for which COS object on the voice mail system to use for these and preselects them for you which are presented in green. Others it cannot resolve are noted as '[UNMAPPED]'. Please resolve all unmapped entries by selecting a COS on the voice mail system to use for that item before continuing. The refresh button will force a rebuild of the list of available COS objects if you edit them on the voice mail server while COBRAS is running.

Backed Up COS Name	Existing COS Name on Voice Mail Server
{Default Subscriber}	Voicemail Only User CoS ...

Copy to all Unmapped Rows Refresh

Help << Previous Next >> Exit

Unity to Unity Connection Migration

(19 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Resolve Call Handler References

This table includes a list of call handlers that are referenced in one way or another by the subscribers or call handlers you've selected to restore which are not being restored themselves. COBRAS attempts to make a best-fit guess for which call handlers on the voice mail system to use for these and preselects them for you which are presented in green. Others it cannot resolve are noted as '[UNMAPPED]'. Please resolve all unmapped entries by selecting a call handler on the voice mail system to use for that item before continuing.

Backed Up Call Handler Name	Extension	Existing Call Handler Name on Voice Mail Server
Opening Greeting		Opening Greeting ...
Operator	0	Operator ...
Goodbye		Goodbye ...

Copy to all Unmapped Rows

Refresh

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(23 of 24) COBRAS Import for Unity Connection - Import to 10.5.1.159

Select User Settings Overrides

By default COBRAS will always use what's in the backup for all user settings or fall back on what's in the subscriber template you select when restoring properties. In a few cases it may be desirable to force new values for user on restore without referencing what's in the backup or what's in the subscriber template. You can choose to have COBRAS force any or all of the values on this page for all users being created or updated during the restore process. WARNING - be very careful as these settings get applied to ALL users that COBRAS is importing new OR updating that already exist.

Selecting the "Override default" checkbox for any setting will tell COBRAS to force that corresponding value (checked or unchecked) into the database for all new or updated users it processes. Leaving the "Override default" unchecked will tell COBRAS to use what's in the backup for that value or defer to the subscriber template for it.

- Override default *Set for Self-enrollment at Next Login*
- Override default *List in Directory*
- Override default *Send Non-Delivery Receipts on Failed Message Delivery*
- Override default *Skip Password When Calling From a Known Extension*
- Override default *User Cannot Change Phone Password*
- Override default *User Must Change Phone Password at Next Login*
- Override default *Phone Password Does Not Expire*
- Override default Maximum Message Length (1 to 1200 seconds)

Help

<< Previous

Next >>

Exit

Unity to Unity Connection Migration

(26 of 26) COBRAS Import for Unity Connection - Import to 10.5.1.159

Import Objects

You can select to restore messages if a message backup file is found in the same folder that the directory backup is running from and at least one subscriber is selected for restore. You can choose to only restore messages and not update any directory information for users that already exist in the Connection directory.

Restore voice messages for selected subscribers

For existing users ONLY restore messages (do not update other properties for existing users)

Restore messages marked secure

Start Import

Progress

Import stage: **Complete**

Current: **Cobras Import for Connection**

5/12/2010 10:24:40 AM: Import complete. 0 errors and 0 warnings encountered. 20 information items noted in the log as well. Review the log output for details.

OK

5/12/2010 10:24:40 AM: No members found in the backup for that distribution list

5/12/2010 10:24:40 AM: Membership add complete, 0 members added to list

5/12/2010 10:24:41 AM: **** Second Pass Interview Handler Creation Start ****

5/12/2010 10:24:41 AM: No interview handlers selected for restore

5/12/2010 10:24:41 AM: Skipping alternate names - backed up version is not Connection 7.0 or later

5/12/2010 10:24:41 AM: *** forcing Update Statistics on the mailstore before importing messages ***

5/12/2010 10:24:41 AM: Mailstore name to perform update statistics on=UnityMbxDb1

5/12/2010 10:24:48 AM: Done updating statistics for mailstore

5/12/2010 10:24:48 AM: Starting report construction

5/12/2010 10:24:48 AM: Import complete

Help << Previous Next >> Exit

Unity to Unity Connection Migration

COBRAS Import Report

Import started at:5/12/2010 10:23:59 AM
Import finished at:5/12/2010 10:24:48 AM
Errors in import: 0
Warnings in import: 0
Informational notes in import: 20
Local login=LAB01\unityinstall
Local maching name=UNITY01
Connection server name=10.5.1.159
Connection server version=7.1.3.0ES26
Restoring from a backup of Unity version=5.0(1.0)
Running COBRAS Import version= 1. 1. 146

