

Centrify Server Suite 2017

User's Guide for Linux and UNIX

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Centrify Corporation



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About this guide

The *Centrify Server Suite User's Guide for Linux and UNIX* describes how you select and use the roles you have been assigned to get privileged access to applications and network resources. If your organization has deployed Centrify software and installed agents on Linux or UNIX computers, an administrator should have prepared your computer and any remote servers you use and assigned one or more roles with specific access rights to your account.

Intended audience

The *User's Guide for Linux and UNIX* provides basic information for users of Linux and UNIX computers that have Centrify software installed and to whom an administrator has granted specific rights and role assignments. This guide will help users understand how the Centrify agent works, how the deployment of Centrify software will affect their Linux or UNIX computers, and how to use rights and roles to perform privileged duties on Centrify-managed computers.

If you are an administrator responsible for installing and configuring software or defining access rules and audit requirements, see the *Administrator's Guide for Linux and UNIX* for information about how you can manage identity attributes in user and group profiles; create, manage, and assign access rights and roles; and delegate administrative tasks to other users.

Conventions used in this guide

The following conventions are used in this guide:

- **Bold** text is used to emphasize commands, buttons, or user interface text, and to introduce new terms.
- *Italics* are used for book titles and to emphasize specific words or terms.

Finding more information

Centrify provides extensive documentation targeted for specific audiences, functional roles, or topics of interest. If you want to learn more about Centrify and Centrify products and features, start by visiting the [Centrify website](#). From the Centrify website, you can download data sheets and evaluation software, view video demonstrations and technical presentations about Centrify products, and get the latest news about upcoming events and webinars.

For access to documentation for all Centrify products and services, visit the [Centrify documentation portal](#). From the Centrify documentation portal, you can always view or download the most up-to-date version of this guide and all other product documentation.

To get to the documentation portal, go to docs.centrify.com or <https://www.centrify.com/support/documentation>.

Contacting Centrify

You can contact Centrify by visiting our website, www.centrify.com. On the website, you can find information about Centrify office locations worldwide, email and phone numbers for contacting Centrify sales, and links for following Centrify on social media. If you have questions or comments, we look forward to hearing from you.

Getting additional support

If you have a Centrify account, click Support on the Centrify website to log on and access the [Centrify Technical Support Portal](#). From the support portal, you can search knowledge base articles, open and view support cases, download software, and access other resources.

To connect with other Centrify users, ask questions, or share information, visit the [Centrify Community](#) website to check in on customer forums, read the latest blog posts, view how-to videos, or exchange ideas with members of the community.

Introduction to Centrify software

This chapter provides an overview of what Centrify software can do for Linux and UNIX computers, and how your administrator uses the Centrify agent to configure rights with roles which allow you to perform administrative tasks locally on your computer or remotely on a network server.

The following topics are covered:

- What is Centrify Server Suite?
- How access to computers might change
- Auditing role-based activity
- Types of access rights
- What gets installed on a managed computer

What is Centrify Server Suite?

Centrify Server Suite is a multi-tier software solution that enables administrators to centrally manage access rights and identity profiles for servers and workstations, mobile devices, and applications across a broad range of platforms. With Centrify Server Suite, administrators can accomplish the following:

- Manage local and remote access to computers with Linux, UNIX, Mac OS X, and Windows operating systems.
- Enforce security policies and control access to applications on mobile devices such as iPhone and Android smart phones and tablets.
- Enable single sign-on and role-based rights for on-site and cloud-based applications.
- Capture detailed information about user activity and the use of administrative privileges.

Using Centrify software, an Active Directory administrator creates **zones** to organize the enterprise's on-premise computers, mobile devices, and applications into groups. For each group, the administrator then defines rights, roles, and group policies to control access to the computers and applications in that zone. By using zones and role assignments, the administrator can establish fine-grained control over which users are authorized to perform certain administrative tasks and during exactly what time-frame, and when user activity should be audited.

With Centrify, administrators can reduce the risk of unauthorized access to your organization's critical resources, ensure accountability and regulatory compliance for users granted access to privileged accounts or sensitive information, and simplify the management of shared accounts and role-based access rights. Additionally, Centrify allows administrators to use the same account information for users across all platforms using a single account name and Active Directory password.

