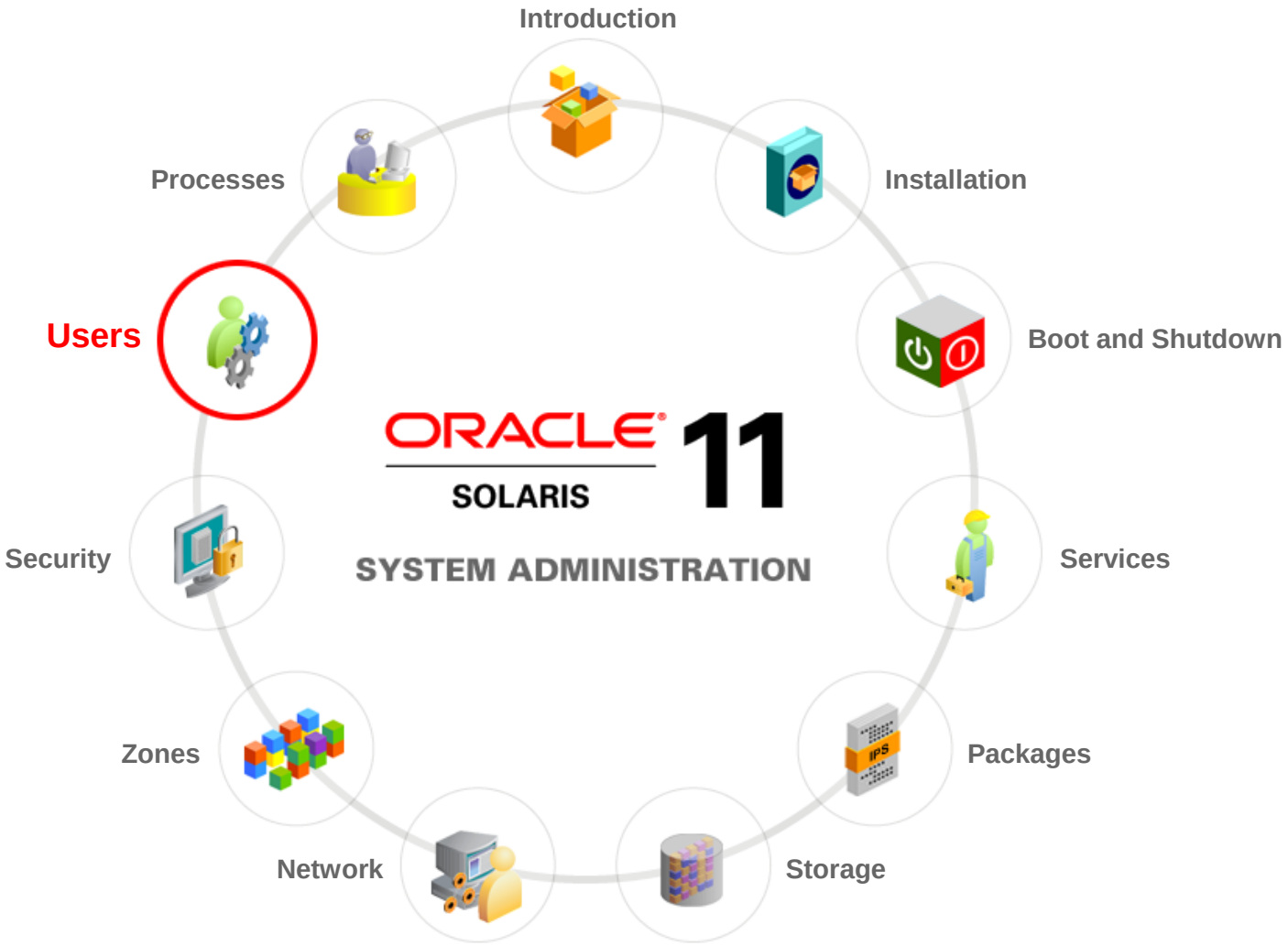
10

Administering User Accounts

Workflow Orientation



Objectives

After completing this lesson, you should be able to:

