## **Content Server / Spark**

Version: 6.3

## Configuration Guide: Third-Party Software

Document Revision Date: Jan. 31, 2006



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## Table of

## Contents

About This Guide									 			•										.5	;
Who Should Use This Guide	2	•		 •	• •			 •	 					 •			•	•			•	. 5	í
Graphics Used in This Guide	е			 	•				 								•	•				. 5	í
Technical Support	•	•	 •	 • •	•••	 •		 •	 	•			• •	 •	 •	• •	•	•	 •	•••	•	. 5	í

## Part 1. Creating and Configuring a Database

1	Creating and Configuring an Oracle 9 Database	. 9
	Step I. Create an Oracle 9.2.0. <i>x</i> Database	10
	Step II. Configure the Database for Content Server (Spark)	13
2	Creating and Configuring an Oracle 10g Database	19
	Step I. Create an Oracle 10g Database	20
	Step II. Create a New User for Content Server (Spark)	35
	Step III. (For Type 2 Drivers) Install and Configure an Oracle Client	43
3	Creating and Configuring an MS SQL Server Database	49
4	Creating and Configuring an IBM DB2 Database	51
5	Creating and Configuring SQL Anywhere	55
	Step I. Prepare the Environment	56
	Step II. Create a Database	56
	Step III. Create a New User for Spark	57
	Step IV. Next Step	57

## Part 2. Installing a Web Server

6	Worksheets for Documenting the Web Server Installation	61
	Key to Sample Values	.62
	Web Server Parameters	.62
7	Installing IIS on Windows	65
	Step I. Install IIS	66
	Step II. Document Your IIS Installation	66
	Step III. Verify the Installation	66
	A. Start IIS	.66
	B. Verify that IIS is Serving Pages	.67
	Next Step	. 67
8	Installing Apache on Solaris or Linux	69
	Step I. Install Apache.	70
	Step II. Document Your Apache Parameters.	70
	Step III. Verify that Apache Contains the Correct Module	71
	Step IV. Verify that Apache Runs Properly	71
	Next Step	.71

## Part 3. LDAP Integration

9	Integrating Content Server with LDAP75
	LDAP Integration Overview
	Automatic Integration with LDAP
	Manual Integration with LDAP77
	Step 1. Make Sure the LDAP Server is Installed
	Step 2. Make Sure That Content Server is Installed and Tested
	Step 3. Configure Content Server Properties
	Step 4. Configure the LDAP Server
	Step 5. Check the mail Attribute
	Step 6. Create LDAP User Groups (Content Server ACLs)
	Step 7. Create Required Users and Their Group Memberships
	Step 8. (Optional) Create Sites and Roles in the LDAP Server
	Step 9. If You Completed Step 887
	Step 10. Test the LDAP Integration
	Step 11. Resume Your Previous Operations
	Post-Integration Management of ACLs, Users, Sites, and Roles
	ACL and User Management
	Site and Role Management
	LDAP Configuration Management
	Reference: Example ldif Files

## **About This Guide**

This guide contains information about installing and configuring third-party software specifically for use by Content Server and Spark. Instructions in this guide supplement the instructions in the Content Server and Spark installation guides. The steps you will follow show you how to create and configure the supported databases, install supported web servers, and integrate Content Server with LDAP servers.

## Who Should Use This Guide

This guide is for installation engineers who have experience installing and configuring enterprise-level software, including databases, database drivers, application servers, and portal servers, and LDAP servers.

## **Graphics Used in This Guide**

Graphics in this guide are screen captures of dialog boxes and similar windows that you will interact with during the installation or configuration process. These graphics are presented to help you follow the installation and configuration processes. They are not intended to be sources of information such as parameter values, options to select, and product version numbers.

## **Technical Support**

Help is available from FatWire Technical Support at the following website:

http://www.fatwire.com/Support/contact\_info.html

#### Part 1

## **Creating and Configuring a Database**

Content Server and Spark each require access to a supported database that is specifically configured for the product. Supported databases include:

- Oracle 9
- Oracle 10g
- Microsoft SQL Server 2000 SP3 and SP4
- DB2
- My SQL Anywhere (Spark only)

The databases listed above are not configured for production, but are set up with full permissions. In practice, the permissions can be curtailed for the user that Content Server (or Spark) will use to access a database. However, the following rights must exist: ability to create, modify, and delete tables and indexes.

If you need instructions on installing a supported database, refer to the product documentation.

Instructions on creating and configuring the databases for Content Server (or Spark) are given in the chapters of this guide. Because database configuration is identical across different application servers, refer to the correct chapter to set up the database of your choice.

This guide contains the following chapters:

- Chapter 1, "Creating and Configuring an Oracle 9 Database"
- Chapter 2, "Creating and Configuring an Oracle 10g Database"
- Chapter 3, "Creating and Configuring an MS SQL Server Database"
- Chapter 4, "Creating and Configuring an IBM DB2 Database"
- Chapter 5, "Creating and Configuring SQL Anywhere"

7

## Chapter 1

## **Creating and Configuring an Oracle 9 Database**

Use this chapter to set up an Oracle 9.2.0.*x* database for your Content Server (Spark) installation. For background information regarding database configuration and users' permissions, see "Creating and Configuring a Database," on page 7.

This chapter contains the following sections:

Step I. Create an Oracle 9.2.0.x Database

Step II. Configure the Database for Content Server (Spark)

## Step I. Create an Oracle 9.2.0.x Database

- Go to the \$ORACLE9\_HOME/bin directory: cd \$ORACLE9\_HOME/bin
- 2. Run the Database Configuration Assistant: dbca
- 3. In the welcome screen, click Next.
- 4. Fill in the following screens as shown below:
  - **a.** On the "Step 1 of 8: Operations" screen, leave **Create a database** selected and click **Next**.
  - **b.** On the "Step 2 of 8: Database Templates" screen, select **General Purpose** and click **Next**.

Database Configuration Assis	stant, Step 2	of 8 : Database Templates		
	Select a tem	plate from the following list t	o create a database:	
	Select	Template Name		Includes Datafi
	0	Data Warehouse		Yes
	9	General Purpose		Yes
	0	Transaction Processing		Yes
	0	New Database		No
Andread and a second and a seco				
				Show Details
Cancel Help	I		🔇 Back Next	»

**c.** On the "Step 3 of 7: Database Identification" screen, enter the database name in the Global Database Name field. The SID will be automatically set to the first eight characters of the Database Name. Each SID must be unique. Click **Next**.



- d. On the "Step 4 of 7: Database Connection Options" screen, leave **Dedicated Server mode** selected and click **Next**.
- e. On the "Step 5 of 7: Initialization Parameters" screen:
  - 1) Select the tab Character Sets.
  - 2) On the character sets screen, select Choose from the list of character sets and UTF8 from the drop-down menu. For the National Character Set select UTF8 and click Next.

I Database Configuration Assis	tant, Step 5 of 7	: Initialization Pa	ameters		- <b>-</b> ×
	Memory Database C O Use the off Setting o O Use Unio Setting c multiple 1 © Choose of UTFS National Char All Initializatio	Character Sets haracter Set default ult character set f f this operating sy code (AL32UTF8) haracter set to Un language groups. from the list of cha acter Set: <u>UTF8</u> on Parameters)	DB Sizing or this database stem: WESISOS icode (AL32UT) aracter sets	File Locations e is based on the l is59P1. 78) enables you to File Loca	Archive anguage store
Cancel Help			(	Back <u>N</u> ext S	<u>Finish</u>

- f. On the "Step 6 of 7: Database Storage" screen, click Next.
- g. On the "Step 7 of 7: Creation Options" screen, click Finish.

- 5. When the summary screen appears, click **OK**.
- **6.** When the "Installation Progress Screen" appears, wait for the installation to be completed.



**7.** After the installation has been completed, the database information screen will appear, listing information about how to connect to this database using the enterprise management console. Click **OK**.

# Step II. Configure the Database for Content Server (Spark)



1. Start Oracle Enterprise Manage Console. Click OK.

2. Expand Network > Databases. Select the database you have created.



**3.** In the database login screen, log in as SYS and enter the password you specified earlier while creating the database. Click **OK**.



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								Sele:
🕈 💰 🔄 🕃 📽 🗋 🗞 a 8 a a 1	Eta Baryadar Schertz Tonio 2414 Junio Even California and an analysis California and analysis California analysis California analysis California analysis California analysis	Acourt Status     Acourt	Exerine Osto 55 Mar. 2004 25 Mar. 2004 25 Mar. 2004 26	Default Tailleopaie Default Tailleopaie Default State SYSTEM SYSTEM SYSTEM SYSTEM SYSTEM SYSTEM EXAMPLE	Тепролау Тайлераке ТЕНР ТЕНР ТЕНР ТЕНР ТЕНР ТЕНР ТЕНР ТЕНР	Profile CEFMALT CEFMALT DEFMALT	Creater Creater 124wp2000 13	
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4. Expand Security > Users. Right-click and select Create.

5. On the General tab, enter a username and password.

20 Oracle Enterprise Hanager Comole, Standale	nt	
Eile Navipator Object Tools Configuratio		
••••••••••••••••••••••••••••••••••••	Carrent Rois Pasters Chief Guets XML Cansumer Drosp Providers  Carrent Rois Pasters Chief Guets XML Cansumer Drosp Providers  Nome: CSDPUSER  Pretix: CSDPUSER  Cartern Password  Cartern Password  Cartern Password  Cartern Password  Cartern Address Chief Chief Chief Chief Chief Cartern  Cartern Password  Cartern Password  Cartern Scing: -System Addgeed-  Status  Carter Scing: Carcel Show SOL Heb	Pintle         Crosted           DEFAULT         12 Mary 2002           DEFAULT         12 Mary 2002           DEFAULT         13 Mar

6. On the Role tab, select Connect and Resource.

Create User - SYS@SPARKFS_FATSCORE.FATWIRE.	.COM	×
General Role System Object Quota XML Co Available:	onsumer Group 🛛 A	Proxy Users
JAVAUSERPRIV		
JAVA_ADMIN JAVA_DEPLOY		
LOGSTDBY_ADMINISTRATOR		
OEM_MONITOR		
RECOVERY CATALOG OWNER		
RESOURCE		
SALES_HISTORY_ROLE		2
WKUSER		*
× *		
Granted:		<b>D</b>
Role	Admin Option	Default
CONNECT	×	~
2 RESOURCE	x	· ·
Create C	Cancel Show S	GQL (Help

7.	On the <b>System</b> tab	. choose Select An	v Dictionary	. Click Create.
••	on the bystem tuo	, choose beleet min	y Dictionally	. Onen oreate.

Create User - SYS@SPARKFS_FATSCORE.FATWIRE.COM	
General Role System Object Quota XML Consumer Group F	Proxy Users
Available: ON COMMIT REFRESH QUERY REWRITE RESTRICTED SESSION RESUMABLE SELECT ANY DICTIONARY SELECT ANY SEQUENCE SELECT ANY TABLE SYSOBA SYSOPER UNDER ANY TABLE UNDER ANY TYPE	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
System Privilege	Admin Option
* SELECT ANY DICTIONARY	x
<u>Create</u> Cancel Show S	SQL (Help

**8.** Database configuration is complete. You are now ready to create and configure the data source. For instructions, refer to your Content Server (Spark) installation guide.

Step II. Configure the Database for Content Server (Spark)

## Chapter 2

# Creating and Configuring an Oracle 10g Database

Use this chapter to set up an Oracle 10g database for your Content Server (Spark) installation. For background information regarding database configuration and users' permissions, see Part 1, "Creating and Configuring a Database."

This chapter contains the following sections:

- Step I. Create an Oracle 10g Database
- Step II. Create a New User for Content Server (Spark)
- Step III. (For Type 2 Drivers) Install and Configure an Oracle Client

## Step I. Create an Oracle 10g Database

- 1. Execute the "Oracle Database Configuration Assistant" by doing one of the following:
  - In Unix, execute the command: dbca
  - In Windows, go to the "Oracle Programs" group and select **Database Configuration Assistant**.

#### Note

This step displays a load screen that can take some time to complete. Be patient.



2. On the first screen that is displayed, click Next. In the following screen, click Next.



🗙 Database Configuration Assis	tant, Step 1 of 12 : Operations	
	Select the operation that you want to perform: © Create a Database © Configure Database Options © Delete a Database © Manage Templates	
Cancel Help	<u> Back</u> <u>Next</u> )	

3. Select the radio button **Create a Database** and click **Next**.

Database Configuration Assistant, Step 2 of 12 : Database Templates					
	Select a t	emplate from the following list to create a database:			
	Select	Template	Includes Datafiles		
	0	Custom Database	No		
	0	Data Warehouse	Yes		
	9	General Purpose	Yes		
	0	Transaction Processing	Yes		
And Andrew Andre					
			Show Details)		
Cancel Help		S Back Nex	t >>)		

#### 4. Select the radio button General Purpose and click Next.

**5.** Enter a unique global database name and SID (in this example the global database name is contentserverdb. The SID is CSDB). Click **Next**.