How access to computers might change

To manage access to UNIX and Linux servers and workstations, an administrator installs the Centrify agent on each computer and identifies the zone the computer should use. If an administrator has installed the agent on your computer and added your computer to a zone, your computer is a **Centrify-managed computer**. When you log in to your Centrify-managed computer, the agent checks whether you have been assigned a role for logging in which allows you to log in locally with a password, log in remotely without a password using single sign-on, and run commands in a standard shell or a restricted shell. As long as you have a role assignment that allows you one of those basic login rights, logging in proceeds normally. If you have not been assigned a role that allows you to log in, you will be denied access to the computer.

In most cases, an Active Directory administrator or another delegated administrator will also define rights and roles that enable you to use an account other than your own that has elevated privileges. For example, the administrator might create a role that allows you to manage an Oracle service account using administrative privileges and another role that enables you to use the file transfer protocol (FTP) to connect to another machine.

The administrator is responsible for defining the specific rights that are available in different roles and for assigning those roles to the appropriate Active Directory users and groups. The administrator can also assign selected roles to local UNIX and Linux users and groups.

Auditing role-based activity

Your administrator may configure auditing to either record certain commands that you execute, or to record all of the terminal activity on your computer.

If the computer you are using is configured to audit session activity, you will only be notified that your actions are being audited if the administrator has enabled an auditing notification.

Types of access rights

In addition to the predefined UNIX Login role that grants basic access to Centrify-managed computers during deployment, there are other common, predefined access rights and role definitions that may be available to you. These other predefined rights and roles definitions provide specialized access rights for specific scenarios that are common in Linux and UNIX environments.

Type of right	What a role with this type of right allows you to do
Command rights	Run the specified commands, which perform privileged operations, using a <code>dzdo</code> command.
PAM application rights	Run a specific PAM application that has elevated privileges.
Secure shell session-based rights	Access specific secure shell services for remote connections.

Every role includes one or more rights. Depending on the roles you have been assigned, you might have one or more of these access rights available.

What gets installed on a managed computer

When the Centrify UNIX agent is installed, your computer is updated with the following directories and files:

This directory	Contains
<code>/etc/centrifydc</code>	The agent configuration file and the Kerberos configuration file.
<code>/usr/share/centrifydc</code>	Kerberos-related files and service library files used by the Centrify agent to enable group policy and authentication and authorization services.
<code>/usr/sbin</code> <code>/usr/bin</code>	Command line programs to perform Active Directory tasks, such as joining a domain and changing a user password.
<code>/var/centrify</code>	Directories for temporary and common files that can be used by the agent.
<code>/var/centrifydc</code>	The IP address of the DNS server, the edition of Centrify Server Suite installed (licensed or express), the Active Directory domain the computer is joined to, the Active Directory site the computer is part of, and other details.
<code>/var/log</code>	Error messages, warnings, and informational messages, along with other kernel and program messages.

Depending on the suite edition and components selected during installation, the Centrify UNIX agent may also install additional files and directories. For example, if the Enterprise Edition is installed, your computer is updated with additional files and directories for auditing.

The Centrify UNIX agent also installs manual (`man`) pages to assist you in finding information on command line programs. For more information about using `man` pages, see [“Displaying usage information and man pages” on page 27](#).

Getting started

This chapter describes how to use Centrify to access applications and run commands with privileges on a UNIX or Linux computer that has the Centrify agent installed.

The following topics are covered:

- [Verify you can log in](#)
- [Checking your rights and role assignments](#)
- [Working with command rights](#)
- [Using PAM application rights](#)
- [Using secure shell session-based rights](#)
- [Role-based auditing of session activity](#)

Verify you can log in

If an administrator has installed the Centrify agent on a UNIX or Linux computer you use, the next step is to verify that you can log in successfully. The Centrify agent does not change how you log in to your computer. However, you must be assigned at least one role that allows you to log in.

When you are prompted for a user name and password, type your Active Directory or UNIX user name and your Active Directory password. If you provide valid credentials and have been assigned a role with permission to log in, you should be able to log in to your computer with a standard UNIX shell. If this is a computer you used earlier, before it became a Centrify-managed computer, there should be no noticeable changes to your working environment.

