Nortel Communication Server 1000

Subscriber Manager Fundamentals

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Contents

New in this Release

Embedded directory

Subscriber Manager 1.0 uses the Common Network Directory (CND) as its subscriber repository. Subscriber Manager 2.0 will continue to use the CND. However, the CND will now be an embedded component (that is, UCM directory services) deployed as part of the Nortel Unified Communications Management Common Services in CS 1000 Release 6.0. The user interface to configure tasks such as Lightweight Directory Access Protocol (LDAP) synchronization, CSV Synchronization, and CSV Export are now part of the Subscriber Manager application. The repository for subscriber and account data is a fundamental feature provided by UCM directory services.

Flow through provisioning

Flow through provisioning (FTPROV) allows customers to use their LDAP data store to drive account creation in Nortel products. FTPROV replaces the Subscriber Change Notification feature in Subscriber Manager 1.0. See "Flow through provisioning" (page 33).

Location name mapping to element and target

Location name mapping simplifies the selection of elements and targets when creating an account. Users provide a list of locations that have a predefined element and target. When creating a new account, the user selects the location or a particular subscriber attribute is used to infer the location. See "Manage Locations" (page 100).

Unicode Name Directory support

The Unicode Name Directory uses the localized name support functionality and the numbering group functionality.

Localized name support

Variations on a name based on locale can be stored in Subscriber Manager. See "Localized name support" (page 47).

Numbering group

A numbering group represents common numbering planning attributes which are shared by a group of subscriber telephony accounts. Each telephony account can belong to only one numbering group. If a telephony account does not belong to a specified numbering group, it is classified as a member of the default numbering group category. A member of the default numbering group category only uses a private numbering plan (private CDP and UDP dialing). See "Manage numbering groups" (page 114).

Username property

The username property is a new property displayed and edited in the New Subscriber Web page. The username property can be used by CS 1000 Element Manager for SIP Line phones. To add a username to a subscriber, see "Username property" (page 54).

Bulk add accounts

Bulk add accounts creates an account for each subscriber and a selected list of subscribers. See "Bulk account creation" (page 87).

Account reassignment to another subscriber

Account reassignment moves an account from a subscriber to another subscriber. The main advantage of account reassignment is that the account need not be deleted and then recreated. To reassign an account from a subscriber to another subscriber, follow the steps in Procedure 14 "Reassigning an account" (page 92).

Account disassociation from the subscriber

Once an account is disassociated from a subscriber the user can use the anonymous account functionality to assign the account to another subscriber. To disassociate an account from a subscriber, follow the steps in Procedure 15 "Disassociating an account" (page 94).

Account synchronization

While running account synchronization jobs, each Web page refresh by the user results in a real-time status update.

CSV subscriber synchronization

Comma Separated Values (CSV) subscriber synchronization imports new subscribers and updates existing subscribers using data in a CSV file. See "CSV subscriber synchronization" (page 137).

LDAP subscriber synchronization

LDAP subscriber synchronization synchronizes subscribers in Subscriber Manager with an external LDAP directory. See "LDAP subscriber synchronization" (page 123).

CSV subscriber export

The CSV subscriber export feature exports subscribers from Subscriber Manager into a CSV file. See "CSV subscriber export" (page 151).

Operation, Administration and Maintenance Transaction Audit and Security Event logging

Subscriber Manager log files are incorporated into the OA&M logging system. UCM Common Services provides log viewer and file download functionality for retrieving log files. The log viewer is available from the UCM Common Services navigator. Subscriber Manager transactions and error logs are formatted in accordance with W3C extended log format by the UCM Common Services.

Subscriber Manager license

Subscriber Manager is now a separately licensed product. See "Subscriber Manager license" (page 61).

Subscriber Manager user interface enhancements

The following enhancements have been made to the Subscriber Manager user interface

- The Name column and Department column in the Subscribers Found pane on the Search for Subscribers Web page width are set to a fixed width. It is assumed that the data for all other columns in the Subscribers Found pane will not exceed their respective widths.
- Subscriber UUID is added to the Subscriber Details Web page.
- The Subscribers Web page retains the previous search criteria and results after navigating to other Web pages, including the UCM Common Services Web page.
- The time component of the service start and end dates are removed from the search results of the on the Search for Subscribers Web page.
- The text boxes on the Subscriber Details Web page are wider.
- Table row numbering is added to all lists.
- A new Element column is added to the account lists on the Subscriber Details Web page. The Element column is blank if there is not a Subscriber Id associated with the account or if the account status is Invalid.

- The columns in the account list on the Subscriber Details Web page are reordered to Service Type, Service Information, Element, Target, Template, Status, Published.
- The Comment field on the Subscriber Details Web page is renamed Notes and made wider.
- The Add Account Web page is changed to show the Subscriber Name before the Account Details start.
- The Add Account Web page is revised to automatically select an item in the text box, if there is only one entry in the text box drop down list.

Other Changes

Revision History

December 2009

Standard 02.06. Up-issued to reflect changes in technical content.

June 2009

Standard 02.05. Up-issued to reflect changes in technical content.

June 2009

Standard 02.04. Up-issued to reflect changes in technical content.

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Standard 02.03. Up-issued to reflect changes in technical content.

May 2009

Standard 02.02. Up-issued to reflect changes in technical content.

May 2009

Standard 02.01. This document is up-issued to support Communication Server 1000 Release 6.0 Subscriber Manager Release 2.0.

February 2008

Standard 01.04. Up-issued to reflect changes in technical content.

January 2008

Standard 01.03. Up-issued to reflect changes in technical content.

December 2007

Standard 01.02. Up-issued to reflect changes in technical content.

December 2007

Standard 01.01. This is a new document created to support Communication Server 1000 Release 5.5.

How to get help

This chapter explains how to get help for Nortel products and services.

Getting help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

http//www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting help over the telephone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support Web site, and you have a Nortel support contract, you can also get help over the telephone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the telephone number for your region:

http://www.nortel.com/callus

Getting help from a specialist by using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

http://www.nortel.com/erc

Getting help through a Nortel distributor or re-seller

If you purchased a service contract for your Nortel product from a distributor or authorized re-seller, contact the technical support staff for that distributor or re-seller.

Introduction

Purpose

This document contains the information you need to use Subscriber Manager Release 2.0. This document describes the benefits, features, and functions of Subscriber Manager and provides information to perform the following tasks:

- install and configure Subscriber Manager
- manage subscribers
- manage accounts (phone services)
- synchronize accounts

Navigation

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- "Appendix Terminology" (page 195)

Fundamentals of Subscriber Manager

This chapter contains information to help you understand the benefits, features, and functions of Subscriber Manager. This chapter also discusses navigation, security, subscribers, and subscriber accounts (phone services).

Navigation

Introduction

Subscriber Manager is an intuitive and user-friendly Web-based interface that is deployed as a plug-in application to the Nortel Unified Communications Management Common Services (UCM Common Services). Subscriber Manager provides a centralized location for the management of subscriber information for enterprise services.

With Subscriber Manager, you can:

- easily manage subscribers and subscriber accounts (phone services) within your network
- quickly search, sort, and update single and multiple subscribers and subscriber accounts within a single application interface

Prior to Subscriber Manager, subscribers and accounts were managed by individual element managers or element management systems. Subscriber Manager eliminates the need to configure and manage separate subscriber management applications for specific products in a management system.

Subscriber Manager provides security, user access control, simplified management tasks, and improved workflow efficiency.

Feature dependencies and restrictions

Subscriber Manager Release 2.0 plug-in application is installed on the UCM Common Services. Subscriber Manager 1.0 uses the Common Network Directory (CND) as its subscriber repository. Subscriber Manager 2.0 will continue to use the CND. However, the CND will now be an embedded component (that is, UCM directory services) deployed as part of the UCM Common Services in CS 1000 Release 6.0. The user interface to configure tasks such as Lightweight Directory Access Protocol (LDAP) synchronization, CSV Synchronization, and CSV Export are now part of the Subscriber Manager application. The repository for subscriber and account data is a fundamental feature provided by UCM directory services.

Subscriber Manager components

The Subscriber Manager plug-in application is installed on the UCM Common Services. Subscriber Manager uses the UCM Common Services logging facility, including the log viewer interface, the security framework, and the Web server. Each UCM Common Services is installed with specific requirements for hardware platforms and operating systems that are applicable to Subscriber Manager.

Refer to *Linux Platform Base and Applications Installation and Commissioning (NN43001-315)*, for detailed information on installing the Linux operating system, the UCM Common Services and Subscriber Manager. Refer to *Unified Communications Management Common*

Services Fundamentals (NN43001-116), for detailed information on adding a managed element to the UCM Common Services, creating user accounts, and assigning roles and permissions for access to the Subscriber Manager from the UCM Common Services.

Users access the UCM Common Services and Subscriber Manager through Microsoft Internet Explorer 6.02600 or later.

For more information about how to install Subscriber Manager, see "Install Subscriber Manager" (page 68).

For more information about UCM Common Services, see *Unified Communications Management Common Services Fundamentals (NN43001-116)*.

Subscriber Manager client capacity

Table 1 "Subscriber Manager client capacity" (page 19) lists the maximum number of subscribers, accounts, elements, and simultaneous users supported in Subscriber Manager.

Table 1
Subscriber Manager client capacity

Subscriber Manager thresholds	Maximum capacity
The maximum number of subscribers supported in one Subscriber Manager	200,000
The maximum number of accounts supported in one Subscriber Manager	350,000
The maximum number of accounts supported for a subscriber	100
The maximum number of CS 1000 elements supported	500
The maximum number of simultaneous users supported when performing the same work flow	10

Benefits and features of Subscriber Manager

Subscriber Manager has many benefits and features to help administrators perform subscriber operations with greater efficiency. Examples are as follows:

- central location to manage subscribers and subscriber accounts
- common Web based interface within a management system
- common terminology used by elements that interwork with Subscriber Manager
- security that includes Authentication, Authorization, and Auditing (AAA)

- secure communication that uses private certificate authority and X.509 certificate management
- Single Sign On (SSO), password authentication, and role- and instance-based access control
- backup and restore capabilities
- logs for all Subscriber Manager transactions
- synchronization between subscriber data and a customer corporate LDAP server
- basic and advanced search options to find a subscriber or a set of subscribers

Security

The UCM Common Services manages secure access to Web applications and provides security for Web interfaces and Web utilities. The UCM Common Services security domain provides the central point for Authentication, Authorization, and Auditing (AAA); open, standards-based authentication; and policy-based authorization with a single, unified framework.

With UCM Common Services, the authorization process, also known as access control, determines and enforces assigned privileges for an authenticated user of UCM Common Services. Therefore, access control for Subscriber Manager is managed in the UCM Common Services security framework.

For more information about UCM Common Services security, see *Unified Communications Management Common Services Fundamentals (NN43001-116)* and *Security Management Fundamentals (NN43001-604)*.

Table 2 "Built-in permission assignments for Subscriber Manager" (page 20) shows the built-in role permission assignments for Subscriber Manager that are installed with Subscriber Manager.

Table 2
Built-in permission assignments for Subscriber Manager

Built-in permission	Description
Subscriber Manager Read Write	The user can access Subscriber Manager, change the configuration of Subscriber Manager, and edit subscriber data.

ATTENTION
The security administrator must assign Subscriber Manager Read Write permission to existing roles before a user can access Subscriber Manager.

Functionality

The UCM Common Services security domain provides the launch point for Subscriber Manager. You can access Subscriber Manager when you log on to the UCM Common Services or through a direct Web link. When Subscriber Manager is installed in the UCM Common Services, the Subscriber Manager link is provided in the UCM Common Services navigator.

From the Subscriber Manager link in the UCM Common Services navigator, you can access the various functions to configure the required subscribers and subscriber accounts (phone services) for subscribers within a network.

The Subscriber Manager navigator, located on the left side of the Subscriber Manager web pages, contains links to other web pages. **UCM Network services**, the root of the Subscriber Manager navigator, is a link to the UCM Common Services web page. The Subscriber Manager navigator is comprised of six main branches:

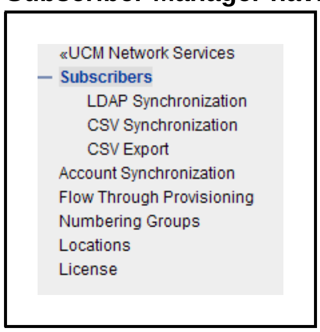
- **Subscribers**: Use this link to perform the following tasks:
  - — search for subscribers
  - — view and update subscriber information
  - — add a new subscriber
  - — delete a subscriber
  - — add and delete a subscriber account (phone services)
  - — view, update, and publish subscriber phone properties
- **Account Synchronization**: Use this link to synchronize account information between Subscriber Manager and CS 1000 Element Manager and to assign or delete anonymous accounts.
- **Flow Through Provisioning**: Flow through provisioning is an automation service that processes subscriber changes and provisioning requests by third party applications. Use this link to manage flow through provisioning.
- **Numbering Groups**: A numbering group represents common numbering planning attributes which are shared by a group of accounts. Use this link to manage numbering groups.
- **Locations**: Locations are used as an alternate way to specify the element and target when creating an account. Use this link to manage locations.
- **License**: A valid license is required to access Subscriber Manager functionality. Use this link to verify the license status or to import a Subscriber Manager license.

The **Subscribers** branch contains links to

- **LDAP Synchronization**: Use this link to manage synchronization between an Lightweight Directory Access Protocol (LDAP) server and Subscriber Manager.
- **CSV Synchronization**: Use this link to manage importing new subscribers or updating existing subscribers using data in a CSV file.
- **CSV Export**: Use this link to manage exporting subscribers from Subscriber Manager into a CSV file.

In Figure 1 "Subscriber Manager navigator" (page 22), the Subscriber Manager navigator is expanded to display all available links.

Figure 1
Subscriber Manager navigator



Session timeout

After 30 minutes of inactivity, Subscriber Manager times out and you are logged out without any warning from all Subscriber Manager Web pages. The session is cancelled, and you must log on again. Any data modifications made on screen, but not submitted to the system, are lost.

Closing the browser window and logging out

If you close the browser window or log out of Subscriber Manager when a request submitted to the system is in progress, the request continues to process and completes.

Log files

Subscriber Manager log files are incorporated into the OA&M logging system. UCM Common Services provides log viewer and file download functionality for retrieving log files. The log viewer is available from the UCM Common Services navigator. Subscriber Manager transactions and error logs are formatted in accordance with W3C extended log format by the UCM Common Services.

For more information about the OA&M logging system, see *Unified Communications Management Common Services Fundamentals (NN43001-116)*. For information on how to view and download log files, see “View and download UCM Common Services audit log files” (page 64).

LDAP synchronization logs and CSV subscriber synchronization logs are **not** incorporated into the OA&M logging system.

The LDAP synchronization logs are stored in the `/opt/nortel/cnd/log/LDAP_Sync` directory on the primary UCM Common Services server. For more information about LDAP synchronization log files, see “Logs” (page 130).

Each time a CSV subscriber synchronization job is run, the summary details for the job are recorded in the LDAP synchronization summary log. For every CSV subscriber synchronization job run, a transaction log (Transaction.log) file is created and stored in the `/opt/nortel/cnd/log/LDAP_Sync/CSV_Sync_[date]_[time]/` directory on the primary UCM Common Services server. `[date]` and `[time]` are generated based on the date and time that the synchronization job started. For example, for a synchronization job started on January 7, 2007 at 10:05:47 am, the generated folder is named `CSV_Sync_20070107_100547`. For more information about CSV subscriber synchronization logs, see “Logs” (page 145).

Subscribers

A subscriber is a person, location, or project that uses services within a network. Most often a subscriber is an employee of a company or organization. An example of a location subscriber is an elevator with telephone services.

Subscriber properties are divided into five sections in the New Subscriber Web page as described in Table 3 " Subscriber property sections" (page 23).

The only required property for a subscriber is last name.

Table 3
Subscriber property sections

Section	Description
Identification	Use this section to enter the Last name, First name, Middle Name, Preferred Name, Username, Employee ID, Subscriber type and Language for a new subscriber. A Comment can also be recorded.

Section	Description
Localized names	Use this section to enter localized names. Subscriber names are displayed in a localized language based on user preferences. For example, a telephone call originating from Canada and destined for a person in Russia displays the originator’s name in Russian at the destination.
Directory and Phone Numbers	Use this section to enter the extension number, external number, ESN number, cell number, pager number, and fax number for a new subscriber.
Address	Use this section to enter a subscriber’s e-mail, office location, and mailing address information.
Organization	Use this section to enter a subscriber’s job title, department, company, and service start and end dates.

For information on how to add a new subscriber, see “Manage subscribers” (page 73).

Validation errors

Subscriber Manager validates service start date and service end date.

The comment field on the Figure 29 "New Subscriber Web page" (page 74) can have a maximum of 1000 characters. All other fields on the New Subscriber Web page can have a maximum of 256 characters.

Search subscribers

Subscriber Manager provides both basic and advanced searching options to find subscribers within a network. The basic search page is the default search page. Table 4 "Subscriber Manager search options" (page 25) shows the search criteria for basic and advanced search options.

Table 4
Subscriber Manager search options

Type of search	Search criteria
Basic	With the basic search feature, you can search for a subscriber only by: • Last Name • First Name
Advanced	With the advanced search feature, you can search for a subscriber by: • Last Name • First Name • Employee ID • Department • Date — Service end date — Service start date • Miscellaneous — Cell phone number — City — Company — Country — ESN phone number — Email — Employee Id — Extension phone number — External phone number — International phone number — Job title — Language — Location — Middle name — National phone number — Notes — Pager number — Post office box

Type of search	Search criteria
	— Postal code/ZIP — Preferred name — Province/state — Street — Type — Username With the advanced search feature, you can choose to search only for subscribers whose deletion is pending or failed, if desired.

ATTENTION
When a user leaves the advanced search Web page, all information that was entered for the advanced search is lost except the subscriber name.

Wild cards

Subscriber Manager supports the asterisk (*) wild card that is used to return specific search criteria.

Table 5 "Search wild card" (page 26) shows how the asterisk (*) wild card is used in Subscriber Manager.

> ***Note:*** The asterisk (*) wild card can not be used to search for Service start date or for Service end date.

Table 5
Search wild card

Search wild card examples	Search results
abc*	Returns all values that begin with abc.
* or blank	Returns all values.
*abc	Returns all values that end with abc.
abc	Returns all values that contain abc.

Search results

The maximum number of entries that can be returned for a search is 1000. If a search result exceeds 1000, the search is cancelled and the user is asked to refine the search.

Users can choose the number of search results to be displayed on the search results page from the following values in the results per page list.

- 100
- 250
- 500

By default, search results are sorted in ascending order by last name and first name. Users can change the search result order by clicking the name heading in the Name column.

Users can sort the search results for each column by clicking the column heading. When users first click the column heading, the data is sorted in ascending order. When the user clicks the column heading a second time, the data is sorted in descending order.

Subscriber deletion

When one or more subscribers are deleted, the subscriber entries in Subscriber Manager are removed. However, these subscribers are not removed from a customer's corporate directory.

A subscriber cannot be deleted from the directory until all accounts are deleted. The accounts for a subscriber must first be deleted and then the subscriber deleted.

Deletion status

Table 6 "Deletion status" (page 27) describes the types of status that occur when a user deletes a subscriber.

Table 6
Deletion status

Deletion status types	Description
Pending deletion	A subscriber with pending deletion status is automatically removed from the directory when all accounts have been successfully deleted.
Failed deletion	A subscriber with failed deletion status is displayed in red with an asterisk beside the subscriber name field.

To resolve a failed deletion, check the logs in the element or click on the failed account to go to the account details page in the element. A subscriber fails deletion if the accounts cannot be removed from the Subscriber Manager data store. When this occurs, the Subscriber Manager application log displays the following error message:

"Failed to delete account [account information] for subscriber [subscriber information]."

To delete a subscriber with failed deletion status, errors must be resolved in the elements.

Subscribers with Pending deletion status can have accounts added to them. When an account is added to a subscriber with Pending deletion status, the Pending deletion status is removed from the subscriber.

Accounts

An account is a provisioned service, available through an element, for a subscriber. A subscriber can have more than one account, such as an account for a telephone service, conferencing service, and voice mail service.

Required subscriber account properties

Subscriber Manager only requires the subscriber's last name to create a new subscriber. Individual elements have specific requirements for required subscriber properties for the creation of accounts.

Table 7 "Subscriber account properties" (page 28) lists the required properties for creating an account.

Table 7
Subscriber account properties

Account properties	Required property	Description	Action
Service	Yes	Lists the services that are available, based on the elements in the UCM Common Services element table. ***Note:*** In Subscriber Manager Release 2.0, only "Telephony" service is available.	Select a service.
Element	Yes	Lists the element that is providing the service (for example, CS 1000).	Select an element.
Target	Yes	Lists all targets managed by the selected element (for example, for CS 1000 element, targets are the customer numbers configured in the call server).	Select a target.

Account properties	Required property	Description	Action
Template	Yes	Lists all templates available in CS 1000 Element Manager for the selected target.	Select a template.
Location	No	Locations are used as an alternate way to specify the element and target when creating an account.	Select a location.

Account status

Table 8 "Account operation and task status" (page 29) describes the types of account status that occur for operations and tasks performed in Subscriber Manager.

Table 8
Account operation and task status

Status	Description
Active	A configured account that is activated by the element. The service is available for the subscriber.
Pending Activation	There is a delay in activating the account. The reasons for the delay are dependent on the element. For example, the element may have the account activation scheduled to occur at a later time.
Pending Deletion	There is a delay in deactivating or deleting the account.
Pending Update	An update to the account has not been activated in the system or an account in the element is changed but the changes take effect to the element at a later time.
Failed Deletion	This status is similar to the failed activation status, but occurs during a deletion operation.
Failed Update	An update operation has failed. Normally, this account has a pending update status prior to the failed update status.
Invalid	An account does not have a valid Element in the Elements table in UCM Common Services.

Account deletion

With Subscriber Manager, the following conditions apply for account deletions:

- Multiple accounts can be deleted at the same time.
- Accounts can be deleted between different elements and service types.
- If a deletion fails for an account, the process logs the failure and continues with the deletion of the remaining accounts.

Account deletion status

During the deletion process, the deleted account can still be listed in the Subscriber Detail page. However, the status of each account is changed to pending deletion. The accounts remain at pending deletion until one of the following occurs:

- The element updates the account due to an error when deleting the account. The status is changed to failed deletion.
- The element deletes the account through the Subscriber Manager Web service.
- The element aborts the deletion of the account. The account status returns to active status.

Invalid accounts

Invalid accounts are marked in grey. Users can see invalid accounts.

- The account is no longer present in the system manager. All users who have write access to Subscriber Manager can delete these accounts.
- The system manager, to which the account belongs, does not exist in UCM Common Services. All users who have write access to Subscriber Manager can delete these accounts.
- The user does not have access to the particular system manager to which the account belongs. Only users, who have permission to access the system manager can delete the accounts.

Publish account properties

When account properties are published, account information is copied to specific subscriber properties within the system.

Publishing account specific information allows the user to synchronize account specific information in the corporate directory.

By default, the first account created for any distinct service type is automatically published.

The following conditions apply when publishing accounts:

- Only one account for each service type can be published to the subscriber data.
- When a new account is selected for publishing, it overwrites any data already present in the particular subscriber attribute.
- If an existing account is published and the user needs to publish a different account, publishing the different account removes the publish flag from the old account in the account list.
- Applications such as LDAP subscriber synchronization and CSV subscriber synchronization can result in data mismatch between the subscriber properties and the published account properties.

  If a data mismatch occurs, users must do one of the following:

  — update the account

  — manually update the subscriber properties

  — select the account and click Publish

  — synchronize the affected accounts with the element

  > **ATTENTION**
  > Account synchronization with the element only happens if the account information in Subscriber Manager becomes out of sync with the data in the element.

- If a published account is deleted, the published data is cleared from the subscriber properties. To publish the data for a different account of the same service type, select the desired account and click the publish button.
- Account status does not impact the publishing of account information.
- If two accounts of different service types publish to the same subscriber property, the last account published overwrites the previously published value.

Account synchronization

Subscriber accounts in the directory can become out of sync with the accounts in the elements due to a network outage or database corruption. Subscriber Manager provides an account synchronization feature to synchronize account information between Subscriber Manager and the elements.

The account data in the elements is considered the master data during the synchronization process. When a subscriber account in Subscriber Manager becomes out of sync with the element, the account data from the element is copied to the account data in Subscriber Manager.

Synchronization rules

Table 9 "Synchronization scenarios" (page 32) lists the various rules and operations for the synchronization process for different scenarios.

Table 9
Synchronization scenarios

Scenario	Action
An account exists in the element that does not exist in Subscriber Manager. Also, the subscriber ID for the account in the element is either invalid (does not exist in the directory) or empty.	A subscriber must be manually assigned to the account. The account is known to Subscriber Manager as an anonymous account.
An account exists in the element that does not exist in Subscriber Manager, but the account has a subscriber ID that exists in the directory.	The account is automatically created in Subscriber Manager.
An account exists in Subscriber Manager but does not exist in the element.	The account is automatically removed from Subscriber Manager.
An account exists in Subscriber Manager and the element. However, the data in the account is not the same in Subscriber Manager and the element.	The account is automatically updated in Subscriber Manager to match the element.
An account in Subscriber Manager and element match.	No action.
A subscriber is pending deletion and has only one account that does not exist in the element.	The account and subscriber are automatically deleted from Subscriber Manager.

Only one synchronization process can occur at one time. The synchronization process queues all selected elements. When the synchronization process starts, the user cannot modify the process until the synchronization process is completed or stopped.

> ***Note:*** The account synchronization process and the FTPROV engine can not run at the same time. If the FTPROV engine and account synchronization start up simultaneously, then the FTPROV engine will finish its already in progress task and shut down.

Anonymous accounts

When a synchronization process completes, a summary page is displayed that shows up to a maximum of 100 anonymous element accounts in Subscriber Manager. The user can assign the anonymous accounts to subscribers in Subscriber Manager or delete the accounts from the element.

To assign less than 100 anonymous accounts to subscribers, see Procedure 19 “Assigning an anonymous account” (page 98). Use the Phone Migration Tool in CS 1000 Element Manager to assign 100 or more anonymous accounts to subscribers. For more information on the Phone Migration Tool, see “Phone Migration Tool” (page 122).

To delete the accounts from the element, see Procedure 20 “Deleting an anonymous account” (page 100).

Locations

Locations are used as an alternate way to specify the element and target when creating an account.

Location name mapping to element and target

Location name mapping simplifies the selection of element and target when creating an account. Users provide a list of locations that have a predefined element and target. When creating a new account, the user selects the location or a particular subscriber attribute is used to infer the location.

Flow through provisioning

Flow Through Provisioning (FTPROV) provides a level of automation to manage subscriber telephony accounts. This reduces the need for a Network Administrator to manage the accounts using the Subscriber Manager UI or CS 1000 Element Manager. FTPROV replaces the Subscriber Change Notification feature in Subscriber Manager 1.0.

Provisioning requests are used to drive the automated provisioning in the system. The requests must be created by the Network Administrator or by Customer premise scripts that build the provisioning requests. The requests are constructed as XML strings and are stored in the following new subscriber properties:

- flowThroughProvisioningRequest
- flowThroughProvisioningResponse

These two new properties of the subscriber can only be managed with Subscriber Manager CSV Subscriber Synchronization and LDAP Subscriber Synchronization features – they are not available in the Subscriber Manager UI.

XML Schema for the new properties

The flowThroughProvisioningRequest property contains an XML document that describes the request. The figures in this section assume that you have knowledge of XML Schema. If you are not familiar with XML Schema, then the examples in “Example provisioning requests and responses” (page 37) may be more useful.

The XML schema for the flowThroughProvisioningRequest property is shown in Figure 2 "Schema for the flowThroughProvisioningRequest property" (page 34).

Figure 2
Schema for the flowThroughProvisioningRequest property

```
<xs:element name="provRequest" type="provRequestType"/>
    <xs:complexType name="provRequestType">
       <xs:sequence>
         <xs:any minOccurs="0"/>
        </xs:sequence>

         <xs:attribute name="uuid" minOccurs="1" maxOccurs="1" type="xs:string"/>
         <xs:attribute name="action" minOccurs="1" maxOccurs="1" type="xs:string"/>
         <xs:attribute name="entity" minOccurs="1" maxOccurs="1" type="xs:string"/>
        <xs:attribute name="username" minOccurs="0" maxOccurs="1" type="xs:string"/>
    </xs:complexType>
```

Table 10 "Attributes in schema for the flowThroughProvisioningRequest property" (page 34) describes each attribute in the XML element in Figure 2 "Schema for the flowThroughProvisioningRequest property" (page 34).

Table 10
Attributes in schema for the flowThroughProvisioningRequest property

Attribute	Description
uuid	Unique id for the request.
action	The action for the request, add, delete or update.
entity	The entity name. Currently, only “account” is supported. .
username	The login name of the user that created the request

There is a child element of the root element that describes the specific account level information as illustrated in Figure 3 "Child element describing account" (page 35).

Figure 3
Child element describing account

```
<xs:element name="account" type="provRequestAccountType"/>
<xs:complexType name="ftprovAccountType">
  <xs:sequence>
     <xs:any minOccurs="0"/>  This is used for any additional detailed information that
  </xs:sequence>                 can be forwarded to the element manager.

    <xs:attribute name="serviceType" minOccurs="1" maxOccurs="1" type="xs:string"/>
    <xs:attribute name="location" minOccurs="0" maxOccurs="1" type="xs:string"/>
    <xs:attribute name="element" minOccurs="0" maxOccurs="1" type="xs:string"/>
    <xs:attribute name="target" minOccurs="0" maxOccurs="1" type="xs:string"/>
    <xs:attribute name="uniqueId" minOccurs="0" maxOccurs="1" type="xs:string"/>
    <xs:attribute name="template" minOccurs="0" maxOccurs="1" type="xs:string"/>
    <xs:attribute name="subscriberId" minOccurs="0" maxOccurs="1" type="xs:string"/>
</xs:complexType>
```

Table 11 "Attributes in child element describing account" (page 35) describes each attribute in the XML element shown in Figure 3 "Child element describing account" (page 35).

Table 11
Attributes in child element describing account

Attribute	Description
serviceType	The type of account, currently only Telephony is supported.
location	Location name as defined in the Locations feature.
element	An element name as defined in the Elements table of UCM Common Services.
target	In the context of CS 1000 this is the customer number configured in the call server.
uniqueId	The unique account id as defined by Subscriber Manager.
template	The template name as defined in CS1000 phone templates.
subscriberId	The subscriber id as defined by Subscriber Manager.

The child element describing the specific account level information contains a child element for providing specific telephone details as shown in Figure 4 "Child element for providing specific telephone details" (page 36).

Figure 4
Child element for providing specific telephone details

```
<xs:element name="phoneDetails" type="phoneDetailsType"/>

<xs:complexType name="phoneDetailsType">

  <xs:sequence>
     <xs:element name="primeDn" type="xs:string" minOccurs="1"/>
  </xs:sequence>
</xs:complexType>
```

The child element for providing specific telephone details is used to provide the telephone prime DN if desired.

The schema for the flowThroughProvisioningResponse property is illustrated in Figure 5 "Schema for the flowThroughProvisioningResponse property " (page 36).

Figure 5
Schema for the flowThroughProvisioningResponse property

```
<xs:element name="provResponse" type="provResponseType"/>
      <xs:complexType name="provResponseType">
            <xs:sequence>
                        <xs:any minOccurs="0"/> - This is used for providing any detail
                                                 information about the entity or
                                                 to provide failure messages.
            </xs:sequence>
                  <xs:attribute name="uuid" minOccurs="1" maxOccurs="1" type="xs:string"/>
                   <xs:attribute name="status" minOccurs="1" maxOccurs="1" type="xs:string"/>
      </xs:complexType>
```

Table 12 "Attributes in schema for the flowThroughProvisioningResponse property" (page 37) describes each attribute in the XML element shown in Figure 5 "Schema for the flowThroughProvisioningResponse property " (page 36).

Table 12
Attributes in schema for the flowThroughProvisioningResponse property

Attribute	Description
uuid	The unique id associated with the provisioning request.
status	Indicates if the request passed or failed. If it failed there is additional failure information provided in the XML. If it passed, the account details are provided.

Note: The attributes in an external LDAP server must support at least 2000 characters to successfully synchronize the flowThroughProvisioningResponse value from Subscriber Manager. If the attributes in an external LDAP server support less than 2000 characters, the user may need to extend the schema to successfully synchronize the flowThroughProvisioningResponse value from Subscriber Manager.

Example provisioning requests and responses

The following examples illustrate the use of the provRequest attribute for a number of scenarios.

1. The provisioning request in Figure 6 "Account created from premium template provRequest" (page 37) is requesting that an account be created for an existing subscriber. The account is using the premium template and is a telephony account. Implied in this request is that the location for the new account is taken from one of the subscriber attributes. The DN is automatically assigned.

Figure 6
Account created from premium template provRequest

```
<provRequest uuid="1" action="add" entity="account">
<provRequestAccount template="premium" serviceType="telephony" />
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS">
.
. account details
.
</provResponse>
```

2. The provisioning request in Figure 7 "Template based on subscriber attribute provRequest" (page 38) is requesting that an account be created for an existing subscriber. The account is a telephone account. Implied in this request is that the location for the new account is taken

from one of the subscriber attributes. The template is based on an attribute of the subscriber. The DN is automatically assigned.

Figure 7
Template based on subscriber attribute provRequest

```
<provRequest uuid="1" action="add" entity="account">
<provRequestAccount serviceType="telephony" />
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS">
.
. account details
.
</provResponse>
```

3. The provisioning request in Figure 8 "Create account in belleville provRequest" (page 38) is requesting that an account be created for an existing subscriber. The account is a telephone account. The account is created in the “belleville” location. The template used is based on an attribute of the subscriber. The DN is automatically assigned in the element.

Figure 8
Create account in belleville provRequest

```
<provRequest uuid="1" action="add" entity="account">
<provrequestAccount location="belleville" serviceType="telephony" />
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS">
.
. account details
.
</provResponse>
```

4. The provisioning request in Figure 9 "Location from subscriber attribute provRequest" (page 39) is requesting that an account be created for an existing subscriber. The account has a premium template and is a telephone account. Implied in this request is that the location for the new account is taken from one of the subscriber attributes. The DN is 5125. DN information is not interpreted at the Flow through provisioning level. DN information is interpreted by CS 1000 Element Manager.

Figure 9
Location from subscriber attribute provRequest

```
<provRequest uuid="1" action="add" entity="account">
<provRequestAccount template="premium" serviceType="telephony">
     <phoneDetails><primeDn>5125</primeDn></phoneDetails>
    </provRequestAccount>
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS">
.
. account details
.
</provResponse>
```

5. The provisioning request in Figure 10 "Update account with new DN provRequest" (page 39) is requesting that an account be updated with a new DN.

Figure 10
Update account with new DN provRequest

```
<provRequest uuid="1" action="update" entity="account">
<provRequestAccount uniqueId="a3e6021b-5589-44f0-a07d-8f7dcdb0de48"
     serviceType="telephony" >
     <phoneDetails><primeDn>5653</primeDn></phoneDetails>
    </provRequestAccount>
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS">
.
. account details
.
</provResponse>
```

6. The provisioning request in Figure 11 "Account delete provRequest" (page 40) is requesting that an account be deleted.

Figure 11
Account delete provRequest

```
<provRequest uuid="1" action="delete" entity="account">
<provRequestAccount uniqueId="a3e6021b-5589-44f0-a07d-8f7dcdb0de48" />
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS" />
```

7. The provisioning request in Figure 12 "Account add provRequest" (page 40) is requesting that an account be added.

Figure 12
Account add provRequest

```
<provRequest uuid="1" action="add" entity="account">
<provRequestAccount element="Call Server A" target="Customer0" serviceType="telephony" />
</provRequest>
.
.
.
<provResponse uuid="1" status="PASS">
.
. account details
.
</provResponse>
```

For all of these provRequests an associated provResponse is provided once the request is handled. Account details are embedded in the provResponse. The provResponse includes the unique account id from the directory. This unique account id is used in delete and update FTPROV action requests. The schema for the subMgrAccountType is shown in Figure 13 "subMgrAccountType provResponse" (page 41).

Figure 13
subMgrAccountType provResponse

```
<xs:complexType name="subMgrAccountType">
    <xs:sequence>
      <xs:element name="providerId" type="xs:string" minOccurs="1" />
      <xs:element name="providerAccountId" type="xs:string" minOccurs="1" />
      <xs:element name="target" type="targetType" minOccurs="1" />
      <xs:element name="transId" type="xs:string" minOccurs="1" />
      <xs:element name="accountDescription" type="xs:string" minOccurs="0" />
      <xs:element name="accountDetails" type="xs:string" minOccurs="0" />
      <xs:element name="featurePackage" type="featurePackageType"
          minOccurs="0" />
      <xs:element name="publishData" type="publishableSubscriberType"
          minOccurs="0" />
      <xs:element name="serviceInfo" type="xs:string" minOccurs="0" />
      <xs:element name="serviceType" type="xs:string" minOccurs="0" />
      <xs:element name="status" type="statusType" minOccurs="0" />
      <xs:element name="subscriberId" type="xs:string" minOccurs="0" />
      <xs:element name="uniqueId" type="xs:string" minOccurs="0" />
    </xs:sequence>
  </xs:complexType>
```

Transaction Management

FTPROV transactions are asynchronous. There are two main asynchronous touch points in the overall FTPROV lifecycle.

- The LDAP synchronization process between the customer LDAP directory and the Subscriber Manager.
- The FTPROV engine polls the directory every ten minutes for provisioning requests.

As a result a transaction management strategy is required and is explained in “Transaction Rules” (page 41) and “Transaction Rule Scenarios” (page 42).

Transaction Rules

To ensure system integrity of the overall transaction the following data and system rules must be followed by FTPROV participants

- LDAP synchronization must be setup to include the following
  - — The customer directory is setup to be the master of the **provRequest** attribute.
  - — Subscriber Manager is setup to be the master of the **provResponse** attribute.
- The customer IT system never removes a provRequest until the provResponse appears for the associated request.
- When the FTPROV engine handles a provRequest, it creates a provResponse with the same id as the request.

- The FTPROV engine removes any provResponses that no longer have a matching provRequest.
- If a new account is added to a subscriber that is in Failed Deletion/Pending Deletion status, its Failed Deletion/Pending Deletion status is removed.
- If provisioning requests are added to subscribers when the FTPROV engine is disabled, these requests are processed when the engine is enabled again.
- If an error is encountered during a provisioning request, the error is logged and the provisioning engine continues processing subsequent provisioning requests.
- If an error is encountered when sending a change notification, the error is logged and the subsequent notifications are sent.

A subscriber can have multiple requests. A maximum of 100 requests are supported per subscriber. If more than 100 requests exist for a subscriber, all of the requests are ignored and a warning message is printed to the logs.

Transaction Rule Scenarios

This section contains several transaction scenarios which illustrate the implementation details of FTPROV transaction management. For illustration purposes Customer Directory attribute nortelRequestAttribute is mapped to provRequest attribute in Subscriber Manager and nortelResponseAttribute is mapped to provResponse attribute in Subscriber Manager.