X Database Configuration Assis	stant, Step 3 of 12 : Database Identification	_ 🗆 🗙
	An Oracle database is uniquely identified by a Global Database Name, typically form "name.domain". Global Database Name: A database is referenced by at least one Oracle instance which is uniquely iden from any other instance on this computer by an Oracle System Identifier (SID). SID:	of the tified
Cancel Help	🔇 Back Next >>	

🔀 Database Configuration Assis	tant, Step 3 of 12 : Database Identification	
	An Oracle database is uniquely identified by a Global Database Name, typically of the form "name.domain". Global Database Name: contenterverdb A database is referenced by at least one Oracle instance which is uniquely identified from any other instance on this computer by an Oracle System Identifier (SID).	;
	SID: ISDR	
Cancel Help	🔇 Back Next >>	

🗙 Database Configuration Ass	istant, Step 4 of 12 : Management Option	5	
_	Each Oracle database may be managed Control or locally using the Oracle management option that you would lik	centrally using the Oracle Enterprise Manager Manager Enterprise Manager Database Control. Choose the e to use to manage this database.	Grid e
	☑Configure the Database with Ente	rprise Manager	
	C Use Grid Control for Database	lanagement	
	Select the Management Service	No Agents Found	
Y Sayarashi alami kan Y Sayarashi alami kan Wakarashi alami kan	🖲 Use Database Control for Datab	ase Management	
I Navarda Landaria	Enable Email Notifications		
Weight Statemen Weight Statemen Merit Statemen	Outgoing Mail (SMTP) Server:		
Average Averag	Email Address:		
MANUSCRAMMING MANUSCRAMMING	Enable Daily Backup		
ModerActionation ModerActionation	Backup Start Time:	02 🚽 00 🚽 🔍 AM 🗢 PM	
	OS Username:		
	Password:		
Cancel Help		🔇 Back Next 📎	

- **8.** Enter a password, re-enter the same password in the "Confirm Password" field and click **Next**.
- **9.** For enhanced security select the radio button **Use Different Passwords** and enter a unique password for each of the given users.

🔀 Database Configuration Assis	tant, Step 6 of 12 : Storage Options			
	Select the storage mechanism you would like to use for the database. File System Use the File System for Database storage.			
	O Automatic Storage Management (ASM) Automatic Storage Management simplifies database storage administration and optimizes database layout for I/O performance. To use this option you must either specify a set of disks to create an ASM disk group or specify an existing ASM disk group.			
Aburdanskamme House Salamme House Salamme Market Salamme M	C Raw Devices Raw partitions or volumes can provide the required shared storage for Real Application Clusters (RAC) databases if you do not use Automatic Storage Manage and a Cluster File System is not available. You need to have created one raw o for each datafile, control file, and log file you are planning to create in the database.	ement device e		
Novel Section				
Cancel Help	S Back Next D	inish )		

XDatabase Configuration Assis	tant, Step 7 of 12 : Database File Locations	
	Specify locations for the Database files to be created:	
	<sup>®</sup> Use Database File Locations from Template	
	C Use Common Location for All Database Files	
	Database Files Location:	owse)
Thursdate and	C Use Oracle-Managed Files	
March 2014 Annual	Database Area:	owse)
1 Marstall Malannian 1 Marstall Malannian 1 Waarstall Malannian 1000 Marstall Malannian	(Multiplex Redo Logs and Control Files)	
Average Averag	If you want to specify different locations for any database files, pick eit the above options and use the Storage page to specify each location.	ther of
	File Location Varia	bles)
Cancel Help	G Back Next D	inish

XDatabase Configuration Assis	tant, Step 8 of 12 : Recovery Configur	ation	<u>_</u> _×
	Choose the recovery options for th Specify Flash Recovery Area This is used as the default for required for automatic backup of database files and recovery fil protection and performance.	e database: • all backup and recovery operation: using Enterprise Manager. Oracle re les be located on physically differe	s, and is also commends that the ent disks for data
Particulture Pa	Flash Recovery Area: Flash Recovery Area Size: □Enable Archiving	KORACLE_BASE>/flash_recovery	Browse) M Bytes *
Cancel Help		File Lo	xt >> Einish

🔪 Database Configuration Assist	ant, Step 9 of 12 : D	)atabase Content		
Database Configuration Assist	ant, Step 9 of 12:D Sample Schemas : Sample Schemas : by some demonstr in your database Queued Shipping, The tablespace u Specify whether Sample Scher	Custom Scripts illustrate the use of a layered appr ration programs. Installing this wil e: Human Resources, Order Entry, Onl , Sales History . It will also creat will be about 130 MB. or not to add the Sample Schemas to mas	oach to complexity, and are u: 1 give you the following scher ine Catalog , Product Media, e a tablespace called EXAMPLE. ) your database.	sed mas
Cancel Help			<u>Back</u> <u>Next</u> ≫ <u>Ei</u>	nish

- 14. Click the Character Sets tab and do the following:
  - **a.** Select **Choose from the list of character sets** and select **UTF-8** from the drop-down menu.
  - b. Click the National Character Set drop down-menu and select UTF8.
- 15. Leave all other options on the different tabs as is and click Next.
- **16.** For database storage, no options need to be changed. However, if you wish to change the location of the database from the default of oradata located under the Oracle installation, you can do so on this page. Click **Next**.

🗙 Database Cor	nfiguration Assist	ant, Step 11 of 12 : Database Storage	
Cont         - m <td< th=""><th>rolfile `iles Log Groups</th><th>Database Storage From the Database Storage page, you can specify storage parameters for the datab creation. This page displays a tree listing and summary view (multi-column lists) to change and view the following objects: • Control files • Tablespaces • Datafiles • Rollback Segments • Redo Log Groups From any object type folder, o<b>limet</b>te to create a new object. To delete an object specific object from within the object type folder <b>abelletis</b>ck Important: If you select a database template including data files, you will not b remove data files, tablespaces, or rollback segments. Selecting this type of temp you to change the following: • Destination of the datafiles • Control files or log groups.</th><th>ase &gt; to al , selec ⊨e able ⊃late a</th></td<>	rolfile `iles Log Groups	Database Storage From the Database Storage page, you can specify storage parameters for the datab creation. This page displays a tree listing and summary view (multi-column lists) to change and view the following objects: • Control files • Tablespaces • Datafiles • Rollback Segments • Redo Log Groups From any object type folder, o <b>limet</b> te to create a new object. To delete an object specific object from within the object type folder <b>abelletis</b> ck Important: If you select a database template including data files, you will not b remove data files, tablespaces, or rollback segments. Selecting this type of temp you to change the following: • Destination of the datafiles • Control files or log groups.	ase > to al , selec ⊨e able ⊃late a
Create	Delete	File Location Variable	»s)
Cancel	Help	( 3 Back Next ≫) (Ein	nish)

#### **17.** Do not change any options. Click **Finish**.

Database Configuration Assistant	t, Step 12 of 12 :	Creation Options		
	lect the databa ☐ Create Data ☐ Save as a I Name: Description:	se creation options: abase Database Template		
Cancel Help			🔇 Back Next	> <u>Einish</u>

**18.** In the "Configuration" window, review the choices that you made on the previous screens. If you need to modify your choices, click **Cancel** and make the modifications. Otherwise, click **OK** to continue.

Confirmation			>
ne following operations wil A database called "contente A template called "contente	l be performed: erverdb" will b erverdb" will b	e created. e generated.	
Database Details:			
Use this database templa	Gene te to create a purp	ral Purpose pre-configured database optimized for general ose usage.	
Common Options	Selected		
Oracle JVM	true		I
Oracle Intermedia	true		
Oracle Text	true		
Dracle XML DB	true		
Dracle OLAP	true		
Dracle Spatial	true		
Dracle Data Mining	true		
Oracle Ultra Search	true		
Uracle Ultra Search	OK Ca	(Save as an HTML file	

#### Note

If you are planning to use internationalization, for Content Server (Spark) the key value is: National Character Set: UTF8

**19.** The following window shows the progress of the database creation. This step can take time to complete.



20. When database creation is completed, click Exit.



## Step II. Create a New User for Content Server (Spark)

- Locate the file emoms.properties (in <oracle home>/<server name>\_<SID>/sysman/config/).
  - a. Find the line: oracle.sysman.emSDK.svlt.ConsoleServerPort
  - **b.** The port after the line in step a is important. Make a note of it.
- 2. Run the command: emctl status dbconsole

The command should return an output similar to the following:

Oracle Enterprise Manager 10g Database Control Release 10.1.0.2.0 Copyright (c) 1996, 2004 Oracle Corporation. All rights reserved.

http://godzilla:5500/em/console/aboutApplication Oracle Enterprise Manager 10g is running.

Logs are generated in directory /u02/app/oracle10/product/ 10.1.0/db\_1/godzilla\_orcl10so/sysman/log

#### Note

If the command returns the message that the Oracle Enterprise Manager is not running, start Oracle Enterprise Manager with the command: **emctl start dbconsole** 

- **3.** Open a browser and do the following:
  - **a.** Browse to the URL http://<hostname>:<port>/em (from step 2).

🚰 Oracle Enterprise Manager - Microsoft Internet Explorer		_ 🗆 🗵
Eile Edit View Favorites Iools Help		AU .
🚱 Back 🔹 📀 - 🖹 🛃 🏠 🔎 Search ☆ Favorites 🧐 🔗 + 🍃 🖸 👻 🧏 🌋		
Agdress 🖉 http://godzilla.fatwire.com:5501/em/console/logon/logon	💌 🏓 Go	Links »
ORACLE Enterprise Manager 10g	<u>Hel</u>	p 🛓
Login		-
Login to Database:contenterverdb		
* User Name		
* Password		
Connect As Normal Cogin		
Copyright ⊚ 1996, 2004, Oracle. All rights reserved.		

**b.** Log in to the browser, using the following field values:

Field Name	Field Value
User name	sys
Password	<password creating="" db="" entered="" the="" when=""></password>
Connect As	SYSDBA

**c.** As this is the first time you are using the Oracle Enterprise Manager, a license page is displayed. Click **I Agree**.


#### 4. Click the Administration tab.

🚰 Oracle Enterprise Manager (5Y5) - Database: contenterverdb - Micr	rosoft Internet Explorer	
Eile Edit View Favorites Tools Help		Rt.
🕞 Back 🔹 🕥 🖌 😰 🏠 🔎 Search 👷 Favorites 🧔	3 🗟 - 🛃 🔕 - 🛄 🐼	26
Address Address Attp://godzilla.fatwire.com:5501/em/console/database/instance/site	emap?event=doLoad⌖=contenterve	erdb&type=oracle_database 💽 💽 Go 🛛 Links 🎽
ORACLE Enterprise Manager 10g		Setup Preferences Help Locout Database
Database: contenter∨erdb		Logged in As SYS
Home Performance Administration Maintenance		Page Refreshed May 26, 2005 10:28:11 AM (Refresh) View Data Manually
General	Host CPU	Active Sessions
Shutdown Status Up Up Since May 26, 2005 9:01:04 AM Time Zone EDT Availability (%) 100 (Last 24 hours) Instance Name CSDB Version 10.1.0.2.0 Read Only No Oracle Home /u02/app/oracle10/product/10.1.0/db_ Listener LISTENER_godzilla	100% 75 50 25 0 1 Run Queue Paging (pages per second)	00 0.12 Active Sessions 0.01 0.12 SQL Response Time (%) ✓ 0.01 0.01 0.01
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- a. From the Security menu, select Users. Click the Create button.
- **b.** In the "Create User" screen, fill in required fields with the values that are listed in the following table:

Field Name	Field Value
Name	csuser
Enter Password	<your choice=""></your>
Confirm Password	<same password=""></same>

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- **5.** Click the **Roles** tab.
  - **a.** Click the **Modify** button.

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**b.** From the list of "Available Roles" (left side), select **Resource** and click the **Move** button.

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**Resource** is moved to the "Selected Roles" list.

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c. Click OK.

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- 6. Click the System Privileges tab.
  - **a.** Click the **Modify** button.

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**b.** From the list of "Available System Privileges" (left side), choose **Select Any Dictionary** and click the **Move** button.

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Database   <u>Setup</u>   <u>Preferences</u>   <u>Help</u>   <u>Logout</u> Copyright © 1996, 2004, Oracle. All rights reserved. <u>About Oracle Enterprise Manager 10g Database Control</u>	Cancel OK

Select Any Dictionary is moved to the "Selected System Privileges" list.

