Delinea

Server Suite

Configuration and Tuning Guide

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Configuration and Tuning Reference Guide

The *Configuration and Tuning Reference Guide* provides reference information for Server Suite configuration parameters. You can set configuration parameters locally on Linux, UNIX, and Mac OS X computers to fine tune the operation of Server Suite components and subsystems. Server Suite is an integrated software solution that delivers secure access control and centralized identity management through Microsoft Active Directory. With Server Suite software, your organization can improve IT efficiency, regulatory compliance, and security for on-premise, mobile, and hosted resources.

Intended Audience

This guide is intended for administrators who want to customize the operation of Server Suite components and subsystems by modifying locally-defined configuration parameters. Many of these operations can also be configured remotely using group policies. This guide is intended as a supplement to the main Server Suite documentation set. It assumes that you have a working knowledge of Server Suite components and administration.

For information about planning a deployment and installing components, see the *Planning and Deployment Guide*. For information about performing administrative tasks using Access Manager, see the *Administrator's Guide for Linux and UNIX*.

Limitations of this Guide

This guide is updated with every major release of Server Suite. Because the supported configuration parameters can change from one release to another, have different default values between releases, or be designed to address very specific conditions, you should consider the configuration files (centrifydc.conf and centrifyda.conf for example) included with the software to be the definitive source of information for the parameters in the version of the software you are using. If there are differences between the information in the configuration files and this guide, you should consider the comments in the configuration file itself to be the most current or accurate for your environment.

The sections in this guide are as follows:

Working with Parameters and Agent Configuration Files

The Delinea Agent configuration files, centrifydc.conf and centrifyda.conf, can be used to customize and control the operation of Server Suite components and subsystems on a local host computer. This section provides an introduction to using the configuration file and setting values for the configuration parameters defined in the file.

Controlling agent operations

The Delinea configuration file for access control and privilege management is /etc/centrifydc/centrifydc.conf. The Delinea configuration file for auditing is /etc/centrifyda/centrifyda.conf. Depending on the deployment options selected when you install the agent, one or both of these files might be available on each Delinea-managed computer. The configuration files contain parameters that specify how Delinea components and subsystems operate on the local computer. They can be used to tune operations to suit your environment, for example to address bandwidth or latency constraints or address specific requirements, for example, to prevent the storage of a password hash. Many of the operations controlled locally by configuration parameters can also be controlled remotely using group policies. For information about customizing operations using group policies, see the *Group Policies Guide*.

You only have to edit the /etc/centrifydc/centrifydc.conf or /etc/centrifyda/centrifyda.conf file if you want to set custom values for one or more configuration parameters. For most organizations, the default values are appropriate. However, if you decide that you want to use a custom value for any parameter, you can uncomment the parameter name in the appropriate configuration file, then set an appropriate parameter value in place of the default value.

In most cases, you only modify settings in the configuration files if you want to customize specific behavior locally on an individual computer. For most parameters, you can make changes, then run the adreload command to have the changes take effect immediately. Some parameters, however, require you to restart the agent (adclient). Similarly, if you make changes to the configuration parameters used by the Delinea Network Information Service (adnisd), you may need to run the adreload command or restart that service.

Basic syntax used in configuration files

Configuration parameter are defined using a key/value pair that identifies the configuration parameter name and the value assigned to that parameter. If a configuration parameter is not explicitly set in the configuration file, the Delinea Agent assumes a default value for that parameter.

A key/value pair in the configuration file typically takes the following form:

parameter_name: value

where parameter_name is the name of the configuration parameter that describes the component the setting applies to or the purpose of the parameter, and value is the value assigned to that parameter. Variations in the

formatting of the key/value pair are allowed. For example, the parameter name can be followed by a colon (:), equal sign (=), or a space:

parameter_name=value

parameter_name value

Setting configuration parameter names

In most cases, parameter names are fixed strings that are defined in the default centrifydc.conf file and commented out to illustrate the default value or how to configure a setting. In some cases, however, the parameter name itself must be customized to enable a setting. For example, the configuration parameter pam.mapuser.localuser must include the specific local user name you are mapping to an Active Directory account. For example, to map the local user joan7 to the Active Directory user joan.adams, you must set the parameter name to pam.mapuser.joan7 to specify that the mapping is for the local user joan7:

pam.mapuser.joan7: joan.adams

Setting configuration parameter values

Depending on the configuration parameter you are setting, the parameter value can be a string, a numeric value, or a Boolean value. For example, user names and group names defined in Active Directory are specified as strings using a valid Active Directory form, such as user[@domain]. In some cases, string parameter values can include environment variables.