- Get started with user administration
- Set up user accounts
- Manage user accounts
- Configure user disk quotas

Agenda

- **Getting Started with User Administration**
- Setting Up User Accounts
- Maintaining User Accounts
- Configuring User Disk Quotas

Importance of User Administration

It is important to administer users to address the requirements of the user community, such as:

- Setting up new accounts
- Maintaining accounts
- Providing access to the system and system resources

Types of User Accounts

A user can have the following types of accounts:

Account	Description
User	An individual account that provides a user with a unique account name, a user identification (UID) number, a home directory, and a login shell
Group	A collection of individual users that have a shared set of permissions on files and other system resources
Role	A special account that can be assigned to one or more users and that provides a set of functions and permissions that are specific to the role

Main Components of a User Account

Component	Description
Username	Unique name that a user enters to log in to a system
Password	Combination of up to 256 letters, numbers, or special characters that a user enters with the login name to gain access to a system
User identification (UID) number	User account's unique numerical identification within the system
Group identification (GID) number	Unique numerical identification of the group to which a user belongs
Comment	Information that identifies a user
User's home directory	Directory into which a user is placed after login
User's login shell	User's work environment as set up by the initialization files that are defined by the user's login shell

System Files That Store User Account Information

System File for User Account Information	Description
`/etc/passwd`	Contains login account entries for authorized system users
`/etc/shadow`	Contains encrypted passwords
`/etc/default/passwd`	Contains entries for controlling all the user passwords on the system
`/etc/group`	Defines the default system group entries

Interpreting the /etc/passwd File

```
root:x:0:0:Super-User:/root:/usr/bin/bash
daemon:x:1:1::/:
bin:x:2:2::/usr/bin:
sys:x:3:3::/:
adm:x:4:4:Admin:/var/adm:
lp:x:71:8:Line Printer Admin:/:
uucp:x:5:5:uucp Admin:/usr/lib/uucp:
nuucp:x:9:9:uucp Admin:/var/spool/uucppublic:/usr/lib/uucp/uucico
dladm:x:15:65:Datalink Admin:/:
netadm:x:16:65:Network Admin:/:
netcfg:x:17:65:Network Configuration Admin:/:
smmsp:x:25:25:SendMail Message Submission Program:/:
gdm:x:50:50:GDM Reserved UID:/var/lib/gdm:
zfssnap:x:51:12:ZFS Automatic Snapshots Reserved UID:/:/usr/bin/pfsh
upnp:x:52:52:UPnP Server Reserved UID:/var/coherence:/bin/ksh
xvm:x:60:60:xVM User:/:
mysql:x:70:70:MySQL Reserved UID:/:
openldap:x:75:75:OpenLDAP User:/:
webservd:x:80:80:WebServer Reserved UID:/:
postgres:x:90:90:PostgreSQL Reserved UID:/:/usr/bin/pfksh
svctag:x:95:12:Service Tag UID:/:
unknown:x:96:96:Unknown Remote UID:/:
nobody:x:60001:60001:NFS Anonymous Access User:/:
<output truncated>
```

Interpreting an /etc/passwd File Entry

Each entry in the /etc/passwd file contains seven fields.

```
loginID:x:UID:GID:comment:home_directory:login_shell
```

Field	Description
loginID	Represents the user's login name
x	Represents a placeholder for the user's encrypted password
UID	Contains the UID number that is used by the system to identify the user
GID	Contains the GID number that is used by the system to identify the user's primary group
comment	Typically contains the user's full name
home_directory	Contains the autofs-mounted directory name of the user's *home* directory
login_shell	Defines the user's login shell