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Database   <u>Setup</u>   <u>Preferences</u>   <u>Help</u>   <u>Logout</u> Copyright © 1996, 2004, Oracle. All rights reserved. <u>About Oracle Enterprise Manager 10g Database Control</u>	Cancel) OK
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#### c. Click OK.

The database is now ready for Content Server (Spark).

- 7. In the upper right-hand corner, click Logout.
- **8.** If you are using a Type 2 driver, go to "Step III. (For Type 2 Drivers) Install and Configure an Oracle Client," on page 43. Otherwise, the database is ready for Content Server (Spark). You can now create and configure the data source.

# Step III. (For Type 2 Drivers) Install and Configure an Oracle Client

- 1. Download and install the Oracle AS client.
- 2. Run the command **\$ORA\_HOME/bin/netca**

#### Note

This command requires the environment variable ORA\_NAME to be set and a graphical display to be present in the system to execute successfully.

#### 3. Select Local Net Service Name Configuration and click Next.

$\times$	Oracle Net Configuration Assista	nnt: Welcome		- JØ
		Welcome to the Oracle Net Configuration As This tool will take you through the common configuration steps, listed below. Choose the configuration you would like to @ Listener configuration @ Naming Methods configuration @ Local Net Service Name configuration @ Directory Usage Configuration	sistant. ' do:	
(	Cancel Help	< Back Next S	D	

43

#### 4. Select Add and click Next.

🕅 Oracle Net Configuration As	sistant: Net Service Name Configuration	J
	To access an Oracle database, or other service, network you use a net service name. The Oracle M Configuration Assistant allows you to work with names resolved using local naming. Select what you want to do: @ Add	across the let net service
	○Reconfigure ○Delete ○Rename	
Cancel Help	O Test	$\square$

5. Enter a name for this service (this is the SSID of the database on the remote server) and click Next.

X Oracle Net Configuration A	ssistant: Net Service Name Configuration, Service Name 🔍 🖵 🛛 Ø
	Each Oracle database or service has a service name. An Oracle database's service name is normally its global database name. Enter the service name of the database or other service you want to access.
	Service Name:
Cancel Help	🔇 Back Next >>

6. Leave the default option of TCP selected and click Next.

$\times$	Oracle Net Configuration Ass	istant: Net Service Name Configuration, Select Protocols 🔍 🖵 🔊 Ø
		To communicate with the database across a network, a network protocol is used. Select the protocol used for the database you want to access.
	Cancel Help	S Back Next S

7. Enter the host name (the name of the computer that is hosting the database you are connecting to). If you have instructed Oracle 10g to run on a port other than the default, enter the custom port number and click **Next**.

🕅 Oracle Net Configuration As	🕻 Oracle Net Configuration Assistant: Net Service Name Configuration, TCP/IP Protocol 💭 🖃 🗖			
	To communicate with the database using the TCP/IP protocol, the database computer's host name is required. Enter the host name for the computer where the database is located.			
	Host name: A TCP/IP port number is also required. In most cases the © Use the standard port number of 1521 O Use another port number: 1521			
Cancel Help	🔇 Back Next >>			

1990	
	You can verify that an Oracle database can be reached, using the information provided, by performing a connection test. Would you like to test that a connection can be made to the database?
	○No, do not test @Yes, perform a test

**9.** The first test will fail. When it does, click on the **Change Login** button, enter the username and password created when the database was constructed, and click **OK**. You will then see the dialog box shown below. Click **Next** to proceed.

🕅 Oracle Net Configuration As	sistant: Net Service Name Configuration, Connecting 🛛 🗐 🗐
	Wait while the Oracle Net Configuration Assistant tries to connect to the database using the information you provided Details: ConnectingTest successful.
Cancel Help	Change Login

**10.** Enter a local service name (we suggest the name of the database you will be connecting to) and click **Next**.



11. Leave the default choice of No selected and click Next.

X Oracle Net Configuration Assi	stant: Net Service Name Configuration, Another Net Servic 🖃 🦉
	Would you like to configure another net service name? ® No
	C Yes
Cancel Help	🔇 Back Next 📎

- Image: Cancel Net Configuration Assistant: Net Service Name Configuration Done

   Image: Cancel Help

   Image: Cancel Net Service Name Configuration Complete!
- **12.** Click **Next** to exit the wizard.

**13.** Database configuration is complete. You are now ready to create and configure the data source. For instructions, refer to your Content Server (Spark) installation guide.

### Chapter 3

# **Creating and Configuring an MS SQL Server** Database

Use this chapter to set up a SQL Server database for your Content Server (Spark) installation. For background information regarding database configuration and users' permissions, see Part 1, "Creating and Configuring a Database."

#### To create and configure an MS SQL Server database

#### Note

This section applies to MS SQL Server 2000 SP3 and SP4.

- **1.** Create the database login:
  - a. Open "Enterprise Manager."
  - b. In the left-hand tree, select Microsoft SQL Servers > SQL Server Group > (Local) > Security.
  - c. Right-click on Logins and select New Login...
    - 1) Create a user (such as csuser), and select the proper authentication method.
    - 2) Save this user.
- **2.** Create the database:
  - a. In the left-hand tree, select Microsoft SQL Servers > SQL Server Group > (Local) > databases.
  - b. Right-click on databases and select New Database...
    - 1) Enter a name (such as CSDB), then modify the other fields as needed for your installation.
    - 2) Finish creating this database.
- 3. Assign account privileges:
  - **a.** Select the newly created database in the left-hand tree and click **Open**.
  - b. Right-click on Users and select Add new Database User...
  - **c.** In the drop-down list, choose the user created in step c of this procedure. In the **Permit role membership** list, check the box next to **db\_owner**.
  - **d.** Save the new user.
- **4.** Database configuration is complete. You are now ready to create and configure the data source. For instructions, refer to your Content Server (Spark) installation guide.

### Chapter 4

# Creating and Configuring an IBM DB2 Database

Use this chapter to set up an IBM DB2 database for your Content Server (Spark) installation. For background information regarding database configuration and users' permissions, see Part 1, "Creating and Configuring a Database."

#### To create and configure a DB2 database for Content Server (Spark)

#### Note

This section applies to DB2 version 8.x.

- **1.** Open DB Control Center (**db2cc**).
- **2.** Browse to the instance under which you want to create the new database.

If you do not have an existing instance in the left-hand tree, do the following:

- a. Right-click Instances and click Add...
- **b.** Fill in the form provided (or click **Discover**) then click **OK**.
- 3. Right-click Branch Databases > Create > Database Using Wizard...
- 4. In the "Create Database Wizard," fill in the following screens as indicated:
  - a. "Database name" Enter a unique database name (such as CSDB2), then click Next.
  - **b.** "Specify how and where to store the user tables." Leave the default option **Low maintenance** selected and click **Next**.
  - **c.** "Specify how and where to store the system catalog tables." Leave the default option **Low maintenance** selected and click **Next**.
  - **d.** "Specify how and where to store system temporary tables." Leave the default option **Low maintenance** selected and click **Next**.
  - **e.** "Tune the performance of this database." Click **Next**.
  - f. "Specify the locale for this database." Complete the following steps:
    - 1) In the Code Set drop-down list, select UTF-8.
    - 2) Under Collating Sequence, leave the default option selected.
    - 3) Click Next.
  - g. Review the actions that will take place when you click Finish, then click Finish.
- **5.** A DB2 message box appears, giving you the option to run the "Configuration Advisor." Click **No**.

A new database (with the name you provided in step 4) is now available in the left-hand tree.

- 6. In the left-hand tree, right-click **Buffer Pools** > Create.
- 7. In the "Create Buffer Pool" dialog box, do the following:
  - a. In the "Buffer Pool name" field, add a unique name (such as CSBUFFER32).
  - **b.** In the **Page size** drop-down list, select **32**.
  - c. Click OK.
- 8. In the left-hand tree, right-click **Table Spaces > Create**.

- 9. In the "Create Table Space Wizard," fill in the following screens as explained below:
  - a. "Specify a name for your table space." Enter a unique name (such as csTableSpace) in the "Table Space name" field. Then click Next.
  - **b.** "Specify the type of table space you want to create." Leave the default value and click **Next**.
  - **c.** "Specify a buffer pool for your new table space." Select the buffer pool created in step 7 of this procedure and click **Next**.
  - **d.** "Select the space management system that you want to use." Leave the default option **System-managed space (low maintenance)** selected and click **Next**.
  - e. "Define containers for this table space." Click Add, then complete the following steps:
    - 1) In the "Define Container" dialog box, enter a unique name for this container (such as CScontainer).
    - **2)** Under "Current Directory," select a location for this table space (note that you must select a physical location on a mounted disk where you want to place this table space; if you do not have an acceptable location at this point you should create one). Once you have selected a location, click **OK**.
    - 3) Click Next in the "Define Container" dialog box.
  - f. "Specify the extent and prefetch sizes for this table space." Leave the default options selected and click **Next**.
  - g. "Select hard drive specifications."
     Select the appropriate option for your physical media type from the list and click Next.
  - h. "Specify the dropped table recovery option for your new table space." Click Next.
  - i. Review the actions that will take place when you click **Finish**, then click **Finish**.
- **10.** Repeat step 9 of this procedure to create a temporary table space, making the following adjustments to the procedure:
  - **a.** When completing step 9a, indicate in the name that this is a temporary table space.
  - **b.** When completing step 9b, select **System Temporary** for the type of table space.
- 11. In the left-hand tree, select User and GroupObjects and right-click DB Users > Add.
  - a. In the "Database" tab, do the following:
    - 1) Select a user from the User drop-down list.

#### Note

The drop-down list contains all valid system users. If there are no valid system users, you must create one before continuing.

2) Under "Grant authorities for the Selected User," select all of the options. .

#### Note

This is not recommended for a delivery system. Choose the options that are appropriate for your delivery system)

- **b.** Click the **Table Space** tab and do the following:
  - 1) Click Add Tablespace. In the "Add Tablespace" dialog box, select the tablespace created in step 9 of this procedure and click OK.
  - 2) In the "Table Space" tab, the new table space is now selected, but has a Ø symbol next to it. Select Grant from the Privileges drop-down list (located near the bottom of the tab).
- **c.** Repeat step b for the temporary table space created in step 10.
- d. Optionally, repeat step b to add the default table space USERSPACE1.

#### Note

The default table space was created with the database. Therefore its location is not under your control.

#### e. Click OK.

- **12.** In the left-hand tree, right-click the database created in step 4 of this procedure and click **Configure Parameters**. In the list that opens, make the following changes:
  - **a.** Change LOCKLIST/100 to LOCKLIST/1024
  - **b.** Change LOCKTIMEOUT/None to LOCKTIMEOUT/30
  - c. Change APPLHEAPSZ/256 to APPLHEAPSZ/1024
- **13.** Database configuration is complete. You are now ready to create and configure the data source. For instructions, refer to your Content Server (Spark) installation guide.

### Chapter 5

# **Creating and Configuring SQL Anywhere**

This appendix shows you how to create and configure an SQL Anywhere database for your Spark installation.

This appendix contains the following sections:

- Step I. Prepare the Environment
- Step II. Create a Database
- Step III. Create a New User for Spark
- Step IV. Next Step

### Step I. Prepare the Environment

Before you begin, source the asa\_config. \* file based on your shell. For example:

# bash

# cd /opt/sqlanywhere/bin

```
# source asa_config.sh
```

### Step II. Create a Database

1. If SQL Anywhere is not installed, use SQL Anywhere 9.0 NON-OEM software to install it. Run setup.sh and follow the on-screen instructions.

#### Note

- Make sure you choose cpu-based license. Choose all CPUs on your machine.
- We suggest using /opt/sqlanywhere as the installation directory.
- 2. Go to the following directory: /opt/sqlanywhere/shared/sybcentral42
- 3. Run scjview.
- 4. Click Adaptive Server Anywhere in the tree and select the Utilities tab.
- 5. Run the "Create Database Wizard," selecting the following options as you proceed:
  - Leave the checkbox selected for jConnect meta-information support. You must have jConnect meta-information support.
  - Do not select the **Encrypt the database** checkbox.
  - Select the check boxes for Ignore trailing blanks, Case sensitivity, and Create SYSCOLUMNS and SYSINDEXES.
  - Accept the default page size of 2048.
  - Accept the default collation.
  - Choose to "connect to database." Choose a server name (usually this is the machine name) and give the database a name (such as sparkdb).
  - Click **Finish** to complete database creation.
- **6.** After the "Database Creation Wizard" returns, the database and its objects will be displayed in the tree on the left side.
  - **a.** Right-click on your database and select **Options**.
  - **b.** Set the "Non\_keywords" option to **PUBLICATION**. This explicitly turns off the **PUBLICATION** keyword in your database.