As a part of the deployment of Centrify software, your computer may or may not have been joined to a zone. To verify that the Centrify agent is installed, that you are connected to an Active Directory Domain, and that you are connected to a zone, run the `adinfo` command. For

example, if you are a user named billy in a zone named KHeadquarters, your output may look similar to the following:

```
[billy@kh-rh Desktop]$ adinfo
Local host name:    kh-rh
Joined to domain:  demo.centriify.com
Joined as:         kh-rh.demo.centriify.com
Pre-win2K name:   kh-rh
Current DC:       deploy.centriify.com
Preferred site:   Default-First-Site-Name
Zone:             demo.centriify.com/Program Data/Centriify/
Zones/KHeadquarters
CentriifyDC mode:  connected
Licensed Features: Enabled
```

To learn more about commonly used commands that may be available to you, see [“Commands available for users” on page 24](#).

If the Centriify agent is installed but not connected to a zone, or if the agent is not installed on your local computer, you should contact your administrator.

If the zone information for the agent is configured, but the agent status is Disconnected, restart the agent.

To restart the agent type the following:

```
$ adclient -x
$ adclient
```

If the agent status is still Disconnected, contact your system administrator.

Multi-factor authentication

Your organization may require multi-factor authentication in order for you to log in to your computer, or to execute commands using elevated privileges (`dzdo`) in a normal or restricted shell (`dzsh`) environment.

If multi-factor authentication is required as part of the login process, you will have to provide a password as well as a second form of authentication to log in to your computer. If multi-factor authentication is required as part of a re-authentication process, such as when you use command rights with elevated privileges or in a restricted shell, you must provide a password and either one or two other forms of authentication other than a password.

Checking your rights and role assignments

Your role assignments control where you can log in, the type of account you use to log in, the specific access rights you have on local or network computers, the types of commands you can execute, and whether you must log in using a restricted shell. As discussed in “[Types of access rights](#)” on page 9, there are three categories of access rights for UNIX and Linux computers:

- Command rights
- PAM application rights
- Secure shell session-based rights

Depending on the details of how roles are defined in your organization and the specific roles you have been assigned, you might have some or all of the access rights described in the following sections.

You can use the `dzinfo` command to look up detailed information about your rights and role assignments, any restrictions on when they are available, and what the roles allow you to do. To learn more about the `dzinfo` command, see “[Check your rights and roles using dzinfo](#)” on page 20.

Note You can view information about your own access rights and role assignments only.

Working with command rights

Command rights allow you to use commands to perform specific operations. The most basic rights—such as the right to log in—are defined when your administrator defines roles. Other, more granular command rights control access to individual command-line programs.

Using command rights in a standard shell

Command rights are assigned to you so that you can perform privileged operations that are not available to you by default.

On most UNIX and Linux computers, commands that require elevated permissions can be run by invoking the `sudo` command. The Centrify agent provides similar functionality, but the commands are instead invoked using the `dzdo` command, then typing the command to execute, including any command-line options that you are allowed to use.

For example, assume your administrator has defined a command right for `adjoin` that enables you to execute the command as the `root` user. If this right is added to a role that has been assigned to you, you can execute the command by typing the following:

```
dzdo adjoin
```

Using command rights in a restricted shell environment

Centrify provides a customized Bourne shell, `dzsh`, to serve as a restricted shell environment that is used to limit what commands you can execute for certain roles. For most operations, working in the `dzsh` shell is similar to working in an unrestricted shell except that the command set is limited to the command rights added by the administrator.

After your administrator has defined command rights, added them to role definitions, and assigned the roles to you, you can execute those commands in a restricted shell environment by typing the command, including any command-line options you are allowed to use. When you are finished running the command, you can switch back to your standard shell if you have the appropriate login right on that computer.

For example, assume that on your own computer, you can run the `adinfo` command in the standard shell, but you need to execute the command on a computer that is not yours. Your administrator has assigned you a role, `AdminADinfo` that grants you a UNIX login right and a right that requires you to run the `adinfo` command in a

restricted shell on the computer you need to access. You must switch to this role to run the command on the specified computer. To do this, you log in to the computer you want to access and select the role your administrator has assigned to you. If you are a member of the zone Headquarters, you would type the following:

```
$ dzsh
$ role AdminADinfo/Headquarters
$ adinfo
```

Running unauthorized commands

If your administrator has assigned you to a role that requires a restricted shell environment, the `dzsh` shell allows you to run only the subset of commands to which you have rights. If you attempt to run a command you are not authorized to use in your current role, the shell displays a warning.

Setting or changing your active role

If you are assigned only to one or more restricted shell environment roles, you are only allowed to run commands within the `dzsh` shell. Within the restricted shell, you can only be in one active role at a time to prevent ambiguity about the commands you can run or what account should be used to execute those commands.