Subscribers

[Mr. Scripty Pants](#)
Off Hours transfer rule
(information) greeting end date/time changed from:9/13/2009 4:58:32 AM to:9/13/2009 4:55:00 AM to bring it into compliance with Connection's data model

[Joey Ramone](#)
Off Hours transfer rule
(information) greeting end date/time changed from:9/13/2009 4:58:32 AM to:9/13/2009 4:55:00 AM to bring it into compliance with Connection's data model

[Kurt Cobain](#)
Off Hours transfer rule
(information) greeting end date/time changed from:9/13/2009 4:58:32 AM to:9/13/2009 4:55:00 AM to bring it into compliance with Connection's data model

[Eddie Vedder](#)
Off Hours transfer rule

Unity to Unity Connection Migration

Users (1 - 14 of 14) Rows per Page 25

Find Users where Alias begins with

<input type="checkbox"/>	Alias	Extension ^	First Name	Last Name	Display Name
<input type="checkbox"/>	ccmadadministrator				ccmadadministrator
<input type="checkbox"/>	UnityConnection		Unity Connection	Messaging System	Unity Connection Messaging System
<input type="checkbox"/>	Replication		Replication	Agent	Replication Agent (cuc01)
<input type="checkbox"/>	JRamone	7031090001	Joey	Ramone	Joey Ramone
<input type="checkbox"/>	Evedder	7031090002	Eddie	Vedder	Eddie Vedder
<input type="checkbox"/>	CCornell	7031090003	Chris	Cornell	Chris Cornell
<input type="checkbox"/>	LStaley	7031090004	Layne	Staley	Layne Staley
<input type="checkbox"/>	JBuckley	7031090005	Jeff	Buckley	Jeff Buckley
<input type="checkbox"/>	JCash	7031090006	Johnny	Cash	Johnny Cash
<input type="checkbox"/>	KCobain	7031090007	Kurt	Cobain	Kurt Cobain
<input type="checkbox"/>	DGrohl	7031090008	Dave	Grohl	Dave Grohl
<input type="checkbox"/>	SPants	7031090009	Scripty	Pants	Mr. Scripty Pants
<input type="checkbox"/>	operator	99990			Operator
<input type="checkbox"/>	undeliverablemessagesmailbox	99999			Undeliverable Messages

Distribution List (1 - 11 of 11) Rows per Page 25

Find Distribution List where Alias begins with

<input type="checkbox"/>	Alias	Extension ^	Display Name
<input type="checkbox"/>	Soundgarden		Soundgarden
<input type="checkbox"/>	The Ramones		The Ramones
<input type="checkbox"/>	CUCDoesntSupportMeForCHOwnership_DL		CUCDoesntSupportMeForCHOwnership_DL
<input type="checkbox"/>	Nirvana		Nirvana
<input type="checkbox"/>	undeliverablemessages		Undeliverable Messages
<input type="checkbox"/>	Pearl Jam		Pearl Jam
<input type="checkbox"/>	Mr. Scripty Pants Fan Club		Mr. Scripty Pants Fan Club
<input type="checkbox"/>	Alice In Chains		Alice In Chains
<input type="checkbox"/>	Foo Fighters		Foo Fighters
<input type="checkbox"/>	allvoicemailusers	99991	All Voice Mail Users
<input type="checkbox"/>	allvoicemailenabledcontacts	99992	All Voicemail-Enabled Contacts

System Call Handlers (1 - 13 of 13) Rows per Page 25

Find System Call Handlers where Display Name begins with

<input type="checkbox"/>	Display Name ^	Extension
<input type="checkbox"/>	BeatUpTheBrat_CH	
<input type="checkbox"/>	BlackHoleSun_CH	
<input type="checkbox"/>	Everlong_CH	
<input type="checkbox"/>	FolsomPrisonBlues_CH	
<input type="checkbox"/>	Goodbye	
<input type="checkbox"/>	IAmJustACHWithADLowner_CH	
<input type="checkbox"/>	Jeremy_CH	
<input type="checkbox"/>	LastGoodbye_CH	
<input type="checkbox"/>	ManInTheBox_CH	
<input type="checkbox"/>	Opening Greeting	
<input type="checkbox"/>	Operator	0
<input type="checkbox"/>	SmellsLikeTeenSpirt_CH	
<input type="checkbox"/>	WhereIsMrScriptPantsWhenYouNeedHim_CH	

Resources

- **COBRAS Migration Tools**
 - <http://www.ciscocitytools.com/Applications/General/COBRAS/COBRAS.html>
- **Chesapeake NetCraftsmen UC Blogs**
 - <http://www.netcraftsmen.net/resources/blogs/tags/70/>
- **Cisco NetPro Forums**
 - <https://supportforums.cisco.com/community/netpro>