Figure 14 "Provisioning request basic flow" (page 43) shows the sequencing of a provisioning request for a normal flow.

Figure 14
Provisioning request basic flow

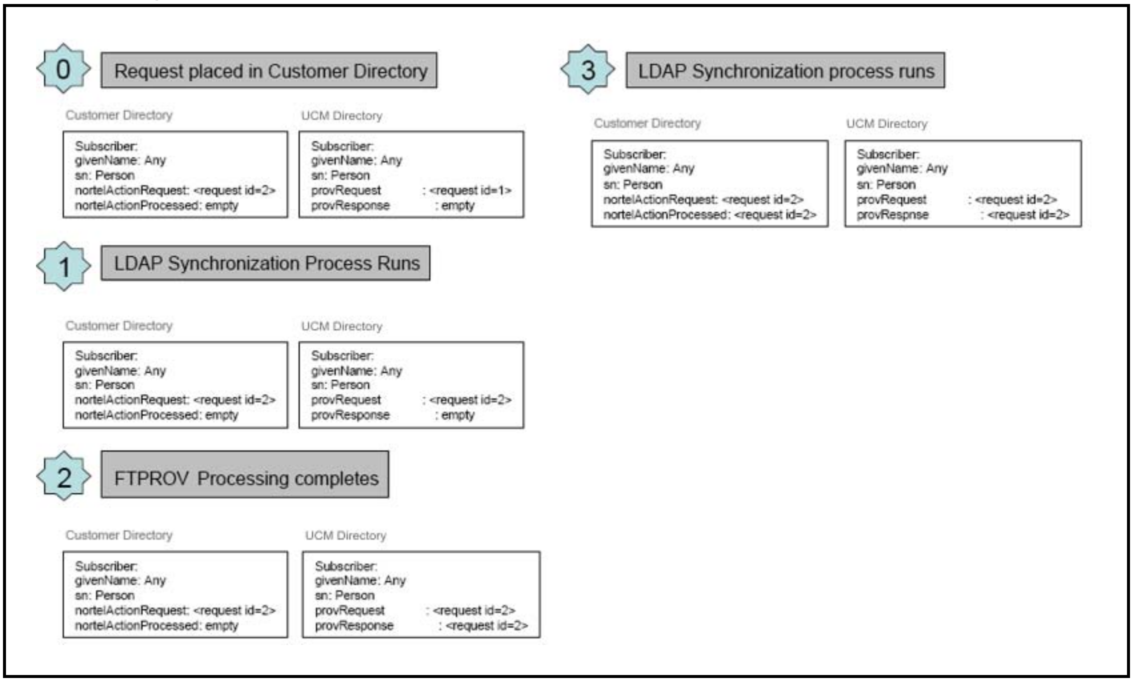
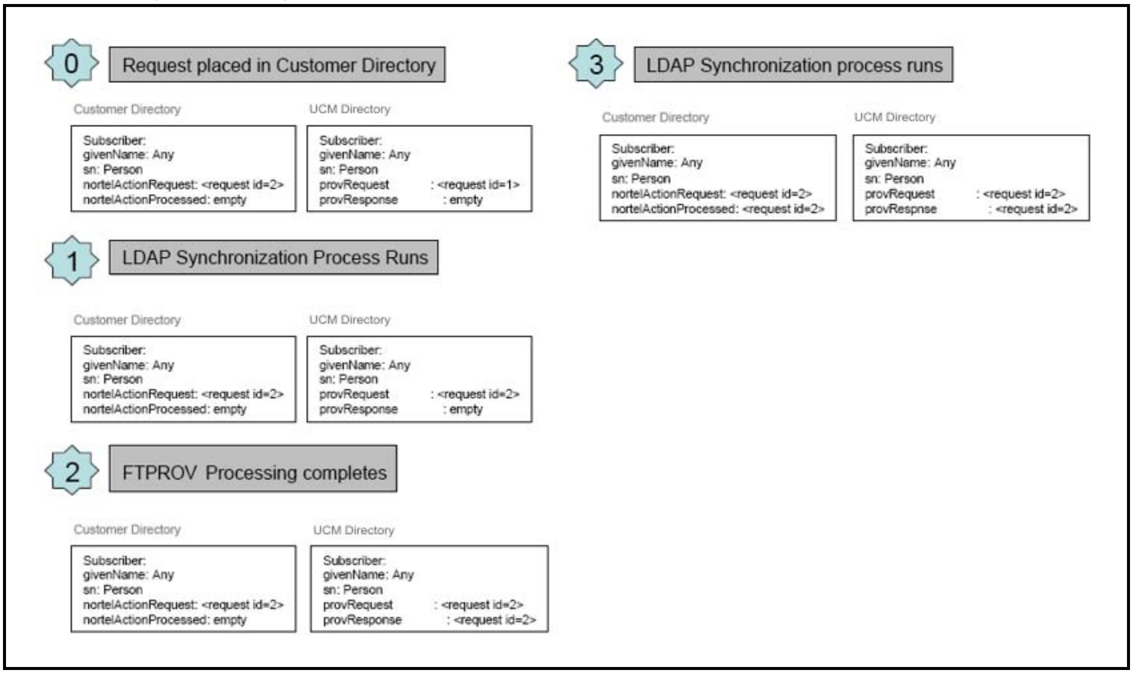


Figure 15 "Provisioning request gets overwritten" (page 44) shows an example where the customer overwrites a request before it is processed.

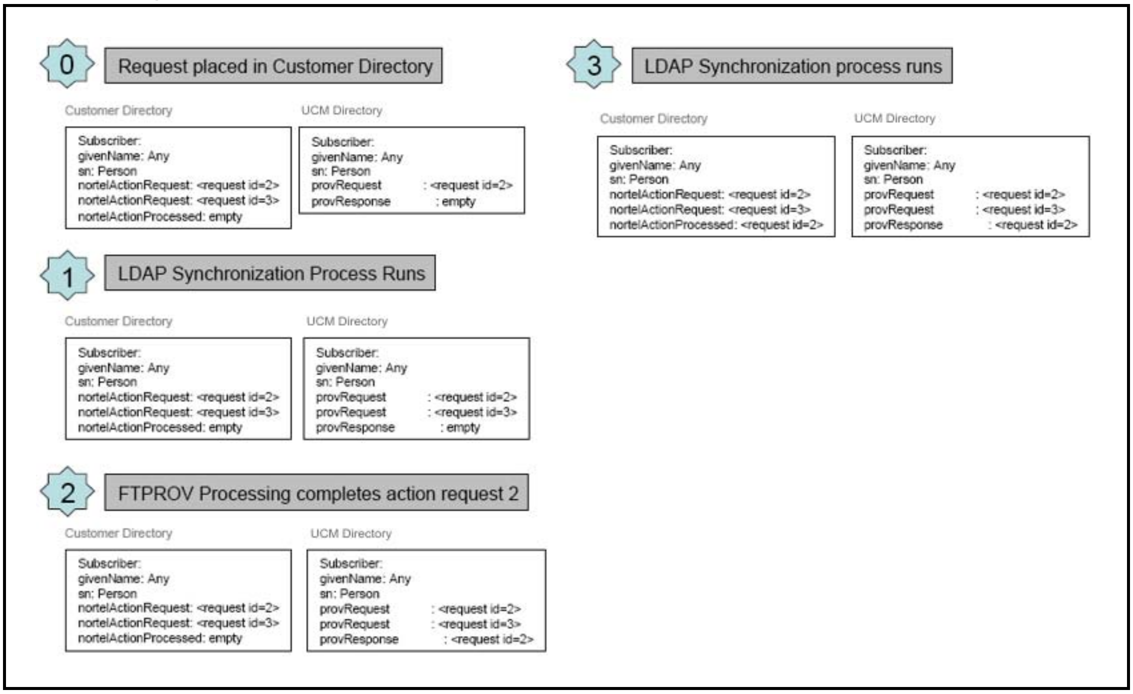
Figure 15
Provisioning request gets overwritten



> ***Note:*** In this use case, Subscriber Manager initially had an action request with an id = 1. This request had not been handled by the FTPROV processor when the LDAP synchronization process started. The LDAP synchronization process then overwrites the action request in Subscriber Manager with the one from the customer directory. As a result, action request number 1 will never be handled since it has been deleted before the request was handled by the FTPROV processor.

Figure 16 "Provisioning requests multiple requests" (page 45) shows an example of how several requests are handled.

Figure 16
Provisioning requests multiple requests



Note: In this use case, Subscriber Manager initially had a action request with an id = 2. This request had not been handled by the FTPROV processor when the LDAP synchronization process started. The LDAP synchronization process then overwrites all the action requests in Subscriber Manager. However, since the old action request was not removed from the customer directory, the LDAP synchronization process simply copies it back into Subscriber Manager again, but this time with the added action request 3.

Figure 17 "Provisioning requests remove completed requests" (page 46) shows an example of how completed requests are removed.

Figure 17
Provisioning requests remove completed requests

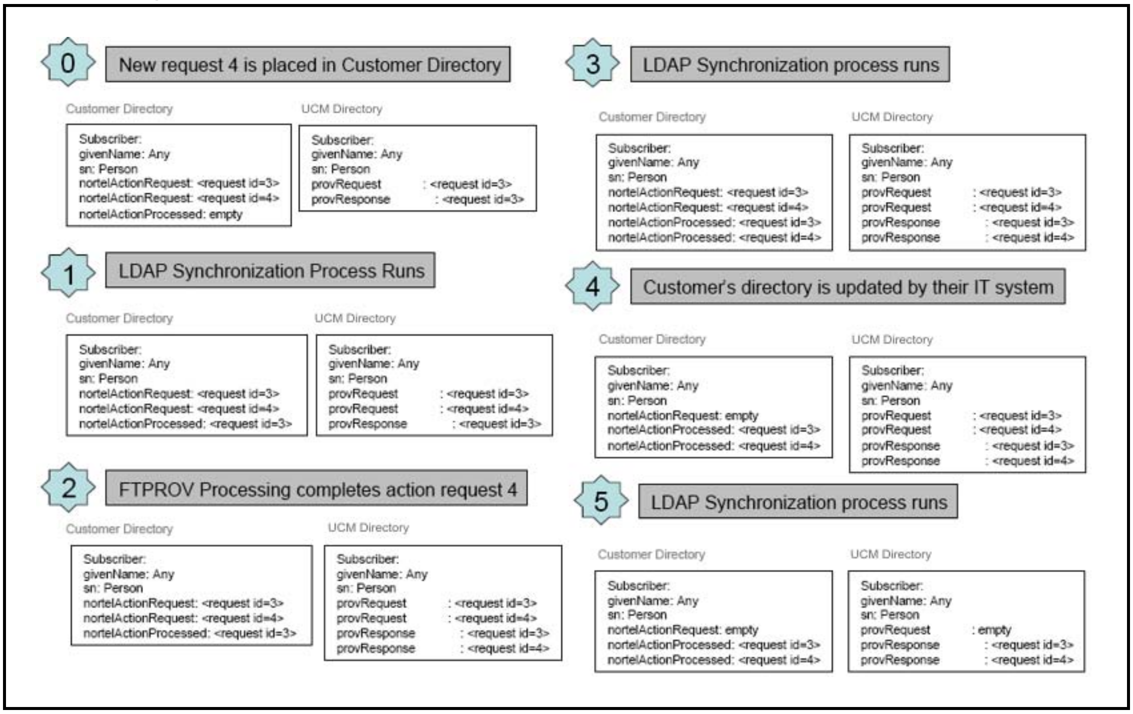
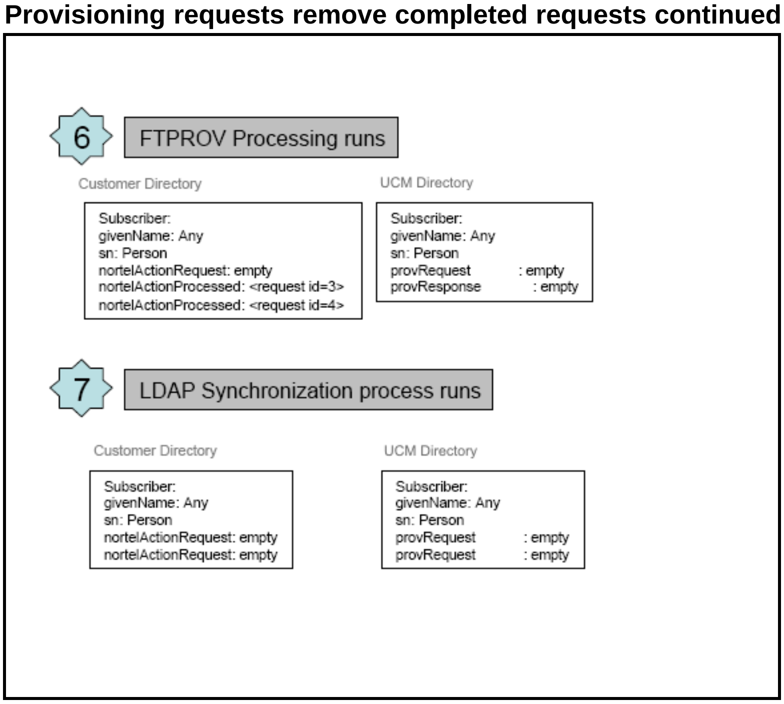


Figure 18
Provisioning requests remove completed requests continued



Note 1: In this use case, Subscriber Manager initially had an action request with an id = 2 and completed action 2. The LDAP synchronization process overwrote the action request 2 with action

request 3. The FTPROV processor then removes completed action 2 from the complete action list since there is no action requests matching the ids of actions in the completed list.

Note 2: Normally, the customer directory would not remove nortelActionRequests until the request was completed. It knows that the request was completed.

User Interfaces

To configure the mapping for the LDAP synchronization jobs between the customer LDAP directory and Subscriber Manager, see “LDAP subscriber synchronization” (page 123).

To configure FTPROV, see Procedure 31 “Configuring Flow through provisioning” (page 120).

To monitor FTPROV, see Procedure 32 “Monitoring Flow through provisioning” (page 121).

Flow through provisioning engine

The FTPROV engine runs every ten minutes. All jobs which are queued will be processed when the FTPROV engine runs.

Note: The account synchronization process and the FTPROV engine can not run at the same time.

Unicode Name Directory support

The Unicode Name Directory uses the localized name support functionality and the numbering group functionality.

Localized name support

Variations on a name based on locale can be stored in Subscriber Manager.

The localized name feature in Subscriber Manager has the following specifications:

- UTF8 encoding is used for storage of the localized names.
- A maximum of 7 localized names can be provisioned for each subscriber.
- If more than 7 localized names are present in the directory, a warning log message is printed to the centralized logs indicating that more than 7 localized names are present in the directory when the subscriber is accessed via Subscriber Manager. The additional localized names are deleted from the directory if the user saves the subscriber data via Subscriber Manager.

  See “Log files” (page 22) for a summary of the log file format.

- Language representation is based on the IANA registry for language tags. In this case the IANA registry to represent Portuguese and the ISO standard ISO3166 is used for the country - Brazil.
- The following languages, as represented by their English names, are supported (the standard international language representation based on the IANA registry is shown in parentheses):
  - English (en)
  - French (fr)
  - Swedish (sv)
  - Danish (da)
  - Norwegian (nn)
  - German (de)
  - Dutch (nl)
  - Portuguese (pt)
  - Czech (cs)
  - Finnish (fi)
  - Hungarian (hu)
  - Latvian (lv)
  - Italian (it)
  - Polish (pl)
  - Russian (ru)
  - Spanish (es)
  - Turkish (tr)
  - Japanese Katakana (kana)
  - Japanese Kanji (hani)
  - Chinese simplified (zh-hans)
  - Chinese traditional (zh-hant)
  - Arabic (ar)
  - Korean (ko)
  - Hebrew (he)
  - Greek (el)
- While the data for subscribers can be entered in any language supported with UTF8 encoding, the user interface labels in Subscriber Manager are displayed only in English.

The same language selection can be made for multiple names. Nortel recommends that there be only one localized name for each selected language. If there is more than one localized name for a selected language, only the first localized name in Unicode ascending order will be displayed on the terminal.

Subscriber Manager CSV and LDAP synchronization

Subscribers can be synchronized with a customer’s LDAP directory or with a CSV file. When using either of these approaches, the user must provide localized names in a format consistent with the specification of the "localizedName” attribute summarized in the following CSV file examples. The "localizedName” attribute can have to 256 characters.

CSV file to add a localized name to an existing subscriber

```
entryUUID,localizedName
8f863bb0-29f5-4af2-a68d-4b7c105df104,en.Joe
```

CSV file for a new subscriber with one localized name

```
sn, localizedName
Smith, en.Smith
```

CSV file for a new subscriber with two localized names

```
sn, localizedName
Smith, en.Smith;fr.Smith
```

CSV file for a new subscriber with invalid localized names

```
sn, localizedName
Smith, eng.Smith;frdhd.Smith;french.Smith
```

CSV file for a new subscriber with a malformed localized name

```
sn, localizedName
Smith, en:Smith;fr_Smithh
```

Note: Use a unicode compatible editor, such as OpenOffice.org 2.4.0 (or greater), to edit CSV files. Other unicode compatible editors can be used. However, they have not been tested.

To interoperate with the LDAP subscriber synchronization tool, a customer’s LDAP directory must format localized names as shown in the CSV file examples above.

The subscriber synchronization features **do not** validate language abbreviations, country abbreviations, number of localized names, the name length or format of the language and name. The user is responsible for properly formatting the localized name data when using the CSV and LDAP subscriber synchronization features. For example, if the CSV subscriber synchronization feature is used with a CSV file containing an invalid localized name such as “zz-hjs:John Smith” for a subscriber “John Smith”, the localized name is imported into the directory. No error messages is displayed to the user. However, when the details of John Smith are viewed in Subscriber Manager, the localized name is identified as invalid and the user has the opportunity to fix the name.

Any malformed localized names from LDAP subscriber synchronization or CSV subscriber synchronization are displayed verbose in the UI. The user is responsible to fix the format or delete the malformed name. A log message is provided to inform the user that a malformed localized name is encountered. The log message is as follows:

`Level: WARNING`
`Message: [Subscriber first name] [Subscriber last name] [Subscriber Employee ID] has malformed data for localized names.`

Any invalid language code is displayed verbose in the UI. The user is responsible to fix the invalid information. A log message is provided to inform the user that an invalid language abbreviation is encountered. The log message is as follows:

`Level: WARNING`
`Message: [Subscriber first name] [Subscriber last name] [Subscriber Employee ID] has an invalid language abbreviation as follows [language abbreviation] [name].`

See “Log files” (page 22) for a summary of the log file format.

Numbering group

A numbering group represents common numbering planning attributes which are shared by a group of subscriber telephony accounts. Each telephony account can belong to only one numbering group. If a telephony account does not belong to a specified numbering group, it is classified as a member of the default numbering group category. A member of the default numbering group category only uses a private numbering plan (private CDP and UDP dialing).

Numbering group attributes

Numbering group attributes are summarized in Table 13 "Numbering group attributes" (page 51).

Table 13
Numbering group attributes

Attribute Name	Rules and Comments
Name	Mandatory; Unique; Sortable in web UI; Maximum number of characters: 32 Allow: any character except comma
Element ID	Mandatory; Alphanumeric; Sortable in web UI; It is CS 1000 system serial number in LD143 (.ksho rec), printable in LD22 (reg tid) as well.
Target	Mandatory; Numeric (Range 0 – 99); Sortable in web UI It is CS1000 customer number
Private Network ID (PNI)	Mandatory; Numeric; Maximum digit length: 5; Minimum digit value: 0; Maximum digit value: 16383 Sortable in web UI; It is CS 1000 system PNI number in LD15.
L0 Domain Name	Mandatory; Alphanumeric; Allowing dot Maximum # of characters: 30 Sortable in web UI; It is recommended to use the L0 domain name configured in the Network Routing Server
DN Range From	Mandatory; Numeric (Maximum 7 digits);
DN Range To	Mandatory; Numeric (Maximum 7 digits); It has to be >= DN Range Rrom; The number of digits has to be the same for ‘DN Range From’ and ‘DN Range To’
Country Code	Optional; Numeric (Maximum 4 digits) Sortable in web UI If Country Code is not provisioned, subscriber telephony account E.164 international CLID/URI will not be generated.

Area Code / City Code	Optional; Numeric (Maximum 7 digits); Sortable in web UI If Area Code / City Code is not provisioned, subscriber telephony account E.164 international and national CLID/URIs will not be generated.
Exchange Code	Optional; Numeric (Maximum 7 digits) Sortable in web UI If Exchange Code is not provisioned, subscriber telephony account E.164 international, national and local CLID/URIs will not be generated.

The numbering group validation rules are

- Maximum number of entries is 3000 numbering groups.
- No overlapping DN range within the same Element ID and Target combination is allowed.
- No overlapping DN range with same CountryCode + AreaCode + ExchangeCode is allowed.

Calling Line Identification Uniform Resource Identifier Generation for Subscriber Telephony Account

There are five types of Calling Line Identification (CLID) Uniform Resource Identifiers (URI):

1. Private telephony L0 (CDP Steering Code)
2. Private telephony L1 (UDP location code)
3. Public E.164 Local (subscriber)
4. Public E.164 National
5. Public E.164 International

Data for up to five CLID/URIs are generated from each subscriber telephony account.

The rules for generating subscriber telephony account CLID/URIs are summarized in Table 14 "Rules for generating subscriber telephony account CLID/URIs " (page 52).

Table 14
Rules for generating subscriber telephony account CLID/URIs

Type	Rule for generating the CLID/URI
Private telephony L0 (CDP Steering code)	The DN of the subscriber telephony account

Private telephony L1 (UDP location code)	Home location code + DN
PublicE.164 Local (subscriber)	Exchange code + DN
Public E.164 National	Area code + Exchange code + DN
Public E.164 International	'+' + Country code + Area code + Exchange code + DN

For an example of a subscriber telephony account, see Table 15 "Example of a subscriber telephony account" (page 53).

Table 15
Example of a subscriber telephony account

Subscriber Telephony Account Attribute	North America Type Value	Non-North America Type Value
DN	2222	3488
ESN	343-2222	633-3488

For an example of numbering group information, see Table 16 "Example of numbering group information" (page 53).

Table 16
Example of numbering group information

Numbering Group Attribute	North America Type Value	Non-North America Type Value
Country code	1	86
Area code/City code	613	10
Exchange code (E.164 prefix)	967	8288

For an example of each type of generated CLID/URI, see Table 17 "Example of generated CLID/URIs" (page 53).

Table 17
Example of generated CLID/URIs

CLID/URI Type	Subscriber Telephony Account CLID/URI (North America Type)	Subscriber Telephony Account CLID/URI (Non-North America Type)
Private telephony L0 (CDP Steering code)	2222	3488
Private telephony L1 (UDP location code)	343-2222	633-3488
Public E.164 Local (subscriber)	967-2222	8288-3488
Public E.164 National	613-967-2222	10-8288-3488
Public E.164 International	+1-613-967-2222	+86-10-8288-3488

DN Generator

The DN Generator is a background process that runs periodically to generate telephone numbers for a TELEPHONY account in Subscriber Manager. The CLID generation provides telephone number information for public e164 local (External), national (National) and international (International) dialing. For an account that is published into the Subscriber details, these generated numbers are entered in the External, National and International fields of the subscriber. However, these values are not removed from the subscriber when the user publishes a different account which has no contact details, or when the current account no longer has the generated numbers. This data can be synchronized with the customer LDAP directory.

> ***Note:*** Only one account can be published into the subscriber data. Thus, if an employee has two telephones with different numbers for each telephone, only one of those telephones will be represented in the subscriber data.

Updates to these telephone number fields via the Subscriber Details web page do not update accounts. The only way to update accounts is via the CS 1000 Element Manager account details web page or via Flow through provisioning.

Username property

The username property is used by an element manager, if a username is required as part of creating an account. It is not necessary for the element manager to take this username. It is simply a preferred name (or recommended name). The user can specify a different username by clicking the “More Details” link in the Add Account page of Subscriber Manager.

In Subscriber Manager the username property has a limit of 256 characters in length. (This restriction is not enforced by Subscriber Manager.) An element manager may require shorter username lengths. The element manager should ensure that the username is valid for its use. If the username is not valid, element manager has the option to reject the account creation and notify Subscriber Manager. If CS 1000 Element Manager rejects the account creation because the username does not conform to Element Manager length restrictions, Subscriber Manager alerts the user and creates a log message.

There are three ways to add a username to a subscriber in Subscriber Manager

- Subscriber Manager CSV synchronization. See "CSV subscriber synchronization" (page 137).
- Subscriber Manager LDAP synchronization. See "LDAP subscriber synchronization" (page 123).
- Subscriber Manager Web UI. See Procedure 6 "Adding a new subscriber" (page 73).

Note: Usernames entered via the Subscriber Manager Web UI will have leading and trailing spaces removed. Spaces that appear inside the username will not be removed

Subscriber phone services

Subscriber Manager provides a functionality to publish phone properties for subscribers. This allows you to synchronize the phone specific attributes in an enterprise corporate directory.

When configuring phone services for subscribers, the subscriber names are sent to the Call Party Name Display (CPND) in CS 1000 Element Manager. The subscriber name is linked to the CPND name of the phone prime Directory Number (DN). Table 18 "Rules for CPND name" (page 55) describes the rules used in CS 1000 Element Manager for configuring the CPND name. The rules are listed in order of preference.

Table 18
Rules for CPND name

Subscriber name used	Rules for setting the CPND name
Preferred name	The preferred name is set as the CPND first name and the CPND last name is left empty.
First name and last name	The subscriber first name is set as the CPND first name, and the subscriber last name is set as the CPND last name.
Last name	The subscriber last name is set as the CPND last name.

When a phone is assigned to a subscriber, the following phone attributes are published in Subscriber Manager:

- preferredDirectoryNumber
- cpndName

The Prime DN is used as the preferredDirectoryNumber value and the CPND name associated with the Prime DN is used as the cpndName.

Subscriber Manager publishes the attributes to the to the corporate LDAP server.

Configuration for subscriber accounts (phone services)

Subscriber Manager allows users to add and configure accounts (phone services) for subscribers with available templates in CS 1000 Element Manager. When configuring subscriber accounts (phone services), the user is redirected from Subscriber Manager to CS 1000 Element Manager.

A template contains attributes that are common to a CS 1000 phone type. Once a template is created, you can use it to apply these common attributes to a group of phones, without having to repetitively define the same value for each phone. In general, using a template is a more efficient method of adding large numbers of phones than maintaining each phone individually.

For more information on creating templates in CS 1000 Element Manager, see *Element Manager System Reference - Administration (NN43001-632)*.

For information on configuring subscriber accounts (phone services), see “Manage subscriber accounts” (page 83).

Common procedures

The following sections in this chapter describe common procedures that you can use for Subscriber Manager.

Navigation

Launch Subscriber Manager

Use the steps in the following procedure to launch Subscriber Manager.

Procedure 1
Launching Subscriber Manager

Step	Action
1	Open the Web browser.
2	Enter one of the following in the Address bar and press **Enter**.

- UCM Common Services IP address
  When you enter the UCM Common Services IP address, a Web page opens stating that you must access UCM Common Services using the Fully Qualified Domain Name (FQDN) for the UCM Common Services server. Click the link on this Web page to use the FQDN for the UCM Common Services server.
- Fully Qualified Domain name (FQDN) for the UCM Common Services server

The UCM Common Services **Logon** Web page opens.

Figure 19
Logon Web page

3 In the **User ID** field, type your user ID.

4 In the Password field, type your password.

5 Click **Login**.

The default navigation Web page for UCM Common Services opens.

6 From the UCM Common Services navigator, click **Subscriber Manager** to launch Subscriber Manager.

> ***Note:*** The security administrator must assign one or both of the built-in permissions summarized in Table 2 "Built-in permission assignments for Subscriber Manager" (page 20) to existing roles for a user to access Subscriber Manager. For more information about Subscriber Manager permissions, see "Security" (page 20).

--End--

Help and Logout links

The **Help** and **Logout** links are located on the right side of the Subscriber Manager Web page header. See Figure 20 "Help and Logout links" (page 59).

Figure 20
Help and Logout links

Help link

Click the **Help** link to access the **Subscriber Manager Help File**. The Subscriber Manager Help File opens in a new Web page.

Subscriber Manager provides context-sensitive help. That is, the help page displayed depends on the Subscriber Manager Web page from which it is opened. Once a help page is opened, click the **Show** link in the upper left corner of the page to display the **Contents** and an **Index** of the **Subscriber Manager Help File**.

For more information on accessing and navigating the **Subscriber Manager Help File** see Procedure 2 “Getting help” (page 59).

Logout link

Click the **Logout** link to terminate the current Enterprise Common Manager session. See Procedure 3 “Logging out of UCM Common Services” (page 61).

UCM Network Services link

Click the **UCM Network Services** link on the **Subscriber Manager navigator** to return to the UCM Common Services Web page without terminating the current UCM Common Services session. See Figure 1 "Subscriber Manager navigator" (page 22).

Get help

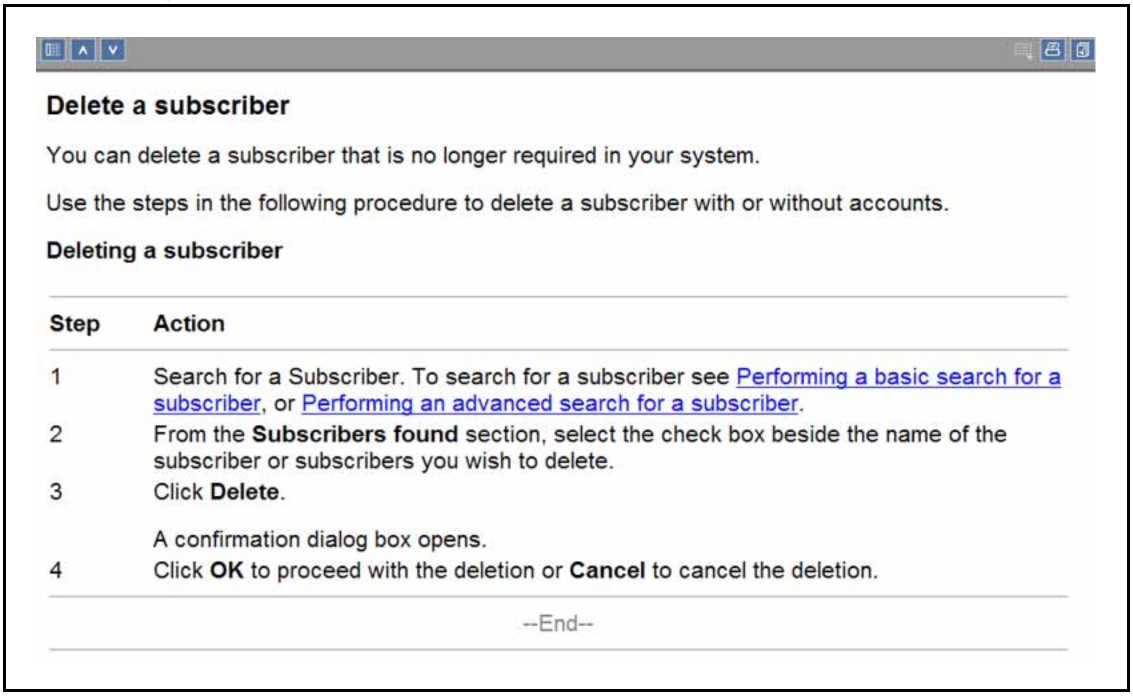
You can receive online assistance for the current Web page you are viewing in Subscriber Manager.

Use the steps in the following procedure to get help for Subscriber Manager.

Procedure 2
Getting help

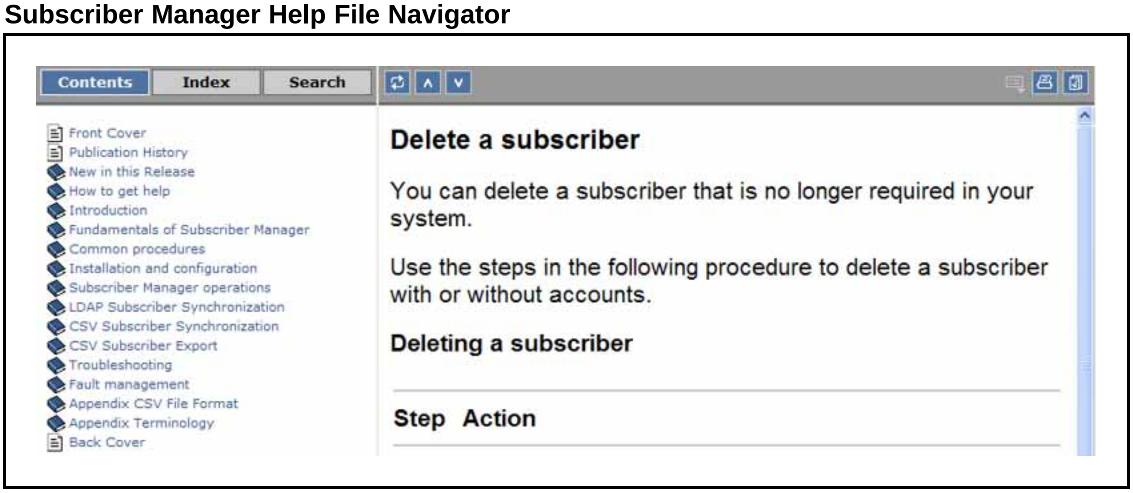
Step	Action
1	Click the **Help** link located at the right side of the Subscriber Manager web page header, as shown in Figure 20 "Help and Logout links" (page 59). A Help web page, related to the contents of the current web page in Subscriber Manager, opens in a new browser window.

Figure 21
Help web page example



2 Click the **Show Navigation** link in the upper left corner of the Help web page. The Subscriber Manager Help File Navigator pane appears.

Figure 22
Subscriber Manager Help File Navigator



3 From the Help File navigator, perform one of the following actions:

- Click a topic to view the help content for the topic.
- Click **Index** to view a list of topics in alphabetical order.
- Click **Contents** to view the Help File Navigator.

- Click **Search**.
  In the **Search** field, type in the word or words you wish to search for and click **Go**.
  Topics that contain the entered word or words appear below the field in the Help File Navigator pane.
- Click the up or down arrows to scroll through the Subscriber Manager Help file.

--End--

Log out of UCM Common Services

See Procedure 3 "Logging out of UCM Common Services" (page 61) to log out of the UCM Common Services. Logging out of the UCM Common Services terminates the current session.

Procedure 3
Logging out of UCM Common Services

Step	Action
1	Click the **Logout** link on the right side of the Subscriber Manager Web page header. The UCM Common Services **Logon** Web page opens.
2	Close the browser window.

--End--

Subscriber Manager license

A valid license is required to access Subscriber Manager functionality. If Subscriber Manager does not have a license installed and a user tries to go to any link from the Subscriber Manager navigator, the user is presented with the license page.

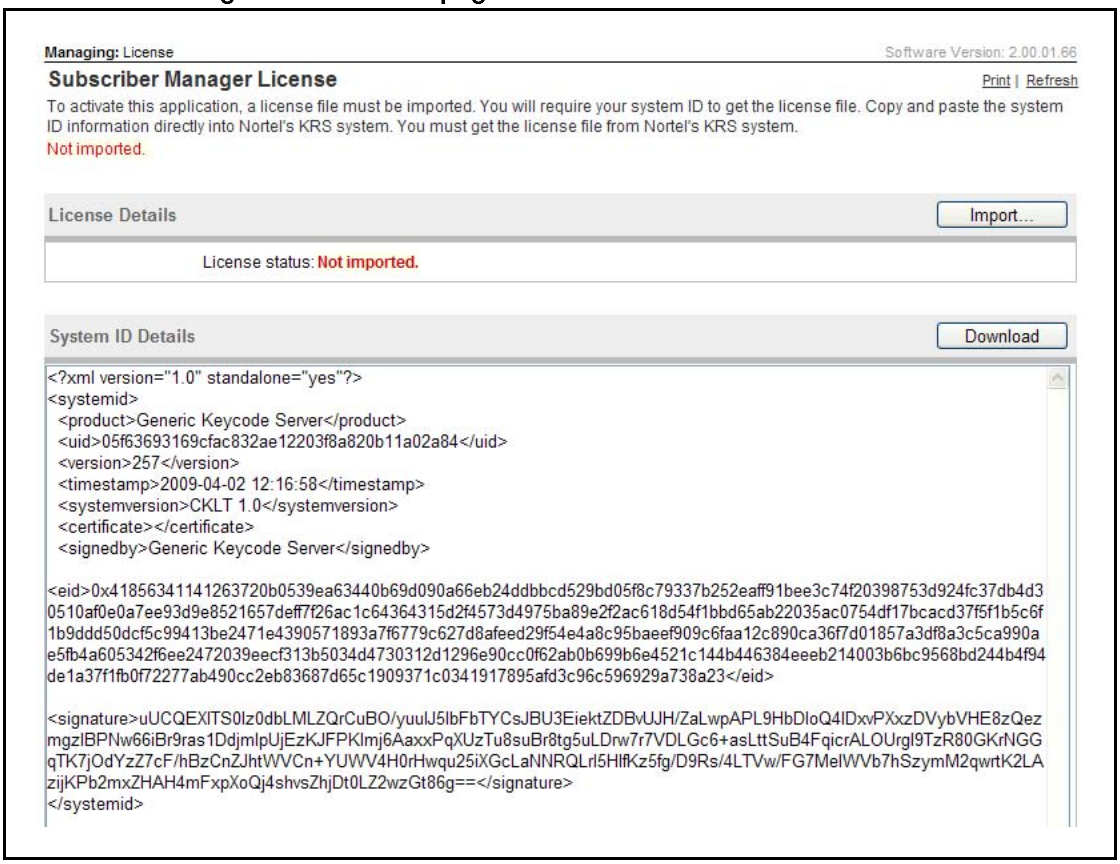
Create and import a Subscriber Manager license file

The following procedure describes how to create and import a Subscriber Manager license file. To import a Subscriber Manager license file, the user must have Subscriber Manager Read Write permission.

Procedure 4
Creating and importing a Subscriber Manager license file

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**.
	If a valid license is not installed, the **Subscriber Manager License** Web page opens with **License status: Not Imported**, as shown in Figure 23 "Subscriber Manager License Web page without a valid license" (page 62).

Figure 23
Subscriber Manager License Web page without a valid license



Step	Action
2	To download the **systemID.xml** file, click the **Download** button
	The **File Download** dialog box opens.
3	Click **Save**.
	The **Save As** dialog box opens.
4	Specify a path and filename for the **systemID.xml** file and click **Save**.
	The **File Download** and **Save As** dialog boxes close.