Interpreting the /etc/shadow File

```
root:$5$A9EW6h0R$B9cdXEPFGS8F2g4gEAWwlzUI40LBYUs7CRb9saMqx8XA:16283::::::
daemon:NP:6445::::::
bin:NP:6445::::::
sys:NP:6445::::::
adm:NP:6445::::::
lp:NP:6445::::::
uucp:NP:6445::::::
nuucp:NP:6445::::::
dladm:*LK*:::::::
netadm:*LK*:::::::
netcfg:*LK*:::::::
smmsp:NP:6445::::::
gdm:*LK*:::::::
zfssnap:NP:::::::
upnp:NP:::::::
xvm:*LK*:6445::::::
mysql:NP:::::::
openldap:*LK*:::::::
webservd:*LK*:::::::
postgres:NP:::::::
svctag:*LK*:6445::::::
unknown:*LK*:::::::
nobody:*LK*:6445::::::
noaccess:*LK*:6445::::::
<output truncated>
```

Interpreting an /etc/shadow File Entry

Each entry in the /etc/shadow file contains nine fields:

```
loginID:password:lastchg:min:max:warn:inactive:expire:flag
```

Field	Description
loginID	The user's login name
password	A variable-length encrypted password
lastchg	The number of days between January 1, 1970 and the last password modification date
min	The minimum number of days required between password changes
max	The maximum number of days that the password is valid before the user is prompted to enter a new password at login
warn	Number of days that the user is warned before the password expires
inactive	Number of inactive days allowed for the user before the user's account is locked
expire	Date when the user account expires
flag	Used to track failed logins

Interpreting the /etc/default/passwd File

```
<header and comment output omitted>
#
MAXWEEKS=
MINWEEKS=
PASSLENGTH=6
#
#NAMECHECK=NO
#HISTORY=0
#
#MINDIFF=3
#MINALPHA=2
#MINNONALPHA=1
#MINUPPER=0
#MINLOWER=0
#MAXREPEATS=0
#MINSPECIAL=0
#MINDIGIT=0
#WHITESPACE=YES
#
#
#DICTIONLIST=
#DICTIONDBDIR=/var/passwd
#DICTIONMINWORDLENGTH=3
```

Password minimums

minlen			
minalpha		minnonalpha	
minlower	minupper	mindigit	minspecial

Interpreting the /etc/group File

```
root::0:
other::1:root
bin::2:root,daemon
sys::3:root,bin,adm
adm::4:root,daemon
uucp::5:root
mail::6:root
tty::7:root,adm
lp::8:root,adm
nuucp::9:root
staff::10:
daemon::12:root
sysadmin::14:
games::20:
smmsp::25:
gdm::50:
upnp::52:
xvm::60:
netadm: 65:
mysql::70:
openldap::75:
webservd::80:
postgres::90:
<output truncated>
```

Interpreting an /etc/group File Entry

Each entry in the /etc/group file contains four fields:

```
groupname:group-password:GID:username-list
```

Field	Description
groupname	Contains the name assigned to the group
group-password	Usually contains an empty field or an asterisk
GID	Contains the group's GID number
username-list	Contains a comma-separated list of usernames that represent the user's secondary group memberships

Implementing User Administration

As part of user administration implementation, you will now learn how to:

- Set up a few user accounts
- Maintain these user accounts
- Manage user initialization files
- Configure user disk quotas
- Use shell metacharacters

Quiz

A user must belong to at least one group.

a. True
b. False

Quiz

A user must belong to at least one group.

a. True
b. False

Quiz

Which file contains encrypted user passwords?

a. /etc/shadow

b. /etc/default/passwd

c. /etc/skel

Quiz

Which file contains encrypted user passwords?