# Step III. Create a New User for Spark

1. Create a user (named csuser) in the current database by right-clicking Users and Groups and following the directions in the wizard. (Make sure to grant the user the required "Resource" permissions.)

#### Note

Do not give DBA permissions to this user.

- 2. Test the user you created by completing the following tasks:
  - a. Go to the following directory: /opt/sqlanywhere/bin
  - b. Run dbisql.
  - c. Connect to the database using the newly created user.
  - d. Confirm that **PUBLICATION** is turned off.
  - **e.** Do the following queries:

CREATE TABLE PUBLICATION (id varchar(2)) DROP TABLE PUBLICATION

If both the queries do not succeed, there is a problem with your installation. Begin the installation again.

- **3.** Disconnect from the database in SybCentral by completing the following steps:
  - a. Right-click on your database in the tree and choose Disconnect.
  - **b.** Exit from Sybase Central.
  - **c.** Run **ps** -ef | **grep dbeng**. If you notice dbeng running, your server is still alive. If it is not running, then issue the following command:

```
dbsrv9 /<fullpath>/<database name>.db
```

d. Run dbisql again to confirm that the server is running.

## Step IV. Next Step

Create a new JDBC connection pool and JDBC resource. For instructions, refer to your Content Server (Spark) installation guide.

58

# Part 2 Installing a Web Server

This part describes how to install a web server. It contains the following chapters:

- Chapter 7, "Installing IIS on Windows"
- Chapter 8, "Installing Apache on Solaris or Linux"

### Chapter 6

# Worksheets for Documenting the Web Server Installation

This chapter contains worksheets listing the web server parameters that you need to track.

Print this chapter. Then, as you install software, fill in the blank fields in these worksheets with the values of the specified parameters. You will save considerable time by doing this. Additionally, if something fails during the installation, the information in these worksheets will be valuable while you are troubleshooting. Use a separate set of worksheets for each installation so that each installation is fully documented.

The worksheets are constructed as tables that are divided into the following categories:

- Key to Sample Values
- Web Server Parameters

# Key to Sample Values

The installation worksheets list parameters along with their sample values. Each sample value is classified as one of the following:

- **Default**: the value is automatically created at the time of the installation.
- **Normal**: the value represents the normal configuration for a simple installation. Do not use a different value unless your system requires it.
- **Option**: the value must be chosen from a preset list of options.
- Suggested: the value is recommended for the parameter.

#### Note

A **Suggested** account name has an Example password value. We strongly recommend that you select a password for this account that is appropriate for the security of your system.

• **Example**: the value is only an example that must be replaced by the value that is appropriate for your installation. The example value is not likely to be valid in your environment.

# **Web Server Parameters**

Parameter	Shown As	Comments	Your Value
Web Version	WebVersion	Example: Apache 1.3.37	
Web Host Name	WebHost	Example: jeeves	
Web Host IP Address	WebIP	Example: 104.222.111.155	
Web Server Port	WebPort	Default: 80	
IIS Only: Filter Name (ISAPI plug- in name)	FilterName	Suggested: iisforwardfilter	
Apache Only: Apache Root Directory	ApacheRoot	Example: /usr/apache	

#### Table 1: IIS Web Server Parameters

Parameter	Shown As	Comments	Your Value
Web Version	WebVersion	Example:	
		Apache 1.3.37	
Web Host Name	WebHost	Example:	
		jeeves	
Web Host IP Address	WebIP	Example:	
		104.222.111.155	
Web Server Port	WebPort	Default:	
		80	
IIS Only:	FilterName	Suggested:	
Filter Name (ISAPI plug- in name)		iisforwardfilter	
Apache Only:	ApacheRoot	Example:	
Apache Root Directory		/usr/apache	

#### Table 2: Apache Web Server Parameters

Web Server Parameters

# Chapter 7 Installing IIS on Windows

This chapter explains how to install and test Microsoft's Internet Information Services (IIS). It contains the following sections:

- Step I. Install IIS
- Step II. Document Your IIS Installation
- Step III. Verify the Installation
- Next Step

#### Note

Typically, IIS is either partially or fully installed on most Windows 2000 machines.

- If IIS is only partially installed or not installed, start with the first section, "Step I. Install IIS," on page 66.
- If IIS is fully installed, start with the section "Step II. Document Your IIS Installation," on page 66.

# Step I. Install IIS

If IIS is not installed or is only partially installed, follow Microsoft's instruction for installing IIS on a Windows 2000 system.

As a convenience, here is a quick synopsis of the instructions:

- 1. Select Start > Settings > Control Panel.
- 2. Select Add/Remove Programs.
- 3. Select the Add/Remove Windows Components tab on the left.

The Add/Remove Windows Components Wizard appears.

**4.** Select **Internet Information Services (IIS)** and then follow the instructions for installing it.

# **Step II. Document Your IIS Installation**

We strongly recommend that you document the details of your IIS installation in Table 1, "IIS Parameters."

Parameter	What It Holds	Your Value
Web Version (WebVersion)	The version number of the IIS software that you installed.	
Web Host Name (WebHost)	The name by which the installation machine is known on the network.	
Web Host IP Address (WebIP)	The numeric Internet Protocol address assigned to the web server host machine.	
Web Server Port (WebPort)	The port number assigned for web server communications. By default, it has the value 80.	

#### Table 1: IIS Parameters

# Step III. Verify the Installation

After you have installed IIS, you start it and then browse to it in a web browser to determine whether it is serving pages as it should.

### A. Start IIS

You can start the various IIS services in various ways. To be sure that all the necessary services are running, start IIS from the **Services** node.

#### To start IIS services

1. Right-click on the My Computer icon.

- 2. Select Manage from the right-mouse menu.
- **3.** In the **Computer Management** dialog box, expand the **Services and Applications** node in the tree.
- 4. Select Services.
- 5. In the list of services on the right, right click IIS Admin Service.
- 6. Select Start from the right mouse menu.

#### To start or stop the default web site only

- 1. Right-click on the MyComputer icon.
- 2. Select Manage from the right mouse menu.
- **3.** In the **Computer Management** window, expand the **Services and Applications**. node in the tree.
- 4. Expand the Internet Information Services node.
- 5. Right-click on Default Web Site.
- 6. Select Start or Stop, as appropriate, from the right mouse menu.

### B. Verify that IIS is Serving Pages

To verify that IIS can serve pages, test it from both the server that is hosting it and from another browser on the network.

#### To verify that IIS can serve pages

- 1. Start a browser on the host on which IIS is running.
- **2.** From the browser, go to the following URL:

http://WebHost:WebPort

- **3.** Do one of the following:
  - If the browser displays the IIS home page, then IIS is installed and running properly. Continue to step 4.
  - If the browser returns an error, consult Microsoft's documentation, determine what went wrong, and fix it before you continue.
- **4.** Start a browser on another machine on your network (a host other than the machine hosting IIS).
- 5. From the browser, go to the following URL:

http://WebHost:WebPort

If the browser displays the IIS "Under Construction" page, then IIS is installed and running and the network naming service appears to be working properly.

# **Next Step**

Configure the web server to run with WebLogic and Content Server (Spark). For instructions, refer to the installation guide for your configuration.

# Chapter 8

# **Installing Apache on Solaris or Linux**

This chapter describes how to install and configure Apache HTTP Server. As previously mentioned, you can install Apache on the same machine that will host WebLogic and Content Server (Spark) or you can install and use it on a separate host.

This chapter contains the following sections:

- Step I. Install Apache
- Step II. Document Your Apache Parameters
- Step III. Verify that Apache Contains the Correct Module
- Step IV. Verify that Apache Runs Properly
- Next Step

# Step I. Install Apache

- 1. Apache HTTP Server can be pre-installed on Solaris 8, Solaris 9, Linux RedHat, and Linux SuSE systems. Determine whether Apache is installed on the environment(s) on which you plan to run it.
- **2.** Do one of the following:
  - If Apache is already installed, continue with "Step II. Document Your Apache Parameters," on page 70.
  - If Apache is not already installed, you can do one of the following:
- Install it from your source medium.
- Download it from the Internet.
- Build it from source; that is, select the modules and compile the Apache executable yourself. If you want to build it from source, refer to the information that the Apache Foundation makes available at

http://www.apache.org/ and follow their instructions.

# **Step II. Document Your Apache Parameters**

We strongly recommend that you document the details of your Apache installation in Table 2, "Apache Parameters."

Parameter	What it Holds	Your Value
Web Server Version (WebVersion)	The version of Apache that the host is running. Note that you must use a version that Content Server (Spark) supports	
Web Host Name (WebHost)	The name by which the Apache host machine is known on the network.	
Web Host IP Address (WebIP)	The numeric Internet Protocol address assigned to the Apache host machine.	
Web Server Port (WebPort)	The port number assigned for Apache communications. By default, it has the value 80.	
Apache Root Directory (ApacheRoot)	The top-level directory in which Apache is installed. Immediate subdirectories of <i>ApacheRoot</i> include bin and conf.	

#### Table 2: Apache Parameters

# Step III. Verify that Apache Contains the Correct Module

#### Note

This section applies only to Apache version 1.3x.

Apache is modular software, built from a set of modules. WebLogic Server requires that the mod\_so.c module be present on the machine that is hosting the Apache web server. Please verify that your Apache server contains this module by using the command httpd with the -l option and search for mod\_so in the output.

For example:

```
$ ApacheRoot/bin/httpd -1 | grep `mod_so'
mod_so.c
```

Examine the output and do one of the following:

- If the output from the preceding command contains mod\_so.c, then your version of Apache contains the correct module. Proceed to "Step IV. Verify that Apache Runs Properly," on page 71.
- If the output from the preceding command does not contain mod\_so.c, you must rebuild and reinstall Apache. For guidelines, see "Step I. Install Apache," on page 70.

# Step IV. Verify that Apache Runs Properly

In this step, you will start Apache and verify that it is running properly. For verification instructions, see the Apache web site (given in "Step I. Install Apache," on page 70).

## **Next Step**

Configure Apache to run with WebLogic and Content Server (Spark). For instructions, refer to the installation guide for your configuration.

71
# Part 3 LDAP Integration

This part describes how to configure an LDAP server for your Content Server web application. It contains the following chapter:

• Chapter 9, "Integrating Content Server with LDAP"

#### Note

Spark uses a bundled LDAP server. Spark must be automatically integrated with the LDAP server during the Spark installation process. The Spark installer performs the integration as explained in "Automatic Integration with LDAP," on page 76.

# Chapter 9

# **Integrating Content Server with LDAP**

Content Server administrators who need to manage users and their ACLs outside the Content Server database can use an LDAP server to store user names and attributes. Additionally, the LDAP server can be used to manage roles and sites.

Content Server supports the following integration options:

- External LDAP servers, which must be integrated manually after Content Server is installed.
- Bundled LDAP servers, which are packaged with their application servers. Bundled LDAP servers can be integrated either automatically by the CS installer or manually following the CS installation process, depending on whether the installation is a portal or a web application.

This appendix shows you how to integrate LDAP servers with Content Server.

#### Note

CS-LDAP integration is made possible by the Directory Services API, which also supports the following features:

- The plug-in that functions as Content Server's native user manager. The plugin authenticates users by means of the native Content Server user management tables: SystemUsers and SystemUserAttrs
- External user managers, which must be customized in order to authenticate users.

This appendix contains the following sections:

- LDAP Integration Overview
- Automatic Integration with LDAP
- Manual Integration with LDAP
- Post-Integration Management of ACLs, Users, Sites, and Roles
- Reference: Example ldif Files

# **LDAP Integration Overview**

Integrating an LDAP server with a Content Server installation requires you (or the CS installer) to complete the following basic steps:

- 1. Configure Content Server to communicate with the LDAP server. This step entails configuring properties in Content Server's futuretense.ini, dir.ini, and futuretense\_xcel.ini files in order to enable CS-LDAP communication.
- 2. Configure the LDAP server to:
  - a. Recognize the user that Content Server will invoke to access the LDAP server.
  - **b.** Grant that user the correct permissions to the LDAP server.
- **3.** Populate the LDAP server with Content Server's ACLs and users, and optionally, its sites and roles (if you choose this option, you must make sure that the same sites and roles exist in the Content Server database). Additionally, the users must be enabled for the sites.

Whether you integrate manually or automatically depends on whether your Content Server configuration uses bundled or external LDAP, and whether you are installing a portal or a web application. The table below summarizes the integration scenarios.