For example, if you are assigned the `lab_staff` restricted shell environment role that specifies that the `tar` command should run as `root`, and also the `tmps` restricted shell environment role that specifies that the `tar` command should be run as the account `tmp_admin`, you need to specify which role you are using to run the `tar` command under the proper account.

You can see what roles are assigned to you, as well as switch between roles, using the `role` command. For example, to view the list of roles to choose from, you would type:

```
$ role -ls
```

To choose the `lab_staff` role, you would type:

```
$ role lab_staff
```

Using PAM application rights

Most of the applications you run on Linux and UNIX computers are configured to use a pluggable authentication module (PAM) to control access. Secure shell (`ssh`), `login`, and file transfer (`ftp`) services are all examples of PAM-enabled applications.

If you have a role assignment with access to PAM-enabled application rights, you can run one or more specific applications using the administrative privileges defined for your role. The administrator defines the specific PAM application rights that you have in each role you are assigned. If you have a role assignment with application access rights, the administrator specifies the arguments you can use when running the application and the account used to run the application.

Using secure shell session-based rights

If your administrator has assigned you the `sshd` or `ssh` right, `login-all` right, or a custom PAM access right, you can use secure shell rights to perform specific operations on remote computers. The following are a list of predefined secure shell session-based rights that might be assigned to you:

- `dzssh-all` grants access to all available secure shell services.
- `dzssh-direct-tcpip` allows local and dynamic port forwarding (`ssh -L`, `ssh -D`).
- `dzssh-exec` allows command execution.
- `dzssh-scp` allows secure copy (`scp`) operations.
- `dzssh-shell` allows secure terminal (`tty/pty`) connections.
- `dzssh-Subsystem` allows external subsystems, with the exception of the `sftp` subsystem, which has its own right.
- `dzssh-tcpip-forward` allows remote port forwarding (`ssh -R`).
- `dzssh-tunnel` allows tunnel device forwarding.
- `dzssh-x11-forwarding` allows X11 forwarding.

Role-based auditing of session activity

Your administrator may install the Centrify agent with or without auditing features. Depending on whether auditing features are activated on your computer and whether your role requires auditing or not, your session activity might be captured and stored in a database. You can check whether session-level auditing is requested or required for the roles you are assigned by running the `dzinfo` command. You are notified that your session activity might be audited only if the administrator has enabled notification. If auditing is required for your role, but the auditing service is not available on computer you attempt to use, you will be denied access to that computer until auditing is available.

If your administrator has configured the Centrify UNIX agent to audit your session when you log in, everything you do on your terminal is captured, including all of your keystrokes and anything displayed on your screen. If your administrator has configured auditing on a per-command basis, auditing only begins when you use a privileged `dzdo` command, and ends when you are finished running those privileged commands.

Troubleshooting

This chapter describes how to resolve problems you might encounter while attempting to log in. The following topics are covered:

- Solving login problems
- Check your rights and roles using `dzinfo`

Solving login problems

There are several reasons why an attempt to log in can fail. If you are denied access to a computer:

- Verify that the computer you are trying to log in to has access to an Active Directory domain controller.

If an Active Directory domain controller is not available or the local computer is not a member of an Active Directory domain, you might be prevented from logging in because the agent cannot verify that you have authority to access the computer.

- Verify that you have a complete UNIX identity profile.
- Verify that you have been issued at least one role with a right that allows you to log in using a standard shell or a restricted shell.

If you have access only to a restricted shell, you can only execute explicitly defined commands.

If you have a UNIX profile, but cannot log in to your terminal, you may have been assigned the `listed` or `local listed` role. These roles allow your profile to be visible in a zone, but do not grant any access rights.

After the Centrify agent has been installed, you must have a role assigned to your account that gives you log in privileges. If an attempt to log in fails, contact your Active Directory administrator or help desk to determine the roles you have been assigned, the type of access your roles grant, and any limitations associated with your role assignment.

For example, roles can have time constraints with specific periods of availability. If you attempt to log in, but the role is not available at the time you attempt to log in, you will be denied access.

Check your rights and roles using dzinfo

You can use the `dzinfo` command to view detailed information about your rights, roles, and role assignments. The `dzinfo` command allows you to view and capture the output from the command in a single window.