In general, you can specify user names in the configuration file with any of the following valid formats:

- Standard Windows format: domain\user_name
- Universal Principal Name (UPN): user_name@domain
- Alternate UPN: alt_user_name@alt_domain
- UNIX user name: user

However, you must include the domain name in the format if the user account is not in the local computer's current Active Directory domain. In addition, if you are specifying an Active Directory logon name that contains spaces, you should use quotes around the string. For example:

adclient.hash.allow: 'marco sanchez@arcade.com'

Using special characters

Configuration parameter values can include the following special characters that are often used in UNIX scripts:

- The dollar sign ($) signifies an environment variable that can be resolved to an appropriate value if recognized by the agent. Valid environment variable names can consist of alphanumeric characters and underscores.
- A backslash (\) signifies that the next character is a literal, and is used, among other things, to specify a trailing space (\ ) or a single backslash (\\).

Boolean values are case-insensitive. The permissible values are true, yes, false, and no.

If a parameter can take multiple values, those values are separated from each other by a comma or a space. Spaces preceding or trailing each value are ignored.

Using environment variables

The values in key/value pairs can include standard shell environment variables. The variables are resolved to their current value when the Centrify Agent reads the configuration file. For example, you can use the environment variable $HOSTNAME to include the local computer's host name in any parameter value setting:

example_parameter: test_$HOSTNAME

If the name of the current managed computer is host1, the configuration parameter example_parameter takes the value test_host1.

In addition to standard environment variables, you can use the following Centrify-specific environment variables in the configuration file:

- $ZONE is the name of the host computer's Centrify zone.
- $JOINNAME is the name of the host computer's account name in Active Directory.
- $DOMAIN is the name of the Active Directory domain to which the host computer is joined.
- $SITE is the name of the Active Directory site for the host computer.

Rereading parameter values after making changes

In most cases, you can either run the adreload command or restart the agent (adclient) to have changes to any configuration parameter take effect. Running the adreload command or restarting the adclient process forces the Delinea Agent to reread the configuration parameters that have been defined, including any values that have changed since the last time the configuration file was read.

For most configuration parameters, you can run the adreload command to have changes take effect without restarting the adclient process. There are a few configuration parameters, however, that cannot be reloaded by running the adreload command. If you want to ensure that the agent rereads all configuration parameters, you should restart the adclient process. For example, to ensure all changes to adclient-related configuration parameters take effect, you can restart the adclient process.

Similarly, if you make changes to the configuration parameters used by the Delinea Network Information Service (adnisd), you can either run the adreload command or restart the adnisd service to ensure those changes take effect. If you change LRPC- or NSS-related parameters, you should restart both the adclient and adnisd processes if both are running when you make the change.

Securing parameter settings

By default, the configuration files—centrifydc.conf and centrifyda.conf—are owned by root. In most cases, therefore, the parameter settings you specify are secure because they can only be set or modified by the root user and access to the root account is tightly controlled. However, there are many parameters that allow you to specify settings in an external file. For example, the pam.allow.groups parameter allows you to specify a list of groups in an external file, then set the parameter value to use the file: keyword and the file path and file name of that external file.

If you are using an external file to configure parameter settings, you should ensure that the external file meets the following security requirements:

- The external file is owned by root or an equivalently-protected account.
- The external file is not group or world writable.
- The path you specify to the external file is not a symbolic link.

Using group policies to configure settings

Many configuration parameter values can be controlled by enabling and applying corresponding Delinea group policies through the Group Policy Management Editor. When you use group policies to set configuration parameters, the group policy setting overrides any local configuration setting and the group policy setting is reapplied if the computer is rebooted and periodically when the group policy is automatically refreshed. Therefore, if a group policy exists for configuring a specific setting, in most cases, you should use the group policy rather than edit the local configuration file.