	LDAP Integration Method	
Installation Type	Bundled LDAP	External LDAP
Portal	Automatic integration <sup>a</sup>	
Web	Automatic integration <sup>a</sup> Manual integration <sup>b</sup>	Manual integration <sup>b</sup>

#### Table 1: LDAP Integration Methods

- a. Automatic integration is performed by the CS installer during the Content Server installation process. For integration information, see "Automatic Integration with LDAP."
- b. Manual integration is performed by the installation engineer after Content Server is installed. For integration procedures, see "Manual Integration with LDAP," on page 77.

# **Automatic Integration with LDAP**

During the Content Server installation process, you have the option to automatically integrate with LDAP. If you select this option (based on Table 1), the integration steps above will be performed by the CS installer. That is:

- 1. The CS installer configures Content Server to communicate with the LDAP server as explained in step 1, above.
- **2.** If the installation is to run on WebSphere, the CS installer configures the LDAP server as explained in step 2, above. For all other platforms, the LDAP administrator must configure the server.

- **3.** The CS installer populates the LDAP server with the following information (as explained in step 3, above):
  - Content Server's default ACLs and roles.
  - Sample sites that you might have chosen to install in Content Server, and users of the sample sites. The CS installer also enables the users for the sample sites.

# Manual Integration with LDAP

#### Note

For portal installations, manual integration is not an option. If an existing installation is not LDAP-integrated, it must be re-installed with the LDAP integration option enabled. However, once integration is complete, management operations on ACLs, users, sites, roles, and property files are performed manually (instructions are given in "Post-Integration Management of ACLs, Users, Sites, and Roles," on page 88).

If your CS system is to use external LDAP, you must integrate the LDAP server *manually*, regardless of whether you are creating a new installation or modifying an existing installation to use LDAP. Below are the basic steps you will complete. The steps apply to both new and existing installations (all of which are web-based, as the current release does not support external LDAP for portals):

#### Make Sure That Pre-Requisite Systems Are Installed:

- 1. Make sure that the LDAP server is installed. For more detailed information, see "Step 1. Make Sure the LDAP Server is Installed," on page 78.
- **2.** Skip this step if you are integrating an existing system with external LDAP. Otherwise, make sure that Content Server is installed *and tested*. For more detailed information, see "Step 2. Make Sure That Content Server is Installed and Tested," on page 78.

#### Configure Content Server and the LDAP Server to Communicate:

- **3.** Configure the Content Server properties that enable Content Server to communicate with the LDAP server. For detailed instructions, see "Step 3. Configure Content Server Properties," on page 79.
- **4.** Configure the LDAP server to recognize the user that Content Server will use to access the LDAP server and to grant that user the correct permissions to the LDAP server. For detailed instructions, see "Step 4. Configure the LDAP Server," on page 83.

# Populate the LDAP Server with Content Server's ACLs, Users, Sites, and Roles:

**5.** Ensure that the LDAP server stores a mail attribute (e-mail address) for your users. For detailed instructions, see "Step 5. Check the mail Attribute," on page 83.

- 6. Use the LDAP interface to create LDAP user groups whose names exactly match the Content Server system ACLs. For installations using web services, include the corresponding ACLs. For detailed instructions, see "Step 6. Create LDAP User Groups (Content Server ACLs)," on page 83.
- Use the LDAP interface to create users and to assign users to the groups. For detailed instructions, see "Step 7. Create Required Users and Their Group Memberships," on page 84.
- **8.** (Optional) If you plan to use LDAP attribute mapping for sites and roles, create the appropriate sites and roles in LDAP. For detailed instructions, see "Step 8. (Optional) Create Sites and Roles in the LDAP Server," on page 85.

#### If You Completed Step 8:

**9.** Make sure that the sites and roles you created in step 8 also exist in the CS database. For detailed instructions, see "Step 9. If You Completed Step 8," on page 87.

#### Test the Configuration:

**10.** Test the configuration. For detailed instructions, see "Step 10. Test the LDAP Integration," on page 87.

#### **Resume Your Previous Operations:**

**11.** Once LDAP integration passes the test, you can resume your operations. If they involve managing ACLs, users, sites, and roles in the LDAP-integrated system, see "Post-Integration Management of ACLs, Users, Sites, and Roles," on page 88 for guidelines.

#### Note

The steps below are detailed versions of the steps that are given on page 77.

## Step 1. Make Sure the LDAP Server is Installed

Content Server can be integrated with LDAP servers that support the LDAP-2 protocol or any other protocol (although, in the latter case, FatWire does not support write operations from the Content Server interface to the LDAP server). The currently supported LDAP servers are listed at the following URL:

http://www.fatwire.com/Support/csxxx.html

where xxx represents the Content Server version number (for example, 630). Check that one of the listed LDAP servers is installed.

## Step 2. Make Sure That Content Server is Installed and Tested

Before you can begin integrating with LDAP, you need to make sure that Content Server has been installed and tested on a supported configuration. The currently supported configurations are listed at the URL that is given directly above, in Step 1 of this procedure.

# **Step 3. Configure Content Server Properties**

Configure the following property files in order for Content Server to communicate with the LDAP server:

- futuretense.ini
- dir.ini
- futuretense\_xcel.ini, if you will be managing sites and roles directly in the LDAP server (unlike ACLs and users, sites and roles need not be managed in the LDAP server).

# Set Property Values in futuretense.ini

- 1. Start the Property Editor and open futuretense.ini.
- **2.** Select the **Authentication** tab.
- **3.** Set the following values for the following properties:

Property (In futuretense.ini)	Value
cs.manageproperty	dir.ini
cs.manageUser	com.openmarket.directory.jndi.auth.JNDILogin

- 4. Select **File > Save** to save the values.
- 5. Select File > Close.
- **6.** Continue to the next procedure.

# Set Property Values in the dir.ini File

- 1. Open dir.ini in the Property Editor.
- **2.** Select the **Attribute Names** tab and set the following values for the following properties:

Property (in dir.ini)	Value	
cn	iPlanet: cn	
	Active Directory: cn	
loginattribute	iPlanet: uid	
	Active Directory: cn	
password	iPlanet: userPassword	
	Active Directory: password	
uniquemember	iPlanet: uniquemember	
	Active Directory: member	

Property (in dir.ini)	Value
username	iPlanet: uid
	Active Directory: sAMAccountName

3. Select the Global Data tab and set the following values for the following properties:

Property (in dir.ini)	Value
groupparent	iPlanet: ou=groups,dc= <i>companyname</i> ,dc=com
	Active Directory. cii-groups, de-companyname, de-com
peopleparent	iPlanet: cn=people,dc= <i>companyname</i> ,dc=com
	Active Directory: cn=users,dc= <i>companyname</i> ,dc=com

**4.** Select the **Interface Implementations** tab and specify the following values for the following properties:

Property (in dir.ini)	Value
className.IDir	com.openmarket.directory.jndi.JNDIDir
className.IName	com.openmarket.directory.jndi.NameWrapper
className.IUserDir	com.openmarket.directory.jndi.LDAPUserDir

**5.** Select the **JNDI SPI Env** tab and specify the following values for the following properties:

Property (in dir.ini)	Value
jndi.baseurl	ldap://servername:port
jndi.connectAsUser	If Content Server can query the LDAP server for information as the user who is logged in to the Content Server interface and is making the query, set this property to true. (The same user must be defined in the LDAP server.)
	If Content Server must query the LDAP server as a specific user other than the user who is logged in to the Content Server interface, set this property to false. Then be sure to specify a valid user name/password combination with the jndi.login and jndi.password properties.
jndi.custom	(leave this value blank)

Property (in dir.ini)	Value
jndi.login	If the jndi.connectAsUser property is set to false, specify the fully qualified, fully distinguished name of the user account that Content Server will use to query the LDAP server. (The same user must be defined in the LDAP server.)
jndi.password	If the jndi.connectAsUser property is set to false, specify the password for the user account that Content Server will use to query the LDAP server. This value is encrypted.

**6.** Select the **Schema Defaults** tab and specify the following values for the following properties:

Property (in dir.ini)	Value
defaultGroupAttrs	iPlanet:
	objectClass=top &objectClass=groupofuniquenames
	Active Directory:
	objectClass=top&objectClass=group
defaultPeopleAttrs	iPlanet:
	objectClass=person &objectclass=top &objectclass=organizationalperson &objectClass=inetOrgPerson
	Active Directory
	objectClass=person &objectclass=top &objectclass=organizationalperson &objectClass=user
objectclassGroup	iPlanet: groupofuniquenames
	Active Directory: group
objectclassPerson	person
requiredGroupAttrs	(leave this value blank)
requiredPeopleAttrs	Specify all the required user attributes for this LDAP server.
	For example: sn=Last Name&cn=Full Name

7. Select File > Save.

8. Select File > Close.

Note

If you need information on properties in the dir.ini file that are not listed in the previous tables, see the *Content Server Property Files Reference*.

# Set Property Values in the futuretense\_xcel.ini File

#### Note

Skip this procedure if you are not using sites and roles integration in your LDAP server.

- 1. Start the Property Editor and open futuretense\_xcel.ini.
- **2.** Select the **Xcelerate** tab.
- **3.** Set the value for the following property:

Property (in futuretense_xcel.ini)	Value
xcelerate.usermanagerclass	The value depends on the type of deployment you are using. See the <i>Property Files Reference</i> for detailed information about this property.
	Example value:
	com.openmarket.xcelerate.user.LDAP SchemaUserManager

- 4. Select the User Management tab.
- 5. Set values for the following properties:

Property (in futuretense_xcel.ini)	Value
xcelerate.sitesroot	See the <i>Property Files Reference</i> for detailed information about this property.
	Example value: ou=sites.dc= <domainname>.dc=com</domainname>
xcelerate.sitenameattr	See the <i>Property Files Reference</i> for detailed information about this property.
	Example value: ou
xcelerate.displayablenameattr	The name of the user attribute describing the displayable name, if different from the login name.

- 6. Select File > Save.
- 7. Select File > Close.
- 8. Configure the CS system to use the LDAP plug-in by setting the appropriate property values in the futuretense.ini, futuretense\_xcel.ini, and dir.ini property files. For detailed instructions, see "Step 3. Configure Content Server Properties," on page 79.

## Step 4. Configure the LDAP Server

- 1. Configure the LDAP server to recognize its user. To do so, enter the values of the properties jndi.connectAsUser and jndi.login into the LDAP server.
- 2. Assign the correct permissions to the LDAP user.

#### Note

Assign permissions judiciously. Once the CS system is configured to communicate with the LDAP plug-in, any CS administrator who connects to the LDAP server as a user with write permissions can still perform management operations on ACLs, users, sites, and roles in the Content Server interface. However, some of the operations will propagate to the LDAP server, while other operations might result in errors.

For more information about management operations in the CS interface and how they affect the LDAP server, see the appendix named "Managing Users, Sites, and Roles in LDAP-Integrated CS Systems" in the *Content Server Administrator's Guide*.

## Step 5. Check the mail Attribute

Each Content Server user must have a mail attribute (an attribute that stores an e-mail address). Before proceeding, check that the LDAP server's user entries have a mail attribute.

## Step 6. Create LDAP User Groups (Content Server ACLs)

Use the tools provided by your LDAP server to create groups that correspond to Content Server ACLs. The required groups are listed in this section.

#### Note

You can create an ldif file that contains the user group information from this step, and the user and group membership information from "Step 7. Create Required Users and Their Group Memberships," on page 84. You can then import the ldif file into your user directory.

The actual method of importing the ldif file varies for each directory, but the structure of the file is standardized among LDAP servers. For examples of ldif files, see "Reference: Example ldif Files," on page 90.

# Default ALCs (Required for All Installations)

The following list presents the Content Server system default ACLs. You must create groups in the LDAP server whose names exactly match the ACL names below. For information about the access privileges that these ACLs/groups grant, see the "System Defaults" appendix in the Content Server Administrator's Guide.

- Browser
- ContentEditor
- ContentReader
- ElementEditor
- ElementReader
- PageEditor
- PageReader
- RemoteClient
- SiteGod

# Web Services ACLs

If you are using web services, you must create groups for the following ACLs, making sure that the group names exactly match the ACL names:

- ٠ WSAdmin
- WSEditor
- WSUser

For information about the access privileges that these ACLs/groups grant, see the "System Defaults" appendix in the *Content Server Administrator's Guide*.

# Custom ACLs

If any custom ACLs have been created in Content Server since its installation, you must create groups in the LDAP server whose names exactly match the names of the custom ACLs.

# Step 7. Create Required Users and Their Group Memberships

Required users include Content Server's default users, sample site users for any sample sites that you will be using, and custom users who are enabled for active sites. Follow instructions in the rest of this step to create the required users and their group memberships.