a. /etc/shadow

b. /etc/default/passwd

c. /etc/skel

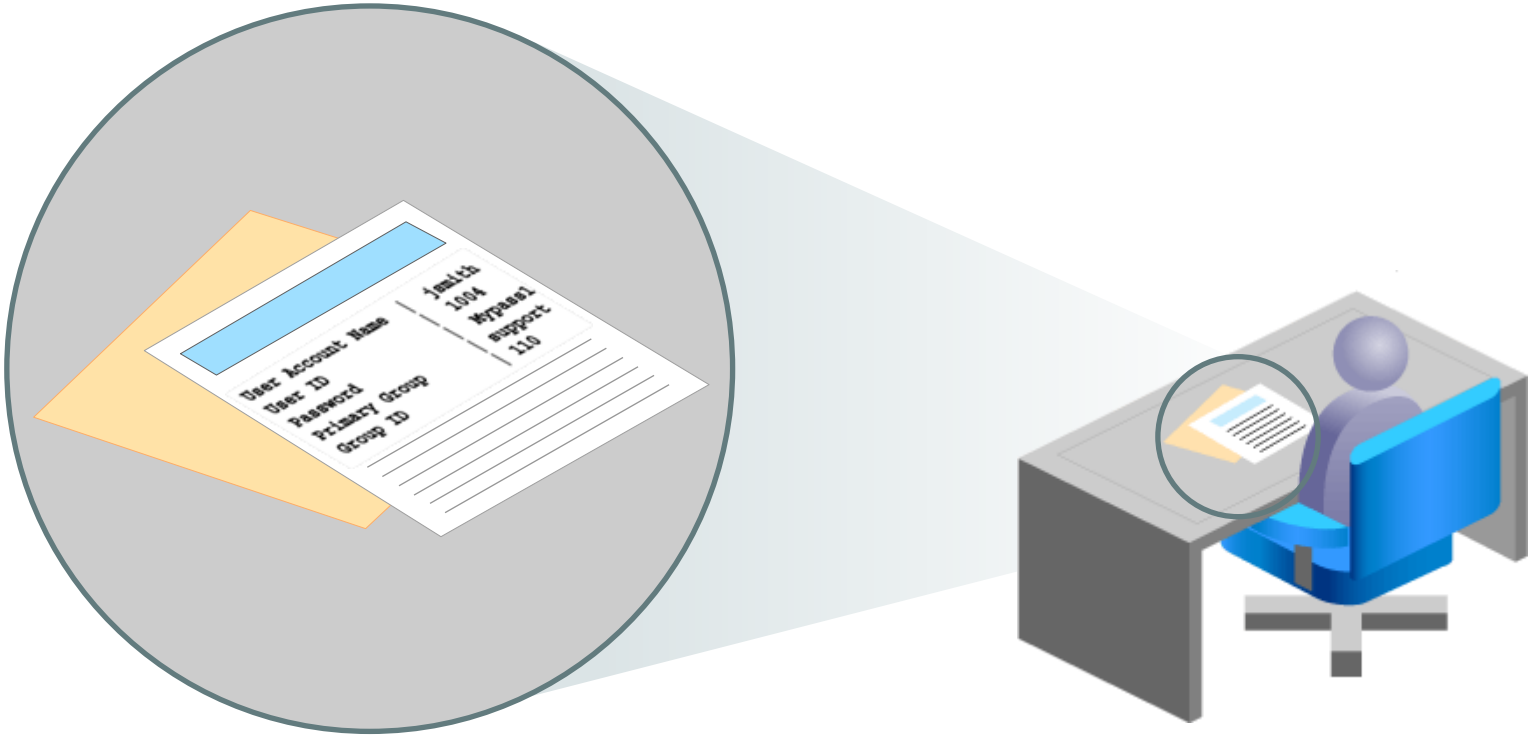
Agenda

- Getting Started with User Administration
- **Setting Up User Accounts**
- Maintaining User Accounts
- Configuring User Disk Quotas

Setting Up User Accounts

- Gathering user information
- Creating and modifying the user accounts default file
- Adding a group
- Adding a user account
- Verifying the user account setup
- Setting a password to expire immediately

Gathering User Information



Creating the User Accounts Default File

To check whether the user accounts default file exists, use `ls /usr/sadm/defadduser`.

```
# ls /usr/sadm/defadduser
/usr/sadm/defadduser: No such file or directory
```

To create the user accounts default file, use `useradd -D`.

```
# useradd -D
group=staff,10  project=default,3  basedir=/export/home
skel=/etc/skel  shell=/usr/bin/bash  inactive=0
expire=  auths=  profiles=  roles=  limitpriv=
defaultpriv=  lock_after_retries=
```