If no group policy exists for a configuration parameter you want to change or if no group policy is applied to the local computer, you can customize the local configuration file to set configuration parameter values as needed.

To determine whether a group policy exists to configure a specific setting, and which group policies affect which settings, see the *Group Policy Guide*. When you open the Group Policy Guide PDF file, use the PDF reader search function to search for a setting (for example, adclient.cache.expires.gc). If the setting can be configured with a group policy, the setting is referred to in the group policy description.

It is possible for an Active Directory administrator to override virtually any setting in the local configuration file using group policies applied to a local computer. This effectively gives administrators with permission to enable or disable group policies root-level access to computers in the zones they manage. There is no way to effectively prevent settings from being changed, except by disabling user, computer, or all group policies in the local centrifydc.conf or centrifyda.conf file or by strictly controlling who has permission to enable and apply group policies to computers that join an Active Directory domain.

For information about disabling the application of group policies using settings in the local centrifydc.conf file, see Customizing group policy configuration parameters for more information about enabling and applying group policies rather than setting configuration parameters locally on a computer, see the *Group Policy Guide*.

Parameters and values are subject to change

Configuration parameters are added, updated, and retired with each release of the Delinea Agent. In addition, some parameters are intended only for specific circumstances and are intentionally not documented in this guide. If a configuration parameter setting is recommended by Delinea Support, but not documented in this guide, you should consider the recommendation made by Support to be authoritative. You should also consider the comments in the configuration file to be the most authoritative reference for the release of the software you are using. Because parameters are often created to address specific issues in specific environments, the default values and recommendations for changes to the default values are also subject to change from one release to another.

Customizing adclient Configuration Parameters

This section describes the configuration parameters that affect the operation of the core agent (adclient) process on the local host computer.

adclient.adsyncignore.interval

This configuration parameter specifies how frequently adclient synchronizes `user.ignore` and `group.ignore` with zone data and updates `uid.ignore` and `gid.ignore` accordingly.

Specify the interval, in minutes, using an integer value. The default value is 0, which means the task is disabled.

For example, the following setting runs the task every 120 minutes:

```
adclient.adsyncignore.interval: 120
```

adclient.altupns

This configuration parameter specifies a UPN suffix that adclient will recognize as a valid UPN suffix even if it is a realm unknown by Kerberos.

The default value is “mil”.

For example, to specify “biz” as a suffix to recognize:

adclient.altupns: biz

You can also use multiple UPN suffixes separated by a space. For example, to specify “biz” and “mil” as suffixes to recognize:

adclient.altupns: biz mil

This parameter does not support wildcards (*.acme.com) or preceding dots (.acme.com).

adclient.autoedit

This configuration parameter specifies whether the agent is allowed to automatically edit the NSS and PAM configuration files on the local computer.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value is set to true to allow the files to be edited or false to prevent the files from being edited. The following example allows both the NSS and PAM configuration files to be edited automatically:

adclient.autoedit: true

In most cases, this parameter should be set to true to allow the agent to maintain configuration files automatically. When this parameter is set to true, you can further control the specific individual files to be automatically edited in different operating environments through additional configuration parameters. For example, you can use the adclient.autoedit.nss to enable or disable automatic editing of the nsswitch.conf file or the adclient.autoedit.pam to enable or disable automatic editing of the PAM configuration file. These additional configuration parameters are ignored if the adclient.autoedit parameter is set to false. For more information about the configuration parameters to control the editing of specific files on different platforms, see Enabling automatic editing for specific files.

If you set the adclient.autoedit parameter to false, you must manually edit the appropriate configuration files to enable agent operation. For example, if you set this parameter to false, you should manually edit the nsswitch.conf and /etc/pam.d/systemauth or /etc/pam.d files to include Delinea information or authentication through Active Directory will fail and you may disable login access entirely.

If you want to manually edit the configuration files, you should first make a backup copy of the existing files. After you make a backup copy of the files, you can use the following examples to manually update the files with the configuration information for the agent.