# Default Users

Following is a list of the Content Server and CS-Direct default users. You must re-create the default users in the LDAP server according to the following rules:

• When re-creating default users, you may assign them your choice of names. (Note that the names in the table on page 85 are required by the CS installation process, but not the LDAP server, to populate the Content Server database.)

84

 TableReader • UserEditor

TableEditor

- UserReader
- Visitor
- VisitorAdmin
- xceleditor

- xceladmin

- Make sure that permissions of the re-created users exactly match the permissions of the users as they are defined in the Content Server database.
- Make the users members of the following groups:

User	Group Memberships
<i>ContentServer</i> (the user that is created in the database during the installation of Content Server)	Browser, ContentEditor, ElementReader, ElementEditor, PageReader, PageEditor, SiteGod, TableEditor, TableReader, UserEditor, UserReader
fwadmin	Browser, ElementEditor, PageEditor, RemoteClient, TableEditor, UserEditor, UserReader, Visitor, VisitorAdmin, xceladmin, xceleditor

To determine which group memberships to grant your additional system users (that is, the actual content providers who will be using this CS system), see the descriptions of the ACLs in the "System Defaults" appendix of the *Content Server Administrator's Guide*.

Specific details will vary, depending on the structure of your local directory.

# **Sample Site Users**

FatWire recommends that you do not install the sample sites on your CS management or delivery systems. However, if you do install any of the sample sites and intend to use them, be sure that you create the appropriate sample site users in the LDAP server.

# **Custom Users**

If you are modifying an existing installation, you must re-create in the LDAP server all active users, i.e., users who are enabled for Content Server's active sites.

# Step 8. (Optional) Create Sites and Roles in the LDAP Server

If you plan to use LDAP attribute mapping to manage your site names and role names in your LDAP server, make sure that you arrange the sites and roles in hierarchical order (for an example see Figure 1, on page 86").

#### Note

Portal installations use flat-schema LDAP for managing sites and roles. If the portal installations were to also use external LDAP, you would complete the steps in this section, but **would not** create an organizational unit for sites. Instead, you would place the sites and roles at the same level in the LDAP server. Users who are interested in knowing more about LDAP schema can refer to the appendix "Managing Users, Sites, and Roles in LDAP-Integrated CS Systems" in the *Content Server Administrator's Guide*.

Complete the following steps for hierarchical-schema LDAP:

- 1. Create an organizational unit for sites.
  - **a.** Under the site unit, create an entry for each of your site names. Note that each name must exactly match the name of the site as you will enter it in the Content Server interface, including spaces, underscores, and so on.

#### Note

If you are modifying an existing installation to use LDAP, re-create Content Server's active sites and roles in the LDAP server, making sure to name them exactly as in the Content Server interface.

**b.** For each site, create a group for each of the appropriate role names. Be sure to add the system default role named GeneralAdmin to each site.

When you assign any of the system default roles to your sites, be sure that the string exactly matches the names listed here:

- GeneralAdmin
- SiteAdmin
- WorkFlowAdmin
- 2. For each group, add the appropriate user/members.

#### Figure 1: LDAP Hierarchies



# Step 9. If You Completed Step 8

- 1. If, in the last step, you created sites and roles in the LDAP server that do not exist in the Content Server database, create the same sites and roles in Content Server, making sure they are named exactly as in the LDAP server. For instructions on creating sites and roles in the CS database, see the following sections and chapter in the *Content Server Administrator's Guide*:
  - "Creating a Role"
  - Chapter 7, "Assembling and Organizing CM Sites"
- 2. Enable the users for the sites they are to work in. For instructions, see the section "Granting Users Access to a Site (Assigning Roles to Users)" in the Content Server *Administrator's Guide*.

# Step 10. Test the LDAP Integration

To test your integrated system, open a browser and enter the following URL:

```
http://servername:port/servlet/CatalogManager?ftcmd
=login&username=ContentServer&password=password
```

where

servername is the name of the machine that is hosting the CS system

port is the port number of that server

username is user-defined (Content Server, in this example)

password is user-defined (password, in this example)

- If the browser displays a "Login Successful" message, you have integrated your LDAP plug-in correctly.
- If you do not see the "Login Successful" message, verify that you created the ContentServer user in the LDAP server, and that all of the properties were set with the correct values.

# **Step 11. Resume Your Previous Operations**

Once LDAP integration passes the test, you can resume your operations. If they involve the management of ACLs, users, sites, and roles in the LDAP-integrated system, see "Post-Integration Management of ACLs, Users, Sites, and Roles," on page 88 for guidelines.

# Post-Integration Management of ACLs, Users, Sites, and Roles

#### Note

This section applies to all LDAP-integrated systems, regardless of how they were integrated: with bundled LDAP, external LDAP, as web-based systems, or portals.

Once your Content Server system is integrated with LDAP, you are likely to be making changes to custom ACLs and their users, to sites and roles, and to the LDAP configuration. This section offers guidelines for managing these constructs directly in the LDAP server.

### ACL and User Management

Access Control Lists, or ACLs, are named lists of database operation permissions such as read, write, create, and so on. Because just about everything in Content Server and the CS content applications is represented as a row in a database table, user management on any of your CS systems starts with ACLs.

When using LDAP to manage and authenticate the users of the Content Server system, complete the following steps in the given order:

- **1.** If you are creating ACLs:
  - **a.** Create the ACLs in the LDAP server.
  - **b.** Re-create the ACLs in the Content Server database, using the Content Server interface. Make sure that the names exactly match the names in the LDAP server.
- 2. Create the user accounts with LDAP instead of the Content Server interface:
  - **a.** Create LDAP user groups whose names exactly match the Content Server system default ACLs and any other ACLs that are necessary to implement the design of your system.
  - **b.** Make sure that each user's mail attribute exists in the LDAP server.
- **3.** Using the LDAP interface, assign users to the LDAP user groups.

Content Server assumes that a user who belongs to an LDAP user group also has the Content Server ACL with the corresponding name. For example, a user who belongs to the xceladmin LDAP group has all the access rights granted by the xceladmin ACL.

#### Site and Role Management

When using LDAP to manage Content Server ACLs and users, you can use the LDAP server to manage sites and roles, as well. In the LDAP interface, you create the sites and roles, and assign the roles to users. Ensure that the same sites and roles exist *in the Content Server database*, and they are named exactly as their LDAP counterparts.

Also, take into account the type of installation you are managing:

- If you are managing the sites and roles of an LDAP-integrated installation that is webbased, you must use hierarchical-schema LDAP. Follow instructions in:
  - "Step 8. (Optional) Create Sites and Roles in the LDAP Server," on page 85 and

- "Step 9. If You Completed Step 8," on page 87
- If you are managing the sites and/or roles of an LDAP-integrated installation that is portal-based, you must use flat schema LDAP. Follow instructions in:
  - "Step 8. (Optional) Create Sites and Roles in the LDAP Server," on page 85, but with the following change: Do not create an organizational unit for sites. Place the sites and roles at the same level in the LDAP server.
  - "Step 9. If You Completed Step 8," on page 87

#### Note

In LDAP-integrated systems, you have the option to manage sites and roles exclusively in the Content Server database, using the Content Server interface. This option bypasses the LDAP server for site and role management operations, as long as the following properties, in futuretense\_xcel.ini, are set as shown below:

```
xcelerate.usermanagerclass=com.openmarket.xcelerate.user.
usermanager
```

xcelerate.rolemanagerclass=com.openmarket.xcelerate.roles. rolemanager

For more information about site and role management operations in the Content Server interface, see the appendix "Managing Users, Sites, and Roles in LDAP-Integrated CS Systems" in the *Content Server Administrator's Guide* 

If you intend to use the Content Server interface to manage sites and roles, see the following sections and chapters in the *Content Server Administrator's Guide*:

- "Creating a Role"
- Chapter 7, "Assembling and Organizing CM Sites"
- "Granting Users Access to a Site (Assigning Roles to Users)"

## LDAP Configuration Management

If you need to modify CS-LDAP communications (portal or web-based), change the values of the Content Server properties that specify LDAP configuration. Follow instructions in:

- "Step 3. Configure Content Server Properties," on page 79 and
- "Step 4. Configure the LDAP Server," on page 83.

# **Reference: Example Idif Files**

Following are example iPlanet Directory Server ldif files that reflect the users and groups for the sample sites. Note that Active Directory ldif files will vary from these sample files.

The first file (ldif Example 1 (iPlanet Directory Server): Users) creates both the system default users as well as the example users from the sample sites. The second file (ldif Example 2 (iPlanet Directory Server): Groups) creates groups that match the system default ACLs and assigns them to the appropriate users.