5 To generate a license, go to www.nortel.com/krs

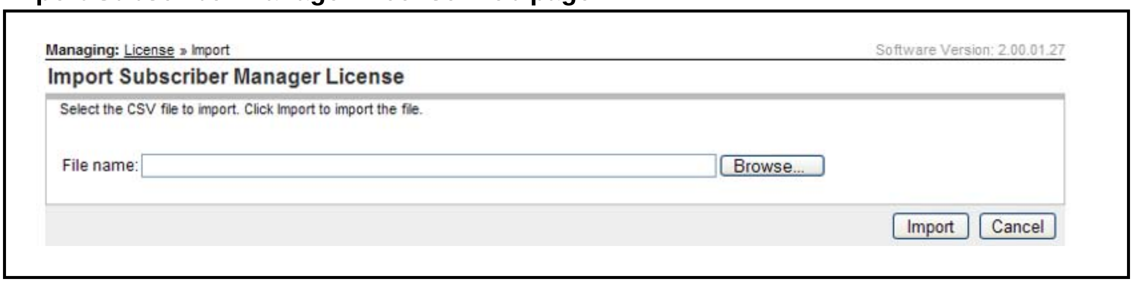
The Nortel Keycode Retrieval System (KRS) Web page opens.

6 Select Subscriber Manager from the Product List on the KRS Web page.

7 Generate a license file following the steps summarized on the KRS Web page.

8 Click on the **Import** button on the **Subscriber Manager License** Web page. (See Figure 23 "Subscriber Manager License Web page without a valid license" (page 62).) The **Import Subscriber Manager License** Web page opens, as shown in Figure 24 "Import Subscriber Manager License Web page" (page 63).

Figure 24
Import Subscriber Manager License Web page



9 Click on the **Browse** button, and navigate to the xml file generated by KRS.

10 Click on the **Import** button. The **Subscriber Manager License** Web page opens, as shown in Figure 25 "Subscriber Manager License Web page with a valid license" (page 63). License status **Imported** with a date-time stamp will be displayed

Figure 25
Subscriber Manager License Web page with a valid license

--End--

UCM Common Services audit log files

Users with the administrator role can review or download audit log files with the UCM Common Services log viewer. To view or download security log files, see *Unified Communications Management Common Services Fundamentals (NN43001-116)*.

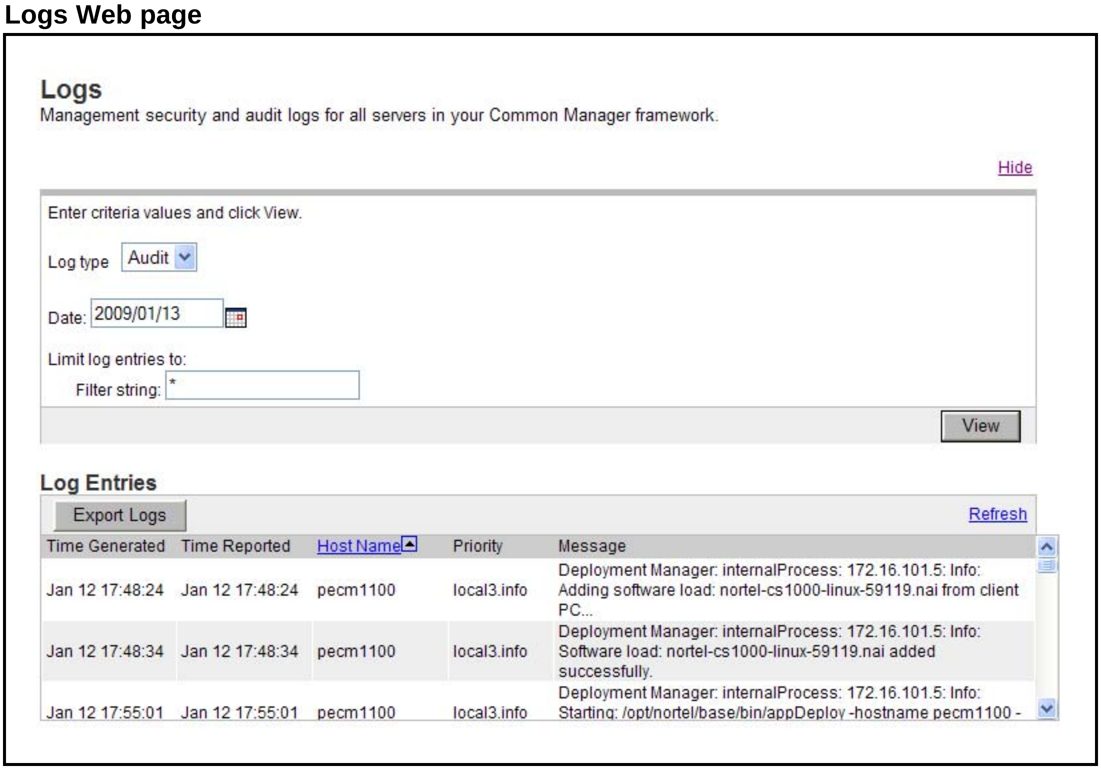
View and download UCM Common Services audit log files

The following procedure describes how to view and download UCM Common Services audit log files when logged on with the administrator role.

Procedure 5
Viewing and downloading audit log files

Step	Action
1	From the UCM Common Services navigator, click **Tools** > **Logs**. The **Logs** Web page opens.

Figure 26
Logs Web page



Step	Action
2	In the **Date** field, enter a date within the last 30 days using the format YYYY/DD/MM. or click on the **calendar** icon to select a date.
3	In the **Limit log entries to** section, enter a search string in the **Filter string** field to filter the Log Entries summary.

4 Click on **View**. The **Log entries** panel refreshes with a list of log messages for the requested date.

5 Click on **Export Logs**. The **File Download** dialog box opens.

6 Click **Save**.

The **Save As** dialog box opens.

7 Specify a path and filename for the Log Summary CSV file and click **Save**.

The **File Download** and **Save As** dialog boxes close.

--End--

Installation

This chapter provides information to install Subscriber Manager in the UCM Common Services.

Navigation

CS 1000 task flow

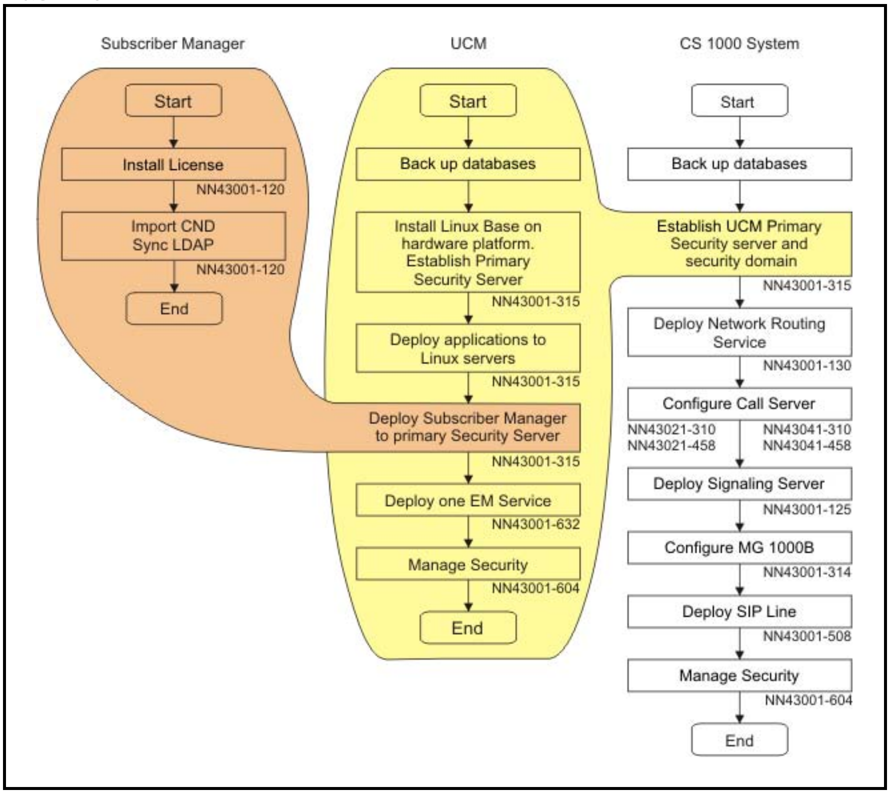
This section provides a high-level task flow for the installation or upgrade of a CS 1000 system. The task flow indicates the recommended sequence of events to follow when configuring a system and provides the NTP number that contains the detailed procedures required for the task.

For more information refer to the following NTPs, which are referenced in the task flow diagram:

- *Signaling Server IP Line Applications Fundamentals (NN43001-125)*
- *Network Routing Service Installation and Commissioning (NN43001-130)*
- *Branch Office Installation and Commissioning (NN43001-314)*
- *Linux Platform Base and Applications Installation and Commissioning (NN43001-315)*
- *SIP Line Fundamentals (NN43001-508)*
- *Security Management Fundamentals (NN43001-604)*
- *Element Manager: System Administration (NN43001-632)*
- *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning (NN43021-310)*

- *CS 1000M and Meridian 1 Large System Upgrades Overview (NN43021-458)*
- *Communication Server 1000E Installation and Commissioning (NN43041-310)*
- *Communication Server 1000E - Upgrade Procedures (NN43041-458)*

Figure 27
Task flow



Install Subscriber Manager

Subscriber Manager is a component of the Nortel Unified Communications Management Common Services (UCM Common Services). The UCM Common Services provides security and navigation infrastructure services for the following Web-based management applications:

- CS 1000 Element Manager (EM)
- Network Routing Service (NRS) Manager
- Subscriber Manager (SM)

It is best practice to configure both a Primary and a Backup Security Server per UCM Common Services security domain. This assures a highly available authentication and authorization service for:

- OAM users who need to access managed systems/elements in the UCM Common Services security domain
- auxiliary applications that rely on continuous availability of the UCM Common Services Web services API to monitor and control the CS 1000

Refer to *Linux Platform Base and Applications Installation and Commissioning (NN43001-315)*, for detailed information on installing the Linux operating system, the UCM Common Services and Subscriber Manager. Refer to *Unified Communications Management Common Services Fundamentals (NN43001-116)*, for detailed information on adding a managed element to the UCM Common Services, creating user accounts, and assigning roles and permissions for access to the Subscriber Manager from the UCM Common Services.

Nortel Linux platform uses Centralized Deployment Manager to remotely deploy Nortel application software from the UCM Common Services Primary Security server to other Linux servers located in the same security domain.

When Deployment Manager installs Subscriber Manager, all the properties, script, war files required for Subscriber Manager will be stored in a particular directory in the UCM Common Services server. The user can see the Subscriber Manager link in the navigation tree of the UCM Common Services. This is used as a launch point for Subscriber Manager.

Users access the UCM Common Services and Subscriber Manager through Microsoft Internet Explorer 6.02600 or later.

For more information about UCM Common Services, see *Unified Communications Management Common Services Fundamentals (NN43001-116)*.

Prerequisites

Before subscribers can be added and accounts provisioned using Subscriber Manager:

1. UCM Common Services and the Primary Security Service must be installed. Optionally a Backup Security Service may be installed. It is best practice to configure a Backup Security Service when one or more Nortel Linux-based servers are joined as members of an existing UCM Common Services Security Domain, to ensure continued access to UCM Common Services-based system management applications in case of failure of the UCM Common Services Primary Security service.

   For more information on UCM Common Services and the UCM Common Services security domain, see *Unified Communications*

Management Common Services Fundamentals (NN43001-116) and *Security Management Fundamentals (NN43001-604)*.

2. Nortel Linux platform uses Centralized Deployment Manager to remotely deploy Nortel application software from the UCM Common Services Primary Security server to other Linux servers located in the same security domain.

   The UCM Common Services base application provides necessary system functionality and must be successfully installed in order for the EM and Subscriber Manager applications to function. The UCM Common Services base application resides on the Linux base installation media and is installed automatically the first time the system boots up after base installation. The success or failure of the base applications installation is shown in an on-screen message. If the base application installation fails, the Linux base must be reinstalled.

   For more information on installing the Nortel Linux platform and using Centralized Deployment Manager, see *Linux Platform Base and Applications Installation and Commissioning (NN43001-315)*.

3. Administrative user accounts must be created and roles and permissions for accessing EM and Subscriber Manager from UCM Common Services must be assigned.

   For more information on creating Administrative user accounts and assigning roles and permissions, see *Unified Communications Management Common Services Fundamentals (NN43001-116)*.

4. Templates must be created in EM.

   For more information on creating templates in EM, see *Element Manager System Reference - Administration (NN43001-632)*.

Uninstall Subscriber Manager

Deployment Manager is used to uninstall Subscriber Manager. When Subscriber Manager is uninstalled, the subscriber data that is contained in the UCM Common Services embedded directory remains in the directory. Data in the UCM Common Services embedded directory is accessed by other applications in the network and uninstalling Subscriber Manager does not mean that the other applications, such as Unicode Directory Server, no longer need to access this data.

When Subscriber Manager is uninstalled, all the properties files, script files, war files and log files related to Subscriber Manager are removed from the UCM Common Services. The user will not see the Subscriber Manager link in the UCM Common Services navigation tree once the application is uninstalled.

Software upgrades and patches

Upon installing a software upgrade patch, the properties, script, war and log files are updated.

Subscriber Manager operations

This chapter provides information about how to configure subscribers and subscriber accounts (phone services) for subscribers within your management system.

Navigation

Manage subscribers

The procedures in this section describe the functions available in Subscriber Manager to manage subscribers within your network.

The Managing Subscribers Web page is the default Web page that opens when you click the Subscriber link in the UCM Common Services left navigation pane. From the Managing Subscribers Web page, you can view, add, edit, delete, or search for subscribers.

Add a new subscriber

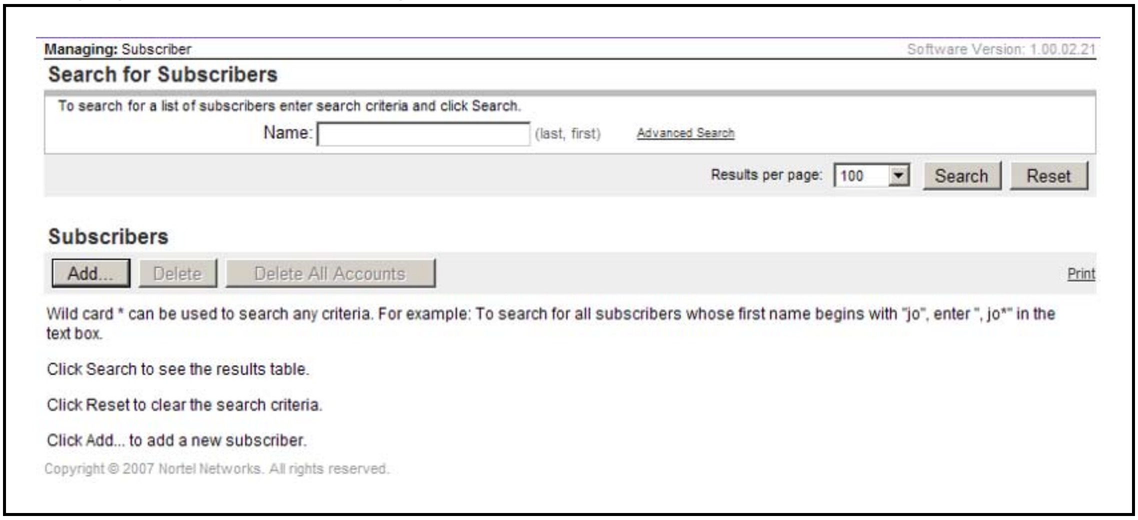
Use the steps in the following procedure to add a new subscriber in Subscriber Manager.

Procedure 6
Adding a new subscriber

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**.

The **Managing Subscribers** Web page opens, as shown in Figure 28 "Managing Subscribers Web page" (page 74).

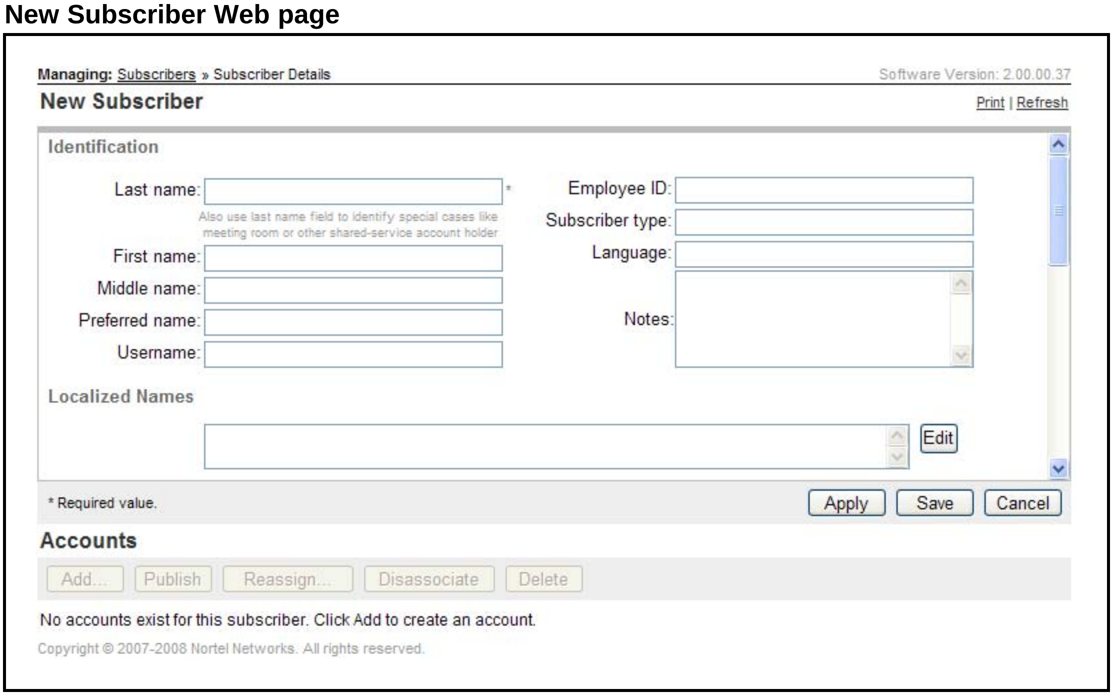
Figure 28
Managing Subscribers Web page



2 From the **Subscribers** section, click **Add**.

The **New Subscriber** Web page opens, as shown in Figure 29 "New Subscriber Web page" (page 74).

Figure 29
New Subscriber Web page



3 Type the required information for the new subscriber in the following sections:

- **Identification**

- Last name

  Note: Last name is a mandatory field.

- First name
- Middle name
- Preferred name
- Username
- Employee ID
- Subscriber type
  Use this field to identify the type of subscriber such as, employee, project, roles, or location.
- Language
- Notes
  Use this field to enter any specific information for the subscriber.

- Localized Names
  - This section is collapsed if no localized names exist and expanded if localized names exist.
  - By default the list is shown in read only mode.
  - The names are displayed sorted in alphabetical order by language.
    Click the **Edit** button, to edit the list of localized names.
- **Directory and Phone Numbers**
  - Extension
  - External
  - ESN
  - National
  - International
  - Cell
  - Pager
  - Fax
- **Address**
  - Street
  - City
  - Province/State
  - Country
  - Postal/Zip code

- E-mail
- Office location

- **Organization**
  - Job title
  - Department
  - Company
  - Service start date
  - Service end date

  To enter a service start or end date, you can perform one of the following actions:

  - Type the service start date as YYYY-MM-DD.
  - Click the calendar icon beside the **Service start date** field and select a date.

4 Click **Save** to apply the changes, or click **Cancel** to return to the **Managing Subscriber** Web page.

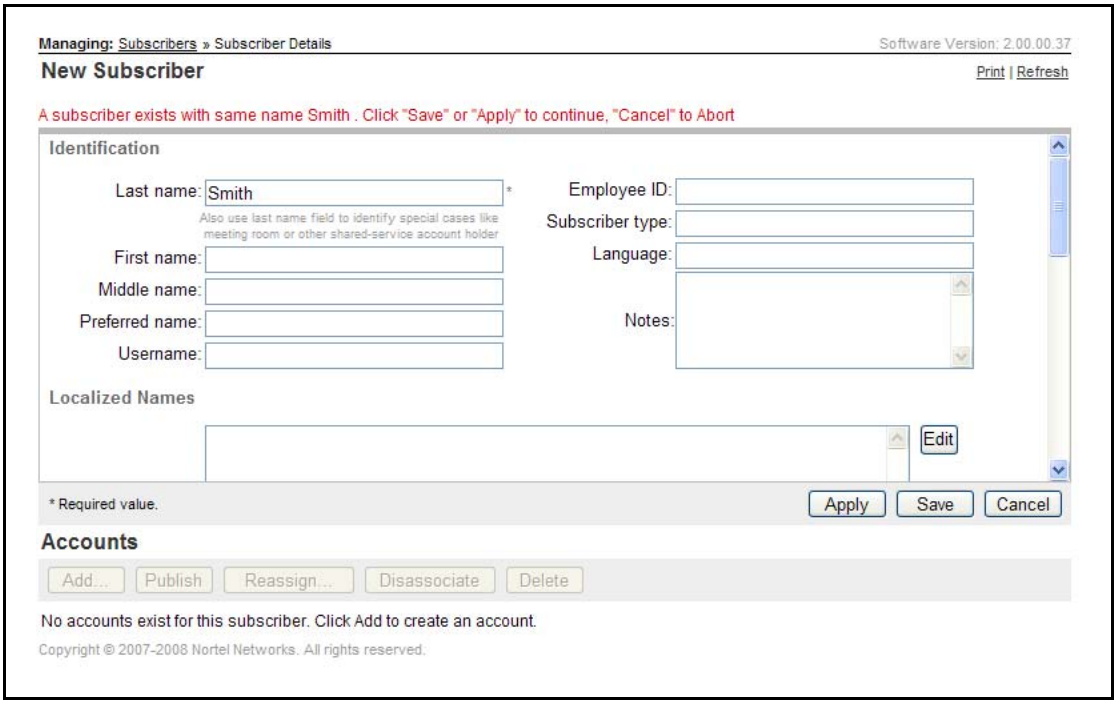
If all mandatory fields have been completed, the **Search for Subscribers** Web page opens and the newly added subscriber is listed in the **Subscribers found** section.

> ***Note:*** The newly added subscriber is the only subscriber listed in the **Subscribers found** section.

If all mandatory fields have not been completed, the **New Subscriber** Web page refreshes with a message indicating missing mandatory fields.

> ***Note:*** When adding a new subscriber, if the subscriber's first and last name match an existing subscriber in the directory, a warning message is displayed as shown in Figure 30 "New Subscriber warning Web page" (page 77). Click **Save** or **Apply** to continue with the operation, or click **Cancel** to abort the operation.

Figure 30
New Subscriber warning Web page



--End--

When a new subscriber is added to the system, an account can be added for the new subscriber. For more information about how to add a subscriber account, see "Add an account for a subscriber" (page 83).

Search subscribers

Use the basic or advanced search features in Subscriber Manager to quickly and easily search for subscribers within your network.

Perform a basic search for a subscriber

Use the steps in the following procedure to perform a basic search to find subscribers within your management system. With the basic search, you can search for a subscriber only by last name, first name, or last and first name.

Procedure 7
Performing a basic search for a subscriber

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**.

The **Managing Subscribers** Web page opens, as shown in Figure 28 "Managing Subscribers Web page" (page 74).

2 From the **Search for Subscribers** section, in the **Name** field, perform one of the following actions:

- type the last name of the subscriber
- type the last name and first name of the subscriber
- type the first name of the subscriber

> **ATTENTION**
> When searching for a subscriber with both last and first names, a comma is required after the last name (smith, john).
>
> When searching for a subscriber with the first name, a comma is required before the name (, john).
>
> You can also use the asterisk (*) wild card to return specific search results, as described in Table 5 "Search wild card" (page 26).

3 Select a value from the **Results per page** drop down list.

4 Click **Search**.

The search results are displayed in the **Subscribers found** section of the **Managing Subscriber** Web page.

5 Click **Reset** to clear the search values and to perform a new search.

--End--

Perform an advanced search for a subscriber

To perform an advanced search for a subscribers within your management system, see Procedure 8 “Performing an advanced search for a subscriber” (page 79). With the advanced search feature, you can search for a subscriber by:

- Last Name
- First Name
- Employee ID
- Department
- Date
  - — Service end date
  - — Service start date
- Miscellaneous

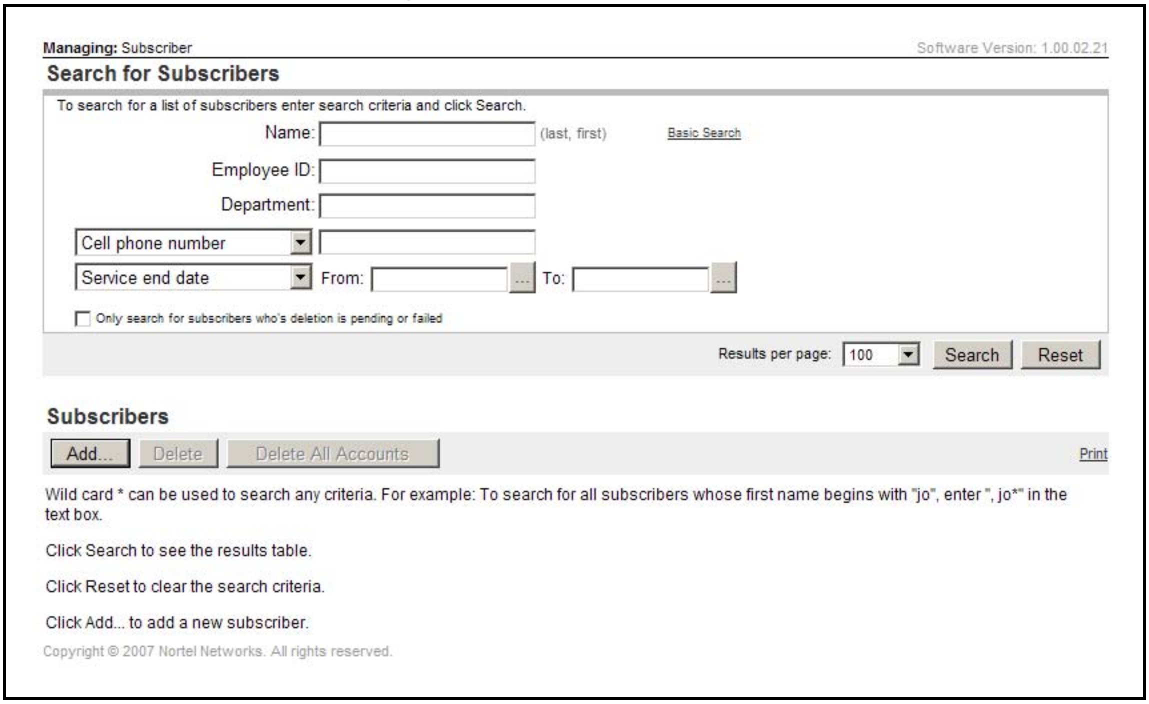
- Cell phone number
- City
- Company
- Country
- ESN phone number
- Email
- Employee Id
- Extension phone number
- External phone number
- International phone number
- Job title
- Language
- Location
- Middle name
- National phone number
- Notes
- Pager number
- Post office box
- Postal code/ZIP
- Preferred name
- Province/state
- Street
- Type
- Username

Procedure 8
Performing an advanced search for a subscriber

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**. The **Managing Subscribers** Web page opens, as shown in Figure 28 "Managing Subscribers Web page" (page 74).
2	From the **Search for Subscribers** section, next to the **Name** field, click **Advanced Search**.

The **Search for Subscribers** Web page for the advanced search opens, as shown in Figure 31 "Search for Subscribers Web page for an advanced search" (page 80).

Figure 31
Search for Subscribers Web page for an advanced search



3 From the **Search for Subscribers** Web page, enter information for the following advanced search fields:

- **Name**
- **Employee ID**
- **Department**
- From the first drop down list (of miscellaneous fields), select one of the following
  - — Cell phone number
  - — City
  - — Company
  - — Country
  - — ESN phone number
  - — Email
  - — Employee Id
  - — Extension phone number
  - — External phone number
  - — International phone number

  - Job title
  - Language
  - Location
  - Middle name
  - National phone number
  - Notes
  - Pager number
  - Post office box
  - Postal code/ZIP
  - Preferred name
  - Province/state
  - Street
  - Type
  - Username
- From the date drop down list select **Service end date** or **Service start date** including the **From** and **To** fields.

To enter a date in the **From** and **To** fields, click the calendar icon beside them or type the date as YYYY-MM-DD in the appropriate fields.

4 Select **Only search for subscribers whose deletion is pending or failed**, if desired.

5 From the **Results per page** list, select a value.

6 Click **Search**.

The search results are displayed in the **Subscribers found** section of the **Managing Subscribers** Web page.

7 Click **Reset** to clear the search values and perform a new search.

--End--

ATTENTION
When you perform a basic or advanced search, you can use the asterisk (*) wild card to return specific search results. For more information about the asterisk (*) wild card, see Table 5 "Search wild card" (page 26).

View or update subscriber properties

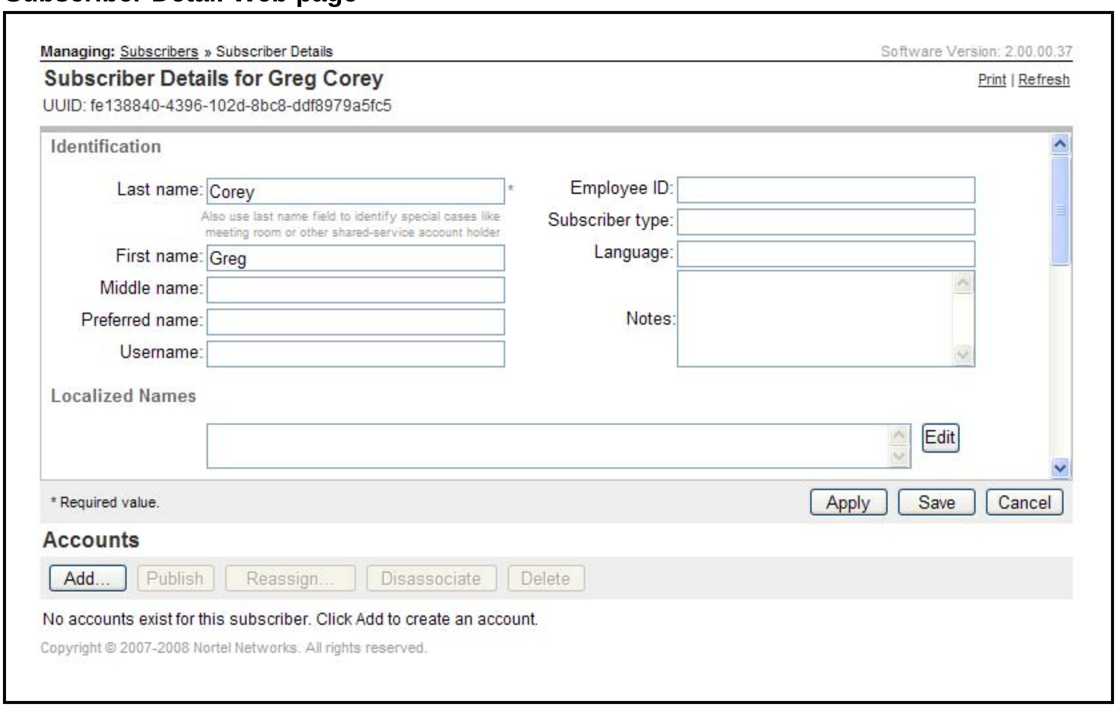
You can view or update subscriber properties in your system to ensure the information is accurate and up-to-date.

Use the steps in the following procedure to view or update the properties for a selected subscriber.

Procedure 9
Viewing or updating subscriber properties

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79).
2	From the **Subscribers found** section, click the subscriber’s name. The **Subscriber Detail** Web page for the selected subscriber opens, as shown in Figure 32 "Subscriber Detail Web page" (page 82).

Figure 32
Subscriber Detail Web page



Step	Action
3	View or edit the properties as required.
4	When changes are made to the subscriber properties, perform one of the following actions: • Click **Apply** to save the changes. Or, • Click **Save** to save the changes to the target. The **Managing Subscribers** Web page opens. Or, • Click **Cancel** to discard the changes.

The **Managing Subscribers** Web page opens.

--End--

Delete a subscriber

You can delete a subscriber that is no longer required in your system.

Use the steps in the following procedure to delete a subscriber with or without accounts.

Procedure 10
Deleting a subscriber

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79).
2	From the **Subscribers found** section, select the check box beside the name of the subscriber or subscribers you wish to delete.
3	Click **Delete**. A confirmation dialog box opens.
4	Click **OK** to proceed with the deletion or **Cancel** to cancel the deletion.

--End--

Manage subscriber accounts

The procedures in this section provide information about managing accounts for subscribers within your network.

The **Managing Subscribers** Web page is the default Web page that opens when you click the Subscriber link in the UCM Common Services left navigation pane. From the **Search for Subscribers** Web page, you can view, add, edit, or delete subscriber accounts. From the **Subscribers found** section of the **Search for Subscribers** Web page you can update subscriber properties. To update subscriber properties, see Procedure 9 “Viewing or updating subscriber properties” (page 82).

Add an account for a subscriber

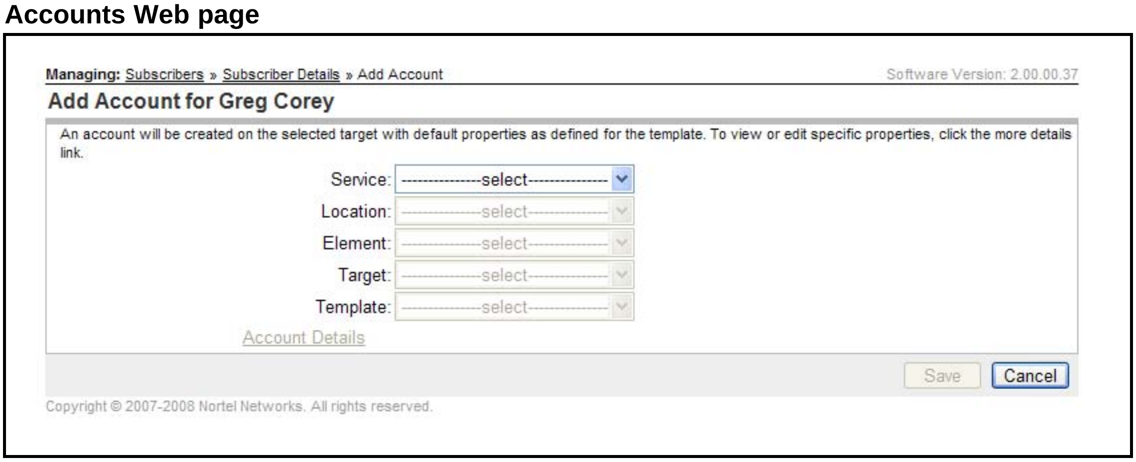
Use the steps in the following procedure to add an account for a subscriber.

When adding a SIP Line set for a subscriber on Subscriber Manager, the SIP Username of the SIP Line set will be updated from the Username, Preferred name, First name or Last name of the subscriber following the rules summarized in *SIP Line Fundamentals (NN43001-508)*.

Procedure 11
Adding an account for a subscriber

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79) to find the desired subscriber.
2	From the **Subscribers found** section, click the name of the subscriber. The **Subscriber Detail** Web page opens for the selected subscriber, as shown in Figure 32 "Subscriber Detail Web page" (page 82).
3	From the **Accounts** section, click **Add**. The **Accounts** Web page opens for the selected subscriber, as shown in Figure 33 "Accounts Web page" (page 84).

Figure 33
Accounts Web page



Step	Action
4	Select an option from the list for each of the following four required properties: • **Service** • **Location** • **Element** • **Target** • **Template**

5 Perform one of the following actions:

- Click **Save** to save the account information and accept the default values for the account in the system and to return to the **Subscriber Detail** Web page.
  The new account is displayed in the **Accounts** list for the subscriber.
- Click **Cancel** to discard the account creation and to return to the **Subscriber Detail** Web page.
- Click **Account details** to configure additional properties for the account.
  The **Phone Details** page for the new account opens as shown in Figure 34 " Phone Details Web page" (page 85).
  Figure 34
  Phone Details Web page

ATTENTION
The **Phone Details** page is provided by CS 1000 Element Manager.

If **Account details** was selected, follow steps 6 and 7.

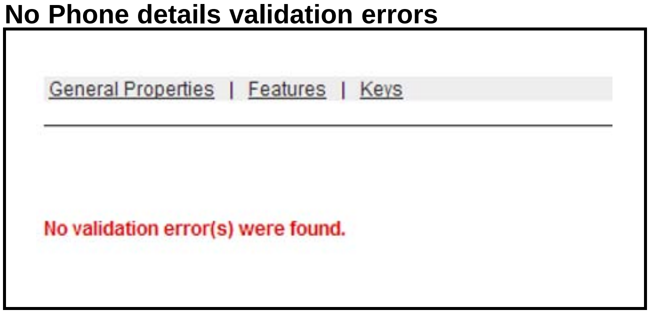
6 Enter the additional properties for the account.

7 Perform one of the following actions:

- Click the **Finish** button to save the account information in the element and return to the **Subscriber Detail** web page.
  The new account is displayed in the **Accounts** list for the subscriber.
- Click the **Cancel** button to discard the account creation and return to the **Accounts** web page.

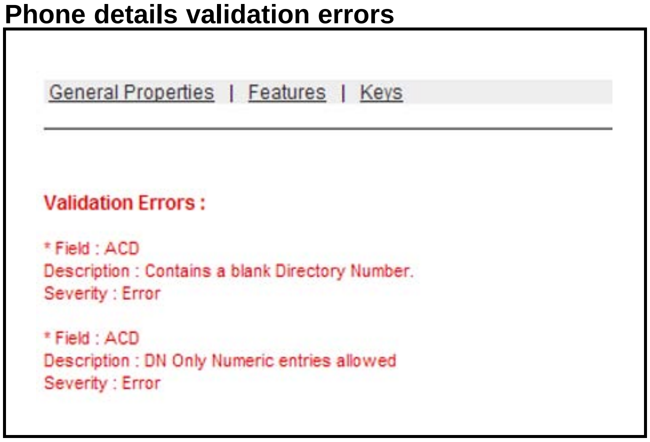
- Click the **Validate** to validate the phone details against the Call Server to ensure there are no errors.
  The validation results are displayed on the **Phone details** web page.
  - If no validation errors are found, the following message appears.