If the adclient.autoedit parameter is not defined in the configuration file, its default value is true.

Enabling automatic editing for specific files

If you set the adclient.autoedit parameter to true, you can use the following parameters to identify the specific files to be automatically edited in different operating environments:

Use this parameter	To do this
adclient.autoedit.nss	Specify whether you want to automatically edit the Name Service Switch configuration (nsswitch.conf) file on **HP-UX**, **Solaris**, and **Linux** computers. For example: adclient.autoedit.nss: true You can also use group policy to set this parameter.
adclient.autoedit.pam	Specify whether you want to automatically edit the PAM configuration (pam.conf file or pam.d directory) on **AIX**, **HP-UX**, **Solaris**, **Mac OS X**, and **Linux** computers. For example: adclient.autoedit.pam: true You can also use group policy to set this parameter.
adclient.autoedit.centrifypam	Specify whether to activate the Delinea authorization plug-in and add it to the authorization mechanism every time adclient starts. The default value is true. For example: adclient.autoedit.centrifypam: true
adclient.autoedit.centrifypam.restart.securityagent	Specify whether to restart SecurityAgent after the authorization database is edited. The default value is true. For example: adclient.autoedit.centrifypam.restart.securityagent: true If this parameter is set to false, you must restart the SecurityAgent process or reboot the computer manually after the authorization database is edited. If you do not restart SecurityAgent or reboot, users might not be able to log in.
adclient.autoedit.nscd	

Some operating systems do not install nscd by default; be sure that nscd is installed before configuring this setting. For example: adclient.autoedit.nscd: false You can also use group policy to set this parameter. | | adclient.autoedit.methods | Specify whether you want to automatically edit the Loadable Authentication Module (LAM) methods.cfg configuration file on **AIX** computers. For example: adclient.autoedit.methods: true You can also use group policy to set this parameter. | | adclient.autoedit.user | Specify whether you want to automatically edit the /etc/security/user file. The default value is true. For example: adclient.autoedit.user: true You can also use group policy to set this parameter. | | adclient.autoedit.user. root | Specify whether root login is controlled by the Centrify authentication mechanism. If this parameter is set to true, the root stanza 'SYSTEM = "compat"' in /etc/security/user will be commented out and root login must go through theCentrify authentication mechanism. The default value is false (so that by default, root login does not go through the <MadCap:variable name="server-company-vars.company-short-name" /> authentication mechanism). For example: adclient.autoedit.user.root: false | | adclient.autoedit.pwgrd | Specify whether you want to automatically edit the password and group hashing and caching daemon (pwgrd) on **HP-UX** computers. For example: adclient.autoedit.pwgrd: true You can also use group policy to set this parameter. |

Note that if you make any changes to any adclient.autoedit.* parameter, you must restart the adclient process for the change to take effect. Restarting adclient is required whether you set the parameters manually in the configuration file or by enabling a group policy.

Related topics

Editing the NSS configuration manually

Editing the PAM configuration manually

Editing the NSS configuration manually

To manually edit the NSS configuration, modify the /etc/nsswitch.conf file to include centrifydc as the first entry for the password and group lines as appropriate for your environment. For example:

passwd: centrifydcfiles
shadow: centrifydcfiles
group: centrifydcfiles

By placing centrifydc at the beginning of each line, you ensure that Active Directory authentication takes precedence over other forms of authentication.

Editing the PAM configuration manually

In most cases, you should not manually edit the PAM configuration on a computer unless absolutely necessary because changes can produce unexpected and undesirable results. If you choose to edit the file manually, you should use caution and limit the changes you make.

To manually edit the PAM configuration to use Delinea and Active Directory, you need to add several lines to the top of the appropriate PAM configuration file for the local operating environment.