#### Idif Example 1 (iPlanet Directory Server): Users

```
1
   version: 1
2
3 # entry-id: 1
4 dn: ou=people,dc=FatWire,dc=com
5 ou: People
6 objectClass: top
7 objectClass: organizationalunit
  creatorsName: cn=directory manager
8
9 modifiersName: cn=directory manager
10 createTimestamp: 20021001153255Z
11 modifyTimestamp: 20021001153255Z
12 nsUniqueId: f2b52281-1dd111b2-80ce8bff-8cf3a98d
13
14 # entry-id: 3
15 dn: uid=DefaultReader,ou=people,dc=FatWire,dc=com
16 givenName: Default
17 sn: Reader
18 objectClass: top
19 objectClass: person
20 objectClass: organizationalPerson
21 objectClass: inetorgperson
22 uid: DefaultReader
23 cn: Default Reader
24 userPassword: {SSHA}UhFRHlAVSIA+RafcjtK/
   Yihz1jq40rIXexNqaQ==
25 mail: reader@FatWire.com
26 creatorsName: cn=directory manager
27 modifiersName: cn=directory manager
28 createTimestamp: 20021001153259Z
29 modifyTimestamp: 20021001153259Z
30 nsUniqueId: f2b52283-1dd111b2-80ce8bff-8cf3a98d
31
32 # entry-id: 4
33 dn: uid=admin,ou=people,dc=FatWire,dc=com
34 givenName: xcel
35 sn: admin
36 objectClass: top
37 objectClass: person
38 objectClass: organizationalPerson
39 objectClass: inetorgperson
```

```
40 uid: admin
41 cn: admin
42 userPassword: {SSHA}JbN/
   zyGZORP4Wgl+pMvEjOu40bbpVPwMJ2wjUw==
43 mail: admin@FatWire.com
44 creatorsName: cn=directory manager
45 modifiersName: cn=directory manager
46 createTimestamp: 20021001153259Z
47 modifyTimestamp: 20021001153259Z
48 nsUniqueId: f2b52284-1dd111b2-80ce8bff-8cf3a98d
49
50 # entry-id: 5
51 dn: uid=editor,ou=people,dc=FatWire,dc=com
52 givenName: e
53 sn: ditor
54 objectClass: top
55 objectClass: person
56 objectClass: organizationalPerson
57 objectClass: inetorgperson
58 uid: editor
59 cn: e ditor
60 userPassword:
   {SSHA}+nnnA5eMwzOHZXv2wssi7UV11adaJ+gtzXbkGA==
61 mail: editor@FatWire.com
62 creatorsName: cn=directory manager
63 modifiersName: cn=directory manager
64 createTimestamp: 20021001153259Z
65 modifyTimestamp: 20021001153259Z
66 nsUniqueId: f2b52285-1dd111b2-80ce8bff-8cf3a98d
67
68 # entry-id: 6
69 dn: uid=user_author,ou=people,dc=FatWire,dc=com
70 givenName: user
71 sn: author
72 objectClass: top
73 objectClass: person
74 objectClass: organizationalPerson
75 objectClass: inetorgperson
76 uid: user_author
77 cn: user author
78 userPassword: {SSHA}ZUHls9BJq/
   RZGwP7XqQb3t70meoRZboqcjAzZw==
79 mail: author@FatWire.com
80 creatorsName: cn=directory manager
81 modifiersName: cn=directory manager
82 createTimestamp: 20021001153259Z
83 modifyTimestamp: 20021001153259Z
84 nsUniqueId: f2b52286-1dd111b2-80ce8bff-8cf3a98d
85
86 # entry-id: 7
87 dn: uid=user_editor,ou=people,dc=FatWire,dc=com
88 givenName: user
```

```
89 sn: editor
90 objectClass: top
91 objectClass: person
92 objectClass: organizationalPerson
93 objectClass: inetorgperson
94 uid: user_editor
95 cn: user editor
96 userPassword:
   {SSHA}mAGUJkOI0dzHLTzty6KIUe8ZhAzLEygin3ZVCg==
97 mail: user_editor@FatWire.com
98 creatorsName: cn=directory manager
99 modifiersName: cn=directory manager
100 createTimestamp: 20021001153259Z
101 modifyTimestamp: 20021001153259Z
102nsUniqueId: f2b52287-1dd111b2-80ce8bff-8cf3a98d
103
104 # entry-id: 8
105 dn: uid=user_approver,ou=people,dc=FatWire,dc=com
106 givenName: user
107 sn: approver
108 objectClass: top
109 objectClass: person
110 objectClass: organizationalPerson
111 objectClass: inetorgperson
112 uid: user_approver
113 cn: user approver
114 userPassword:
   {SSHA}y9yvUTef78VQ3mHXoWvyuCsZDr8BXKN3uG18Cw==
115 mail: approver@FatWire.com
116 creatorsName: cn=directory manager
117 modifiersName: cn=directory manager
118 createTimestamp: 20021001153259Z
119 modifyTimestamp: 20021001153259Z
120nsUniqueId: f2b52288-1dd111b2-80ce8bff-8cf3a98d
121
122 # entry-id: 9
123 dn: uid=user_checker,ou=people,dc=FatWire,dc=com
124 givenName: user
125 sn: checker
126 objectClass: top
127 objectClass: person
128 objectClass: organizationalPerson
129 objectClass: inetorgperson
130 uid: user checker
131 cn: user checker
132 userPassword: {SSHA}G1KCrgHMdXDfpr/
   fRwJf2FcUU+SdXGNCHnGvdA==
133 mail: checker@FatWire.com
134 creatorsName: cn=directory manager
135 modifiersName: cn=directory manager
136 createTimestamp: 20021001153300Z
137 modifyTimestamp: 20021001153300Z
```

```
138 nsUniqueId: f2b52289-1dd111b2-80ce8bff-8cf3a98d
139
140 # entry-id: 10
141dn: uid=user_publisher,ou=people,dc=FatWire,dc=com
142 givenName: user
143 sn: publisher
144 objectClass: top
145 objectClass: person
146 objectClass: organizationalPerson
147 objectClass: inetorgperson
148 uid: user_publisher
149 cn: user publisher
150 userPassword: {SSHA}npSN8favjxM7aKYNYF+L2yNB1QWcAxR/
   EiJJcq==
151 mail: publisher@FatWire.com
152 creatorsName: cn=directory manager
153 modifiersName: cn=directory manager
154 createTimestamp: 20021001153300Z
155 modifyTimestamp: 20021001153300Z
156nsUniqueId: f2b5228a-1dd111b2-80ce8bff-8cf3a98d
157
158 # entry-id: 11
159 dn: uid=user_pricer,ou=people,dc=FatWire,dc=com
160 givenName: user
161sn: pricer
162 objectClass: top
163 objectClass: person
164 objectClass: organizationalPerson
165 objectClass: inetorgperson
166 uid: user_pricer
167 cn: user pricer
168userPassword: {SSHA}Xz65ezg/
   Kug2tk7897tPS+u35r4zTlAUuwK9UA==
169 mail: pricer@FatWire.com
170 creatorsName: cn=directory manager
171 modifiersName: cn=directory manager
172 createTimestamp: 20021001153300Z
173 modifyTimestamp: 20021001153300Z
174nsUniqueId: f2b5228b-1dd111b2-80ce8bff-8cf3a98d
175
176 # entry-id: 12
177 dn: uid=user_marketer,ou=people,dc=FatWire,dc=com
178 givenName: user
179sn: marketer
180 objectClass: top
181 objectClass: person
182 objectClass: organizationalPerson
183 objectClass: inetorgperson
184 uid: user marketer
185 cn: user marketer
186 userPassword:
   {SSHA}vZFpfmvnvCLKbFW118Pljp8fHVVRG8IwXzpsAg==
```

```
187 mail: marketer@FatWire.com
188 creatorsName: cn=directory manager
189 modifiersName: cn=directory manager
190 createTimestamp: 20021001153300Z
191 modifyTimestamp: 20021001153300Z
192nsUniqueId: f2b5228c-1dd111b2-80ce8bff-8cf3a98d
193
194# entry-id: 13
195 dn: uid=user_analyst,ou=people,dc=FatWire,dc=com
196 givenName: user
197 sn: analyst
198 objectClass: top
199 objectClass: person
200 objectClass: organizationalPerson
201 objectClass: inetorgperson
202 uid: user analyst
203 cn: user analyst
204 userPassword:
   {SSHA}b508MLDI9plb9xHLPvzTDZFUD0pmLYQaIEahZA==
205 mail: analyst@FatWire.com
206 creatorsName: cn=directory manager
207 modifiersName: cn=directory manager
208 createTimestamp: 20021001153300Z
209 modifyTimestamp: 20021001153300Z
210 nsUniqueId: f2b5228d-1dd111b2-80ce8bff-8cf3a98d
211
212 # entry-id: 14
213 dn: uid=user_expert,ou=people,dc=FatWire,dc=com
214 givenName: user
215 sn: expert
216 objectClass: top
217 objectClass: person
218 objectClass: organizationalPerson
219 objectClass: inetorgperson
220 uid: user_expert
221 cn: user expert
222userPassword: {SSHA}IIEk2beA/
   EezlQNdaCTrTVPMCuSBIoENhGfIOg==
223 mail: expert@FatWire.com
224 creatorsName: cn=directory manager
225 modifiersName: cn=directory manager
226 createTimestamp: 20021001153300Z
227 modifyTimestamp: 20021001153300Z
228 nsUniqueId: f2b5228e-1dd111b2-80ce8bff-8cf3a98d
229
230 # entry-id: 15
231dn: uid=mirroruser,ou=people,dc=FatWire,dc=com
232 givenName: mirror
233 sn: user
234 objectClass: top
235 objectClass: person
236 objectClass: organizationalPerson
```

```
237 objectClass: inetorgperson
238 uid: mirroruser
239 cn: mirror user
240 userPassword:
   {SSHA}18zvk1VCkQt9N04x0AhsyZvMPCxFcr8nz2iYUQ==
241 creatorsName: cn=directory manager
242 modifiersName: cn=directory manager
243 createTimestamp: 20021001153300Z
244 modifyTimestamp: 20021001153300Z
245 nsUniqueId: f2b5228f-1dd111b2-80ce8bff-8cf3a98d
246
247 # entry-id: 16
248 dn: uid=user_designer,ou=people,dc=FatWire,dc=com
249 givenName: user
250 sn: designer
251 objectClass: top
252 objectClass: person
253 objectClass: organizationalPerson
254 objectClass: inetorgperson
255 uid: user_designer
256 cn: user designer
257 userPassword: {SSHA}6H8yq7zbjMB7LTNQTptqWV+xz/
   OtT3BOHkv+KA==
258 mail: designer@FatWire.com
259 creatorsName: cn=directory manager
260 modifiersName: cn=directory manager
261 createTimestamp: 20021001153300Z
262 modifyTimestamp: 20021001153300Z
263nsUniqueId: f2b52290-1dd111b2-80ce8bff-8cf3a98d
264
265 # entry-id: 17
266 dn: uid=Coco,ou=people,dc=FatWire,dc=com
267 givenName: C
268 sn: oco
269 objectClass: top
270 objectClass: person
271 objectClass: organizationalPerson
272 objectClass: inetorgperson
273 uid: Coco
274 cn: C oco
275 userPassword: {SSHA}xVRZ4xtUu0bG0GqtfyhubIUsJ21VF/
   4fsyUTBg==
276 mail: Coco@FatWire.com
277 creatorsName: cn=directory manager
278 modifiersName: cn=directory manager
279 createTimestamp: 20021001153300Z
280 modifyTimestamp: 20021001153300Z
281nsUniqueId: f2b52291-1dd111b2-80ce8bff-8cf3a98d
282
283 # entry-id: 18
284 dn: uid=Flo,ou=people,dc=FatWire,dc=com
285 givenName: F
```

```
286 sn: lo
287 objectClass: top
288 objectClass: person
289 objectClass: organizationalPerson
290 objectClass: inetorgperson
291 uid: Flo
292 cn: F lo
293 userPassword: {SSHA}E0j8hDF7ZxNkoHSsiNnR5M45BY/
   cXe4IT0j2Iw==
294 mail: Flo@FatWire.com
295 creatorsName: cn=directory manager
296 modifiersName: cn=directory manager
297 createTimestamp: 20021001153300Z
298 modifyTimestamp: 20021001153300Z
299nsUniqueId: f2b52292-1dd111b2-80ce8bff-8cf3a98d
300
301 # entry-id: 19
302 dn: uid=Moe,ou=people,dc=FatWire,dc=com
303 givenName: M
304 sn: oe
305 objectClass: top
306 objectClass: person
307 objectClass: organizationalPerson
308 objectClass: inetorgperson
309 uid: Moe
310 cn: M oe
311 userPassword: {SSHA}Q08M/HspZdMaKTQgrxRQvjtSD4/
   6BtMGHjMQSA==
312 mail: Moe@FatWire.com
313 creatorsName: cn=directory manager
314 modifiersName: cn=directory manager
315 createTimestamp: 20021001153300Z
316 modifyTimestamp: 20021001153300Z
317 nsUniqueId: f2b52293-1dd111b2-80ce8bff-8cf3a98d
318
319 # entry-id: 20
320 dn: uid=Bobo,ou=people,dc=FatWire,dc=com
321 givenName: B
322 sn: obo
323 objectClass: top
324 objectClass: person
325 objectClass: organizationalPerson
326 objectClass: inetorgperson
327 uid: Bobo
328 cn: B obo
329 userPassword: {SSHA}9ipG+/
   34B08KZwf4SY2f+z2LBs7nTKhkEgX4KQ==
330 mail: Bobo@FatWire.com
331 creatorsName: cn=directory manager
332 modifiersName: cn=directory manager
333 createTimestamp: 20021001153300Z
334 modifyTimestamp: 20021001153300Z
```

```
335nsUniqueId: f2b52294-1dd111b2-80ce8bff-8cf3a98d
336
337 # entry-id: 21
338 dn: uid=Joe,ou=people,dc=FatWire,dc=com
339 givenName: J
340 sn: oe
341 objectClass: top
342 objectClass: person
343 objectClass: organizationalPerson
344 objectClass: inetorgperson
345 uid: Joe
346 cn: J oe
347 userPassword:
   {SSHA}pLJf3weGdcaQFE42XFbSzFMnvO3EfElQTnHyQq==
348 mail: Joe@FatWire.com
349 creatorsName: cn=directory manager
350 modifiersName: cn=directory manager
351 createTimestamp: 20021001153300Z
352 modifyTimestamp: 20021001153300Z
353 nsUniqueId: f2b52295-1dd111b2-80ce8bff-8cf3a98d
354
355 # entry-id: 23
356 dn: uid=ContentServer,ou=people,dc=FatWire,dc=com
357 uid: ContentServer
358 givenName: Content
359 objectClass: top
360 objectClass: person
361 objectClass: organizationalPerson
362 objectClass: inetorgperson
363 sn: Server
364 cn: Content Server
365 userPassword:
   {SSHA}oolfSpFkq+enbnf0n8DkGoutwdaSaCwdx1C9JQ==
366 creatorsName: cn=directory manager
367 modifiersName: cn=directory manager
368 createTimestamp: 20021001153511Z
369 modifyTimestamp: 20021001153511Z
370 nsUniqueId: 5dfef481-1dd211b2-80ce8bff-8cf3a98d
```