Figure 35
No Phone details validation errors



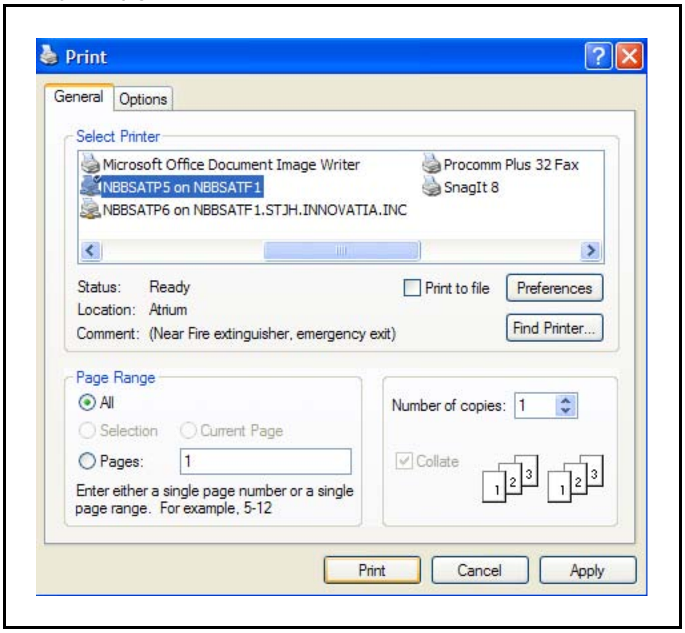
  - If validation errors are found, the following type of message(s) appears

Figure 36
Phone details validation errors



- Click the **Print** button to initiate a print of the **Phone details** web page.
  The **Print** window appears.

Figure 37
Print window



- Click the **Print** button to print the **Phone details** web page to the chosen printer destination.

--End--

Bulk account creation

Bulk add accounts creates an account for each subscriber and a selected list of subscribers.

Bulk account creation is asynchronous. A bulk account creation request is queued in the FTPROV system until the next time the FTPROV engine runs. A nominal maximum of 1000 accounts can be queued. This is a nominal maximum, since if the bulk account creation process is adding accounts to the queue and the limit of 1000 entries is reached the queue accepts the remaining accounts. However, if the queue is already at or greater than 1000 accounts before the bulk account creation request is submitted no additional accounts are added to the queue and the condition is reported to the logs and the web page.

A maximum of 50 accounts is processed during a single run of the FTPROV engine. To illustrate this limit, if 140 accounts have been queued it will take three runs of the FTPROV engine to process all the queued accounts.

Logging information is captured for each provisioning request as follows:

Successful creation of an account

```
Level: INFO
Message: Account created for John Wilson,
Employee number: 2902837 + [account details].
```

Unsuccessful creation of an account

```
Level: ERROR
Message: Failed to create an account for John Wilson,
Employee number: 2902837 + diagnostics information.
```

See “Log files” (page 22) for a summary of the log file format.

Add bulk accounts

Use the following procedure to add an account for each subscriber in a group of subscribers.

Procedure 12
Adding bulk accounts

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79).
2	Check the box beside the name of one or more subscribers. The **Managing Subscribers** web page refreshes.
3	Click **Add Accounts** in the **Subscribers Found** panel of the web page. The **New Account for Subscribers** web page opens
4	From the drop down lists, select the **Service**, **Location**, **Element**, **Target** and **Template** to be used in creating the bulk accounts.
5	Click **Save**. The **Managing Subscribers** web page opens.

--End--

View or update a subscriber account

You can view or update the properties of an account to ensure the required or new information for a subscriber is entered in your system. Use the steps in the following procedure to view or edit the properties for a subscriber account.

Procedure 13
Viewing or updating a subscriber account

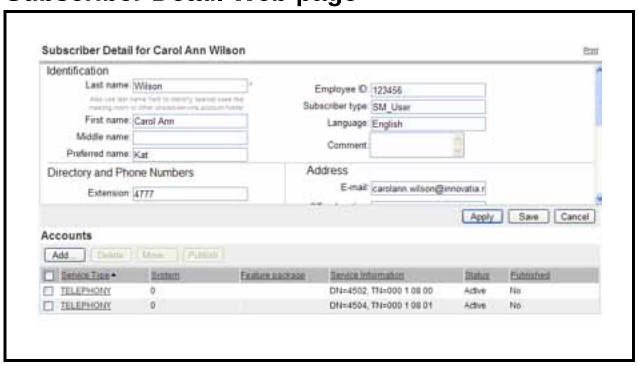
Step	Action

1 Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79) to find the desired subscriber.

2 From the **Subscribers found** section, click the name of the subscriber.

The **Subscriber Detail** Web page opens for the selected subscriber, as shown in Figure 38 "Subscriber Detail Web page" (page 89).

Figure 38
Subscriber Detail Web page



3 In the **Accounts** section, from the **Service Type** list, click the service type that you wish to view or update.

The **Phone Details** Web page opens for the selected service type.

4 View or edit the properties as required.

5 When changes are made to account properties, perform one of the following actions:

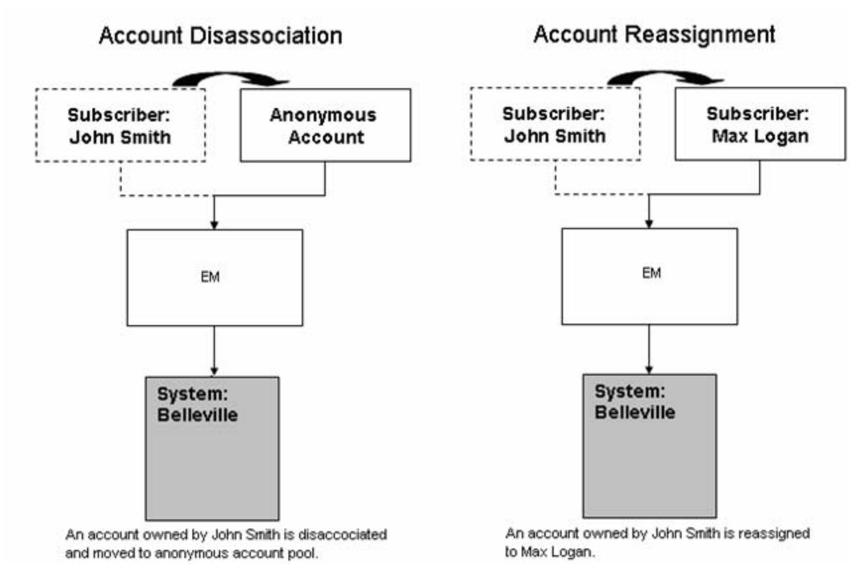
- Click **Save** to save the account information in Subscriber Manager and in the element and to return to the **Subscriber Detail** Web page.
  The **Accounts** list in the **Subscriber Detail** Web page is refreshed.
  Or
- Click **Cancel** to discard the account creation and to return to the **Subscriber Detail** Web page.

--End--

Account reassignment and account disassociation

Moving an account from a subscriber to another subscriber is account reassignment. Whereas, moving an account from a subscriber to the anonymous account pool is account disassociation. During account disassociation, the account information is deleted from the subscriber. Once an account is disassociated from a subscriber the user can use the anonymous account functionality to assign the account to another subscriber. The main advantage of account reassignment is that the account need not be deleted and then recreated. Account dissociation and account reassignment are depicted in Figure 39 "Account dissociation versus account reassignment" (page 90).

Figure 39
Account dissociation versus account reassignment



Log messages

Logging information is captured for account reassignment requests as follows:

Successful account reassignment

```
Level: INFO
Example Message: Account reassigned to aaa from kijal
parekh. The account details are: accountDetails
= null; description = "DN = 5555";featurePackage =
premium; location = Bellville; operationalStatus =
Active; publishableSubscriber = <?xml version="1.0"
encoding="UTF-8"standalone="yes"?><publishData><pre
ferredDirectoryNumber>1200</preferredDirectoryNumbe
r></preferredEsnTelephoneNumber>0-1200</preferredEs
```

```
nTelephoneNumber><cpndName>kijal,parekn</cpndName><
/publishData>;published = true; serviceInformation =
DN=1200(Marped), TN=096 0 00 00; serviceType = TELEPHONY;
subscriberId = 4ea10d8e-49fd-102d-9813-d9b6dd40f7c6;
systemId = 0; systemMgrAccountId = 096 0 00 00; systemMgrId
= f77013cd-b0cb-11dd-ae34-dbfc0f3c96b6; systemName = 0;
taskStatus = null; transactionId = Mon Nov 17 17:00:06 EST
2008; uniqueId = 9b243a14-453e-102d-9447-81eb6b39501e;
(AccountReassignment.java:141) [AccountReassignment]
```

Unsuccessful account reassignment

```
Level: ERROR
Message: Account reassignment fail for account: “Account
information….”
```

Account reassignment warning

```
Level: WARNING
Message: Account reassignment Warning
```

Logging information is captured for account dissociation requests as follows:

Successful account disassociation

```
Level: INFO
Example Message: 2008-11-20 15:47:35,442 INFO
[subMgr] Account disassociated from subscriber:
4ea10d8e-49fd-102d-9813-d9b6dd40f7c6. The account
details are: accountDetails = null; description = "DN
= 5555";featurePackage = test1; location = Bellville;
operationalStatus = Active;publishableSubscriber =
<?xml version="1.0" encoding="UTF-8"standalone="yes
"?><publishData><preferredDirectoryNumber><preferr
edEsnTelephoneNumber>0-</preferredEsnTelephoneNum
ber><cpndName></cpndName></publishData>;published
= true; serviceInformation = DN=, TN=096 0 00 08;
serviceType = TELEPHONY; subscriberId = null; systemId
= 0; systemMgrAccountId = 096 0 00 08; systemMgrId =
f77013cd-b0cb-11dd-ae34-dbfc0f3c96b6;systemName = 0;
taskStatus = null; transactionId = Wed Nov 19 17:30:08 EST
2008; uniqueId = 12a8cdac-49fe-102d-82ab-693109ee8080;
(SubscriberProperties.java:1299) [SubscriberProperties]
```

Unsuccessful account disassociation

```
Level: ERROR
Message: Account disassociation fail for account: -
“Account information….”
```

Account disassociation warning

```
Level: WARNING
Message: Account disassociation Warning
```

See “Log files” (page 22) for a summary of the log file format.

See Table 19 "Account disassociate and reassign support " (page 92) for a summary of account dissociation and reassignment support.

Table 19
Account disassociate and reassign support

Account Status	Is Disassociate supported?	Is Reassign supported?
Active	Yes	Yes
Inactive	Yes	Yes
Invalid	No	No
Pending Deletion	No	No
Failed Deletion	Yes	Yes

Account reassignment

Use the following procedure to reassign an account from a subscriber to another subscriber.

Note:

- ***Multiple accounts can be reassigned to a subscriber during account reassignment***
- ***Accounts can be reassigned across service types and elements***
- ***If reassignment for an account fails during a request for multiple account reassignment, the failure is logged and the process continues with reassignment of the remaining accounts***

Procedure 14
Reassigning an account

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79) to find the desired subscriber.
2	From the **Subscribers found** section, click the name of the subscriber.

The **Subscriber Detail** Web page opens for the selected subscriber, as shown in Figure 32 "Subscriber Detail Web page" (page 82).

3 In the **Accounts** pane, place a check box beside the account to be reassigned.

4 Click **Reassign**.

The **Reassign Accounts** Web page opens, as shown in Figure 40 "Reassign Accounts Web page" (page 93).

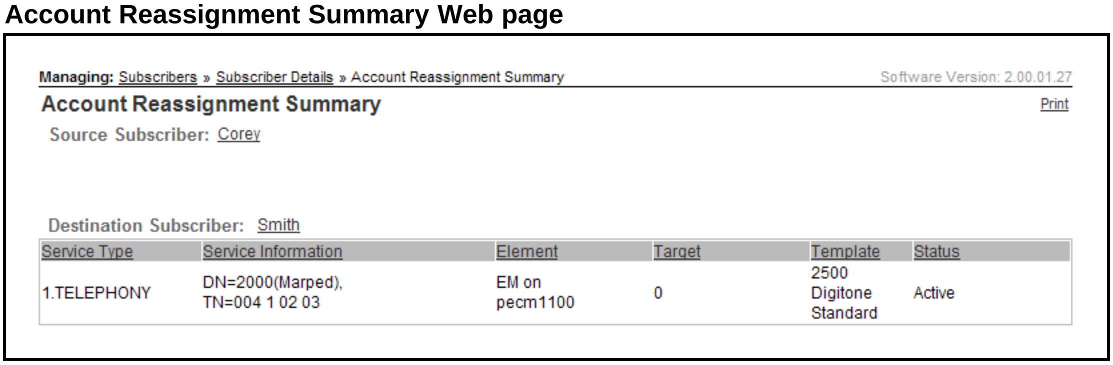
Figure 40
Reassign Accounts Web page

5 In the Reassign pane enter the name of a Subscriber in the text box.

6 Click **Save**.

The **Account Reassignment Summary** Web page opens, as shown in Figure 41 "Account Reassignment Summary Web page" (page 93).

Figure 41
Account Reassignment Summary Web page



--End--

Account disassociation

Use the following procedure to move an account from a subscriber to the anonymous account pool.

Procedure 15
Disassociating an account

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79) to find the desired subscriber.
2	From the **Subscribers found** section, click the name of the subscriber. The **Subscriber Detail** Web page opens for the selected subscriber, as shown in Figure 32 "Subscriber Detail Web page" (page 82).
3	In the **Accounts** pane, place a check box beside the account to be disassociated
4	Click **Disassociate**. The **Subscriber Detail** Web page opens for the selected subscriber.

--End--

Account disassociation moves an account from a subscriber to the anonymous account pool. To assign an anonymous account to a subscriber, see Procedure 19 “Assigning an anonymous account” (page 98).

Delete subscriber accounts

Use the steps in the following procedure to delete one or more accounts that are no longer required for a subscriber.

Procedure 16
Deleting subscriber accounts

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77) , or Procedure 8 “Performing an advanced search for a subscriber” (page 79) to find the desired subscriber.
2	To delete all accounts for a subscriber, select the check box beside the name of the subscriber in the **Subscribers found**

section of the **Managing Subscribers** Web page and click **Delete All Accounts**.

The **Managing Subscribers** Web page refreshes.

3 To delete one or more accounts for a subscriber, click the name of the subscriber in the **Subscribers found** section of the **Managing Subscribers**Web page.

The **Subscriber Detail** Web page opens for the selected subscriber, as shown in Figure 38 "Subscriber Detail Web page" (page 89).

4 In the **Accounts** section, select the check box beside a service type to delete the account for the selected subscriber.

> ***Note:*** You can select one or more accounts to delete.

5 Click **Delete**.

A confirmation dialog box opens.

6 Click **OK** to proceed with the deletion or **Cancel** to cancel the deletion.

--End--

Publish account properties

Use the steps in the following procedure to copy information to specific subscriber properties within your system, and to synchronize account specific information in the corporate directory.

Procedure 17
Publishing account properties

Step	Action
1	Search for a Subscriber. To search for a subscriber see Procedure 7 “Performing a basic search for a subscriber” (page 77), or Procedure 8 “Performing an advanced search for a subscriber” (page 79) to find the desired subscriber.
2	From the **Subscribers found** section, click the name of the subscriber. The **Subscriber Detail** Web page opens for the selected subscriber, as shown in Figure 38 "Subscriber Detail Web page" (page 89).
3	In the **Accounts** section, select the check box beside a service type.
4	Click **Publish**.

The account properties are copied to specific subscriber properties in your system. Only certain account properties are published. See “Subscriber phone services” (page 55)for details about the publishing rules between CS 1000 Element Manager and Subscriber Manager.

--End--

Synchronize accounts

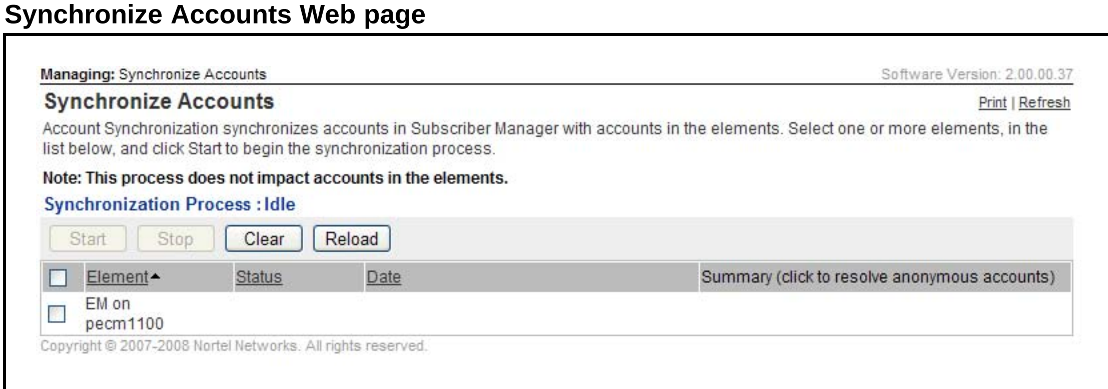
Information in Subscriber Manager and the elements can sometimes become out-of-sync. The synchronization process can synchronize one element, and queue all other selected elements. The state of the synchronization process is the same for all users. When the synchronization process starts, you cannot modify the process until the synchronization process is completed or stopped.

Use the steps in the following procedure to synchronize account information between Subscriber Manager and the elements.

Procedure 18
Synchronizing accounts

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Accounts** > **Synchronization**. The **Synchronize Accounts** Web page opens, as shown in Figure 42 "Synchronize Accounts Web page" (page 96).

Figure 42
Synchronize Accounts Web page



Step	Action
3	Select the check box beside one or more elements, and then click **Start** to begin the synchronization process.

Once the synchronization process is started, the only action you can take is to click the **Stop** button to stop the synchronization process. The **Start**, **Clear**, and **Reload** buttons are disabled.

> ***Note:*** When you click the **Stop** button, the tasks in progress are stopped when the required processes are completed.

--End--

During the synchronization process, the **Status** column for each element indicates the current status of the synchronization process. Statuses include:

- **QUEUED**

  The synchronization task is queued and will run automatically once other synchronization tasks have completed.
- **RUNNING**

  The synchronization task is running.
- **STOPPING**

  The synchronization task is stopping. In this case, a user clicked the **Stop** button. Tasks that are running stop only once certain critical processes are complete.
- **ABORTED**

  The synchronization task aborted before the task completed. This is the final result of the user clicking the **Stop** button.

Each refresh of the Synchronize Accounts web page by the user provides a real-time status update when the synchronization job is in the "Running" state. The runtime status information includes:

- Retrieving all accounts from the element
- Retrieving all accounts from the directory
- x of y accounts processed from the element
- x of y accounts processed from the directory

When the synchronization process is complete, the **Status** column is updated for each element with either a **PASS** or **FAIL** entry. A **PASS** status indicates that the synchronization task finished to completion. A **FAIL** status indicates that the synchronization task failed to complete. Check logs for information as to why the failure occurred.

The **Summary** column displays the number of accounts processed, the number of anonymous accounts, the number of accounts added, the number of accounts updated, and the number of accounts deleted.

While the synchronization is in progress, if the synchronization fails for one account, the process continues to synchronize the next account. If the synchronization fails for three consecutive accounts, the process is aborted and the status is set to failed.

When there are no accounts processed and the account synchronization fails for any reason, the summary field will contain “0 account(s) processed”

From the **Summary** column, you can click on the number of anonymous accounts to assign or delete the anonymous accounts. For more information, see “Assign or delete anonymous accounts” (page 98).

Assign or delete anonymous accounts

When a synchronization process completes, a summary shows any anonymous element accounts in Subscriber Manager. You can assign the anonymous account to subscribers in Subscriber Manager or delete the accounts from the element.

To assign less than 100 anonymous accounts to subscribers, see Procedure 19 “Assigning an anonymous account” (page 98). Use the Phone Migration Tool in CS 1000 Element Manager to assign 100 or more anonymous accounts to subscribers. For more information on the Phone Migration Tool, see “Phone Migration Tool” (page 122).

To delete the accounts from the element, see Procedure 20 “Deleting an anonymous account” (page 100).

Assign an anonymous account

Use the steps in the following procedure to assign an anonymous account to a subscriber in your system.

> ***Note:*** Only one user can process anonymous accounts at any given time. If two users attempt to run assignments and/or deletions at approximately the same time, one user will be prevented from processing the accounts.

Procedure 19
Assigning an anonymous account

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**.

The **Subscriber Manager** web page opens.

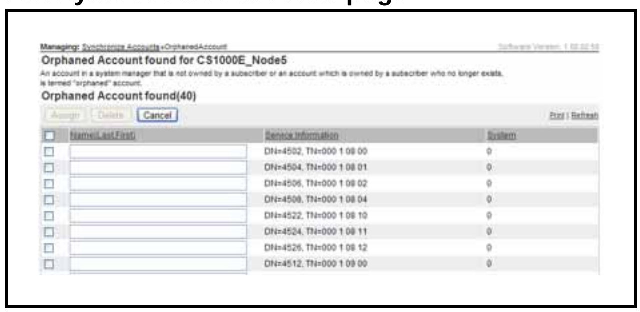
2 From the Subscriber Manager navigator, click **Account Synchronization**.

The **Synchronize Accounts** Web page opens, as shown in Figure 42 "Synchronize Accounts Web page" (page 96).

3 From the **Synchronize Accounts** Web page, in the **Summary** column, click the link for the number of anonymous accounts.

The **Anonymous Account** Web page opens, as shown in Figure 43 " Anonymous Account Web page" (page 99).

Figure 43
Anonymous Account Web page



4 Select the check box beside one of the anonymous accounts.

5 Type the subscriber name in the **Name (Last, First)** text field.

> ***Note:*** If the last name is not unique, a drop down list of Subscribers appears. Select a Subscriber from the list and the **Name (Last, First)** text field auto fills.

6 Click **Assign**.

The **Anonymous Account** Web page refreshes with an update of the **Status** of the assigned account.

--End--

Delete an anonymous account

Use the steps in the following procedure to delete anonymous accounts in your system.

> ***Note:*** Only one user can process anonymous accounts at any given time. If two users attempt to run assignments and/or deletions at approximately the same time, one user will be prevented from processing the accounts.

Procedure 20
Deleting an anonymous account

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Accounts** > **Synchronization**. The **Synchronize Accounts** Web page opens, as shown in Figure 42 "Synchronize Accounts Web page" (page 96).
3	From the **Synchronize Accounts** Web page, in the **Summary** column, click the link for the number of anonymous accounts. The **Anonymous Accounts** Web page opens for the anonymous accounts, as shown in Figure 43 " Anonymous Account Web page" (page 99).
4	Select the check box beside one of the anonymous accounts.
5	Click **Delete**. A confirmation dialog box opens.
6	Click **OK** to proceed with the deletion. The **Anonymous Account** Web page refreshes with an update of the **Status** of the assigned account. Or Click **Cancel** to cancel the deletion.

--End--

Manage Locations

The procedures in this section describe the functions available in Subscriber Manager to manage locations within your network.

Subscriber Manager installs with a sample location.csv file so that users can export the sample and use it as a locations file template. Subscriber Manager supports CSV files saved using OpenOffice.org 2.4.0 (or greater). Other CSV editors can be used. However, they have not been tested with Subscriber Manager. Unicode characters are not supported for locations.

To add a new location the user first exports the location.csv file. The exported file is opened in a CSV editor and updated. The updated file is imported back into Subscriber Manager using the import locations functionality. No element validation is performed while importing the locations.

See Table 20 "Access rights and button states for Locations web page" (page 101) for a summary of user access rights for the Locations web page.

Table 20
Access rights and button states for Locations web page

Button Name	Access permission	Function
Export	Enabled for users with Subscriber Manager Read Write permission. Disabled for users with Subscriber Manager Read Only permission.	Download the locations file to user machine.
Import	Enabled for users with Subscriber Manager Read Write permission. Disabled for users with Subscriber Manager Read Only permission.	Upload the modified location file.
Restore	Enabled for users with Subscriber Manager Read Write permission. Disabled for users with Subscriber Manager Read Only permission.	Restore the previous locations.

The key specifications of the locations feature are:

- Table scrolling is not supported in this web page. Instead the whole web page uses scrolling. This is beneficial when printing the locations, since the user can select print once and get all locations printed.
- Locations are not validated during import. Locations are validated only when creating an account.
- User can restore previous locations. To restore previous locations, see Procedure 23 “Restoring locations” (page 104).
- No protection is provided to prevent multiple users from importing or exporting the data simultaneously with the exception that data does not become corrupted.
- Maximum of 3000 locations can be imported.
- This table supports sorting by location name, service type, element name and target name. If there are two locations with the same name, the sorting does not then sort by other properties of the location.
- Location names are not case sensitive. For example, a location of “Belleville” is considered the same as “belleville”.

- Elements and targets are stored as names only. Hence name changes will require the user to manually update the location data by exporting the CSV file, updating the data and them importing the new file. The list of elements shown in the locations table is not validated against the UCM Common Services elements table until an account is added for a particular location and then only the particular location is validated.
- Comments embedded in the CSV file are treated as errors.
- Additional fields in the CSV file are treated as errors.

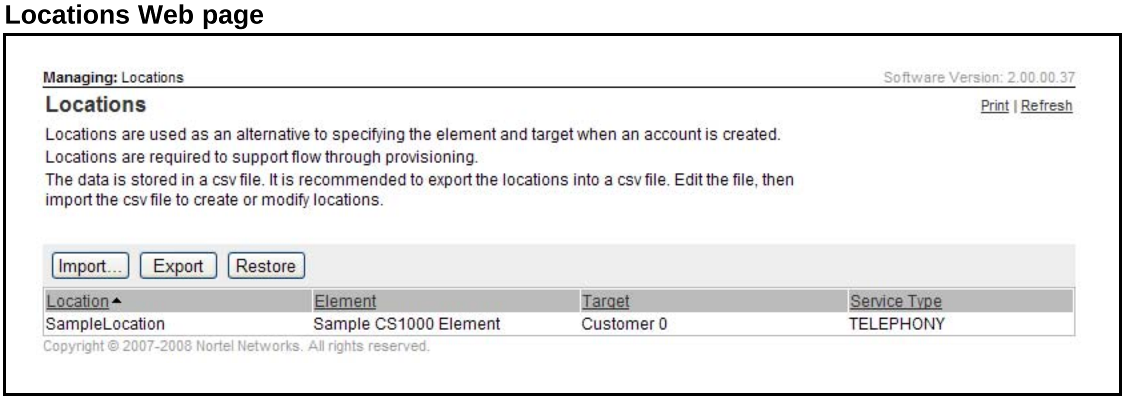
Export locations into a CSV file

Use the steps in the following procedure to export one or more locations into a CSV file.

Procedure 21
Exporting locations into a CSV file

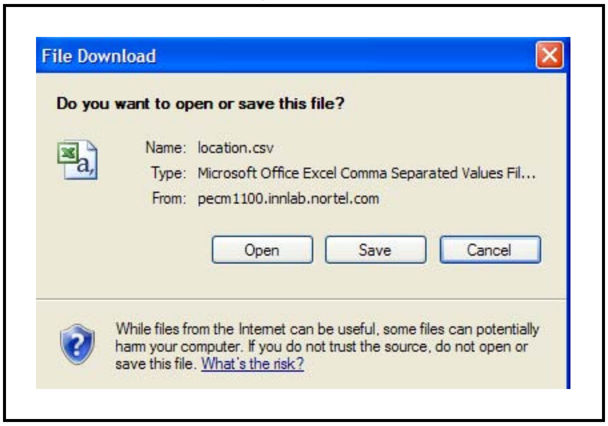
Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manger navigator, click **Locations**. The **Locations** Web page opens, as shown in Figure 44 "Locations Web page" (page 102).

Figure 44
Locations Web page



Step	Action
3	Click **Export**. The **File Download** dialog box opens, as shown in Figure 45 "File Download dialog box" (page 103).

Figure 45
File Download dialog box



4 Click **Save**.

The **Save As** dialog box opens.

5 Specify a path and filename for the CSV file and click **Save**.

The **Download complete** dialog box opens.

6 Click **Close**.

--End--

Import locations from a CSV file

Use the steps in the following procedure to import one or more locations from a CSV file.

Procedure 22
Importing locations from a CSV file

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Locations**. The **Locations** Web page opens, as shown in Figure 44 "Locations Web page" (page 102).
3	Click **Import**. The **Import Locations** Web page opens, as shown in Figure 46 "Import Locations Web page" (page 104).

Figure 46
Import Locations Web page

4 Click **Browse**.

The **Choose file** dialog box opens.

5 Specify a path and filename for the CSV file and click **Open**.

The **Import Locations** Web page refreshes, and fills the path to the CSV file in the **File name** box.

6 Click **Import**.

The **Locations** Web page opens.

--End--

Restore locations

Use the steps in the following procedure to restore one or more locations.

Procedure 23
Restoring locations

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Locations**. The **Locations** Web page opens, as shown in Figure 44 "Locations Web page" (page 102).
3	Click **Restore**. The **Locations** Web page refreshes.

--End--

Unicode Name Directory support

The Unicode Name Directory is configured in CS 1000 Element Manager. For more information on configuring Unicode Name Directory, see *Signaling Server IP Line Applications Fundamentals (NN43001-125)*.

Localized names and numbering groups are configured using Subscriber Manager. For more information see “Configure localized names” (page 105) and “Manage numbering groups” (page 114). Numbering group attributes are summarized in Table 13 "Numbering group attributes" (page 51).

Manage localized names

There are three ways to enter localized names into Subscriber Manager

- Subscriber Manager CSV synchronization. See “CSV subscriber synchronization” (page 137).
- Subscriber Manager LDAP synchronization. See “LDAP subscriber synchronization” (page 123).
- Subscriber Manager Web UI. See Procedure 24 “Configuring localized names” (page 105).

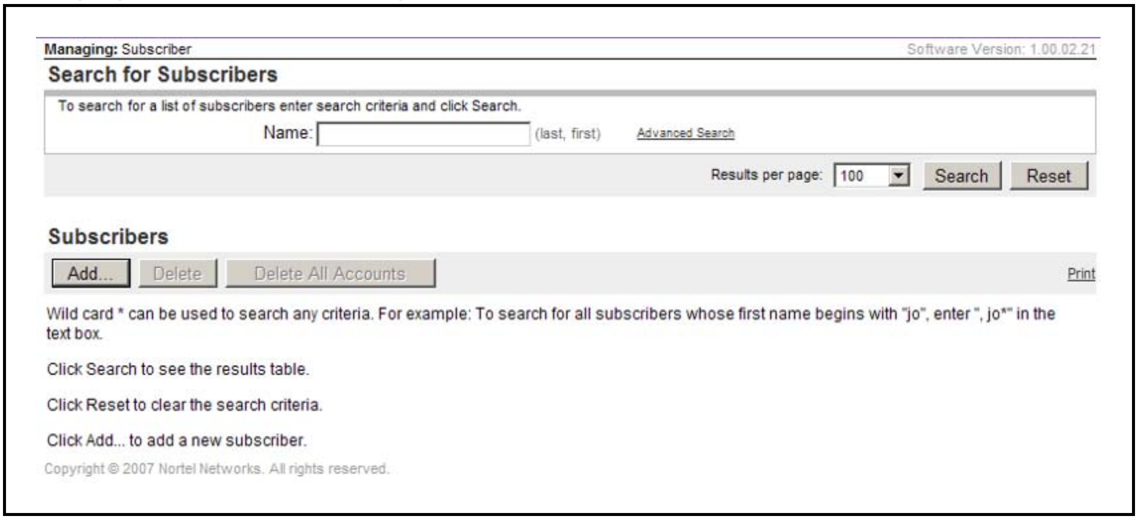
Configure localized names

Use the steps in the following procedure to configure localized names with the Subscriber Manager Web UI.

Procedure 24
Configuring localized names

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**. The **Managing Subscribers** Web page opens, as shown in Figure 47 "Managing Subscribers Web page" (page 106).

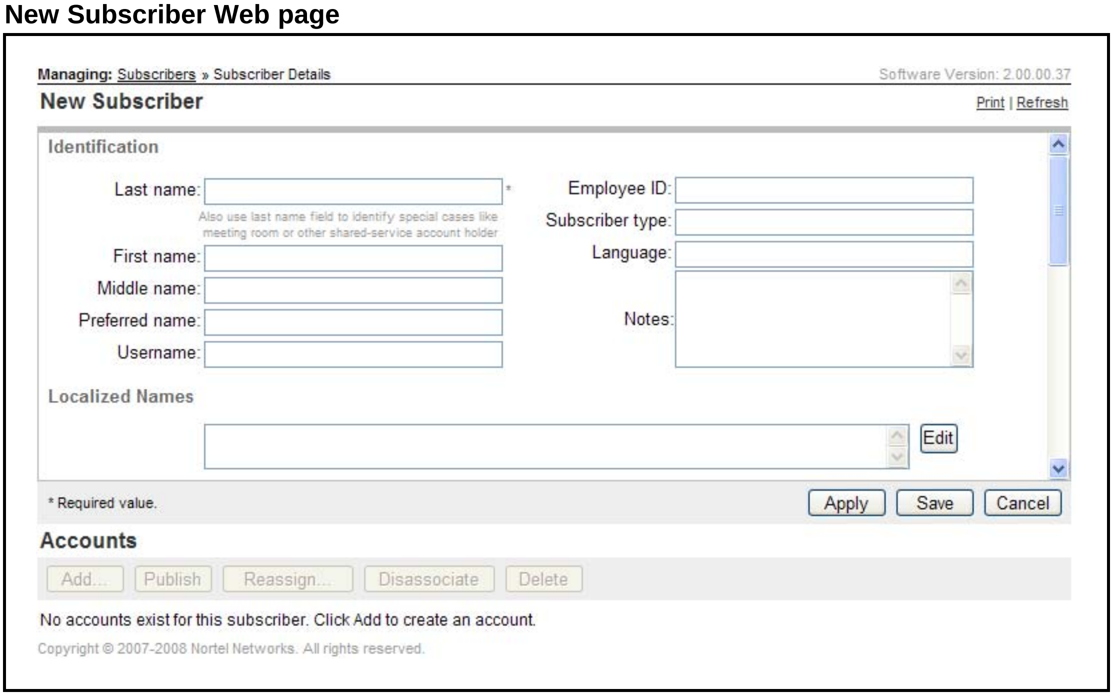
Figure 47
Managing Subscribers Web page



2 From the **Subscribers** section, click **Add**.

The **New Subscriber** Web page opens, as shown in Figure 48 "New Subscriber Web page" (page 106).

Figure 48
New Subscriber Web page



3 Type the required information for the new subscriber in the following sections:

- **Identification**

— Last name

Note: Last name is a mandatory field.

— First name

— Middle name

— Preferred name

— Username

— Employee ID

— Subscriber type
Use this field to identify the type of subscriber such as, employee, project, roles, or location.

— Language

— Notes
Use this field to enter any specific information for the subscriber.

— **Localized Names**

  – This section is collapsed if no localized names exist and expanded if localized names exist.

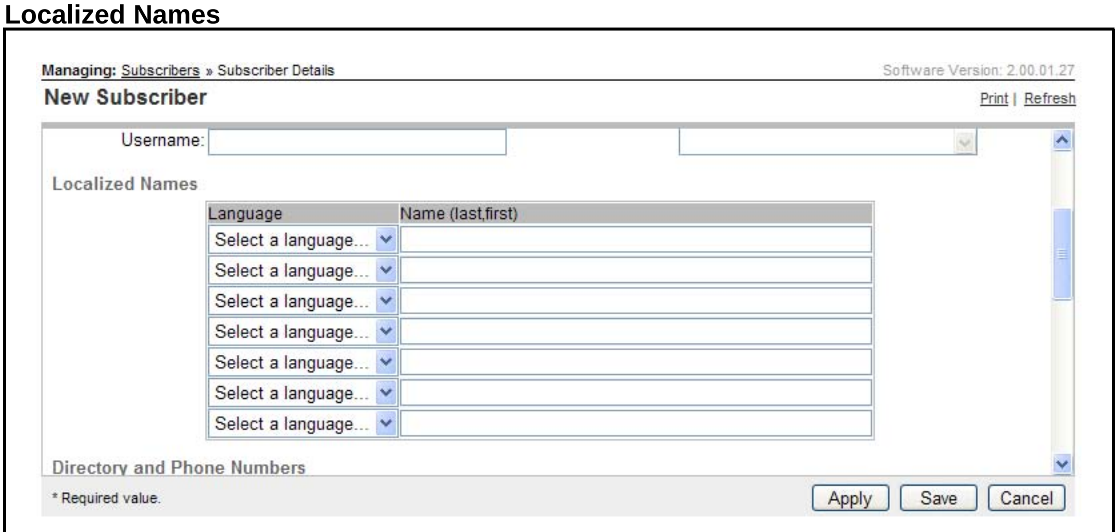
  – By default the list is shown in read only mode.

  – The names are displayed sorted in alphabetical order by language.

Click the **Edit** button, to edit the list of localized names.

The **Localized Names** section expands, as shown in Figure 49 "Localized Names" (page 107).

Figure 49
Localized Names

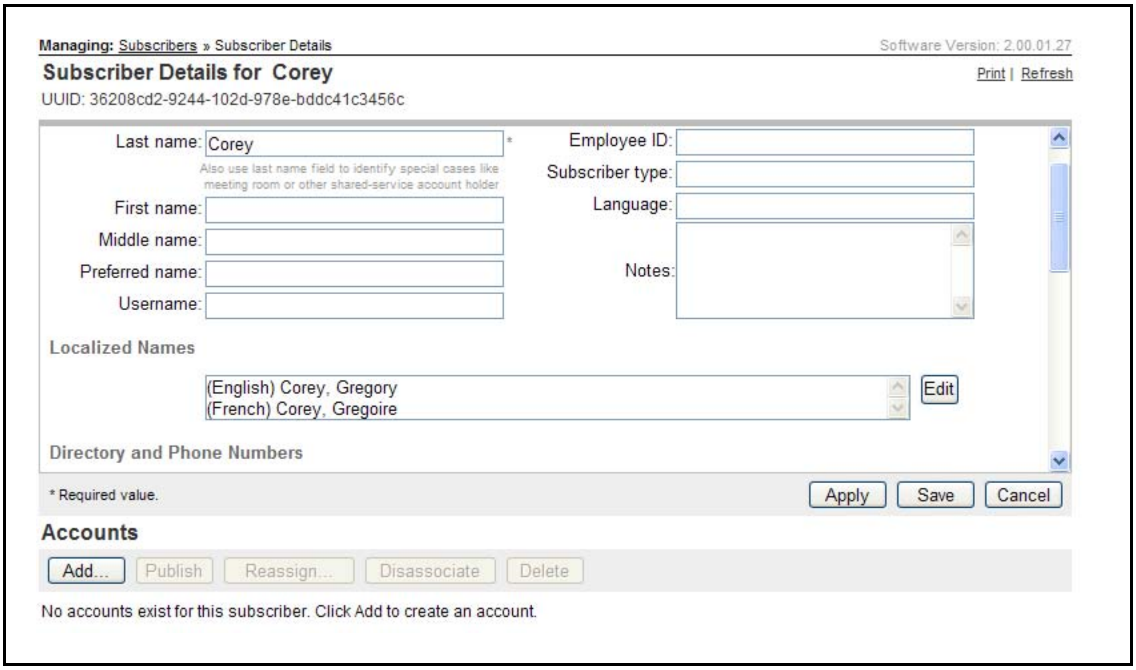


4 Select a language from the drop down list and enter a localized name in the text box.

5 Click the **Apply** button, to save the Localized names.

The **Subscriber Details** page opens, as shown in Figure 50 "Subscribers Details" (page 108).