For example, if you are a user named `billy` in a zone called `KHeadquarters`, you would type:

```
dzinfo billy
```

The output would look similar to the following:

```
User: billy
```

```
Forced into restricted environment: No
```

Role Name	Avail	Restricted	Env
-----	-----	-----	-----
AdminRole	Yes	Admin	
/KHeadquarters		/KHeadquarters	
Windows	Yes	Windows	
Login/KHeadquarters		Login/KHeadquarters	
ControlPanelAdmin/KHeadquarters	Yes	ControlPanelAdmin/KHeadquarters	
UNIX	Yes	None	
Login/KHeadquarters			
Windows	Yes	Windows	

```

Login/KHeadquar      Login/KHeadqua
ters                 rters
UNIX                  Yes  None
Login/KHeadquar
ters

```

```

    Effective rights:
Password login
Non password login
Allow normal shell

```

```

    Audit level:
AuditIfPossible

```

```

    Always permit login:
true

```

```

PAM Application  Avail  Source Roles
-----
graphical       Yes   AdminRole/KHea
desktop         Yes   AdminRole/KHea
ftp             Yes   AdminRole/KHea
telnet          Yes   AdminAdminRole/KHea
sshd            Yes   AdminRole/KHea
ssh             Yes   AdminRole/KHea
*              Yes   UNIX
                Login/KHeadquarters

```

```

SSH Rights      Avail  Source Roles
-----
dzssh-sftp     Yes   AdminRole/KHea

```

```

dzssh-scp          Yes  AdminRole/KHea
                   dquarters
dzssh-exec         Yes  AdminRole/KHea
                   dquarters
dzssh-shell        Yes  AdminRole/KHea
                   dquarters
dzssh-*            Yes  AdminRole/KHea
                   dquarters

```

Privileged commands:

Name	Avail	Command	Source Roles
dz_info/KHeadqu arters	Yes	dzinfo	AdminRole/KHea dquarters
emergency_aces s/KHeadquarters	Yes	su - root	AdminRole/KHea dquarters
emergency_aces s/KHeadquarters KHeadquarters	Yes	su - root	UNIX Login/
emergency_aces s/KHeadquarters KHeadquarters	Yes	su - root	Windows Login/

Commands in restricted environment:

Name	Avail	Command	Run As
emergency_aces s/KHeadquarters	Yes	su - root	self

Commands in restricted environment: ControlPanelAdmin/
KHeadquarters

Name	Avail	Command	Run As
------	-------	---------	--------

(no commands have been configured for ControlPanelAdmin/
KHeadquarters)

- • • • • Check your rights and roles using dzinfo

Commands in restricted environment: AdminRole/
KHeadquarters

Name	Avail	Command	Run As
dz_info/KHeadquarters	Yes	dzinfo	self
emergency_access/KHeadquarters	Yes	su - root	self

Commands in restricted environment: Windows Login/
KHeadquarters

Name	Avail	Command	Run As
emergency_access/KHeadquarters	Yes	su - root	self

Using Centrify command-line programs

This chapter provides an overview of the available command-line programs that you can run on Centrify-managed computers. If you have administrative rights on one or more Centrify-managed computers, you have access to additional command line programs not described here.

Performing basic account-related tasks

Centrify command-line programs are installed by default with the Centrify UNIX agent. The commands are typically installed in one of the following directories: `/usr/sbin`, `/usr/bin`, or `/usr/share/centrifydc/bin`.

Command-line programs allow you to perform basic Active Directory or UNIX administrative tasks directly from a UNIX shell or using a shell script. These commands use the underlying `adclient` service library to enable you to perform common tasks, such as changing your Active Directory password or setting your effective group membership. You can also use command-line programs to view information, such as the connection status and current zone for a managed computer or details about your effective rights and roles on a local host.

You should use the UNIX command-line programs interactively or in shell scripts when you *must* take action directly on a UNIX computer, or when taking action on the UNIX computer is most *convenient*. For example, if you typically log in to a UNIX terminal on a daily basis, you might want to change your Active Directory password by running a command in a login shell on that UNIX computer.

Commands available for users

Many of the Centrify command-line programs require root privileges because they enable you to perform administrative tasks or operations that must be kept secure. In some cases, commands support different

options or produce different results if run using an administrative account than when run using a standard user account.

The following table displays a brief description of the commands you can run when you are logged on as a standard user without elevated privileges.