Modifying the User Accounts Default File

To modify the user accounts default file, use `useradd -D` *value*.

```
# useradd -D -s /bin/ksh
group=staff,10  project=default,3  basedir=/export/home
skel=/etc/skel  shell=/bin/ksh  inactive=0
expire=  auths=  profiles=  roles=  limitpriv=
defaultpriv=  lock_after_retries=

# useradd -D
group=staff,10  project=default,3  basedir=/export/home
skel=/etc/skel  shell=/bin/ksh  inactive=0
expire=  auths=  profiles=  roles=  limitpriv=
defaultpriv=  lock_after_retries=
```

Adding a Group

To add a group, use `groupadd -g` *`GID groupname`*.

```
# groupadd -g 110 support
```

To verify that the group has been created, use `grep` *`groupname`* `/etc/group`.

```
# grep support /etc/group
support::110:
```

Adding a User Account

To add a user account, use `useradd` *`user_attributes`*.

```
# useradd -u 1003 -g support -G itgroup \
-d /export/home/jsmith -m -c "joe smith" jsmith
```

Verifying the User Account Setup

As you create a user account, the information is sent to these files:

- `/etc/passwd`
- `/etc/shadow`
- `/etc/group`

Verifying User Account Creation in the /etc/passwd File

To verify that a user account has been added to /etc/passwd, use grep *loginname* /etc/passwd.

```
# grep jsmith /etc/passwd
jsmith:x:1003:110:joe smith:/home/jsmith:/usr/bin/bash
```

Verifying User Account Creation in the /etc/shadow File

To verify that a user account has been added to /etc/shadow, use grep *loginname* /etc/shadow.

```
# grep jsmith /etc/shadow
jsmith:UP:::::::
```

To create a new password for the user account, use passwd *loginname*.

```
# passwd jsmith
New Password: <password>
Re-enter new Password: <password>
passwd: password successfully changed for jsmith
```

Verifying User Account Creation in the /etc/shadow File

To view the user account in /etc/shadow after the password is changed, use grep *loginname* /etc/shadow.

```
# grep jsmith /etc/shadow
jsmith:$5$x0aftZOd$d8hbuX/rb9vS485/9OlH63EkPbLzL8eDtFL/LVtbAp3:15168::::::
```

Verifying User Account Creation in the /etc/group File

To verify that a user has been added to /etc/group, first confirm whether the group exists by using grep *groupname* /etc/group, and then use id loginname.

```
# grep support /etc/group
support::110:
# id jsmith
uid=1003(jsmith) gid=110(support)
```

Setting a Password to Expire Immediately

To set a password to expire immediately, use `passwd -f` *`loginname`*.

```
# passwd -f jsmith
passwd: password information changed for jsmith
```

To see the effect of `passwd` command changes, use `grep` *`loginname`* `/etc/shadow`.

```
# grep jsmith /etc/shadow
jsmith:$5$iJM6uDL8$1C28YFeERBKOFkA.eE3JCJEjLKkp4r.HBdGqiA7Ql96:0:::::
```

Quiz

`/var/sadm/defadduser` is the file that you use to add new users.

a. True
b. False

Quiz

`/var/sadm/defadduser` is the file that you use to add new users.

a. True

b. False

Quiz

When you create a new user, which of the following files receives user-related information?

a. /etc/skell

b. /etc/shadow

c. /etc/group

d. /etc/password

Quiz

When you create a new user, which of the following files receives user-related information?

a. /etc/skell

b. /etc/shadow

c. /etc/group

d. /etc/password

Agenda

- Getting Started with User Administration
- Setting Up User Accounts
- **Maintaining User Accounts**
- Configuring User Disk Quotas

Maintaining User Accounts

- Modifying a user account
- Deleting a user account
- Modifying a group entry
- Deleting a group entry