Figure 50
Subscribers Details



6 To remove a localized name

7 Click the **Edit** button.

8 Delete the text from the **Name (last, first)** column or select the “Select a language” option from the drop down list in the **Language** column.

9 Click the **Apply** button.

10 Type the required information for the new subscriber in the following sections:

- **Directory and Phone Numbers**
  - Extension
  - External
  - ESN
  - National
  - International
  - Cell

  - Pager
  - Fax
- **Address**
  - Street
  - City
  - Province/State
  - Country
  - Postal/Zip code
  - E-mail
  - Office location
- **Organization**
  - Job title
  - Department
  - Company
  - Service start date
  - Service end date

  To enter a service start or end date, you can perform one of the following actions:

  - Type the service start date as YYYY-MM-DD.
  - Click the calendar icon beside the **Service start date** field and select a date.

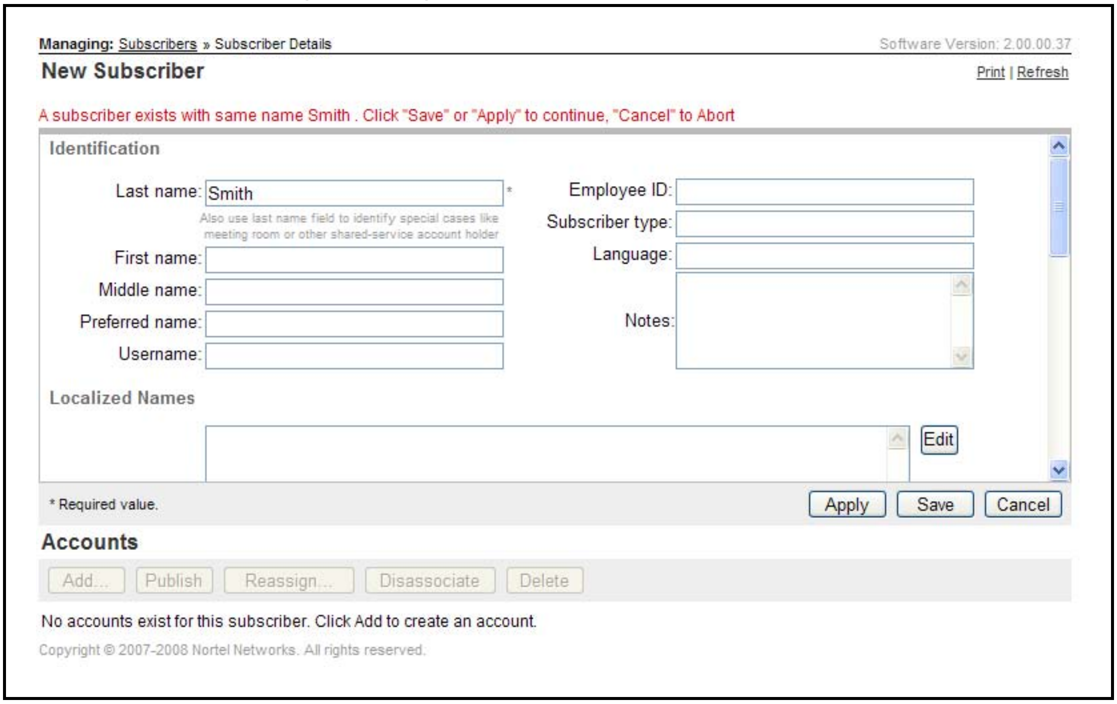
11 Click **Save** to apply the changes, or click **Cancel** to return to the **Managing Subscriber** Web page.

If all mandatory fields have been completed, the **Search for Subscribers** Web page opens and the added subscriber is listed in the **Subscribers found** section.

If all mandatory fields have not been completed, the **New Subscriber** Web page refreshes with a message indicating missing mandatory fields.

> ***Note:*** When adding a new subscriber, if the subscriber's first and last name match an existing subscriber in the directory, a warning message is displayed as shown in Figure 51 "New Subscriber warning Web page" (page 110). Click **Save** or **Apply** to continue with the operation, or click **Cancel** to abort the operation.

Figure 51
New Subscriber warning Web page



--End--

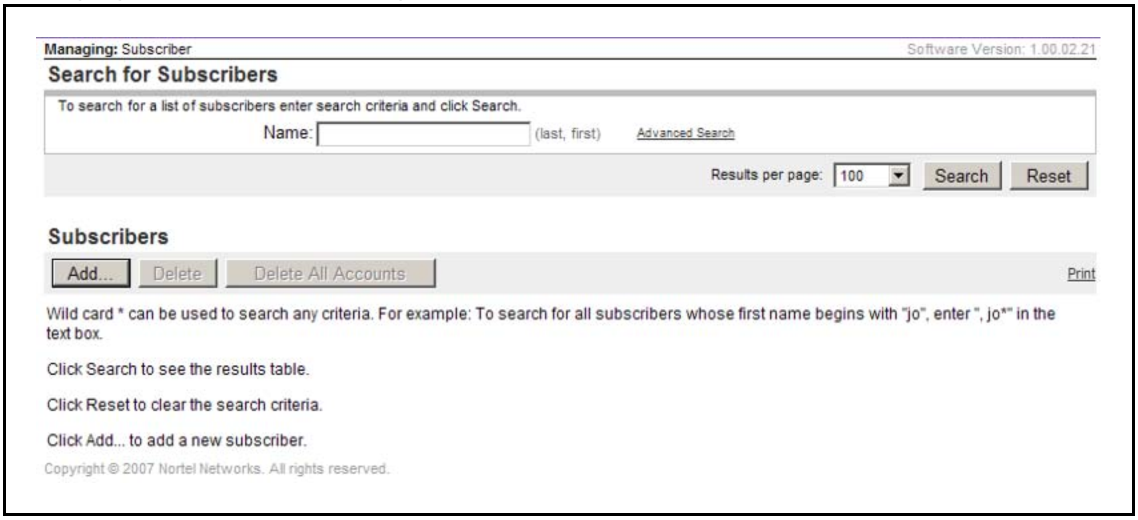
Configure external entity localized names

There is no account provisioning required for external entities since they do not belong to an internal organization. Use the steps in the following procedure to configure external entity localized names with the Subscriber Manager Web UI.

Procedure 25
Configuring external entity localized names

Step	Action
1	From the UCM Common Services Navigator, click **Subscriber Manager**. The **Managing Subscribers** Web page opens, as shown in Figure 52 "Managing Subscribers Web page" (page 111).

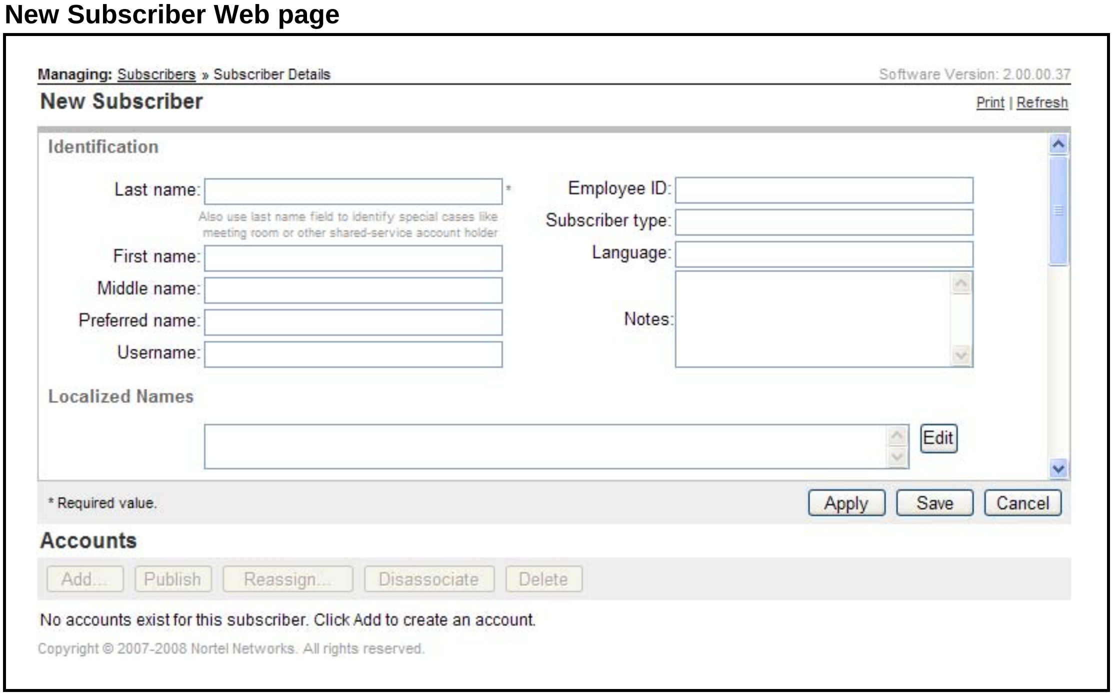
Figure 52
Managing Subscribers Web page



2 From the **Subscribers** section, click **Add**.

The **New Subscriber** Web page opens, as shown in Figure 53 "New Subscriber Web page" (page 111).

Figure 53
New Subscriber Web page



3 Type the required information for the new subscriber in the following sections:

- **Identification**

— Last name

Note: Last name is a mandatory field.

— Preferred name

— **Localized Names**

  – This section is collapsed if no localized names exist and expanded if localized names exist.

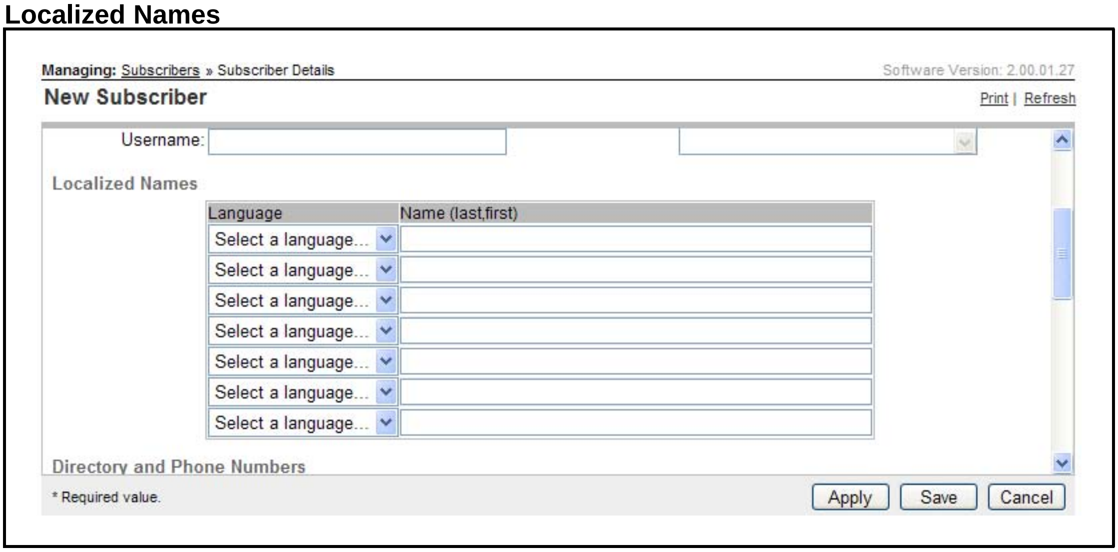
  – By default the list is shown in read only mode.

  – The names are displayed sorted in alphabetical order by language.

Click the **Edit** button, to edit the list of localized names.

The **Localized Names** section expands, as shown in Figure 54 "Localized Names" (page 112).

Figure 54
Localized Names

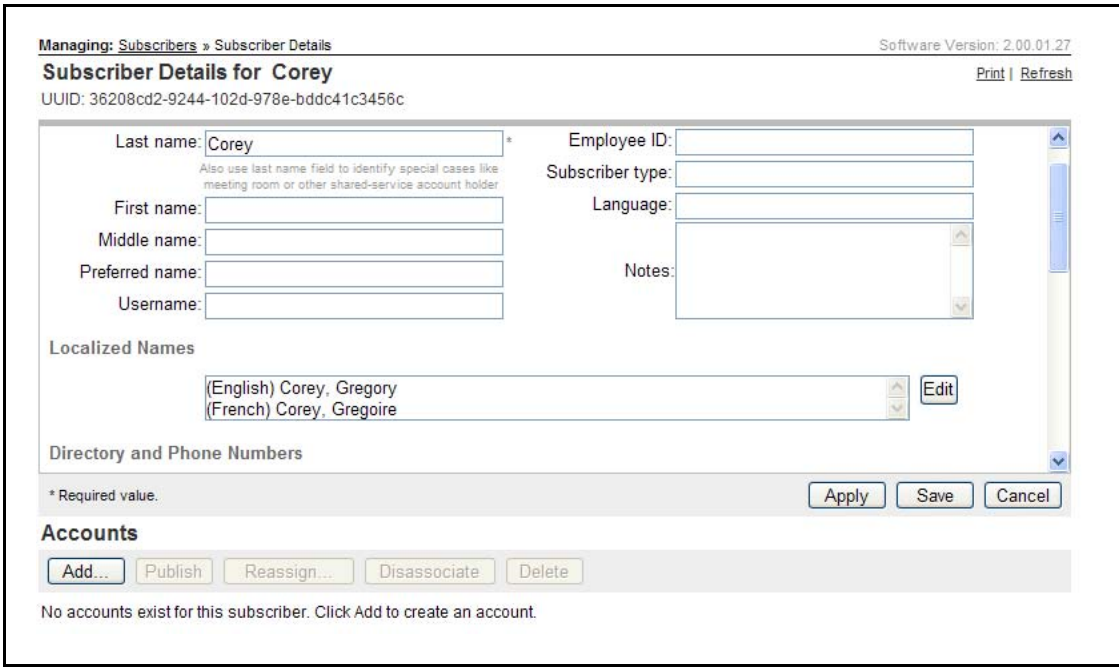


4 Select a language from the drop down list and enter a localized name in the text box.

5 Click the **Apply** button, to save the Localized names.

The **Subscriber Details** page opens, as shown in Figure 55 "Subscribers Details" (page 113).

Figure 55
Subscribers Details



6 To remove a localized name

7 Click the **Edit** button.

8 Delete the text from the **Name (last, first)** column or select the “Select a language” option from the drop down list in the **Language** column.

9 Click the **Apply** button.

10 Type the required information for the new subscriber in the following sections:

- **Directory and Phone Numbers**
  - — External
  - — National
  - — International

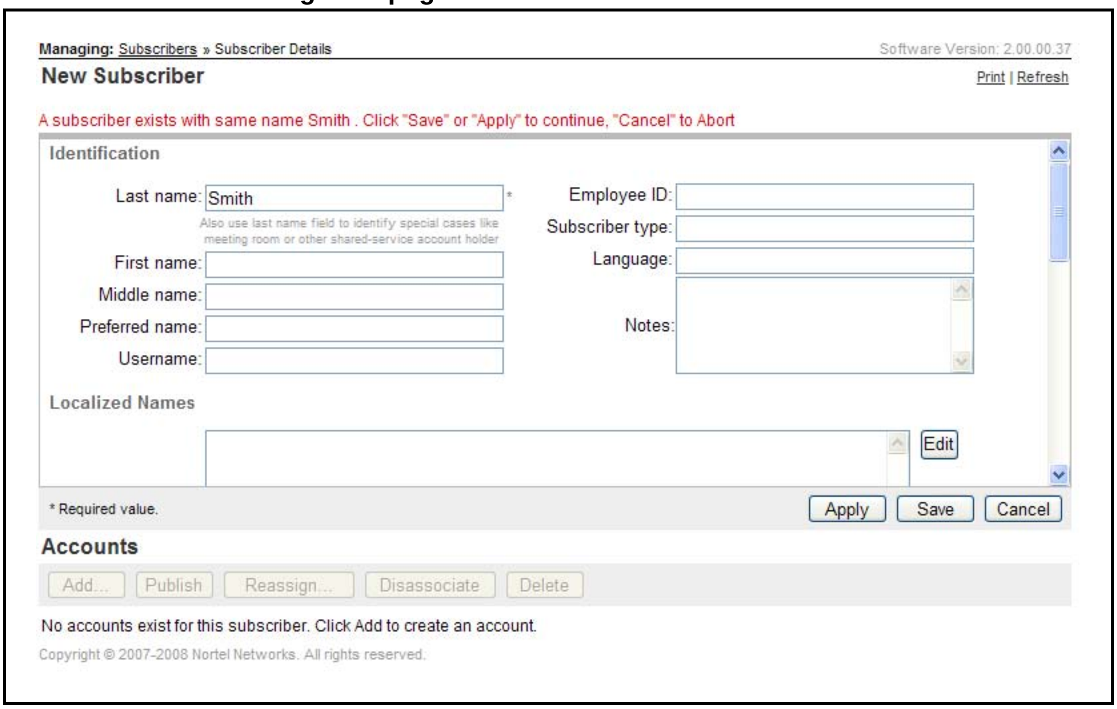
11 Click **Save** to apply the changes, or click **Cancel** to return to the **Managing Subscriber** Web page.

If all mandatory fields have been completed, the **Search for Subscribers** Web page opens and the added subscriber is listed in the **Subscribers found** section.

If all mandatory fields have not been completed, the **New Subscriber** Web page refreshes with a message indicating missing mandatory fields.

> ***Note:*** When adding a new subscriber, if the subscriber's first and last name match an existing subscriber in the directory, a warning message is displayed as shown in Figure 56 "New Subscriber warning Web page" (page 114). Click **Save** or **Apply** to continue with the operation, or click **Cancel** to abort the operation.

Figure 56
New Subscriber warning Web page



--End--

Manage numbering groups

The procedures in this section describe the functions available in Subscriber Manager to manage numbering groups within your network. The Unicode Name Directory uses the numbering group functionality.

Subscriber Manager installs with a sample numberingGroups.csv file so that users can export the sample and use it as a template. Subscriber Manager supports CSV files saved using OpenOffice.org 2.4.0 (or greater). Other CSV editors can be used. However, they have not been tested with Subscriber Manager.

To modify numbering groups the user first exports the numbering groups file. The exported file is opened in a CSV editor and updated. The updated file is imported back into Subscriber Manager using the import numbering groups functionality.

Validation is performed while importing the numbering groups. If a validation error occurs during the import process:

- proper validation error message is displayed
- importing numbering group file is discarded
- no data change occurs

Elements and targets are stored as name only. Hence, name changes in the element table of UCM Common Services requires the user to export the CSV file, update the data and then import the new file. The list of elements shown in the locations table is not validated against the UCM Common Services elements table until an account is added for a particular location and then only the particular location is validated.

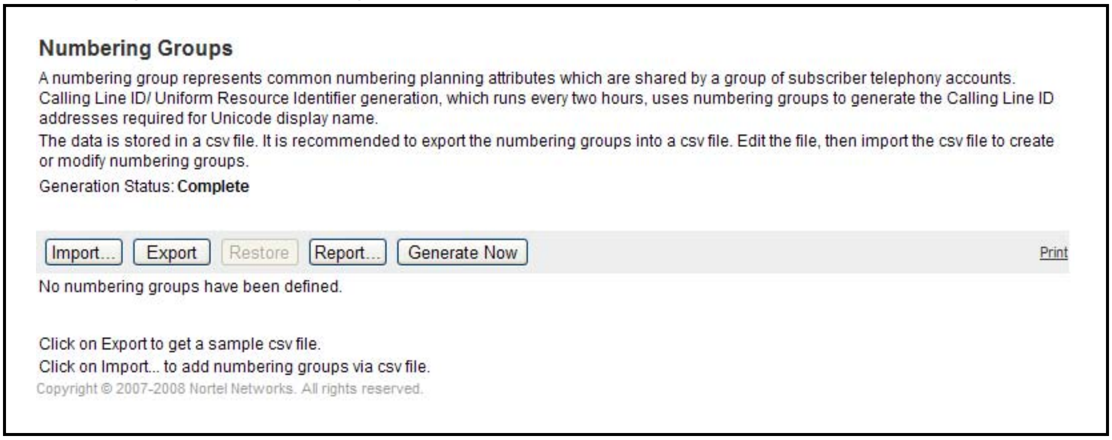
Export numbering groups into a CSV file

Use the steps in the following procedure to export one or more numbering groups into a CSV file.

Procedure 26
Exporting numbering groups into a CSV file

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Numbering Groups**. The **Numbering Groups** Web page opens, as shown in Figure 57 "Numbering Groups Web Page" (page 116).

Figure 57
Numbering Groups Web Page



3	Click **Export**.
	The **File Download** dialog box opens.
4	Click **Save**.
	The **Save As** dialog box opens.
5	Specify a path and filename for the CSV file and click **Save**.
	The **Download complete** dialog box opens.
6	Click **Close**.

--End--

Import numbering groups from a CSV file

Use the steps in the following procedure to import one or more numbering groups from a CSV file.

Procedure 27
Importing numbering groups from a CSV file

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**.
	The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Numbering Groups**.
	The **Numbering Groups** Web page opens, as shown in Figure 57 "Numbering Groups Web Page" (page 116).
3	Click **Import**.

The **Import Numbering Groups** Web page opens, as shown in Figure 58 "Import Numbering Groups Web page" (page 117).

Figure 58
Import Numbering Groups Web page

4 Click **Browse**.

The **Choose file** dialog box opens.

5 Specify a path and filename for the CSV file and click **Open**.

The **Import Numbering Groups** Web page refreshes, and fills the path to the CSV file in the **File name** box.

6 Click **Import**.

The **Numbering Groups** Web page opens.

--End--

Restore numbering groups

Use the steps in the following procedure to restore one or more numbering groups.

Procedure 28
Restoring numbering groups

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Numbering Groups**. The **Numbering Groups** Web page opens, as shown in Figure 57 "Numbering Groups Web Page" (page 116).
3	Click **Restore**. A popup box is displayed. The popup box warns the user that: Current numbering groups will be discarded. Previous numbering groups will be restored.

4 Click **OK**.

--End--

Invoke telephony account CLID/URI generation

Subscriber telephony account CLID/URI generation is based on a fixed schedule. Every 120 minutes (2 hours), the management application runs a scheduled CLID/URI generation job. Rather than waiting for the next fixed schedule to generate telephony account CLID/URIs, a user can invoke telephony account CLID/URI generation. CLID/URI generation may be time intensive, depending on the number of configured subscriber telephony accounts. The user can work on other administrative operations after invoking CLID/URI generation.

Use the steps in the following procedure to invoke telephony account CLID/URI generation.

Procedure 29
Invoking telephony account CLID/URI generation

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Numbering Groups**. The **Numbering Groups** web page opens, as shown in Figure 57 "Numbering Groups Web Page" (page 116).
3	Click **Generate Now**. The **Numbering Groups** web page displays the Generation Status. The Generation Status has three states: 1. Never generated – CLID/URI generation has never been triggered. 2. Complete – the last CLID/URI generation operation has completed. 3. Running – the current CLID/URI generation operation is running.

--End--

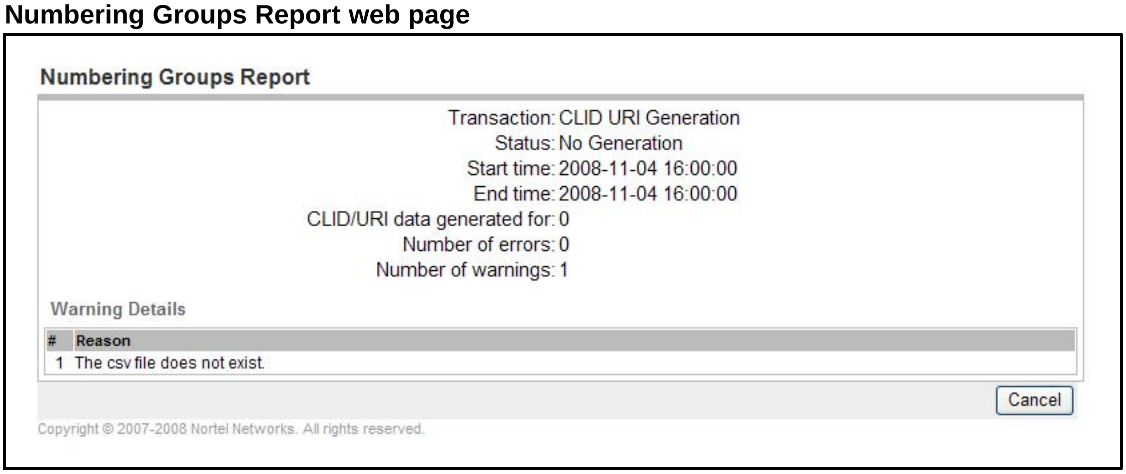
View numbering groups report

To obtain CLID/URI generation status, use the steps in the following procedure to view the last numbering groups generation report.

Procedure 30
Viewing numbering groups report

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Numbering Groups**. The **Numbering Groups** web page opens, as shown in Figure 57 "Numbering Groups Web Page" (page 116).
3	Click **Report**. The **Numbering Groups Report** web page opens, as shown in Figure 59 "Numbering Groups Report web page" (page 119).

Figure 59
Numbering Groups Report web page



--End--

Manage Flow through provisioning

The procedures in this section describe the functions available in Subscriber Manager to configure and monitor Flow through provisioning.

Configure Flow through provisioning

Use the steps in the following procedure to configure Flow through provisioning.

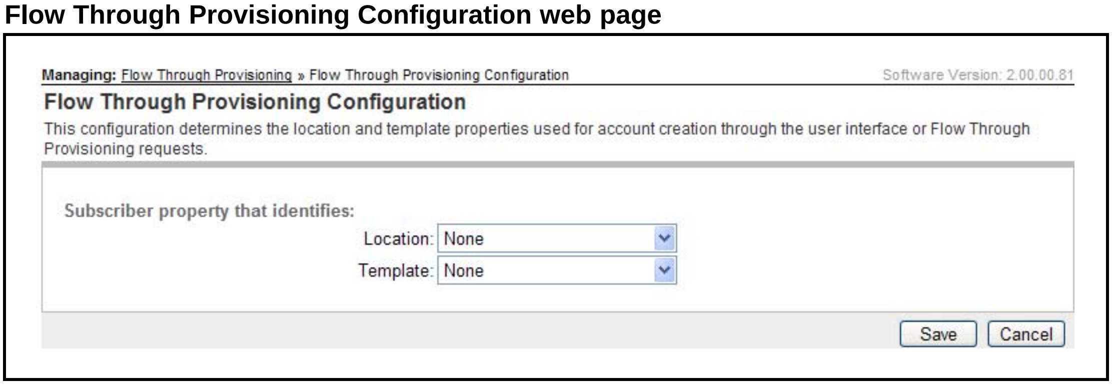
Procedure 31
Configuring Flow through provisioning

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**.
	The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Flow Through Provisioning**.
	The **Flow Through Provisioning** web page opens, as shown in Figure 60 "Flow Through Provisioning web page" (page 120).

Figure 60
Flow Through Provisioning web page

Step	Action
3	Click **Configure**.
	The **Flow Through Provisioning Configuration** web page opens, as shown in Figure 61 "Flow Through Provisioning Configuration web page" (page 120).

Figure 61
Flow Through Provisioning Configuration web page



4 Select a **Location** from the drop down list.

> ***Note:*** The configured location is used only if the provisioning request has not specified a location.

5 Select a **Template** from the drop down list.

> ***Note:*** The configured template is used only if the provisioning request has not specified a template.

6 Click **Save**.

The **Flow Through Provisioning** web page opens, displaying the saved **Configuration Options**.

--End--

Monitor Flow through provisioning

Use the steps in the following procedure to monitor Flow through provisioning.

Procedure 32
Monitoring Flow through provisioning

Step	Action

1 From the UCM Common Services navigator, click **Subscriber Manager**.

The **Subscriber Manager** web page opens.

2 From the Subscriber Manager navigator, click **Flow Through Provisioning** .

The **Flow Through Provisioning** web page opens, as shown in Figure 60 "Flow Through Provisioning web page" (page 120).

3 Perform one of the following actions:

- Click **Enable** to enable the FTPROV engine. A log entry appears in the FTPROV log when a user selects this button.
- Click **Disable** to disable the FTPROV engine. A log entry appears in the FTPROV log when a user selects this button.
- Click **Reset** to set the FTPROV engine timestamp to the timestamp of the newest subscriber. Clicking this button allows the user to ignore all unprocessed provisioning requests and subscriber changes. A log entry appears in the FTPROV log when a user selects this button.

A popup box is displayed when the user clicks this button. The popup box warns the user that resetting the engine can result in unprocessed provisioning requests being ignored.

- Click **Abort** to abort the FTPROV job. The current subscriber being processed is completed before the abort message is handled. A log entry appears in the FTPROV log when a user selects this button. Clicking abort does not disable the engine; it just stops the engine from processing any additional subscribers until the next time the engine runs.

--End--

Phone Migration Tool

The Phone Migration Tool helps in migrating phone data from CS 1000 Element Manager to Subscriber Manager. The Phone Migration Tool processes only those phones which have CPND name configured. During migration, it checks with Subscriber Manager for a subscriber with the same name as the CPND name in the phone. Based on the search result, the Phone Migration Tool either adds an account under the existing subscriber or creates a new subscriber and then adds an account under the new subscriber.

Migrate phone data from CS 1000 Element Manager to Subscriber Manager

For more information on migrating phone data from CS 1000 Element Manager to Subscriber Manager, see *Element Manager System Reference - Administration (NN43001-632)*.

LDAP subscriber synchronization

Navigation

Introduction

Synchronization is the act of coordinating data between an external directory and Subscriber Manager. LDAP subscriber synchronization eliminates the need for duplicate data entry, which reduces administrative and support costs.

The following LDAP-enabled directory servers are supported:

- Active Directory 2003
- SunOne 5.2
- Exchange 2003
- Exchange 2007

> ***Note:*** Additional LDAP v3 compliant directory servers may function. However, they have not been tested and are therefore not officially supported by Nortel.

The LDAP Subscriber Synchronization feature supports the following operations:

- Add a new synchronization job
- View or edit a synchronization job

- Copy a synchronization job
- Run a synchronization job now
- Delete a synchronization job
- Schedule a synchronization job to run at some time in the future, either repetitively or one time only
- Remove a synchronization job from the scheduler

LDAP subscriber synchronization terms

The information in this section defines and describes general terms related to the LDAP subscriber synchronization domain.

LDAP servers

The following sections describe the two types of servers that are involved in a LDAP subscriber synchronization job. They are:

- An external directory server
- Subscriber Manager

External directory server

The external directory server is a directory server, usually a repository of the customer's corporate directory, that is used to acquire the master set of entries from which a synchronization job is based. The server is considered the *source* of a synchronization operation even though the synchronization may be bidirectional in nature. For more information, see "Synchronization jobs" (page 126).

Subscriber Manager

Subscriber Manager is considered the destination directory server by the LDAP subscriber synchronization feature in all cases.

Terms related to entries

This section defines terms that are related to entries.

Entry mapping

Entry mapping is the process of establishing a link between an entry in the external directory server and one in Subscriber Manager. To establish the map, LDAP subscriber synchronization copies the value of a known attribute in the external directory server entry to a special operational attribute in the Subscriber Manager entry. The external directory server attribute that is used for this depends on the type of the external directory server.

The process of entry mapping can occur in two scenarios:

1. During the import of an entry from the external directory server to Subscriber Manager. (**Match and create a permanent link**.)
2. During an entry resolution operation. (**Create new entries**.)

For more information, see "LDAP subscriber synchronization policies" (page 126).

Master set of entries

The master set of entries, or master set, is the collection of entries that is acquired as the result of searching the external directory server. The search is defined by the search parameters configured for the particular synchronization job.

Terms related to attributes

This section defines the LDAP subscriber synchronization terms related to attributes. They are:

- Attribute map
- Attribute relations
- Bidirectional synchronization

Attribute map

An attribute map is a set of attribute relations that determines the behavior of a synchronization job with regards to the copying of data between the external directory server and Subscriber Manager.

The attribute map is used by LDAP subscriber synchronization to determine the following:

- Which attributes in the external server to ask for in the search
- The correspondence between external server attributes and Subscriber Manager attributes
- The direction of the synchronization for each attribute

Attribute relations

An attribute relation is a single entry in an attribute map. The attribute relation consists of an external directory server attribute, a Subscriber Manager attribute and the direction with which to synchronize the attributes.

Bidirectional synchronization

A bidirectional synchronization refers to the ability to choose, for each attribute, the direction for which the copying of data occurs in a synchronization job. The default direction for all attribute mappings is from the external directory server to Subscriber Manager.

Synchronization jobs

Synchronization job is the name given to the complete set of configuration parameters required to run a synchronization between an external directory server and Subscriber Manager. The degree of synchronicity between directory servers is always in relation to a particular set of rules for determining what it means for two directory servers to be ’in sync’. In the LDAP subscriber synchronization feature, these rules are packaged as *synchronization jobs* which are configured by the user of the system. It is possible for two directory servers to be ’in sync’ according to one synchronization job, but ’out of sync’ with respect to another.

A synchronization job consists of:

- The connection details of the external directory server
- The search parameters used to query the external directory server and acquire a master set of entries
- An attribute map
- Synchronization policies. For more information, see “LDAP subscriber synchronization policies” (page 126).

LDAP subscriber synchronization policies

The following options of LDAP subscriber synchronization are necessary to define the behavior of the system when it encounters an unmatched entry. An unmatched entry is an entry in the master set that is not linked, by entry relations, to an entry in Subscriber Manager. The two options for dealing with the unmatched entries are:

Match and create a permanent link — Attempts to establish a match, using criteria outside entry mapping. The process involves first determining a match and then establishing the entry map between the two entries. The process of determining a match is based on comparing the values of a user-defined attribute in the external directory server with a user-defined attribute in Subscriber Manager. If the values of the two attributes are equal, the entries are considered a match.

Create new entries— Previously unmatched entries in the external directory are added as new Subscribers. The new Subscriber attributes are determined using the following rules:

- All attributes that are explicitly contained in the attribute map are synchronized to the new Subscriber Manager entry. This occurs regardless of the direction defined by the individual attribute relations.
- Any attributes that are not defined in the attribute map, but are required attributes as determined by the Subscriber Manager schema, are synchronized according to the default attribute map for the external directory server type.

> **ATTENTION**
> It is also an option to ignore unmatched entries; this is the defining factor of a basic synchronization. It is also possible to turn on both **Create new entries** and Match and create a permanent link. In this event, the system attempts to **Match and create a permanent link**, and if that fails, it Creates new entries.

There are other Synchronization policies that do not affect synchronization job behavior. They are:

Security options— The use of Transport Layer Security/Secure Sockets Layer (TLS/SSL) encryption is optional but is recommended. The LDAP subscriber synchronization feature supports the use of TLS/SSL for the encryption of traffic with both the external directory server and Subscriber Manager. For more information see Procedure 33 "Adding a LDAP synchronization job" (page 132).

Logs—LDAP subscriber synchronization generates up to three types of logs every time it runs a synchronization job. These logs are called:

- "Summary log" (page 130)
- "Transaction log" (page 131)
- "Failure log" (page 131)

The logs are in ASCII text format.

For more information, see "Logs" (page 130).

Synchronization Job Details Web page

Use the **New LDAP Synchronization Job Details** Web page to define the parameters required by the system to perform a synchronization between an external directory server and Subscriber Manager. For more information see Procedure 33 "Adding a LDAP synchronization job" (page 132).

These parameters are divided into the following categories:

- Identification
- External Directory Details
- Synchronization Policies
- Attribute Mapping

Identification

The **Job name** parameter identifies the LDAP Synchronization job.

External Directory Server Source Records

The following parameters describe the external directory server in a synchronization job:

- **Host**: the host name, fully qualified domain name (FQDN), or IP address of the external directory server host.
- **Port**: The port number that the external directory server is listening on. The standard LDAP ports are 389 for non-encrypted traffic and 636 for encrypted traffic.
- **Bind distinguished name**: the distinguished name of the account used to authenticate to the external server.
- **Bind password**: the password associated with the Bind distinguished name used to authenticate to the external server.
- **Base distinguished name**: The distinguished name of the entry in the external directory server to which to establish the connection. The base distinguished name determines the connection's view of the directory tree by defining the subset of entries in the tree upon which a connection can act. The base distinguished name is also used to identify the entry for basing searches.

The following parameters configure the query that the LDAP subscriber synchronization utility uses to extract a set of entries from the external server.

- **Search Scope**: selected to determine the depth of the search. The available options are:
  - **1 level below base distinguished name**—Searches only entries that are exactly one level below the base distinguished name entry.
  - **Entire subtree rooted at base distinguished name**—Start searching from the base entry (as identified by the base distinguished name) and search everything below it, including the

base entry. Entire subtree rooted at base distinguished name is the default search scope.

- **Search filter**: a legal LDAP filter used to refine the search of the external server. (objectClass=Person) is the default.

  Search filter examples:

  — (&(l=Toronto)(objectclass=person)) : To select entries that have a locality of "Toronto" and an objectclass of "person".

  — (&(objectclass=person)(|(sn=Smith)(cn=Joe M*))) : To select entries that have an objectclass of "person" and a surname of "Smith" or common name that starts with "Joe M".

Synchronization Policies

The following LDAP subscriber synchronization Job options are configured in the Synchronization Policies section:

- Whether to add new entries to Subscriber Manager, if unmatched entries are found in the external directory
- Whether to attempt to resolve new entries in the external server with existing Subscriber Manager entries, and which attributes in both servers to use to resolve them
- Whether to use TLS/SSL encrypted communications with the external directory server

Attribute Mapping

For every synchronization job you must define an attribute map using the Attribute Map section of the LDAP subscriber synchronization Job window.

The attribute map is a table where each row represents one relation. To define a relation you must provide three pieces of information:

- The name of an attribute in the external directory server
- The name of the corresponding attribute in Subscriber Manager. For more information, see “Appendix Subscriber attributes” (page 161).
- The direction of the synchronization

Remove selected

The **Remove** button removes the selected attribute relation from the map.

Add attribute relation

The **Add** button generates a new empty row in the table for the administrator to edit.

Logs

The types of LDAP subscriber synchronization logs are:

- Summary logs
- Transaction logs
- Failure logs

Log file locations

There is only one summary log. Each job may also generate a transaction or a failure log.

LDAP synchronization logs are **not** incorporated into the OA&M Logging system. The LDAP synchronization logs are stored in the `/opt/nortel/cnd/log/LDAP_Sync` directory on the primary UCM Common Services server.

For each synchronization job executed new directories are created to hold the transaction log (optional) and the failure log (if generated). The name of the directory is generated and comprised of the name of the synchronization job and an appended system timestamp. For example:

```
NightlySync_20050419120000
```

In the above example, the year is 2005, the month is April, the date is the 19th and the time is 12 noon.

Summary log

There is one summary log that contains an entry for each synchronization job executed by the system. The log contains the following details about each job:

- Synchronization job name
- External directory server host name
- Subscriber Manager server host name
- Start and completion timestamp
- Number of entries successfully synchronized
- Number of entries that failed to be synchronized
- Location of the failure log, if one exists
- Location of the transaction log, if one exists
- Status of the job (completed, interrupted during synchronization, interrupted during cleaning, aborted during synchronization, aborted during cleaning)

Transaction log

One transaction log is optionally created for every synchronization job. This optional log provides the following details for each entry synchronized by the system:

- Destination DN of the entry
- source host
- source entry DN
- source attribute modifications
- destination host
- For each synchronized attribute in the entry, the following is recorded:
  - attribute name
  - original value
  - new value

Failure log

For each synchronization job a failure log is generated, if a failure occurs during the synchronization.