Use this command	To do this
adcheck	<p>Check the operating system, network, and Active Directory connections to verify that a computer is ready to join an Active Directory domain.</p> <p>The syntax for the <code>adcheck</code> program is:</p> <pre>adcheck domain_name [options]</pre> <p>The <code>domain_name</code> should be a fully-qualified domain name.</p>
adfinddomain	<p>Display the domain controller associated with the Active Directory domain you specify.</p> <p>The syntax for the <code>adfinddomain</code> program is:</p> <pre>adfinddomain [options] domain_name</pre>
adgpupdate	<p>Retrieve group policies from the Active Directory domain controller and apply the policy settings to the local computer and current user immediately.</p> <p>The syntax for the <code>adgpupdate</code> program is:</p> <pre>adgpupdate [options]</pre>
adid	<p>Display the real and effective UIDs and GIDs for the current user or a specified user.</p> <p>The syntax for the <code>adid</code> program is:</p> <pre>adid [option] [username uid]</pre>
adinfo	<p>Display detailed Active Directory, network, and diagnostic information for a local computer. Options control the type of information and level of detail displayed.</p> <p>The syntax for the <code>adinfo</code> program is:</p> <pre>adinfo [options] [--user username[@domain]] [--password password]</pre>

Use this command	To do this
<code>adlicense</code>	Display the current status of agent features on the local computer. Agent features can be <code>licensed</code> or <code>express</code> if unlicensed.
<code>adpasswd</code>	Change your Active Directory password. After you change your password, you must use the new password for all activities that are authenticated through Active Directory, including logging on to the UNIX shell, logging on to Windows computers, and accessing applications on both UNIX and Windows computers.
<code>adquery</code>	Query Active Directory for information about users and groups. This command is provided for backward compatibility. In most cases, you should use ADEdit (<code>adedit</code>) commands or scripts to perform administrative tasks in Active Directory from Linux or UNIX computers. The syntax for the <code>adquery</code> program is as follows: <code>adquery user group [options]</code> <code>[username groupname]</code>
<code>adsetgroups</code>	View or change the list of groups of which you are a member. The syntax for the <code>adsetgroups</code> program is: <code>adsetgroups [options] group</code>
<code>adsmb</code>	Perform file operations, such as get a file, write a file, or display the contents of a directory using the Centrifysmb stack. The syntax for the <code>adsmb</code> program is: <code>adsmb file_operation -s share [options]</code> The valid <code>file_operations</code> are <code>get</code> , <code>getnew</code> , <code>put</code> , <code>putnew</code> , <code>dir</code> , <code>delete</code> , <code>mkdir</code> , and <code>rmdir</code> .
<code>dzdo</code>	Execute a privileged command as root or another specified user. The syntax for using the <code>dzdo</code> program is: <code>dzdo [options] command</code>

Use this command	To do this
<code>dzinfo</code>	Display detailed information about the configuration of rights and roles for one or more specified users on the local computer. If you do not specify a user, the command returns information for the currently logged on user. The syntax for the <code>dzinfo</code> command is: <code>dzinfo [options]</code>
<code>dzsh</code>	Run commands in a restricted environment shell. This shell is a customized Bourne shell that provides environment variables, job control, command history, and access to specific commands defined by roles.

For information about the additional commands available if you have root or root-equivalent privileges on a computer, see the *Administrator's Guide for Linux and UNIX* or the *Centrify Command Reference Guide*.

Displaying usage information and man pages

To display a summary of usage information for any command-line program, type the command and the `--help` or `-h` option. For example, to see usage information for the `adinfo` command, type:

```
adinfo --help
```

The usage information includes a list of options and arguments, and a brief description of each option. For example, if you specify `adinfo -h` on the command line, the command displays the command-line syntax and a list of the valid options you can use when you execute `adinfo` commands, similar to the following:

```
usage: adinfo [options]
options:
  -u, --user user[@domain] user name, default is
administrator
```

-p, --password pw	user password, prompts if absent
-s, --server ds	domain server for leave operations
-Z, --zoneserver ds	domain server for zone operations useful if zone is in another domain
-C, --noconf	do not restore PAM or NSS config
-G, --nogp	do not restore Group Policy
-f, --force	force local leave, no network activity
-v, --version	print version information
-V, --verbose	print debug information for each operation
-r, --remove	remove computer account from Active Directory
-R, --restore	restore system configuration files without leaving
-t, --reset	using the machine credentials, reset computer to pre-created/unjoined state
-h, --help	print this help information and exit

For more complete information about any command, you can review the information in the command's manual (`man`) page. For example, to see the manual page for the `adinfo` command, type:

```
man adinfo
```

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