#### Idif Example 2 (iPlanet Directory Server): Groups

```
1 version: 1
2
3 # entry-id: 2
4 dn: ou=groups,dc=FatWire,dc=com
5 ou: Groups
6 objectClass: top
7 objectClass: organizationalunit
8 creatorsName: cn=directory manager
9 modifiersName: cn=directory manager
10 createTimestamp: 20021001153330Z
11 modifyTimestamp: 20021001153330Z
12 nsUniqueId: 16786897-1dd211b2-80ce8bff-8cf3a98d
```

```
13
14 # entry-id: 3
15 dn: cn=Browser,ou=groups,dc=FatWire,dc=com
16 objectClass: top
17 objectClass: groupofuniquenames
18 uniqueMember: uid=DefaultReader,ou=people,dc=FatWire,dc=com
19 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
20 uniqueMember: uid=user_analyst,ou=people,dc=FatWire,dc=com
21 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
22 uniqueMember: uid=user_approver,ou=people,dc=FatWire,dc=com
23 uniqueMember: uid=user_checker,ou=people,dc=FatWire,dc=com
24 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
25 uniqueMember: uid=user_expert,ou=people,dc=FatWire,dc=com
26 uniqueMember: uid=user marketer,ou=people,dc=FatWire,dc=com
27 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
28 uniqueMember:
   uid=user_publisher,ou=people,dc=FatWire,dc=com
29 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
30 uniqueMember: uid=editor,ou=people,dc=FatWire,dc=com
31 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
32 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
33 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
34 uniqueMember: uid=Flo,ou=people,dc=FatWire,dc=com
35 uniqueMember: uid=Joe,ou=people,dc=FatWire,dc=com
36 uniqueMember: uid=Moe,ou=people,dc=FatWire,dc=com
37 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
38 cn: Browser
39 creatorsName: cn=directory manager
40 modifiersName: cn=directory manager
41 createTimestamp: 20021001153330Z
42 modifyTimestamp: 20021001153712Z
43 nsUniqueId: 16786898-1dd211b2-80ce8bff-8cf3a98d
44
45 # entry-id: 4
46 dn: cn=SiteGod,ou=groups,dc=FatWire,dc=com
47 objectClass: top
48 objectClass: groupofuniquenames
49 cn: SiteGod
50 creatorsName: cn=directory manager
51 modifiersName: cn=directory manager
52 createTimestamp: 20021001153331Z
53 modifyTimestamp: 20021001153734Z
54 nsUniqueId: 16786899-1dd211b2-80ce8bff-8cf3a98d
55 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
56
57 # entry-id: 5
58 dn: cn=ContentEditor,ou=groups,dc=FatWire,dc=com
59 objectClass: top
60 objectClass: groupofuniquenames
61 cn: ContentEditor
62 creatorsName: cn=directory manager
63 modifiersName: cn=directory manager
```

```
64 createTimestamp: 20021001153331Z
65 modifyTimestamp: 20021001153851Z
66 nsUniqueId: 1678689a-1dd211b2-80ce8bff-8cf3a98d
67 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
68
69 # entry-id: 6
70 dn: cn=ElementReader,ou=groups,dc=FatWire,dc=com
71 objectClass: top
72 objectClass: groupofuniquenames
73 uniqueMember: uid=user_approver,ou=people,dc=FatWire,dc=com
74 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
75 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
76 uniqueMember: uid=user_marketer,ou=people,dc=FatWire,dc=com
77 uniqueMember: uid=user analyst,ou=people,dc=FatWire,dc=com
78 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
79 uniqueMember: uid=user_expert,ou=people,dc=FatWire,dc=com
80 uniqueMember: uid=user_checker,ou=people,dc=FatWire,dc=com
81 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
82 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
83 uniqueMember: uid=Flo,ou=people,dc=FatWire,dc=com
84 uniqueMember: uid=Joe,ou=people,dc=FatWire,dc=com
85 uniqueMember: uid=Moe,ou=people,dc=FatWire,dc=com
86 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
87 cn: ElementReader
88 creatorsName: cn=directory manager
89 modifiersName: cn=directory manager
90 createTimestamp: 20021001153331Z
91 modifyTimestamp: 20021001153909Z
92 nsUniqueId: 1678689b-1dd211b2-80ce8bff-8cf3a98d
93
94 # entry-id: 7
95 dn: cn=ElementEditor,ou=groups,dc=FatWire,dc=com
96 objectClass: top
97 objectClass: groupofuniquenames
98 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
99 uniqueMember: uid=editor,ou=people,dc=FatWire,dc=com
100 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
101 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
102uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
103 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
104 cn: ElementEditor
105 creatorsName: cn=directory manager
106 modifiersName: cn=directory manager
107 createTimestamp: 20021001153331Z
108 modifyTimestamp: 20021001153925Z
109nsUniqueId: 1678689c-1dd211b2-80ce8bff-8cf3a98d
110
111 # entry-id: 8
112 dn: cn=PageReader,ou=groups,dc=FatWire,dc=com
113 objectClass: top
114 objectClass: groupofuniquenames
115 uniqueMember: uid=user_approver,ou=people,dc=FatWire,dc=com
```

```
116 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
117 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
118 uniqueMember: uid=user_marketer,ou=people,dc=FatWire,dc=com
119 uniqueMember: uid=user_analyst,ou=people,dc=FatWire,dc=com
120 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
121 uniqueMember: uid=user_expert,ou=people,dc=FatWire,dc=com
122 uniqueMember: uid=user_checker,ou=people,dc=FatWire,dc=com
123 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
124 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
125 uniqueMember: uid=Flo,ou=people,dc=FatWire,dc=com
126 uniqueMember: uid=Joe,ou=people,dc=FatWire,dc=com
127 uniqueMember: uid=Moe,ou=people,dc=FatWire,dc=com
128 cn: PageReader
129 creatorsName: cn=directory manager
130 modifiersName: cn=directory manager
131 createTimestamp: 20021001153331Z
132 modifyTimestamp: 20021001153331Z
133nsUniqueId: 1678689d-1dd211b2-80ce8bff-8cf3a98d
134
135 # entry-id: 9
136 dn: cn=PageEditor,ou=groups,dc=FatWire,dc=com
137 objectClass: top
138 objectClass: groupofuniquenames
139 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
140 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
141 uniqueMember: uid=editor,ou=people,dc=FatWire,dc=com
142 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
143 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
144 cn: PageEditor
145 creatorsName: cn=directory manager
146 modifiersName: cn=directory manager
147 createTimestamp: 20021001153331Z
148 modifyTimestamp: 20021001153331Z
149 nsUniqueId: 1678689e-1dd211b2-80ce8bff-8cf3a98d
150
151 # entry-id: 10
152 dn: cn=UserReader,ou=groups,dc=FatWire,dc=com
153 objectClass: top
154 objectClass: groupofuniquenames
155 uniqueMember: uid=user_approver,ou=people,dc=FatWire,dc=com
156 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
157 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
158 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
159 uniqueMember: uid=user_marketer,ou=people,dc=FatWire,dc=com
160 uniqueMember: uid=user analyst,ou=people,dc=FatWire,dc=com
161 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
162uniqueMember: uid=user_expert,ou=people,dc=FatWire,dc=com
163 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
164 uniqueMember: uid=user checker,ou=people,dc=FatWire,dc=com
165 uniqueMember: uid=editor,ou=people,dc=FatWire,dc=com
166 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
167 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
```

```
168 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
169 uniqueMember: uid=Flo,ou=people,dc=FatWire,dc=com
170 uniqueMember: uid=Joe,ou=people,dc=FatWire,dc=com
171 uniqueMember: uid=Moe,ou=people,dc=FatWire,dc=com
172 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
173 cn: UserReader
174 creatorsName: cn=directory manager
175 modifiersName: cn=directory manager
176 createTimestamp: 20021001153332Z
177 modifyTimestamp: 20021001153956Z
178nsUniqueId: 1678689f-1dd211b2-80ce8bff-8cf3a98d
179
180 # entry-id: 11
181 dn: cn=UserEditor,ou=groups,dc=FatWire,dc=com
182 objectClass: top
183 objectClass: groupofuniquenames
184 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
185 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
186 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
187 cn: UserEditor
188 creatorsName: cn=directory manager
189 modifiersName: cn=directory manager
190 createTimestamp: 20021001153332Z
191 modifyTimestamp: 20021001154010Z
192nsUniqueId: 167868a0-1dd211b2-80ce8bff-8cf3a98d
193
194 # entry-id: 12
195 dn: cn=TableEditor,ou=groups,dc=FatWire,dc=com
196 objectClass: top
197 objectClass: groupofuniquenames
198 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
199 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
200 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
201 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
202 uniqueMember: uid=ContentServer,ou=people,dc=FatWire,dc=com
203 cn: TableEditor
204 creatorsName: cn=directory manager
205 modifiersName: cn=directory manager
206 createTimestamp: 20021001153332Z
207 modifyTimestamp: 20021001154024Z
208 nsUniqueId: 167868a1-1dd211b2-80ce8bff-8cf3a98d
209
210 # entry-id: 13
211dn: cn=Visitor,ou=groups,dc=FatWire,dc=com
212 objectClass: top
213 objectClass: groupofuniquenames
214 uniqueMember: uid=user_approver,ou=people,dc=FatWire,dc=com
215 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
216 uniqueMember: uid=DefaultReader,ou=people,dc=FatWire,dc=com
217 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
218 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
219 uniqueMember: uid=user_marketer,ou=people,dc=FatWire,dc=com
```

```
220 uniqueMember: uid=user_analyst,ou=people,dc=FatWire,dc=com
221 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
222 uniqueMember: uid=user_expert,ou=people,dc=FatWire,dc=com
223 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
224 uniqueMember: uid=editor,ou=people,dc=FatWire,dc=com
225 uniqueMember: uid=user_checker,ou=people,dc=FatWire,dc=com
226 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
227 cn: Visitor
228 creatorsName: cn=directory manager
229 modifiersName: cn=directory manager
230 createTimestamp: 20021001153332Z
231 modifyTimestamp: 20021001153332Z
232nsUniqueId: 167868a2-1dd211b2-80ce8bff-8cf3a98d
233
234 # entry-id: 14
235 dn: cn=VisitorAdmin,ou=groups,dc=FatWire,dc=com
236 objectClass: top
237 objectClass: groupofuniquenames
238 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
239 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
240 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
241 cn: VisitorAdmin
242 creatorsName: cn=directory manager
243 modifiersName: cn=directory manager
244 createTimestamp: 20021001153332Z
245 modifyTimestamp: 20021001153332Z
246 nsUniqueId: 167868a3-1dd211b2-80ce8bff-8cf3a98d
247
248 # entry-id: 15
249 dn: cn=RemoteClient,ou=groups,dc=FatWire,dc=com
250 objectClass: top
251 objectClass: groupofuniquenames
252 uniqueMember: uid=user_analyst,ou=people,dc=FatWire,dc=com
253 uniqueMember: uid=user approver,ou=people,dc=FatWire,dc=com
254 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
255 uniqueMember: uid=user_checker,ou=people,dc=FatWire,dc=com
256 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
257 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
258 uniqueMember: uid=user expert,ou=people,dc=FatWire,dc=com
259 uniqueMember: uid=user_marketer,ou=people,dc=FatWire,dc=com
260 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
261 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
262 cn: RemoteClient
263 creatorsName: cn=directory manager
264 modifiersName: cn=directory manager
265 createTimestamp: 20021001153332Z
266 modifyTimestamp: 20021001153332Z
267nsUniqueId: 167868a4-1dd211b2-80ce8bff-8cf3a98d
268
269 # entry-id: 16
270 dn: cn=xceladmin,ou=groups,dc=FatWire,dc=com
271 objectClass: top
```

```
272 objectClass: groupofuniquenames
273 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
274 uniqueMember: uid=admin,ou=people,dc=FatWire,dc=com
275 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
276 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
277 cn: xceladmin
278 creatorsName: cn=directory manager
279 modifiersName: cn=directory manager
280 createTimestamp: 20021001153332Z
281 modifyTimestamp: 20021001153332Z
282nsUniqueId: 167868a5-1dd211b2-80ce8bff-8cf3a98d
283
284 # entry-id: 17
285 dn: cn=xceleditor,ou=groups,dc=FatWire,dc=com
286 objectClass: top
287 objectClass: groupofuniquenames
288 uniqueMember: uid=mirroruser,ou=people,dc=FatWire,dc=com
289 uniqueMember: uid=user_analyst,ou=people,dc=FatWire,dc=com
290 uniqueMember: uid=user_approver,ou=people,dc=FatWire,dc=com
291 uniqueMember: uid=user_author,ou=people,dc=FatWire,dc=com
292 uniqueMember: uid=user_checker,ou=people,dc=FatWire,dc=com
293 uniqueMember: uid=user_designer,ou=people,dc=FatWire,dc=com
294 uniqueMember: uid=user_editor,ou=people,dc=FatWire,dc=com
295 uniqueMember: uid=user_expert,ou=people,dc=FatWire,dc=com
296 uniqueMember: uid=user marketer,ou=people,dc=FatWire,dc=com
297 uniqueMember: uid=user_pricer,ou=people,dc=FatWire,dc=com
298 uniqueMember: uid=editor,ou=people,dc=FatWire,dc=com
299 uniqueMember: uid=Bobo,ou=people,dc=FatWire,dc=com
300 uniqueMember: uid=Coco,ou=people,dc=FatWire,dc=com
301 uniqueMember: uid=Flo,ou=people,dc=FatWire,dc=com
302 uniqueMember: uid=Joe,ou=people,dc=FatWire,dc=com
303 uniqueMember: uid=Moe,ou=people,dc=FatWire,dc=com
304 cn: xceleditor
305 creatorsName: cn=directory manager
306 modifiersName: cn=directory manager
307 createTimestamp: 20021001153332Z
308 modifyTimestamp: 20021001153332Z
309nsUniqueId: 167868a6-1dd211b2-80ce8bff-8cf3a98d
```