> **ATTENTION**
> If a failure occurs, any entries that have been updated to that point remain updated.

The following details are captured for each failure:

- the location of the failure (SRC or DEST)
- the host (or IP address) where the failure occurred
- the operation that failed
- the details of the failure
- the timestamp when the error occurred

Manage LDAP subscriber synchronization

The procedures in this section describe the functions available in Subscriber Manager to manage LDAP subscriber synchronization jobs.

Add a LDAP synchronization job

Use the steps in the following procedure to add a LDAP synchronization job.

Procedure 33
Adding a LDAP synchronization job

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** Web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **LDAP Synchronization**. The **LDAP Synchronization Jobs** Web page opens.
3	Click **Add**. The **New LDAP Synchronization Job Details** Web page opens.
4	Provide the required information for the new LDAP Synchronization job in the following sections:

- **Identification**
  - — Job name. the Job name can be up to 32 characters in length.

    Note: The Job name does not have to be unique.
- **External Directory Details**
  - — Host. IP address of the external directory.
  - — Port
  - — Bind distinguished name
  - — Bind password
  - — Base distinguished name
  - — Search scope
  - — Search filter

  Click **Test** to validate the **External Directory Details**.
- **Synchronization Policies**
  - — Unmatched subscribers
  - — TLS/SSL communication
- **Attribute Mapping**

  a Click **Add** to add an attribute pair.

  The **Attribute Mapping** section of the Web page refreshes.

  b Make an appropriate selection from the three drop down lists.

5 Click **Save**.

The **LDAP Synchronization Jobs** Web page opens. The newly created subscriber synchronization job appears in the **Job Name** list.

--End--

View or Edit a LDAP synchronization job

Use the steps in the following procedure to view or edit a LDAP synchronization job.

Procedure 34
Viewing or editing a LDAP synchronization job

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** Web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **LDAP Synchronization**. The **LDAP Synchronization Jobs** Web page opens.
3	Click a link in the **Job Name** list of LDAP Synchronization jobs. The **LDAP Synchronization Job Details for xxx** Web page opens for the selected LDAP Synchronization job, where xxx is the Job Name
4	Edit the fields of the **LDAP Synchronization Job Details for xxx** Web page as appropriate. See Procedure 33 “Adding a LDAP synchronization job” (page 132).
5	Click **Save**. The **LDAP Synchronization Jobs** Web page opens.

--End--

Copy a LDAP synchronization job

Use the steps in the following procedure to copy a LDAP synchronization job.

Procedure 35
Copying a LDAP synchronization job

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** Web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **LDAP Synchronization**. The **LDAP Synchronization Jobs** Web page opens.
3	Check the box beside a link in the **Job Name** list of LDAP Synchronization jobs.
4	Click **Copy**. The **LDAP Synchronization Job Details for xxx** Web page opens for the selected LDAP Synchronization job, where xxx is the Job Name
5	Enter a **Job name** in the **Identification** section.
6	Modify the fields of the **LDAP Synchronization Job Details for xxx** Web page as appropriate. See Procedure 33 “Adding a LDAP synchronization job” (page 132).
7	Click **Save**. The **LDAP Synchronization Jobs** Web page opens.

--End--

Run a LDAP synchronization job

Use the steps in the following procedure to run a LDAP synchronization job.

Procedure 36
Running a LDAP synchronization job

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** Web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **LDAP Synchronization**. The **LDAP Synchronization Jobs** Web page opens.

3	Check the box beside a link in the **Job Name** list of LDAP Synchronization jobs.
4	Click **Run Now**. The **LDAP Synchronization Jobs** Web page opens.

--End--

Delete a LDAP synchronization job

Use the steps in the following procedure to delete a LDAP synchronization job.

Procedure 37
Deleting a LDAP synchronization job

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** Web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **LDAP Synchronization**. The **LDAP Synchronization Jobs** Web page opens.
3	Check the box beside one or more links in the **Job Name** list of LDAP Synchronization jobs.
4	Click **Delete**. A popup box is displayed. The popup box warns the user that: the selected LDAP Synchronization Job(s) will be deleted. If the user clicks the **Cancel** button, the delete action is cancelled. ***Note:*** The user can delete an LDAP synchronization job even though the job is running.
5	Click **OK**. The **LDAP Synchronization Jobs** Web page refreshes.

--End--

Schedule a LDAP synchronization job

Use the steps in the following procedure to schedule a LDAP Synchronization job.

Procedure 38
Scheduling a LDAP synchronization job

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** Web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **LDAP Synchronization**. The **LDAP Synchronization Jobs** Web page opens.
3	Check the box beside a link in the **Job Name** list of LDAP Synchronization jobs. Only one LDAP Synchronization Job can be scheduled at a given time.
4	Click **Schedule**. The **Schedule Details** Web page opens.
5	Select **Frequency** from the drop down list. Once is the default option. Other options are Daily, Weekly and Monthly.
6	Subsequent options are displayed depending on the frequency selected. Select appropriate options based on frequency.
7	Click **Save**. The **LDAP Synchronization Jobs** Web page opens.

--End--

CSV subscriber synchronization

Navigation

Introduction

Comma Separated Values (CSV) subscriber synchronization imports new subscribers and updates existing subscribers using data in a CSV file.

File Format

Each row in the CSV file, other than the first row, is treated as an individual subscriber record. The first row is used to identify the fields in all the remaining records in the file. These field names correspond to Lightweight Directory Access Protocol (LDAP) attribute names.

Supported attributes

While the CSV export feature “CSV subscriber export” (page 151) only supports a fixed set of the legal nortelSubscriber attributes, the synchronization feature is slightly less restrictive. CSV subscriber synchronization imports or updates nortelSubscriber attributes, with the following restrictions:

- The attribute must not be a binary type attribute, such as jpegPhoto or audioClip.
- The attribute must not be operational, such as modifyTimestamp.
- The cn (common name) attribute cannot be modified.
- The userPassword attribute cannot be modified.

Multi-valued attributes

Within the CSV file, field values are separated by commas. To facilitate the import and update of those LDAP attributes that support multiple values, each field value can be further delimited by semi-colon (;). To include a semicolon as a character in a single value for an attribute, the semicolon must be preceded by a backslash. Table 21 "Semicolon interpretation" (page 138) shows examples of how semicolons are interpreted.

> ***Note:*** The Subscriber Manager UI displays only one value of a multivalued attribute with the exception of the localizedName attribute.

Table 21
Semicolon interpretation

CSV field data	Interpretation
A;B	Value 1: A Value 2: B
A\;B	Value 1: A;B
A\;B;C	Value 1: A;B Value 2: C

Any attempt to import or update multiple values against an LDAP attribute that does not support multiple values is an error and causes the synchronization for that entry to fail. Any such failures are logged (see “Logs” (page 145)).

See Table 25 "Subscriber attributes" (page 161) for LDAP attributes supporting multiple values.

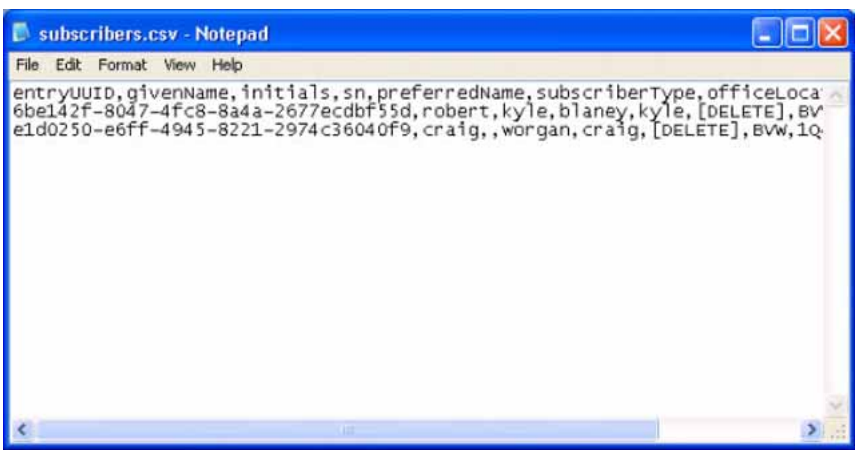
Delete attributes

CSV subscriber synchronization supports the deletion of individual subscriber attributes. A special value is used to indicate that all current values in the current subscriber entry for the specified attribute should be deleted. The special value is

```
[DELETE]
```

Figure 62 "CSV file with attribute deletion" (page 139) shows a CSV file that uses attribute deletion to delete all values for the subscriberType attribute for two subscribers.

Figure 62
CSV file with attribute deletion



File encoding

The CSV synchronization feature supports reading files encoded using any of the following:

- 8-bit Unicode Transformation Format (UTF-8)
- 16-bit Unicode Transformation Format with big-endian byte order (UTF-16BE)
- 16-bit Unicode Transformation Format with little-endian byte order (UTF-16LE)
- the default encoding of the UCM Common Services server

Rather than ask its users to identify the encoding of a selected CSV file, CSV synchronization relies on the presence of the Unicode byte order mark (BOM) to identify the file's encoding. For details on the use of the byte-order mark, see "Appendix Unicode byte-order mark" (page 177).

If a selected CSV file starts with the BOM as encoded by UTF-8, UTF-16BE, or UTF-16LE, Subscriber Manager reads the remainder of the file using that encoding. If no BOM is detected at the start of the CSV file, Subscriber Manager reads the file using the default encoding of the machine on which its running. Note that CSV files created using the CSV export feature are always encoded using UTF-8 and always start with the BOM encoded using UTF-8 (see “File encoding” (page 154)).

Determine the operation to perform

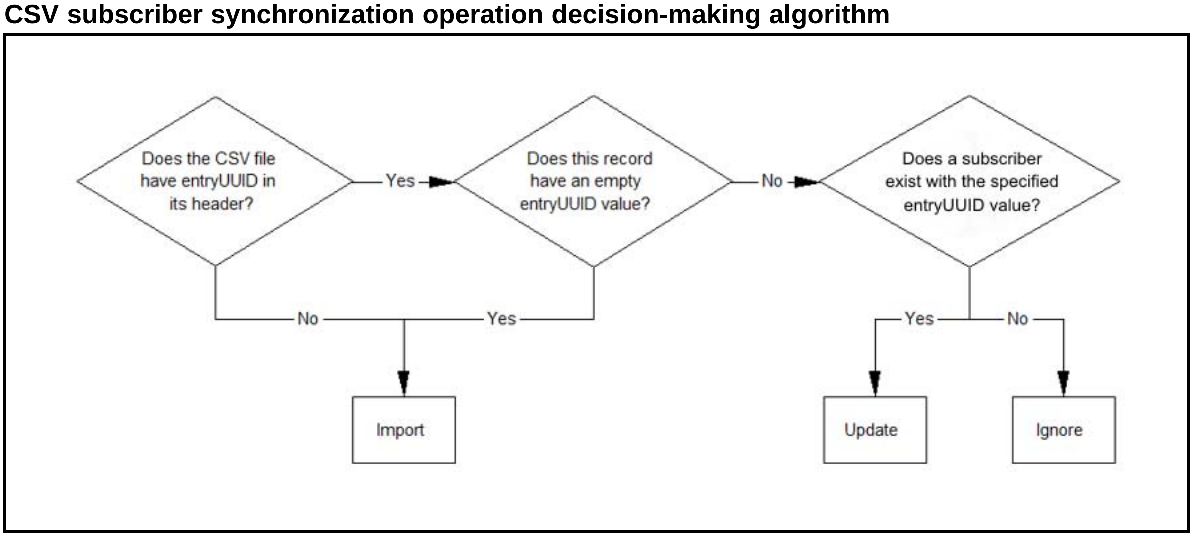
The CSV subscriber synchronization feature examines each record in the CSV file and determines which of the following operations to perform:

- update an existing subscriber
- import a new subscriber
- ignore the record

These operations are named update, import, and ignore, respectively. Figure 63 "CSV subscriber synchronization operation decision-making algorithm" (page 140) shows the algorithm used on each CSV record to determine the operation to perform.

> **ATTENTION**
> The same subscriber can be updated by more than one record in the CSV file.

Figure 63
CSV subscriber synchronization operation decision-making algorithm



The presence of a non-empty entryUUID value determines the operation to perform:

- If a CSV record has a non-empty entryUUID value and an existing subscriber has the specified entryUUID, the operation is **update**; that subscriber is updated according to the details in the CSV record.
- If a CSV record has a non-empty entryUUID value but there is no subscriber that has the specified entryUUID, the operation is **ignore**. This is noted in the failure log.
- If entryUUID does not appear in the CSV file's header or a CSV record has an empty value for that field, the operation is **import**; that record is imported as a new subscriber.

Details for imported subscribers

The following details apply only to imported subscribers:

- "Required attributes" (page 141)

Required attributes

Subscribers must have a surname. Therefore, a CSV record for an imported subscriber must have a non-empty value for the sn attribute specified in the CSV file. It is an error if a subscriber being imported does not have a surname. In this situation the error is logged in the failure log (see "The failure log" (page 148)).

Operational conditions

Following is a list of operational conditions that apply to CSV subscriber synchronization:

- Attempting to delete required attributes results in a failure to update the subscriber in question, and is logged in the failure log (see "The failure log" (page 148)).
- Attribute deletion only works when the operation being performed is an update (see "Determine the operation to perform" (page 140)). If the operation is an import, any [DELETE] directives are ignored.
- Attempting to delete an attribute that has no values does nothing and is not considered an error.
- Deleting an attribute deletes all of its values.
- Modifying an attribute replaces all of its existing values.

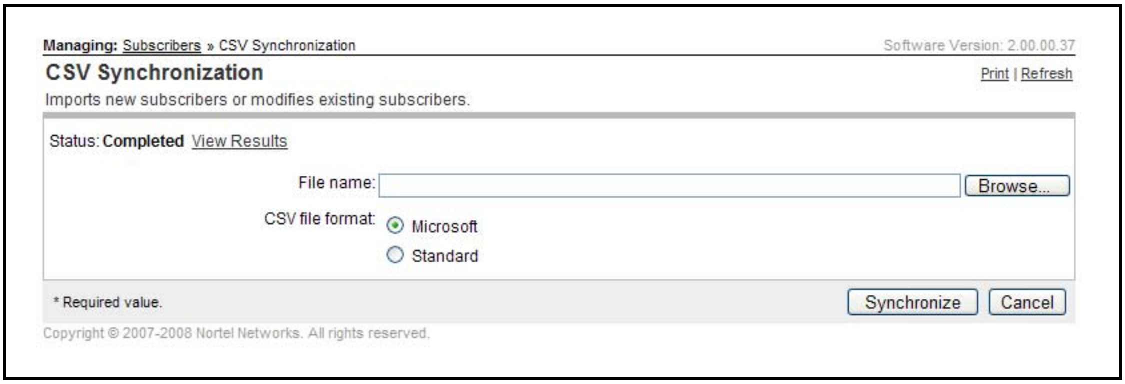
Synchronize subscribers

To synchronize subscribers, see Procedure 39 "Synchronizing subscribers" (page 142).

Procedure 39
Synchronizing subscribers

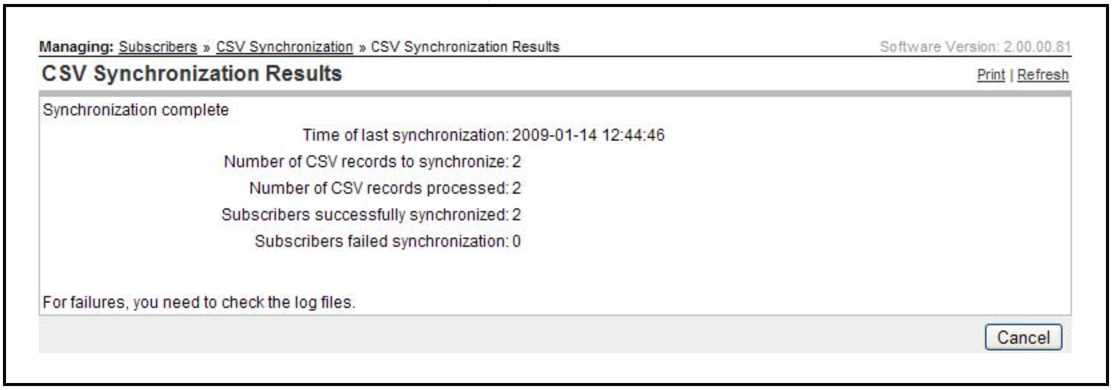
Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the **Subscriber Manager** navigator, click **Subscribers** > **CSV Synchronization**. The **CSV Synchronization** Web page opens, as shown in Figure 64 "CSV Synchronization Web page" (page 142).

Figure 64
CSV Synchronization Web page



Step	Action
3	Click **Browse**. The **Choose file** dialog box opens.
4	Specify a path and filename for the CSV file and click **Open**. The **CSV Synchronization** Web page refreshes, and fills the path to the CSV file in the **File name** box.
5	For **CSV file format**, select the **Standard** radio button. Note that CSV files generated with the CSV subscriber export feature use the Microsoft CSV format.
6	Click **Synchronize**. The **CSV Synchronization** Web page refreshes.
7	Click **View Results** link. The **CSV Synchronization Results** Web page opens, as shown in Figure 65 "CSV Synchronization Results Web page" (page 143).

Figure 65
CSV Synchronization Results Web page



--End--

CSV subscriber synchronization limitations

Following is a list of CSV subscriber synchronization limitations:

- Synchronization of accounts is not supported.
- Synchronization of binary attributes (for example, jpegPhoto and audioClip) is not supported.
- Deletion of subscribers is not supported.
- Statistics that differentiate between imported entries and updated entries are not collected or displayed.
- Subscribers that are not direct children of the ou=Subscribers, dc=Nortel, dc=com container are not synchronized.
- Transaction logging is non-configurable.

Error handling

Table 22 "Error handling in CSV subscriber synchronization" (page 143) shows how error conditions are handled:

Table 22
Error handling in CSV subscriber synchronization

Error condition	System response	Troubleshooting
No file is specified.	A standard error dialog is displayed. The text on the dialog is: “ResourceNotDefined”	Use the Browse… button to select a CSV file.

The file does not exist.	A standard error dialog is displayed. The text on the dialog is: “Failed to start CSV Synchronization for the following reason: caused by Failed to read CSV headers”	Use the Browse… button to select a CSV file.
The file is empty.	A standard error dialog is displayed. The text on the dialog is: “Failed to start CSV Synchronization for the following reason: caused by Failed to read CSV headers”	Use the Browse… button to select a CSV file that is not empty.
The file has a header, but has no records.	A standard error dialog is displayed. The text on the dialog is: “Failed to start CSV Synchronization for the following reason: caused by No entries in source file”	Use the Browse… button to select a CSV file that has records.
The system is unable to read the file.	A standard error dialog is displayed. The text on the dialog is: “Unable to read CSV file.”	Ensure that the CSV file: • exists • is readable • isn’t locked by another process, for example Microsof Excel
The CSV file has no sn in its header.	A standard error dialog is displayed. The text on the dialog is: “Failed to start CSV Synchronization for the following reason: caused by CSV synchronization attribute exception"	Add either an sn column or entryUUID column to the CSV file.

There is an unsupported attribute in the CSV file's header.	A standard error dialog is displayed. The text on the dialog is: "Field <field number> (<attribute name>) in the header of <file name> is unsupported" (If the unsupported attribute's name is too long, it is abbreviated with ellipsis ("…") to ensure that the error dialog is readable.)	Remove the column with the unsupported attribute.
An attribute is duplicated in the CSV file's header.	A standard error dialog is displayed. The text on the dialog is: "<attribute name> is duplicated in the file's header."	Remove the duplicate column or rename the header.

Logs

For each synchronization job the following logs are generated:

- "The summary log" (page 145)
- "The transaction log" (page 147)
- "The failure log" (page 148) (potentially)

> **ATTENTION**
> Log files are not automatically cleaned by the system. It is recommended that you periodically remove unwanted log files.

The summary log

Each time a CSV subscriber synchronization job is run, the summary details for the job are recorded in the LDAP synchronization summary log.

The summary log holds summaries of all synchronization-related tasks, including:

- LDAP subscriber synchronization jobs
- CSV subscriber synchronization

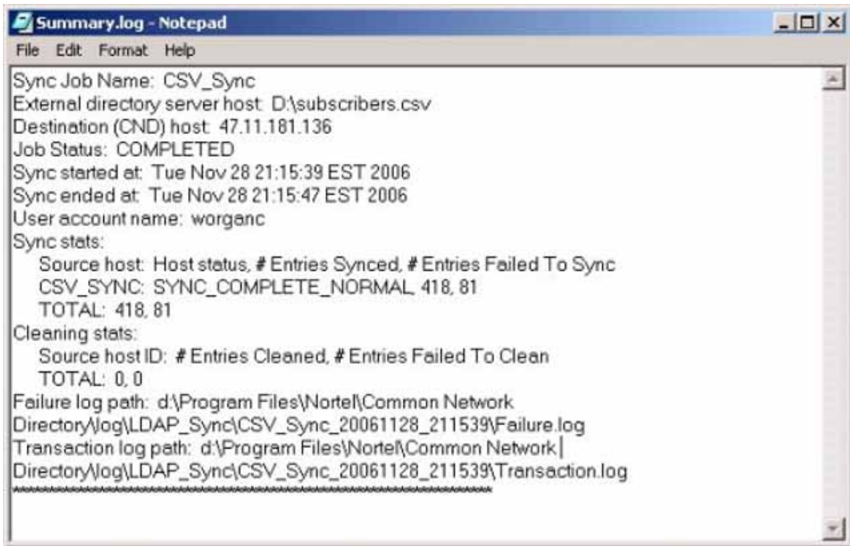
LDAP synchronization logs are **not** incorporated into the OA&M Logging system. The LDAP synchronization logs are stored in the `/opt/nortel/cnd/log/LDAP_Sync` directory on the primary UCM Common Services server.

The details in the summary log are:

- **Sync Job Name:** For CSV subscriber synchronization jobs, the name is always “CSV_Sync”.
- **External directory server host:** For CSV subscriber synchronization jobs, the host is the path and filename of the CSV file used in the job.
- **Destination host:** For CSV subscriber synchronization jobs, the destination shows the IP address of Subscriber Manager.
- **Job Status:** Is one of:
  - **COMPLETED** – the job completed normally
  - **ABORTED_DURING_SYNCING** – the job failed to complete due to an exceptional circumstance
  - **INTERRUPTED_DURING_SYNCING** – the job failed to complete because you cancelled it
- **Sync started at:** The time the job started.
- **Sync ended at:** The time the job finished.
- **User account name:** This is the Windows user ID of the currently logged in user on the PC where the synchronization was run.
- **Sync stats:** The statistics of the job, which includes:
  - **Source host:** For CSV subscriber synchronization job, this is always “CSV_SYNC”.
  - **CSV_SYNC:** Is one of:
    - **SYNC_COMPLETE_NORMAL** – the synchronization was completed normally
    - **SYNC_COMPLETE_ABORT** – the synchronization was terminated before it finished due to an exceptional circumstance
    - **SYNC_COMPLETE_NO_ENTRIES** – the synchronization was completed, but there are no records in the CSV file
    - **SYNC_INTERRUPTED** – the synchronization was cancelled by the user
  - **TOTAL:** The number of entries synchronized. The number of entries that failed to synchronize.
- **Cleaning stats:** Not applicable to CSV subscriber synchronization.
- **Failure log path:** If a failure log is generated, this field displays the path in the file system to that log file. Otherwise, "N/A" is displayed.
- **Transaction log path:** The path in the file system to the transaction log.

See Figure 66 "CSV subscriber synchronization summary log" (page 147) for an example of a summary log.

Figure 66
CSV subscriber synchronization summary log




```
Sync Job Name: CSV_Sync
External directory server host: D:\subscribers.csv
Destination (CND) host: 47.11.181.136
Job Status: COMPLETED
Sync started at: Tue Nov 28 21:15:39 EST 2006
Sync ended at: Tue Nov 28 21:15:47 EST 2006
User account name: worganc
Sync stats:
    Source host: Host status, # Entries Synced, # Entries Failed To Sync
    CSV_SYNC: SYNC_COMPLETE_NORMAL, 418, 81
    TOTAL: 418, 81
Cleaning stats:
    Source host ID: # Entries Cleaned, # Entries Failed To Clean
    TOTAL: 0, 0
Failure log path: d:\Program Files\Nortel\Common Network
Directory\log\LDAP_Sync\CSV_Sync_20061128_211539\Failure.log
Transaction log path: d:\Program Files\Nortel\Common Network
Directory\log\LDAP_Sync\CSV_Sync_20061128_211539\Transaction.log
```

The transaction log

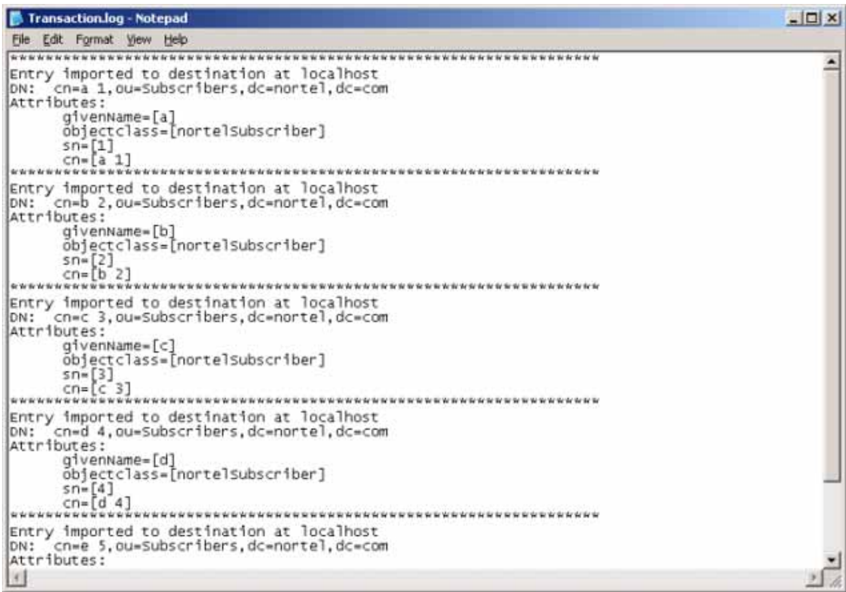
For every CSV subscriber synchronization job run, a transaction log (Transaction.log) file is created and stored in the `/opt/nortel/cnd/log/LDAP_Sync/CSV_Sync_[date]_[time]/` directory on the primary UCM Common Services server. `[date]` and `[time]` are generated based on the date and time that the synchronization job started. For example, for a synchronization job started on January 7, 2007 at 10:05:47 am, the generated folder is named `CSV_Sync_20070107_100547`.

The CSV subscriber transaction log contains the following details:

- **DN:**
- **Attributes:**

See Figure 67 "CSV subscriber synchronization transaction log" (page 148) for an example of a transaction log.

Figure 67
CSV subscriber synchronization transaction log



```
Transaction.log - Notepad
File Edit Format View Help
************************************************************************
Entry imported to destination at localhost
DN:  cn=a 1,ou=Subscribers,dc=nortel,dc=com
Attributes:
        givenName=[a]
        objectclass=[nortelSubscriber]
        sn=[1]
        cn=[a 1]
************************************************************************
Entry imported to destination at localhost
DN:  cn=b 2,ou=Subscribers,dc=nortel,dc=com
Attributes:
        givenName=[b]
        objectclass=[nortelSubscriber]
        sn=[2]
        cn=[b 2]
************************************************************************
Entry imported to destination at localhost
DN:  cn=c 3,ou=Subscribers,dc=nortel,dc=com
Attributes:
        givenName=[c]
        objectclass=[nortelSubscriber]
        sn=[3]
        cn=[c 3]
************************************************************************
Entry imported to destination at localhost
DN:  cn=d 4,ou=Subscribers,dc=nortel,dc=com
Attributes:
        givenName=[d]
        objectclass=[nortelSubscriber]
        sn=[4]
        cn=[d 4]
************************************************************************
Entry imported to destination at localhost
DN:  cn=e 5,ou=Subscribers,dc=nortel,dc=com
Attributes:
```

The failure log

For every CSV subscriber synchronization job run that has failures, a failure log (Failure.log) file is created and stored in the following directory:

`/opt/nortel/cnd/log/LDAP_Sync/CSV_Sync_[date]_[time]/`

Where `[date]` and `[time]` are generated based on the date and time that the synchronization job started. For example, for a synchronization job started on January 7, 2007 at 10:05:47 am, the generated folder is named `CSV_Sync_20070107_100547`

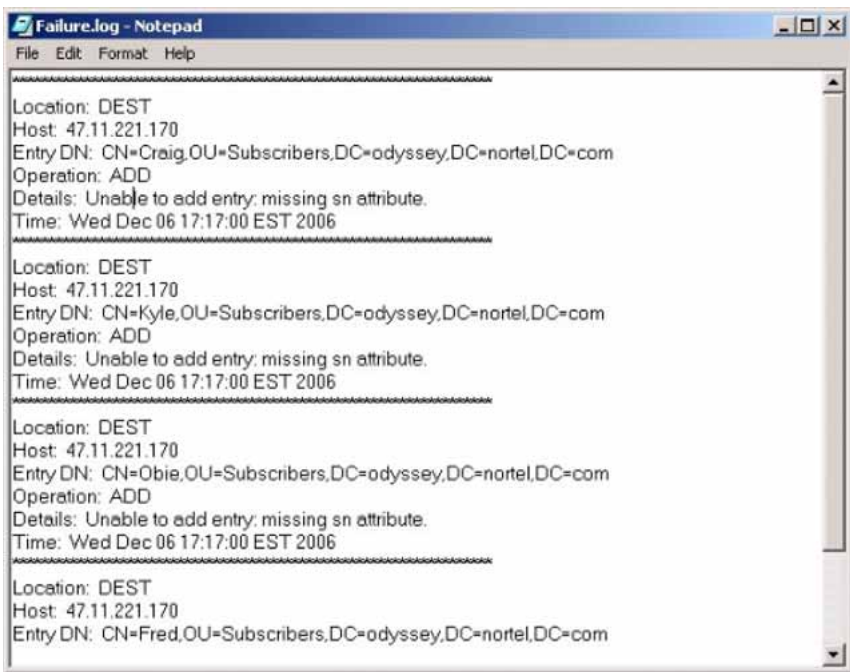
The failure log contains the following details:

- **The location of the failure.** In a CSV subscriber synchronization job, the location is either the destination (DEST) if the error occurred in Subscriber Manager, or source (SRC) if the error is caused by the CSV file.
- **Location:** In a CSV subscriber synchronization job, the host is always the IP address of Subscriber Manager.
- **Host:** The IP address.
- **Entry DN:** The cn, ou, and dc of the job.
- **Operation:** The operation that failed.

- **Details:** The details of the failure.
- **Time:** The date and time that the failure occurred.

See Figure 68 " CSV subscriber synchronization failure log" (page 149) for an example of a failure log.

Figure 68
CSV subscriber synchronization failure log


Failure.log - Notepad
File Edit Format Help

```
************************************************************
Location: DEST
Host: 47.11.221.170
Entry DN: CN=Craig,OU=Subscribers,DC=odyssey,DC=nortel,DC=com
Operation: ADD
Details: Unable to add entry: missing sn attribute.
Time: Wed Dec 06 17:17:00 EST 2006
************************************************************
Location: DEST
Host: 47.11.221.170
Entry DN: CN=Kyle,OU=Subscribers,DC=odyssey,DC=nortel,DC=com
Operation: ADD
Details: Unable to add entry: missing sn attribute.
Time: Wed Dec 06 17:17:00 EST 2006
************************************************************
Location: DEST
Host: 47.11.221.170
Entry DN: CN=Obie,OU=Subscribers,DC=odyssey,DC=nortel,DC=com
Operation: ADD
Details: Unable to add entry: missing sn attribute.
Time: Wed Dec 06 17:17:00 EST 2006
************************************************************
Location: DEST
Host: 47.11.221.170
Entry DN: CN=Fred,OU=Subscribers,DC=odyssey,DC=nortel,DC=com
```

CSV subscriber export

Navigation

Introduction

The CSV subscriber export feature exports subscribers from Subscriber Manager into a CSV file.

Only one generate can be run at one time. The status of a current generate is displayed to the user. The user is prevented from executing a second generate. The user is shown the timestamp of the last created file in order to determine whether a new subscriber list needs to be generated.

Exported attributes

A fixed set of attributes for each subscriber is exported (see Table 23 "Supported subscriber attributes in CSV subscriber export feature" (page 151)).

Table 23
Supported subscriber attributes in CSV subscriber export feature

Column	LDAP Attribute	Description	Syntax
1	entryUUID	Entry’s unique identifier	UUID
2	givenName	Official First Name	DirectoryString
3	initials	Official Middle Name	DirectoryString
4	sn	Official Last Name	DirectoryString
5	preferredName	Preferred Name	DirectoryString

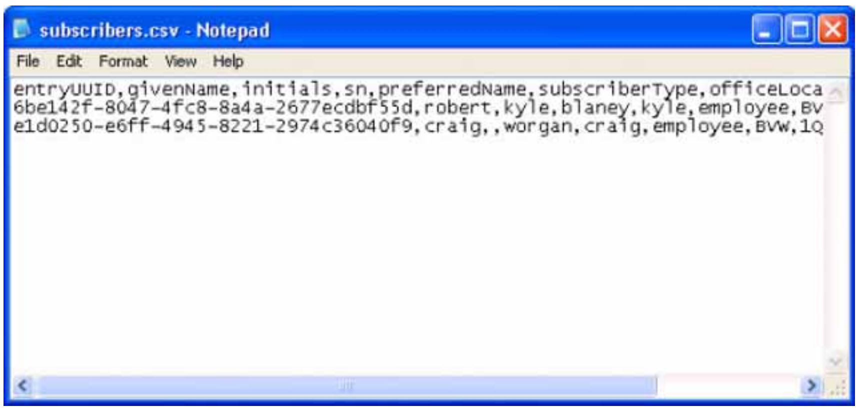
6	nickname	Nickname	DirectoryString
7	localizedName		
8	uid		
9	subscriberType	Type	DirectoryString
10	officeLocation	Location	DirectoryString
11	roomNumber	Room Number	DirectoryString
12	serviceStartDate	Service Start Date	DirectoryString
13	serviceEndDate	Service End Date	DirectoryString
14	preferredLanguage	Language	DirectoryString
15	postOfficeBox	Post Office Box	DirectoryString
16	street	Street No	DirectoryString
17	l	City	DirectoryString
18	st	Province/State	DirectoryString
19	country	Country	DirectoryString
20	postalCode	Postal Code/Zip	DirectoryString
21	mail	Email	IA5 String
22	preferredDirectoryNumber	Preferred DN	DirectoryString
23	preferredEsnTelephoneNumber	Preferred ESN	DirectoryString
24	preferredExternalTelephoneNumber	Preferred External DN	DirectoryString
25	preferredNationalTelephoneNumber		
26	preferredInternationalTelephoneNumber		
27	facsimileTelephoneNumber	Fax	Facsimile Telephone Number
28	homePostalAddress	Home Address	TelephoneNumber
29	homePhone	Home Phone	TelephoneNumber
30	mobile	Mobile Phone	TelephoneNumber
31	pager	Pager	TelephoneNumber
32	o	Company	DirectoryString
33	ou	Organization Unit Name	DirectoryString
34	orgOwner	Organization Owner	DirectoryString

35	orgCategory	Organization Category	DirectoryString
36	orgDescription	Organization Description	DirectoryString
37	employeeNumber	Employee Number	DirectoryString
38	description	Description	DirectoryString
39	title	Job Title	DirectoryString
40	departmentNumber	Department number	DirectoryString
41	preferredExtension	Preferred Extension	DirectoryString
42	subMgrTaskStatus	Subscriber Manager task status	DirectoryString
43	billingAccountCode	Billing account code	DirectoryString
44	billingAuthorizationCode	Billing authorization code	DirectoryString
45	cpndName	Call Party Name Display name	DirectoryString
46	flowThroughProvisioningRequest		
47	flowThroughProvisioningResponse		
48	aceHomeDomainEntryUuid	ACE Home Domain Entry UUID	DirectoryString

File Format

The first row in the exported CSV file is the file header, and contains the LDAP attribute names for the exported attributes. A complete list of the attribute names is shown in Table 23 "Supported subscriber attributes in CSV subscriber export feature" (page 151). Each row in the file is a complete record, with attribute values corresponding to the attribute names in the header row. If a value does not exist for an attribute, none is given in the file, and this is represented with no characters. A simple example is shown in Figure 69 "Example of CSV export file" (page 154). Note that all attributes are not visible in the figure.

Figure 69
Example of CSV export file



The file created by CSV subscriber export conforms to the Microsoft CSV format. For a detailed discussion of Standard and Microsoft CSV formats see “Appendix CSV file format ” (page 171).

File encoding

Files written by the CSV export feature are encoded using 8-bit Unicode Transformation Format (UTF-8) and include the Unicode byte-order mark (see “Appendix Unicode byte-order mark” (page 177)) to indicate the file’s encoding. This allows exported CSV files to be modified and then properly read by the CSV synchronization feature.

When opening files written by the CSV export feature ensure that Unicode UTF-8 is selected as the file encoding. Nortel recommends using OpenOffice 2.4.0 (or greater) spreadsheet application to open this file.

Export CSV subscriber data

To export subscriber data see Procedure 40 “Exporting subscribers” (page 154).

Procedure 40
Exporting subscribers

Step	Action
1	From the UCM Common Services navigator, click **Subscriber Manager**. The **Subscriber Manager** web page opens.
2	From the Subscriber Manager navigator, click **Subscribers** > **CSV Export**. The **CSV Export** Web page opens, as shown in Figure 70 "CSV Export Web page" (page 155).

Figure 70
CSV Export Web page

3 Click on **Generate** to generate a new subscriber CSV file.

The **CSV Export** Web page refreshes with a timestamp shown when the CSV file was last generated.

4 Click on **Download** to download the subscriber CSV file.

The **File Download** dialog box opens.

5 Click **Save**.

The **Save As** dialog box opens.

6 Specify a path and filename for the CSV file and click **Save**.

The **Download complete** dialog box opens.

7 Click **Close**.

--End--

Error Handling

Table 24 "Handled error conditions" (page 155) shows how error conditions are handled:

Table 24
Handled error conditions

Error condition	System response
You select an existing file as the target.	A confirmation dialog is displayed, asking if you want to replace the file.

Table 24
Handled error conditions (cont'd.)

You select a file without an extension, and when the .csv extension is appended to the file, the resulting file exists.	A confirmation dialog is displayed, asking you if you want to replace the file.
The system is unable to complete the export operation.	A standard error dialog is displayed. The text on the dialog is: *Unable to export to <filename>*.