Modifying a User Account

To modify a user account, use `usermod` *`user_attributes`*.

```
# usermod -u 1003 -m -d /export/home/jjones -c "joe jones" \
-l jjones jsmith
# zfs list
..
rpool/export/home/jsmith          35K  4.32G    35K  /export/home/jjones
...
# zfs rename rpool/export/home/jsmith rpool/export/home/jjones
# zfs list
...
rpool/export/home/jjones          35K  4.32G    35K  /export/home/jjones
...
# grep jjones /etc/passwd
jjones:x:1003:110:joe jones:/export/home/jjones:/usr/bin/bash
```

Deleting a User Account

To delete a user account, use `userdel -r loginname`.

```
# userdel -r ckent
```

Modifying a Group Entry

To modify a group entry, use `groupmod` *`group_attribute`*.

```
# groupmod -n itadmin support
# grep itadmin /etc/group
itadmin::110::
# grep itadmin /etc/group
itadmin::110::
# id jjones
uid=1003(jjones) gid=110(itadmin)
```

Deleting a Group Entry

To reassign a user account to a valid group, use `usermod -u` *`UID`* `-g` *`GID`* `loginname`.

```
# usermod -u 1004 -g 120 jdoe
# grep jdoe /etc/passwd
jdoe:x:1004:120:jane doe:/home/jdoe:/bin/bash
```

To delete a group entry, use `groupdel` *`groupname`*.

```
# grep quality /etc/group
quality::130:
# groupdel quality
# grep quality /etc/group
# grep 130 /etc/group
```

User Account Management Commands: Summary

User Account Management Task	Command
Add a user account.	`useradd`
Modify a user account.	`usermod`
Delete a user.	`userdel`
Add a group.	`groupadd`
Modify a group.	`groupmod`
Delete a group.	`groupdel`

Agenda

- Getting Started with User Administration
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- **Configuring User Disk Quotas**

Configuring User Disk Quotas

The ZFS quota property:

- Sets a space limit on the amount of space used by a file system and user
- Applies to:
  - The dataset that it is set on
  - All descendants of that dataset

Setting Quotas for ZFS File Systems

To set a quota on a file system, use `zfs set`, followed by `quota=`, the space amount, and the file system name.

```
# zfs set quota=10g rpool/export/home/jjones
```

To display the quota setting for a file system, use `zfs get`, followed by `quota` and the file system name.

```
# zfs get quota rpool/export/home/jjones
NAME                          PROPERTY  VALUE     SOURCE
rpool/export/home/jjones      quota     10G       local
```

Note: The quota cannot be less than the current dataset usage.

Setting and Displaying a User Quota

To set a user quota on a file system, use `zfs set`, followed by `userquota@<name>=`, the space amount, and the file system name.

```
# zfs create students/compsci
# zfs set userquota@student1=10g students/compsci
```

To display the user quota setting for a file system, use `zfs get`, followed by `userquota@<name>` and the file system name.

```
# zfs get userquota@student1 students/compsci
NAME                PROPERTY             VALUE     SOURCE
students/compsci    userquota@student1   10g       local
```

Displaying General Space Usage

To display general user space usage, use `zfs userspace`, followed by the file system name.

```
# zfs userspace students/compsci
TYPE          NAME      USED      QUOTA
POSIX User    jjones      7K      10g
POSIX User    root      227M      none
POSIX User    student1  455M      10g
```

Identifying Individual User Space Usage

To identify individual user space usage, use `zfs userused@<name>`, followed by the file system name.

```
# zfs get userused@student1 students/compsci
NAME                PROPERTY             VALUE     SOURCE
students/compsci    userused@student1    455M      local
```

Removing User Quotas

To remove a user quota, use `zfs set userquota@<name>=none`, followed by the file system name.

```
# zfs set userquota@student1=none students/compsci
```

Summary

In this lesson, you should have learned how to:

- Get started with user administration
- Set up user accounts
- Manage user accounts
- Configure user disk quotas

Practice 10: Overview

- 10-1: Setting Up User Accounts
- 10-2: Maintaining User Accounts
- 10-3: Configuring Disk Quotas