ATTENTION
If the system is unable to complete the export operation for any reason, a CSV file is not created, even if one with partial results could be created.

Troubleshooting

Ensure that the prerequisites for adding subscribers and provisioning accounts in Subscriber Manager, summarized in "Prerequisites" (page 69) are verified and validated by the UCM Common Services administrator.

Navigation

- "Problems and course of action to resolve them" (page 157)

Problems and course of action to resolve them

Perform the indicated actions to resolve the following problems:

1. Unable to access Subscriber Manager from UCM Common Services

   a. Error Message indicates that you don't have access to Subscriber Manager.

      The UCM Common Services Administrative user account is assigned a Role that does not include access to Subscriber Manager. You must have an UCM Common Services Administrator change your Role to one that does have access to Subscriber Manager. For more information on creating UCM Common Services Administrative user accounts and assigning roles and permissions, see *Unified Communications Management Common Services Fundamentals (NN43001-116).*

   b. Error Message - Web site can't be found.

      Subscriber Manager Link is not working, which indicates Subscriber Manager did not get installed correctly. For information on installing UCM Common Services, EM and Subscriber Manager, see *Linux Platform Base and Applications Installation and Commissioning (NN43001-315).*

2. An error page is displayed when first logged into Subscriber Manager

   The problem is related to either "a" or "b" in item 1.

3. Trouble creating subscriber accounts

   a. Error message - Element Manager can't be accessed

Have the UCM Common Services administrator check the access to CS 1000 Element Manager. If the problem still exists, verify that the Element is on the network with an IP ping. Then have the UCM Common Services administrator "Edit" the Element and verify the connection parameters.

4. Printed Subscriber Manager web pages can be truncated on the right hand side of the print out, if the print margins are set too high.

   The Subscriber Manager web pages are designed to fit on 8.5 inch wide paper with left and right hand print margins set to: 0.166 inches. If this does not help, another option is to use the Fit to Page feature of Internet Explorer 7.0 or higher.

5. Flow provisioning engine remains locked after account synchronization process is finished.

   This can happen if the server shut down part way through an account synchronization process. Try running the account synchronization process again and verify that it completes successfully.

6. Unable to add accounts using Subscriber Manager when EM is on a UCM Common Services member server.

   Log in to the UCM Common Services primary server and ping the member server using the member server’s FQDN. If the UCM Common Services member server can not be reached, add the member server FQDN and IP address to the host table. Once the member server FQDN is added to the host table, and member server can be pinged from the primary server(using FQDN), the Subscriber Manager Add account and Account synchronization features will work.

Fault management

This chapter contains information about the types of log files recorded for Subscriber Manager.

Subscriber Manager transaction and error logs are formatted in accordance with W3C extended log format by the UCM Common Services.

Navigation

- "Overview" (page 159)

Overview

Log files are created when data is added, changed, or deleted in Subscriber Manager. Subscriber Manager creates log files only for changes performed through the Subscriber Manager Web service interface or the Subscriber Manager Web user interface.

Logs are also created for any errors that occur during a session of Subscriber Manager.

The Operation, Administration and Maintenance Transaction Audit Log is a secure record of all system administrator Operation, Administration and Maintenance (OA&M) activities and security related events. The OA&M Transaction Audit Log is maintained in a centralized location on the Nortel Unified Communications Management Common Services (UCM Common Services). It can be forwarded to an external Operational Support System (OSS) using the Linux syslog daemon.

In Subscriber Manager Release 2.0 there are separate log files for

- Subscriber Change Notification for all the Flow through provisioning features and all actions.
- Account Synchronization

Further information

For further information on the installation of OA&M Transaction Audit and Security Event Logging, refer to *Linux Platform Base and Applications Installation and Commissioning (NN43001-315)*. For further information on configuration of OA&M Transaction Audit and Security Event Logging, refer to *Security Management Fundamentals (NN43001-604)*.

Appendix Subscriber attributes

Navigation

Subscriber attributes

The "*inetOrgPerson*" schema is extended with additional attributes for subscribers. Table 25 "Subscriber attributes" (page 161) provides a complete list.

Table 25
Subscriber attributes

Attribute Name	Required?	Syntax Object Identifier (OID)	Can be imported using CSV subscriber synchronization?	Can store multiple values?
audio	No	1.3.6.1.4.1.1466.115.121.1.4	No	Yes
billingAccountCode	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
billingAuthorizationCode	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
billingWebReportingAccessRights	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
businessCategory	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
carLicense	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
cn	Yes	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
combinedName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
country	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No

Table 25
Subscriber attributes (cont'd.)

Attribute Name	Requir ed?	Syntax Object Identifier (OID)	Can be imported using CSV subscriber synchroniz ation?	Can store multip le valu es?
cpndName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
departmentNumber	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
description	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
destinationIndicator	No	1.3.6.1.4.1.1466.115.121.1.44	Yes	Yes
displayName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
employeeNumber	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
employeeType	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
esmGUID	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
facsimileTelephoneNumber	No	1.3.6.1.4.1.1466.115.121.1.22	Yes	Yes
givenName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
homePhone	No	1.3.6.1.4.1.1466.115.121.1.50	Yes	Yes
homePostalAddress	No	1.3.6.1.4.1.1466.115.121.1.41	Yes	Yes
initials	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
internationaliSDNNumber	No	1.3.6.1.4.1.1466.115.121.1.36	Yes	Yes
jpegPhoto	No	1.3.6.1.4.1.1466.115.121.1.28	No	Yes
l	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
labeledURI	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
mail	No	1.3.6.1.4.1.1466.115.121.1.26	Yes	Yes
manager	No	1.3.6.1.4.1.1466.115.121.1.12	No	Yes
messagingHostSerialNum	No	1.3.6.1.4.1.1466.115.121.1.15	No	No
messagingScrEntryUuid	No	1.3.6.1.4.1.1466.115.121.1.15	No	No
messagingTelephoneNum ber	No	1.3.6.1.4.1.1466.115.121.1.15	No	No
messagingUseEsnAccess Code	No	1.3.6.1.4.1.1466.115.121.1.7	No	No

Table 25
Subscriber attributes (cont'd.)

Attribute Name	Required?	Syntax Object Identifier (OID)	Can be imported using CSV subscriber synchronization?	Can store multiple values?
messagingVpimAddress	No	1.3.6.1.4.1.1466.115.121.1.15	No	No
mobile	No	1.3.6.1.4.1.1466.115.121.1.50	Yes	Yes
nortelUserDefinedField	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
o	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
officeLocation	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
officialName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
ou	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
pager	No	1.3.6.1.4.1.1466.115.121.1.50	Yes	Yes
photo	No	1.3.6.1.4.1.1466.115.121.1.23	No	Yes
physicalDeliveryOfficeName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
postalAddress	No	1.3.6.1.4.1.1466.115.121.1.41	Yes	Yes
postalCode	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
postOfficeBox	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
preferredDeliveryMethod	No	1.3.6.1.4.1.1466.115.121.1.14	No	No
preferredDirectoryNumber	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
preferredEsnTelephoneNumber	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
preferredExtension	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
preferredExternalTelephoneNumber	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
preferredLanguage	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
preferredName	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
registeredAddress	No	1.3.6.1.4.1.1466.115.121.1.41	Yes	Yes
roomNumber	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
secretary	No	1.3.6.1.4.1.1466.115.121.1.12	No	Yes
refer to Also	No	1.3.6.1.4.1.1466.115.121.1.12	No	Yes
serviceEndDate	No	1.3.6.1.4.1.1466.115.121.1.24	Yes	No

Table 25
Subscriber attributes (cont'd.)

Attribute Name	Required?	Syntax Object Identifier (OID)	Can be imported using CSV subscriber synchronization?	Can store multiple values?
serviceStartDate	No	1.3.6.1.4.1.1466.115.121.1.24	Yes	No
sn	Yes	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
st	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
street	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
subMgrTaskStatus	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
subscriberType	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
telephoneNumber	No	1.3.6.1.4.1.1466.115.121.1.50	Yes	Yes
teletexTerminalIdentifier	No	1.3.6.1.4.1.1466.115.121.1.51	No	Yes
telexNumber	No	1.3.6.1.4.1.1466.115.121.1.52	Yes	Yes
title	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
tmUserGroup	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	No
uid	No	1.3.6.1.4.1.1466.115.121.1.15	Yes	Yes
userCertificate	No	1.3.6.1.4.1.1466.115.121.1.8	No	Yes
userPassword	No	1.3.6.1.4.1.1466.115.121.1.40	No	Yes
userPKCS12	No	1.3.6.1.4.1.1466.115.121.1.5	No	Yes
userSMIMECertificate	No	1.3.6.1.4.1.1466.115.121.1.5	No	Yes
x121Address	No	1.3.6.1.4.1.1466.115.121.1.36	Yes	Yes
x500uniqueIdentifier	No	1.3.6.1.4.1.1466.115.121.1.6	No	Yes

Nortel subscriber schema attributes

Table 26 "Nortel subscriber schema attributes" (page 165) provides the Nortel subscriber schema attribute name, origin, and whether or not it is required.

Table 26
Nortel subscriber schema attributes

Attribute Name	Origin	Required?
sn	person	Yes
cn	person	Yes
userPassword	person	No
telephoneNumber	person	No
seeAlso	person	No
description	person	No
title	organizationalPerson	No
x121Address	organizationalPerson	No
registeredAddress	organizationalPerson	No
destinationIndicator	organizationalPerson	No
preferredDeliveryMethod	organizationalPerson	No
telexNumber	organizationalPerson	No
teletexTerminalIdentifier	organizationalPerson	No
internationaliSDNNumber	organizationalPerson	No
facsimileTelephoneNumber	organizationalPerson	No
street	organizationalPerson	No
postOfficeBox	organizationalPerson	No
postalCode	organizationalPerson	No
postalAddress	organizationalPerson	No
physicalDeliveryOfficeName	organizationalPerson	No
ou	organizationalPerson	No
st	organizationalPerson	No
l	organizationalPerson	No
audio	inetOrgPerson	No
businessCategory	inetOrgPerson	No
carLicense	inetOrgPerson	No
departmentNumber	inetOrgPerson	No
displayName	inetOrgPerson	No
employeeNumber	inetOrgPerson	No
employeeType	inetOrgPerson	No
givenName	inetOrgPerson	No
homePhone	inetOrgPerson	No

Table 26
Nortel subscriber schema attributes (cont'd.)

homePostalAddress	inetOrgPerson	No
initials	inetOrgPerson	No
jpegPhoto	inetOrgPerson	No
labelledURI	inetOrgPerson	No
mail	inetOrgPerson	No
manager	inetOrgPerson	No
mobile	inetOrgPerson	No
o	inetOrgPerson	No
pager	inetOrgPerson	No
photo	inetOrgPerson	No
roomNumber	inetOrgPerson	No
secretary	inetOrgPerson	No
uid	inetOrgPerson	No
userCertificate	inetOrgPerson	No
x500uniqueIdentifier	inetOrgPerson	No
preferredLanguage	inetOrgPerson	No
userSMIMECertificate	inetOrgPerson	No
userPKCS12	inetOrgPerson	No
officeLocation	CND 1.0	No
country	CND 1.0	No
esmGUID	CND 1.0	No
serviceStartDate	CND 1.0	No
serviceEndDate	CND 1.0	No
subscriberType	CND 1.0	No
officialName	CND 1.0	No
preferredName	CND 1.0	No
combinedName	CND 1.0	No
cpndName	CND 1.0	No
nortelUserDefinedField	CND 1.0	No
tmUserGroup	CND 2.0	No
billingWebReportingAccessRights	CND 2.0	No
preferredDirectoryNumber	CND 2.0	No
preferredExternalTelephoneNumber	CND 2.0	No

Table 26
Nortel subscriber schema attributes (cont'd.)

preferredESNTelephoneNumber	CND 2.0	No
billingAccountCode	CND 2.0	No
billingAuthorizationCode	CND 2.0	No
messagingTelephoneNumber	CND 2.1	No
messagingVpimAddress	CND 2.1	No
messagingHostSerialNumber	CND 2.1	No
messagingSrcEntryUUID	CND 2.1	No
messagingUseEsnAccessCode	CND 2.1	No
preferredExtension	CND 2.1	No

Directory schema

Table 27 "LDAP NortelSubscriber Schema use by Subscriber Manager for Subscribers" (page 167) shows which UCM Directory nortelSubscriber attributes for the UCM Directory Schema version 2.3 are used by Subscriber Manager and which attributes are not used by Subscriber Manager.

Table 27
LDAP NortelSubscriber Schema use by Subscriber Manager for Subscribers

nortelSubscriber (UCM Directory Nortel schema version 4)	Subscriber Manager Properties
audio	
billingAccountCode	
billingAuthorizationCode	
billingWebReportingAccessRights	
businessCategory	
carLicense	
cn	
combinedName	
country	Country
cpndName	
departmentNumber	Department
description	Notes
destinationIndicator	
displayName	
employeeNumber	Employee ID

Table 27
LDAP NortelSubscriber Schema use by Subscriber Manager for Subscribers (cont'd.)

employeeType	
esmGUID	
facsimileTelephoneNumber	Fax
flowThroughProvisioningRequest	provRequest
flowThroughProvisioningResponse	provResponse
givenName	First name
homePhone	
homePostalAddress	
initials	Middle name
internationaliSDNNumber	
jpegPhoto	
l	City
labelledURI	
localizedName	localizedNames
mail	Email
manager	
messagingHostSerialNumber	
messagingSrcEntryUUID	
messagingTelephoneNumber	
messagingUseEsnAccessCode	
messagingVpimAddress	
mobile	Cell
nortelUserDefinedField	
o	Company
officeLocation	Office Location
officialName	
ou	
pager	Pager
photo	
physicalDeliveryOfficeName	
postalAddress	

Table 27
LDAP NortelSubscriber Schema use by Subscriber Manager for Subscribers (cont'd.)

postalCode	Postal/ZIP Code
postOfficeBox	
preferredDeliveryMethod	
preferredDirectoryNumber	Extension
preferredEsnTelephoneNumber	ESN
preferredExtension	
preferredExternalTelephoneNumber	External
preferredInternationalTelephoneNumber	international
preferredLanguage	Language
preferredName	Preferred name
preferredNationalTelephoneNumber	national
registeredAddress	
roomNumber	
secretary	
seeAlso	
serviceEndDate	Service end date
serviceStartDate	Service start date
sn	Last name
st	Province/State
street	Street
subMgrTaskStatus	Status (Not displayed on the UI)
subscriberType	Subscriber type
telephoneNumber	
teletexTerminalIdentifier	
telexNumber	
title	Job Title
tmUserGroup	
uid	username
userCertificate	
userPassword	

Table 27
LDAP NortelSubscriber Schema use by Subscriber Manager for Subscribers (cont'd.)

userPKCS12
userSMIMECertificate
x121Address
x500uniqueIdentifier

Appendix CSV file format

Navigation

CSV file format

When users synchronize a Comma Separated Values (CSV) file into Subscriber Manager, they are asked to specify the format of the file, either standard CSV or Microsoft CSV. This appendix explains the rules of each format and the Subscriber Manager-specific rules that imported and exported files must follow.

Rules that apply to both formats

Records and field values

CSV files are text files that contain a list of records separated by new-line characters.

Each record contains field values separated by commas. For example, consider a CSV file with the following contents:

```
a,b,c,d,e

f,g,h,i,j
```

This file has two records, each with five field values.

Field values with commas, semi-colons, and newlines

If a field value contains a comma or new-line, the entire field value must be surrounded by double quotes. For example, consider a CSV file with the following contents:

```
a,b,"c,d",e

"f,g",h,i,j
```

This file has three records, each with four field values. The first record's third field value has an embedded comma as does the second record's first field value.

Quoted field values

Any field value can be surrounded by double quotes; they are only required when the field value contains an embedded comma or new-line.

Text after a field value's closing double quote but before the next comma is ignored. For example, consider a CSV file with the following contents:

```
a,b,"c"XXX,d

"a"XXX,b,c,d
```

This file has two records, each with the same four field values (a, b, c, d). XXX is ignored in both cases.

Empty field values

Empty field values are indicated by consecutive commas. For example, consider a CSV file with the following contents:

```
a,,b,,c

a,b,,,,c
```

This file has two records. The first record has five field values where the second and fourth are empty. The second record has six field values where the third, fourth, and fifth are empty.

Empty lines

Empty lines and lines that only contain spaces and tabs are ignored. For example, consider a CSV file with the following contents:

```
a,b,c,d,e


f,g,h,i,j


k,l,m,n,o
```

This file only has three records, even though it has five lines.

Differences between standard CSV format and Microsoft CSV format

Standard CSV format and Microsoft CSV format differ in their handling of:

- "Embedded quotes in quoted field values" (page 173)
- "Backslashes in quoted field values " (page 173)
- "Leading and trailing white space between field values " (page 173)

Embedded quotes in quoted field values

Standard CSV and Microsoft CSV use a different character to escape quotes embedded in quoted field values; standard CSV uses a backslash while Microsoft CSV uses a second quote. For example, consider a CSV file with the following contents:

```
"He said ""Hello""",b,c
```

If this file is parsed with a standard CSV parser, it reads the first field value as "He said ", ignoring the quoted Hello. If this file is parsed with a Microsoft™ CSV parser, it reads the first field value as "He said "Hello"".

Backslashes in quoted field values

In standard CSV, backslashes are special characters used to escape quotes. Therefore, embedded backslashes must be escaped with a second backslash. Backslashes that are not followed by a quote or backslash are ignored. In Microsoft CSV, backslashes have no special significance. For example, consider a CSV file with the following contents:

```
"C:\data\file.txt",a,b,c
```

A standard CSV parser reads the first field value as C:datafile.txt. A Microsoft CSV parser reads the first field value as C:\data\file.txt.

Leading and trailing white space between field values

In standard CSV, leading and trailing white space between field values is ignored. In Microsoft CSV, it is significant. For example, consider a CSV file with the following contents:

```
a, b , c , d
```

A standard CSV parser reads each field value as a single character, ignoring the spaces. A Microsoft CSV parser includes the spaces in the field values.

Subscriber Manager-specific rules

Records with different numbers of fields

Records are allowed to have any number of fields. If a record has fewer fields than the header, the remaining fields are taken as null. If a record has more fields than the header, the extra fields are ignored. For example, consider a CSV file with the following contents:

```
cn,sn,givenName

johndoe, doe, john

lyndasmythe, smythe, lynda

fredflintstone,flintstone

barneyrubble,rubble,barney,fatherofbambam
```

Using Subscriber Manager CSV subscriber import feature on this file results in four entries being added to Subscriber Manager:

- `cn=johndoe, sn=doe, givenName=john`
- `cn=lyndasmythe, sn=smythe, givenName=lynda`
- `cn=fredflintstone, sn=flintstone`
- `cn=barneyrubble, sn=rubble, givenName=barney`

Note that Fred Flintstone's givenName attribute does not exist because his given name was not specified in the CSV file. Also note that Barney Rubble's additional information (fatherofbambam) is ignored.

Summary of CSV rules

Table 28 "CSV rules" (page 174) summarizes the CSV rules.

Table 28
CSV rules

CSV file content	Subscriber Manager interpretation (Microsoft format)	Subscriber Manager interpretation (standard format)
Record		

Field values in a record are separated by commas
 	
`a,b,c,d,e`
	`field1: a`
	`field2: b`
	`field3: c`
	`field4: d`
	`field5: e`
		`field1: a`
		`field2: b`
		`field3: c`
		`field4: d`
		`field5: e`

Table 28
CSV rules (cont'd.)

CSV file content	Subscriber Manager interpretation (Microsoft format)	Subscriber Manager interpretation (standard format)

Field values with embedded comma
 	
A value in quotes is one field value, even if the value contains a comma
 	
`a,b,"c,d",e`
	`field1: a`
	`field2: b`
	`field3: c,d`
	`field4: e`
		`field1: a`
		`field2: b`
		`field3: c,d`
		`field4: e`

Field values with embedded newline
 	
A value in quotes is one field value, even if the value contains a newline
 	
`a,b,"c`
`d",e`
	`field1: a`
	`field2: b`
	`field3: c`
	`d`
	`field4: e`
		`field1: a`
		`field2: b`
		`field3: c`
		`d`
		`field4: e`

Field values with quotes
 	
In field values that start with a quote, text after the end quote is ignored. In field values that contain quotes but do not start with a quote, quotes are part of the field value
 	
`a,b,"c"XXX,d`
`"e"XXX,f,g,h`
`i,j"k"l,m`
	`Record1`
	`field1: a`
	`field2: b`
	`field3: c`
	`field4: d`
	`Record2`
	`field1: e`
	`field2: f`
	`field3: g`
	`field4: h`
	`Record3`
	`field1: i`
	`field2: j"k"l`
	`field3: m`
		`Record1`
		`field1: a`
		`field2: b`
		`field3: c`
		`field4: d`
		`Record2`
		`field1: e`
		`field2: f`
		`field3: g`
		`field4: h`
		`Record3`
		`field1: i`
		`field2: j"k"l`
		`field3: m`

Empty field values
 	
Consecutive commas denote empty field values
 	
`a,b,,,,c`
	`field1: a`
	`field2: b`
	`field3:`
	`field4:`
	`field5:`
	`field6: c`
		`field1: a`
		`field2: b`
		`field3:`
		`field4:`
		`field5:`
		`field6: c`

Table 28
CSV rules (cont'd.)

CSV file content	Subscriber Manager interpretation (Microsoft format)	Subscriber Manager interpretation (standard format)

Empty lines
 	
Empty lines and lines that only contain spaces and tabs are ignored:
 	
`a,b,c,d`
`e,f,g,h`
	Record1
	field1: a
	field2: b
	field3: c
	field4: d
	Record2
	field1: e
	field2: f
	field3: g
	field4: h
		Record1
		field1: a
		field2: b
		field3: c
		field4: d
		Record2
		field1: e
		field2: f
		field3: g
		field4: h

Embedded quotes in quoted fields
 	
Microsoft CSV uses a second quote to escape embedded quotes; generic CSV uses a backslash
 	
`"Say""Hello""",b`
`"Say\"Hello\"",b`
	Record1
	field1: Say"Hello"
	field2: b
	Record2
	field1: Say\
	field2: b
		Record1
		field1: Say
		field2: b
		Record2
		field1: Say"Hello"
		field2: b

Backslashes in quoted fields **In Microsoft CSV, backslashes have no special significance; in standard CSV, backslashes are special characters used to escape quotes** `"C:\ab\cd.tx",a`	field1: C:\ab\cd.tx field2: a	field1: C:abcd.tx field2: a
Leading and trailing white space **In Microsoft CSV, leading and trailing white space between field values is significant; in standard CSV, it is ignored** `a, b , c`	field1: a field2: b field3: c	field1: a field2: b field3: c

Appendix Unicode byte-order mark

The Unicode byte-order mark (BOM) is the Unicode character at code point U+FEFF ("zero-width no-break space"), when that character is used to denote the endianness of a string of UCS/Unicode characters encoded in 16-bit Unicode Transformation Format (UTF-16) or 32-bit Unicode Transformation Format (UTF-32) and/or as a marker to indicate that text is encoded in 8-bit Unicode Transformation Format (UTF-8), UTF-16 or UTF-32.

Table 29 "Encodings of the BOM by encoding scheme" (page 177) displays the encodings of the byte-order marks by encoding scheme.

Table 29
Encodings of the BOM by encoding scheme

Encoding scheme	Encoding of BOM
UTF-8	EF BB BF
UTF-16 Big Endian	FE FF
UTF-16 Little Endian	FF FE

Appendix CS 1000 Release 5.5 Unicode Name Data Migration

Subscriber Manager 1.0 uses the Common Network Directory (CND) as its subscriber repository. Subscriber Manager 2.0 will continue to use the CND. However, the CND will now be an embedded component (that is, UCM directory services) deployed as part of the Nortel Unified Communications Management Common Services in CS 1000 Release 6.0. The repository for subscriber and account data is a fundamental feature provided by UCM directory services.

Prerequisites for Unicode name data migration

- Location of file to translate (device / path / file name)
- OpenOffice.org 2.4.0 (or greater) Calc application installed

Migrate CS 1000 Release 5.5 Unicode name data and create new subscribers

If there are no subscribers configured in Subscriber Manager, use the steps in Procedure 41 "Migrating Unicode name data if no subscribers are configured in Subscriber Manager" (page 179) to migrate CS 1000 Release 5.5 Unicode name data into Subscriber Manager. This procedure will create new subscribers.

Procedure 41
Migrating Unicode name data if no subscribers are configured in Subscriber Manager

Step	Action
1	Use **Find & Replace** in the OpenOffice.org Calc application to change all language names to supported abbreviations. See "Localized name support" (page 47) for a list of supported abbreviations.

Figure 71
Example CS 1000 Release 5.5 Unicode name file

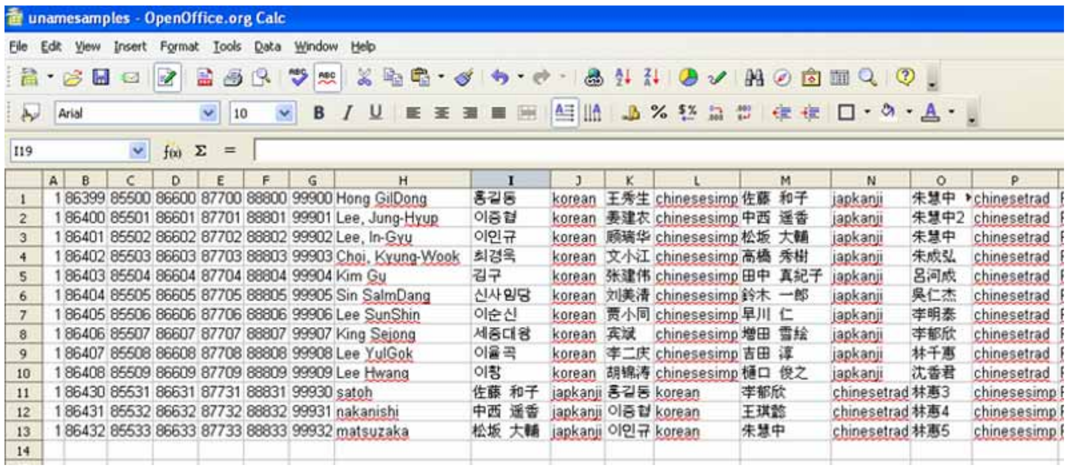
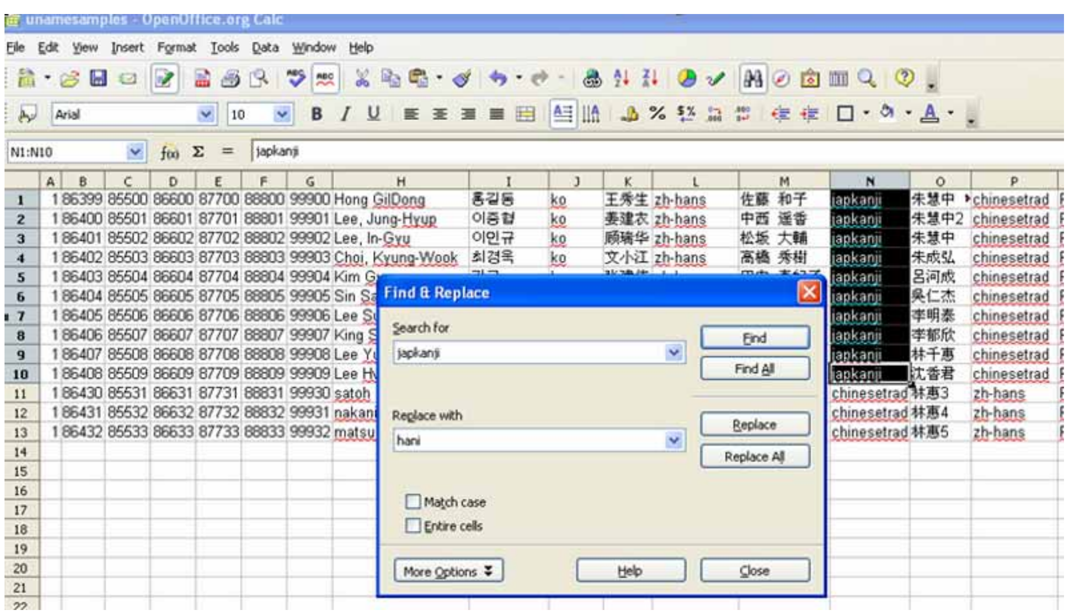
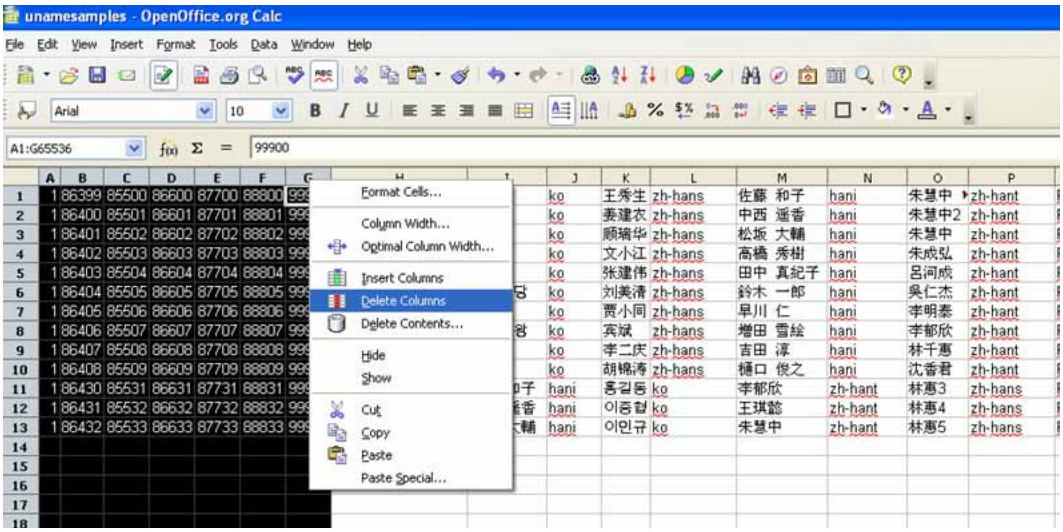


Figure 72
Change all language names to supported abbreviations



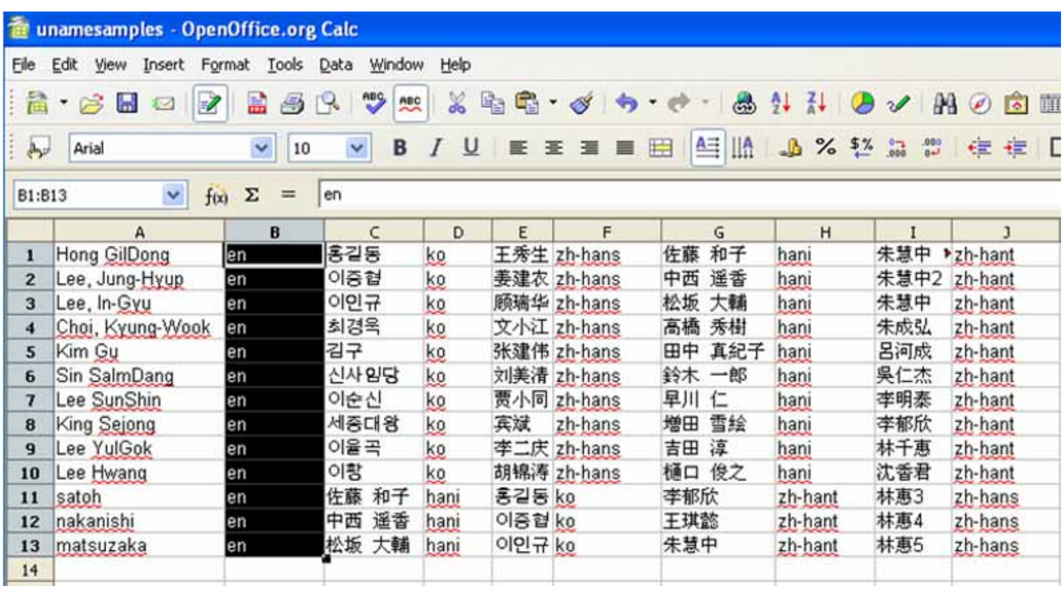
2 Remove all digit columns.

Figure 73
Remove all digit columns



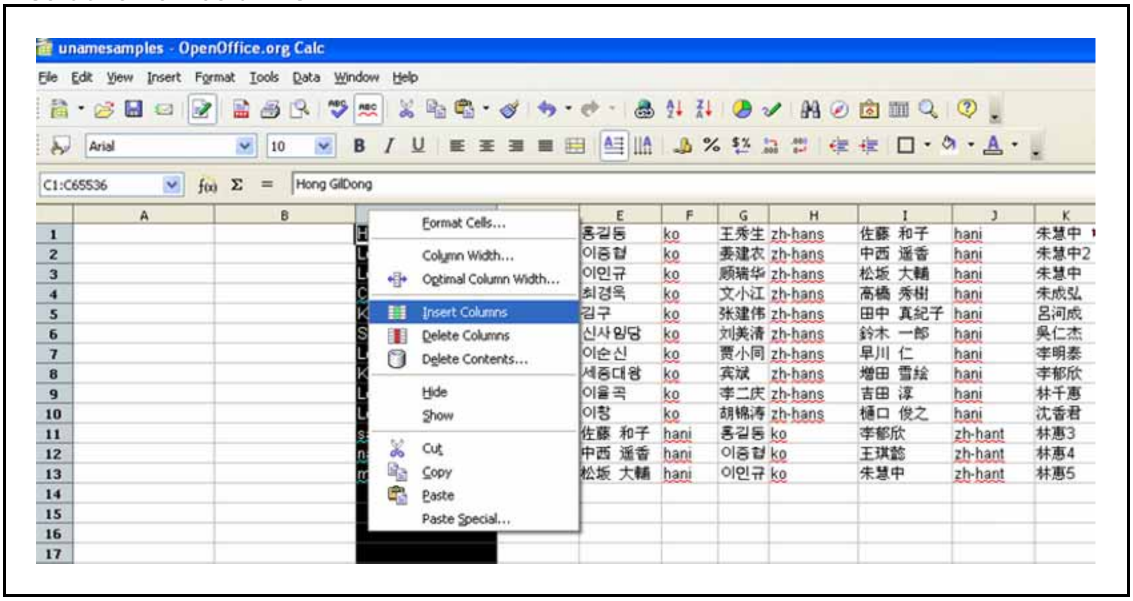
3 Insert **en** after the English language column.

Figure 74
Insert English abbreviation



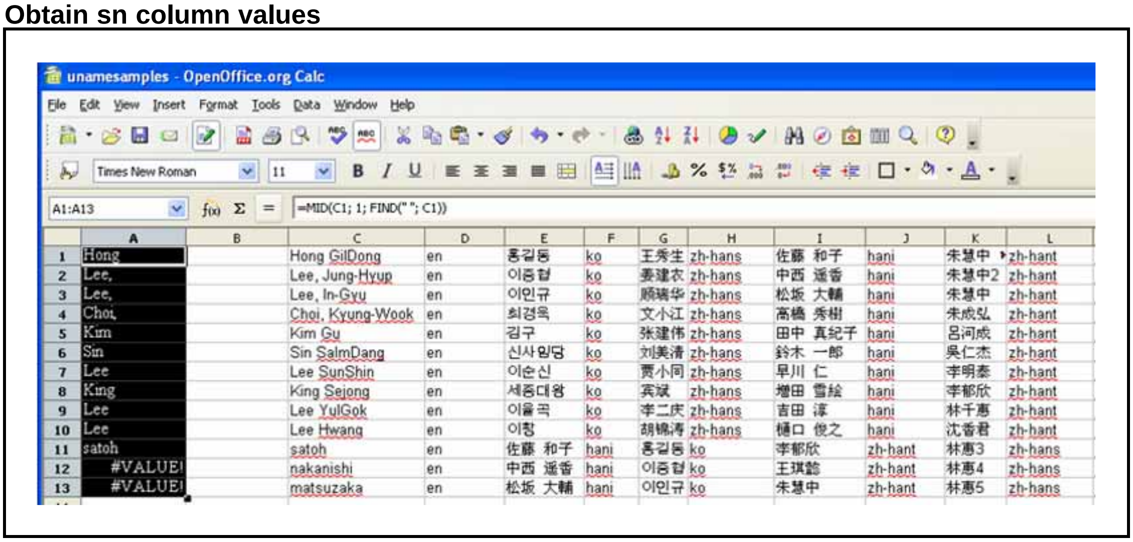
4 Insert two new columns for the surname (sn) and the given name (givenName).

Figure 75
Insert two new columns



5 In the surname column, insert the spreadsheet formula `MID(C1; 1;FIND(" "; C1))`. This formula assumes the English names are not longer than 100 characters.

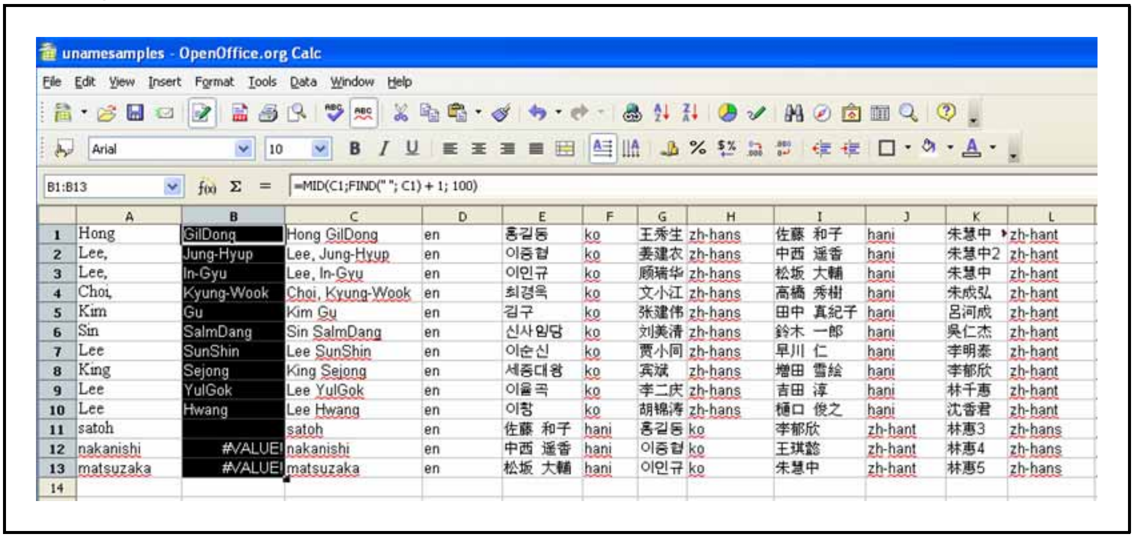
Figure 76
Obtain sn column values



Note: If the English language name only has a single string value, an error will occur using the spreadsheet formula, "#VALUE!". Leave the given name column empty or manually enter the appropriate name.

6 In the given name column, insert the spreadsheet formula `MID(C1;FIND(" "; C1) + 1; 100)`.

Figure 77
Obtain givenName column values

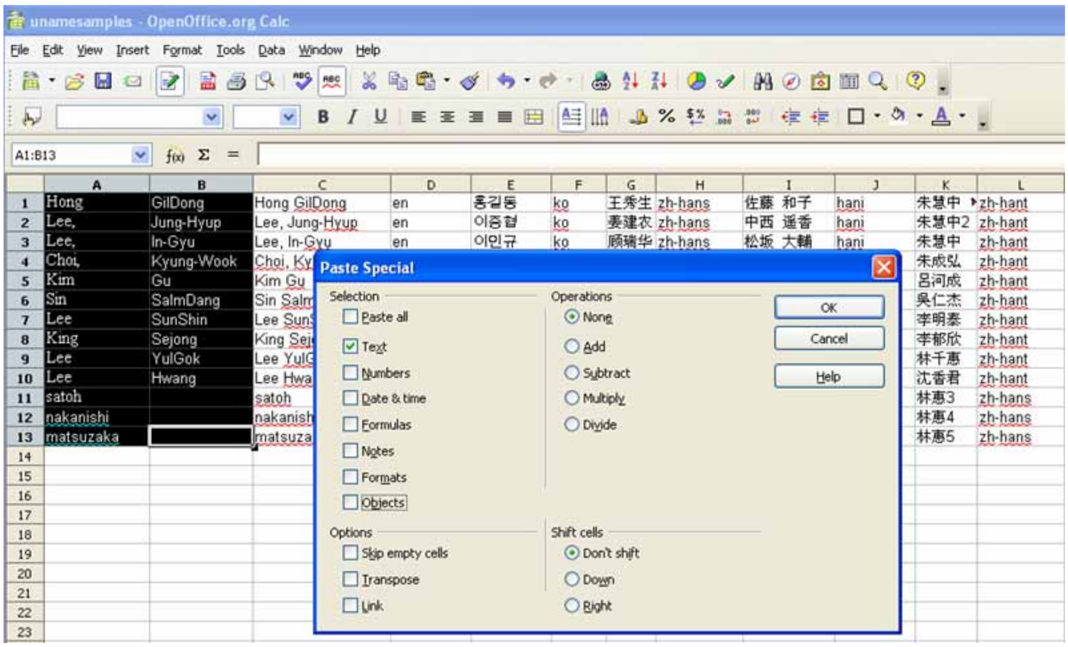


Note 1: If the English language name only has a single string value, an error will occur using the spreadsheet formula, "#VALUE!". Leave the given name column empty or manually enter the appropriate name.

Note 2: The spreadsheet formulas for the surname column and the given name column may be interchangeable. In the example in Figure 76 "Obtain sn column values" (page 182) and Figure 77 "Obtain givenName column values" (page 183) the first string value in the English language column is the surname and the second string value in the English language column is the given name. For example, "Hong" is the surname and "GilDong" is the given name.

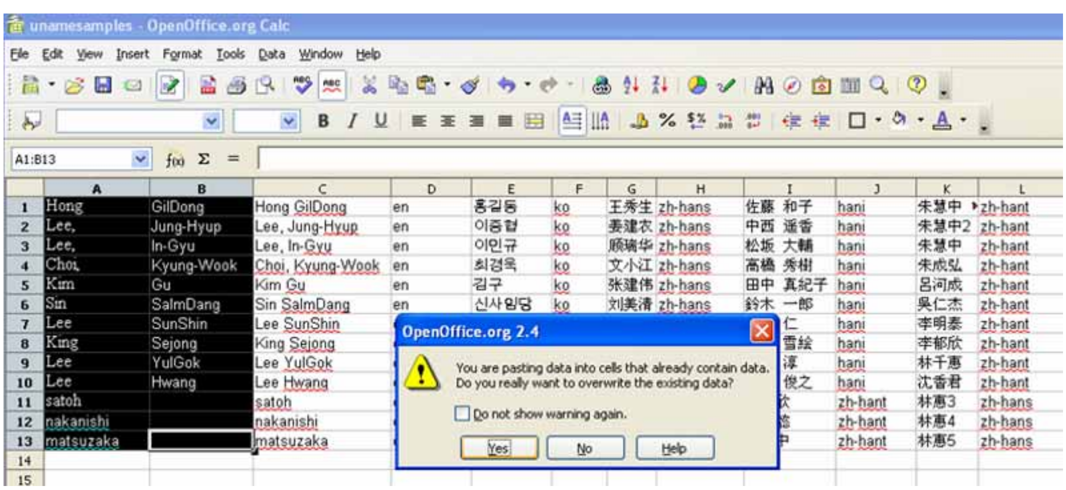
7 Copy and paste the two new columns to replace the spreadsheet formula values with text. Use the **Paste Special** option in the OpenOffice.org Calc application and check only **Text**.

Figure 78
Copy sn and givenName column values



8 Click **Yes** to copy the sn and givenName column values.

Figure 79
Click Yes to copy the sn and givenName column values

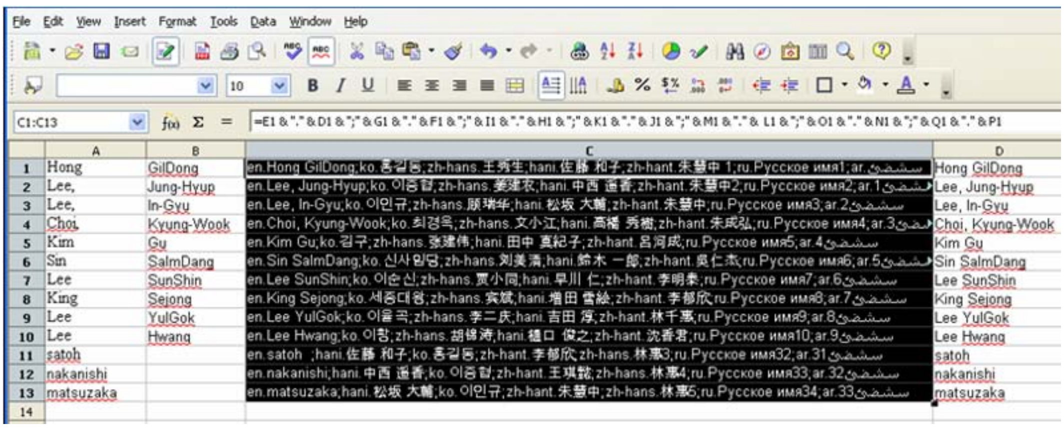


9 Insert a new column for all localized names. It must be the third column. The new column will contain all localized names concatenated together. The text in this column will be formatted in accordance with the Subscriber Manager documentation. Assuming there are seven localized names, a spreadsheet formula for this is

```
=E1&"."&D1&";"&G1&"."&F1&";"&I1&"."&H1&";"&K1&".
"&J1&";"&M1&"."&L1&";"&O1&"."&N1&";"&Q1&"."&P1
```

Note: The spreadsheet formula assumes there are seven localized names. Customize the formula to reflect the number of localized names in use.

Figure 80
Concatenate the localized names



10 Copy and paste the two new columns to replace the spreadsheet formula values with text. Use the **Paste Special** option in the OpenOffice.org Calc application and check only **Text**. See Figure 78 "Copy sn and givenName column values" (page 184).

11 Delete all the localized name columns.

Figure 81
Delete all localized name columns

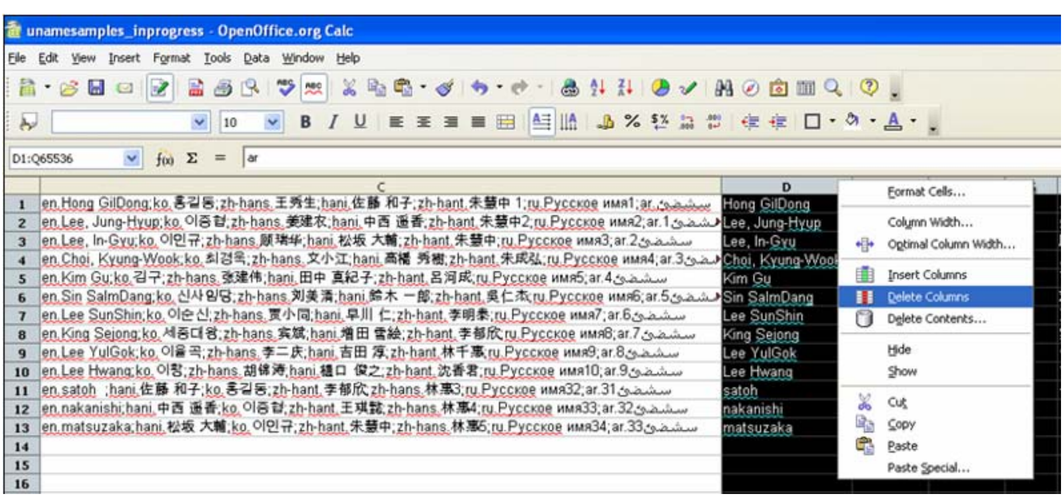
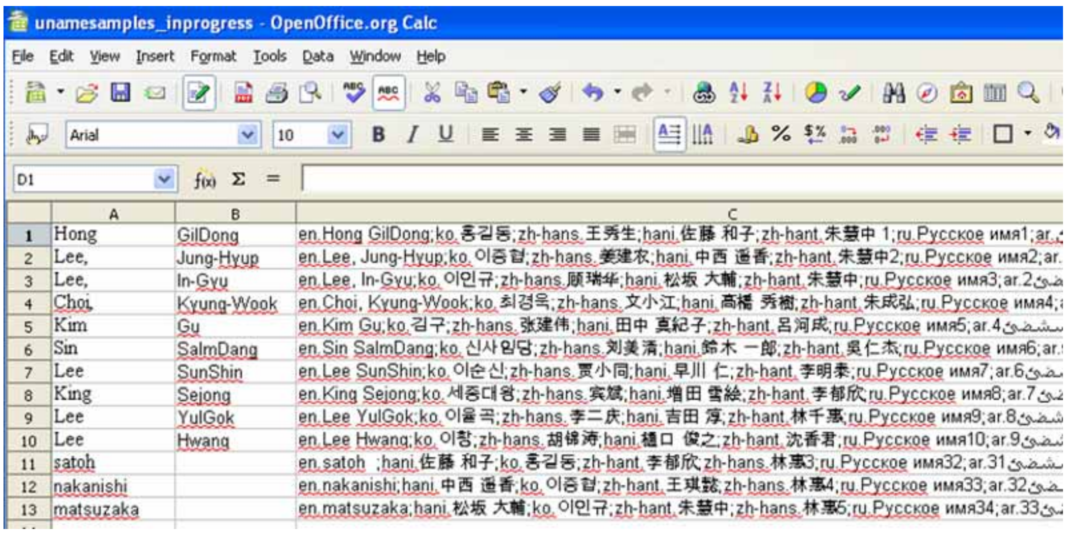
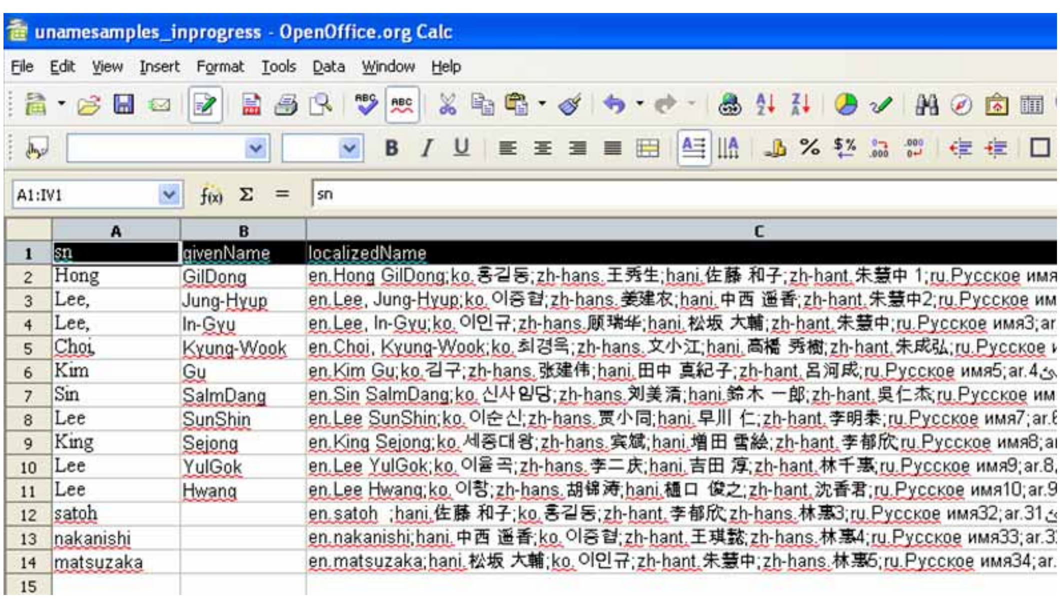


Figure 82
Updated localized names



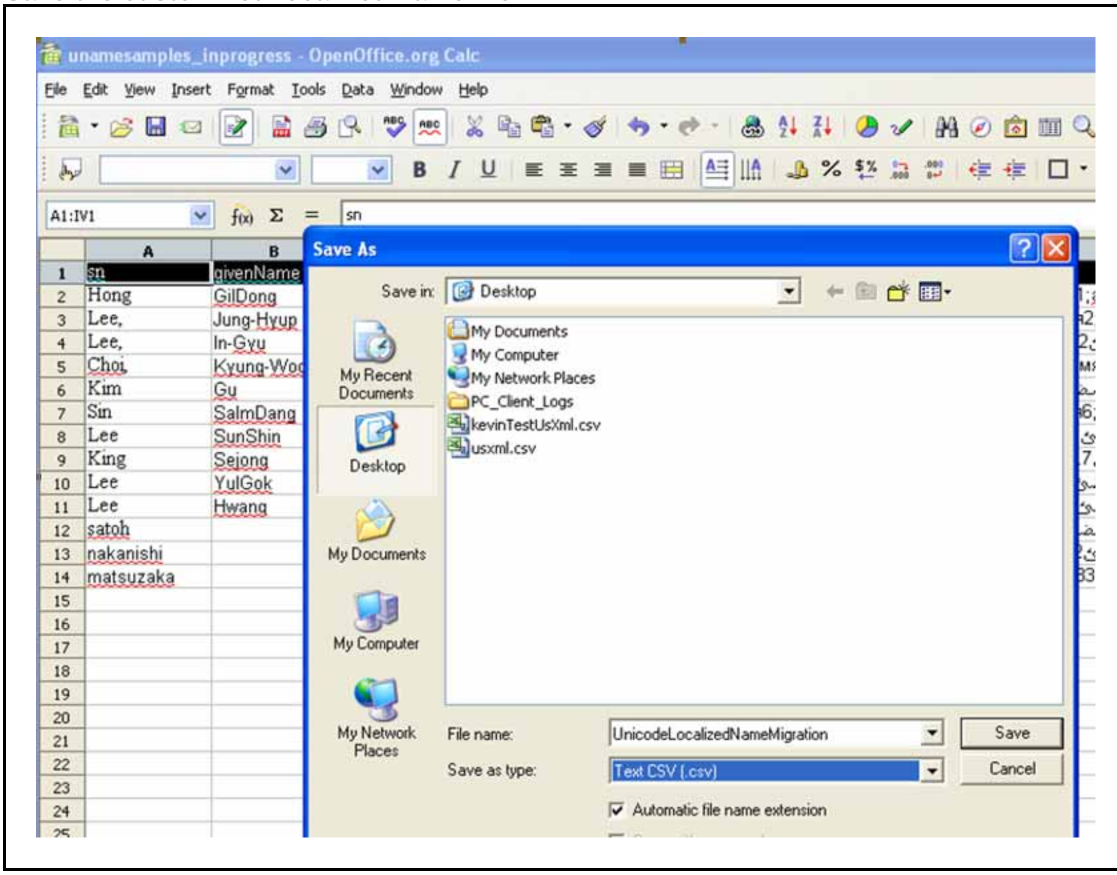
12 Insert a new row and name the columns **sn**, **givenName**, **localizedName**.

Figure 83
Add the customized localized name columns titles



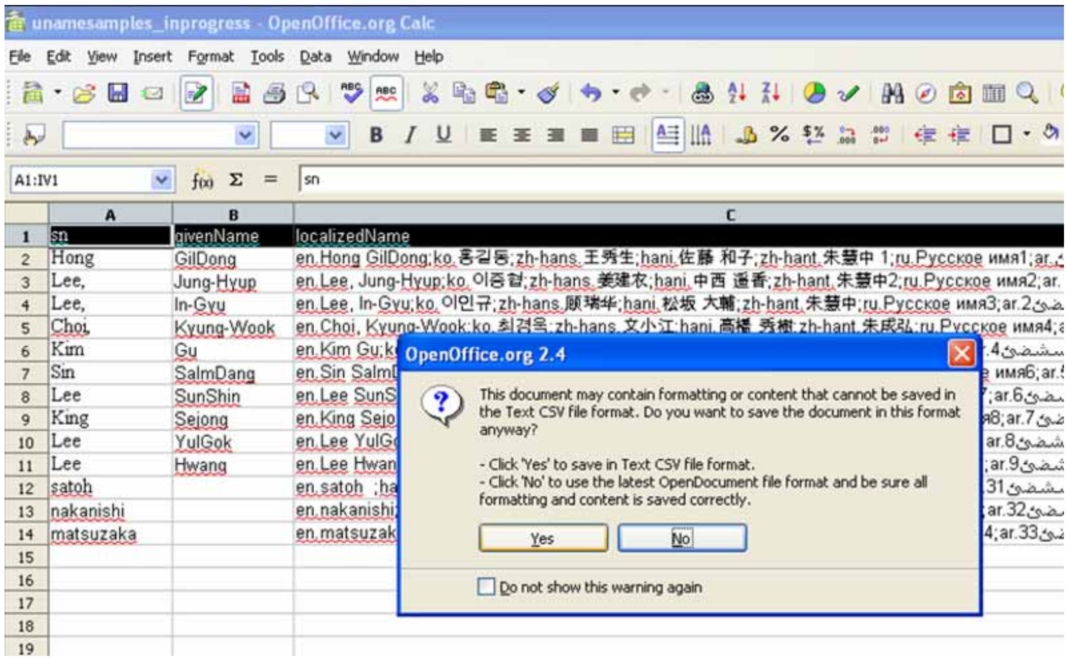
13 Select **Text CSV (.csv)** in the **Save as type:** drop down list.

Figure 84
Save the customized localized name file



14 Select **Yes** to save the Text CSV (.csv) file format.

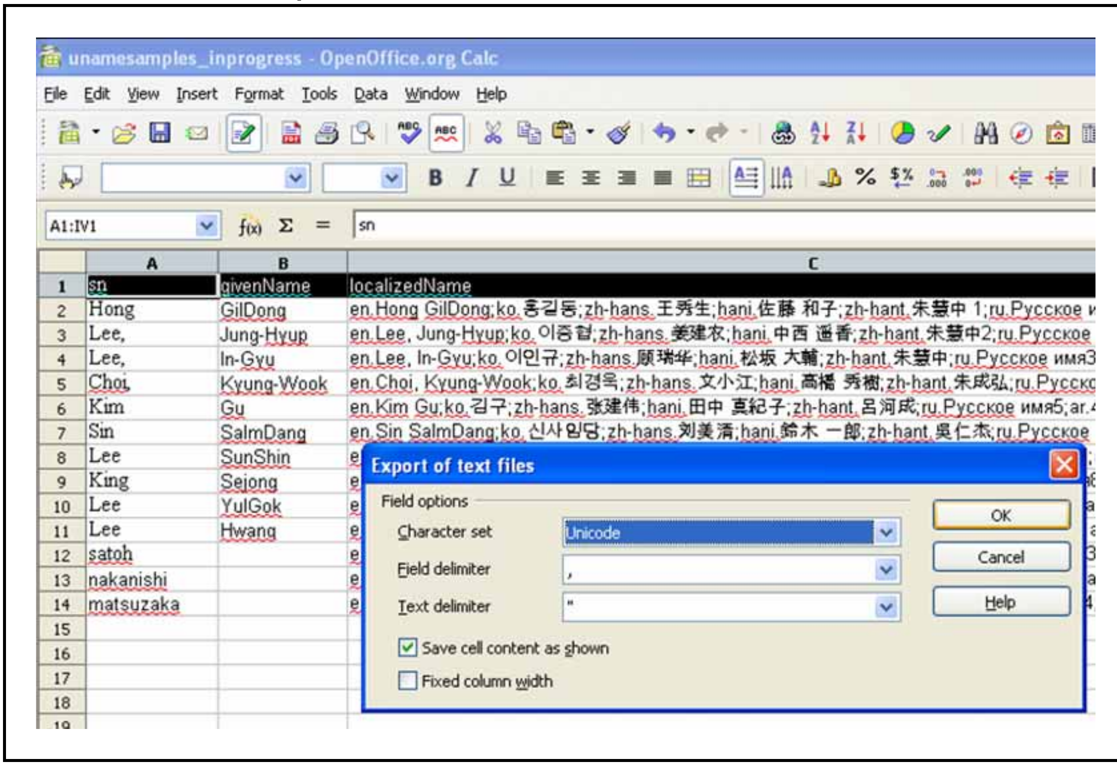
Figure 85
Select Yes to save the Text CSV (.csv) file format



15 In the **Export of text files** dialog box, select **Unicode** in the **Character set** drop down list, select "," in the **Field delimiter** drop down list, select """ in the **Text delimiter** drop down list and check the **Save cell content as shown** check box.

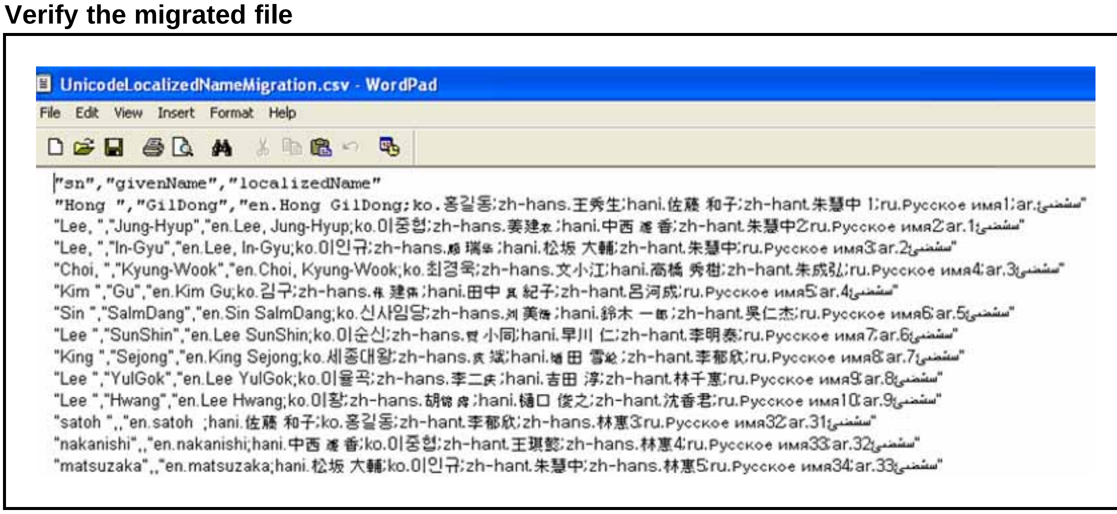
> ***Note:*** Do **not** select **Unicode (UTF8)**.

Figure 86
Select attributes for Export of text files



16 Verify the migrated file in a text editor.

Figure 87
Verify the migrated file



17 Follow the steps in Procedure 39 “Synchronizing subscribers” (page 142) to import the new subscribers into the directory.

18 Follow the steps in Procedure 7 “Performing a basic search for a subscriber” (page 77) or in Procedure 8 “Performing an

advanced search for a subscriber" (page 79) to verify that the subscribers have been imported into the directory.

--End--

Migrate CS 1000 Release 5.5 Unicode name data and update existing subscribers

If subscribers are already configured in Subscriber Manager, use the steps in Procedure 42 "Migrating Unicode name data if subscribers are configured in Subscriber Manager" (page 190) to migrate CS 1000 Release 5.5 Unicode name data into Subscriber Manager. This procedure will append the Unicode name data to matching subscribers or create new subscribers.

Procedure 42
Migrating Unicode name data if subscribers are configured in Subscriber Manager

Step	Action
1	Use **Find & Replace** in the OpenOffice.org Calc application to change all language names to supported abbreviations. See "Localized name support" (page 47) for a list of supported abbreviations. See Figure 71 "Example CS 1000 Release 5.5 Unicode name file" (page 180) and Figure 72 "Change all language names to supported abbreviations" (page 180).
2	Remove all digit columns. See Figure 73 "Remove all digit columns" (page 181).
3	Insert **en** after the English language column. See Figure 74 "Insert English abbreviation" (page 181).
4	Insert two new columns for the surname (sn) and the given name (givenName). See Figure 75 "Insert two new columns " (page 182).
5	In the surname column, insert the spreadsheet formula `MID(C1; 1;FIND(" "; C1))`. This formula assumes the English names are not longer than 100 characters. See Figure 76 "Obtain sn column values" (page 182). ***Note:*** If the English language name only has a single string value, an error will occur using the spreadsheet formula, "#VALUE!". Leave the given name column empty or manually enter the appropriate name.

6 In the given name column, insert the spreadsheet formula `MID(C1;FIND(" "; C1) + 1; 100)`.

See Figure 77 "Obtain givenName column values" (page 183) .

> ***Note 1:*** If the English language name only has a single string value, an error will occur using the spreadsheet formula, “#VALUE!”. Leave the given name column empty or manually enter the appropriate name.
>
> ***Note 2:*** The spreadsheet formulas for the surname column and the given name column may be interchangeable. In the example in Figure 76 "Obtain sn column values" (page 182) and Figure 77 "Obtain givenName column values" (page 183) the first string value in the English language column is the surname and the second string value in the English language column is the given name. For example, “Hong” is the surname and “GilDong” is the given name.

7 Copy and paste the two new columns to replace the spreadsheet formula values with text. Use the **Paste Special** option in the OpenOffice.org Calc application and check only **Text**.

See Figure 78 "Copy sn and givenName column values" (page 184).

8 Click **Yes** to copy the sn and givenName column values.

See Figure 79 "Click Yes to copy the sn and givenName column values" (page 184).

9 Insert a new column for all localized names. It must be the third column. The new column will contain all localized names concatenated together. The text in this column will be formatted in accordance with the Subscriber Manager documentation. Assuming there are seven localized names, a spreadsheet formula for this is
`=E1&"."&D1&";"&G1&"."&F1&";"&I1&"."&H1&";"&K1&"."&J1&";"&M1&"."&L1&";"&O1&"."&N1&";"&Q1&"."&P1`

> ***Note:*** The spreadsheet formula assumes there are seven localized names. Customize the formula to reflect the number of localized names in use.

See Figure 80 "Concatenate the localized names" (page 185).

10 Copy and paste the two new columns to replace the spreadsheet formula values with text. Use the **Paste Special** option in the OpenOffice.org Calc application and check only **Text**. See Figure 78 "Copy sn and givenName column values" (page 184).

11 Delete all the localized name columns.

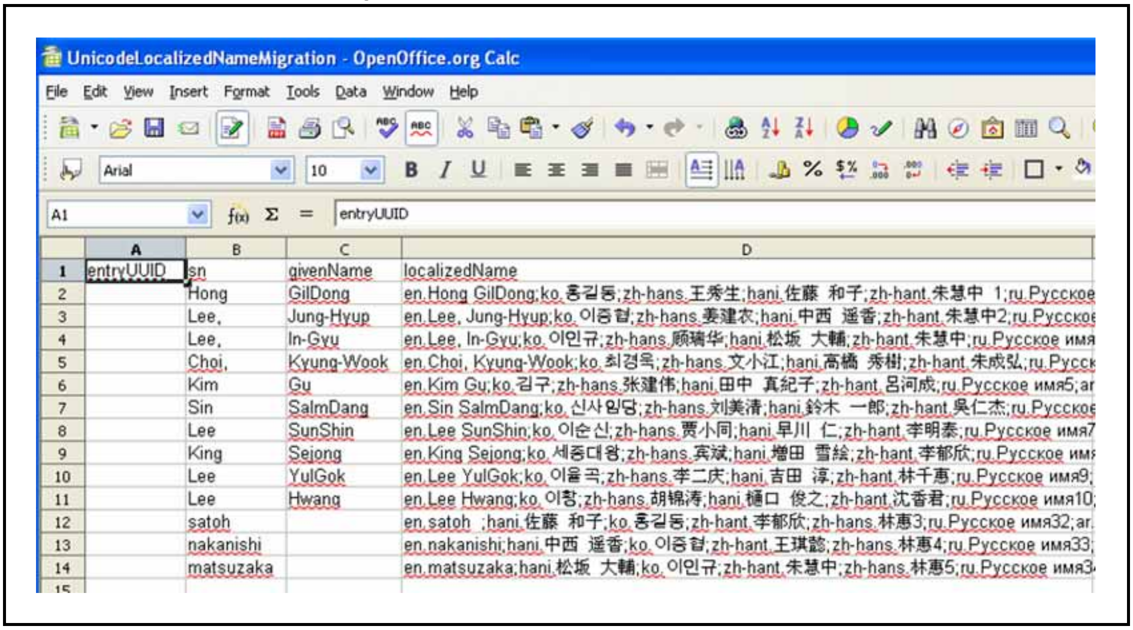
See Figure 81 "Delete all localized name columns" (page 185) and Figure 82 "Updated localized names" (page 186).

12 Insert a new row and name the columns **sn**, **givenName**, **localizedName**.

See Figure 83 "Add the customized localized name columns titles" (page 186).

13 Insert a new column for **entryUUID** at the beginning of the file.

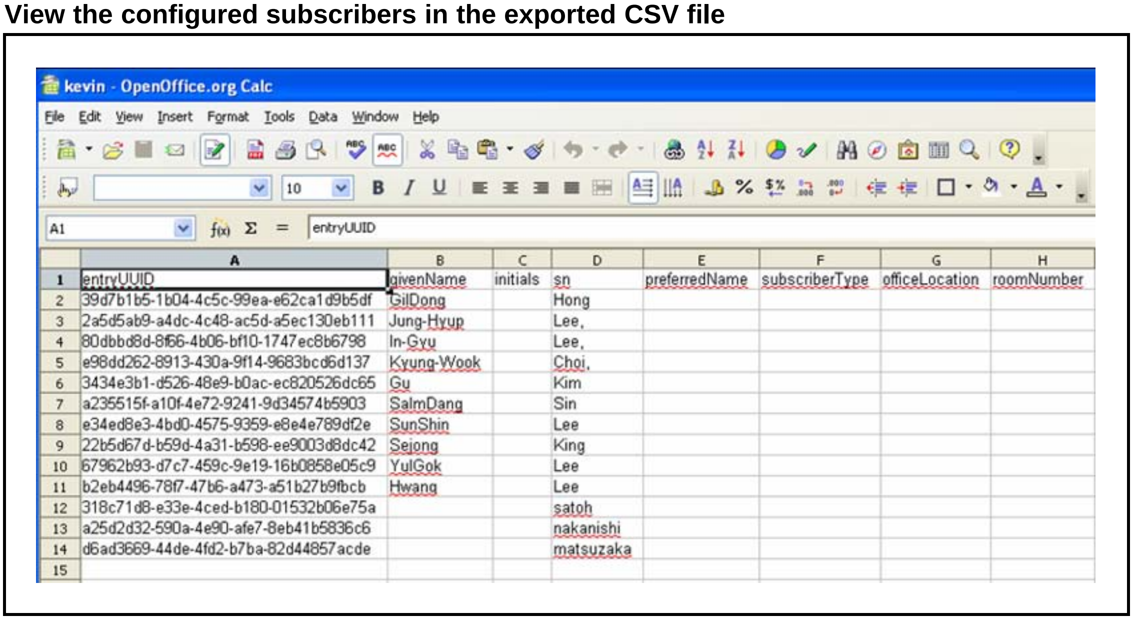
Figure 88
Insert a new column for entryUUID



14 Follow the steps in Procedure 40 "Exporting subscribers" (page 154) to export the configured subscribers into a CSV file.

15 View the configured subscribers in the exported CSV file.

Figure 89
View the configured subscribers in the exported CSV file



16 Copy the configured subscribers **entryUUID** from the exported CSV file into the customized CSV file.

Figure 90
Copy the configured subscribers entryUUID from the exported CSV file

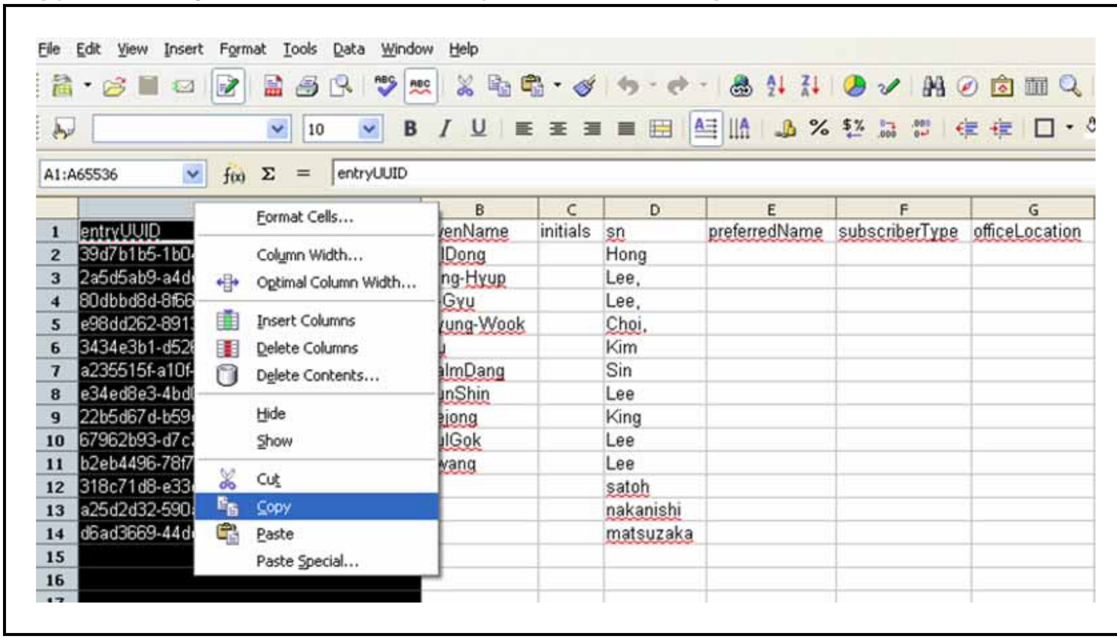
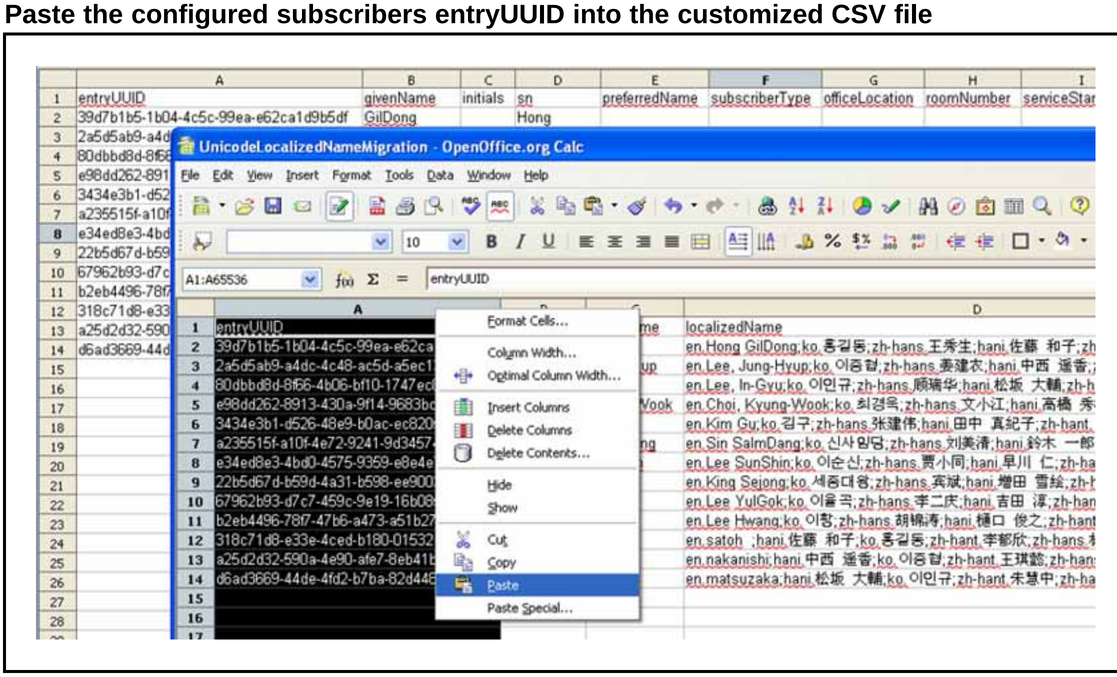


Figure 91
Paste the configured subscribers entryUUID into the customized CSV file



17 Select **Text CSV (.csv)** in the **Save as type:** drop down list.

See Figure 84 "Save the customized localized name file" (page 187).

18 Select **Yes** to save the Text CSV (.csv) file format.

See Figure 85 "Select Yes to save the Text CSV (.csv) file format" (page 188).

19 In the **Export of text files** dialog box, select **Unicode** in the **Character set** drop down list, select "," in the **Field delimiter** drop down list, select """ in the **Text delimiter** drop down list and check the **Save cell content as shown** check box.

Note: Do **not** select **Unicode (UTF8)**.

See Figure 86 "Select attributes for Export of text files" (page 189).

20 Verify the migrated file in a text editor.

See Figure 87 "Verify the migrated file" (page 189).

21 Follow the steps in Procedure 39 “Synchronizing subscribers” (page 142) to import the new subscribers into the directory.

22 Follow the steps in Procedure 7 “Performing a basic search for a subscriber” (page 77) or in Procedure 8 “Performing an advanced search for a subscriber” (page 79) to verify that the subscribers have been imported into the directory.

--End--

Appendix Terminology

User

Administrator using the Subscriber Manager application.

Subscriber

A subscriber is a person, location, or project that uses services within a network. Most often a subscriber is an employee of a company or organization. An example of a location subscriber is an elevator with telephone services.

Element

The Call Server as listed in the Elements table in the UCM Common Services.

Account

An account is a provisioned service, available through an element, for a subscriber. A subscriber can have more than one account, such as an account for a telephone service, conferencing service, and voice mail service.

Target

Each element can further break down where an account is provisioned through the use of a target. In a CS1000 system customer numbers are targets.

Service type

The type of service being provided to the Subscriber such as Telephony.

Template

A template contains attributes common to a CS1000 phone type. Once a template is created, you can use it to apply these common attributes to a group of phones, without having to repetitively define the same value for each phone. In general, using a template is a more efficient method of adding large numbers of phones than maintaining each phone individually. A template is created on an element.

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Nortel Communication Server 1000

Subscriber Manager Fundamentals

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