For example, on Linux you need to add the following lines to the top of the /etc/pam.d/system-auth file:

auth sufficient pam_centrifydc.so debug
auth requisite pam_centrifydc.so deny debug
account sufficient pam_centrifydc.so debug

```
session sufficient pam_centrifydc.so homedir
password sufficient pam_centrifydc.so try_first_pass
password requisite pam_centrifydc.so deny
```

On Solaris and other platforms, you need to add the following lines to the top of the /etc/pam.conf file:

```
rlogin auth sufficient pam_centrifydc.so debug
rlogin auth requisite pam_centrifydc.so deny debug
login auth sufficient pam_centrifydc.so debug
login auth requisite pam_centrifydc.so deny debug
passwd auth sufficient pam_centrifydc.so try_first_pass debug
passwd auth requisite pam_centrifydc.so deny debug
other auth sufficient pam_centrifydc.so debug
other auth requisite pam_centrifydc.so deny debug
cron account sufficient pam_centrifydc.so debug
other account sufficient pam_centrifydc.so debug
other password sufficient pam_centrifydc.so debug
other session sufficient pam_centrifydc.so debug
```

In most operating environments, when new users log on successfully, the Delinea Agent automatically attempts to create the user's home directory. In Solaris environments, however, the home directory is often automounted over NFS, so the attempt to automatically create a new home directory for new users typically fails. If you use NFS to automount home directories, you can turn off the automatic creation of the home directory by setting the pam.homedir.create parameter in the centrifydc.conf file to false. For more information about setting this parameter, see pam.homedir.create.

By adding the appropriate lines to the beginning of the PAM configuration file, you ensure that Active Directory authentication takes precedence over other forms of authentication.

Editing the LAM configuration manually

To manually edit the LAM configuration for AIX computers, you need to add Delinea specific information to the /usr/lib/methods.cfg and /etc/security/user files.

In the /usr/lib/methods.cfg file, add the following lines to enable authentication through the Delinea Agent and Active Directory:

```
CENTRIFYDC:
 program = /usr/lib/security/CENTRIFYDC program_64 = /usr/lib/security/CENTRIFYDC64
 options = noprompt
```

In the /etc/security/user file, you need to change the SYSTEM attribute for your users. The easiest way to do this is to change the SYSTEM attribute in the "default" stanza. For example:

```
...
 SYSTEM = "CENTRIFYDC OR CENTRIFYDC[NOTFOUND] AND compat"
 ...
```

In addition, if any user has an explicit setting for the SYSTEM attribute, you should remove the setting. For example, by default, the root account has an explicit SYSTEM setting, so you should delete this line or comment it out.

adclient.autoedit.authselect

This configuration parameter specifies whether you want to use the authselect method to enable NSS and PAM configuration on the system that has authselect.

Note: Authselect is a tool that selects system authentication and identity sources from a list of supported profiles, specifically for NSS and PAM configuration.

For example, to use the authselect method, the following parameter should be defined in the configuration file:

```
adclient.autoedit.authselect: true
```

If this parameter is not defined in the configuration file, the default value will be false.

adclient.binding.dc.failover.delay

This configuration parameter specifies the time, in minutes, to wait before adclient fail over to the next domain controller when the currently-connected domain controller is either down or not responding. The default is fail over immediately.

This configuration parameter only takes effect when adclient is running. If the domain controller stored in kset is down when adclient is not running, starting up adclient will force adclient to lookup a healthy domain controller.

adclient.binding.idle.time

This configuration parameter specifies the maximum number of minutes to allow as idle time when binding to Active Directory.

For example, to allow a maximum idle time of 5 minutes during a bind operation:

adclient.binding.idle.time: 5

adclient.binding.ldapsearch.statistic.interval

Use this parameter to specify how much time passes before adclient resets the LDAP search statistics.

The default is 30 minutes.

You can see these statistics by running the following command or by viewing the messages sent to the Unix syslog (centrifydc.log):

adinfo --sysinfo adagent

The adclient.heartbeat.interval parameter controls the heartbeat log messages.

adclient.binding.refresh.force

This configuration parameter specifies whether to force LDAP bindings to be refreshed even if the current binding is to a local (preferred) Active Directory site. Under some conditions, binding to a different site can help facilitate load balancing between servers.

If you set this parameter to true, the agent will attempt to connect to another local domain controller when the period specified in adclient.binding.refresh.interval expires.

By default, this configuration parameter is set to false. For example:

adclient.binding.refresh.force: false

adclient.binding.refresh.interval

This configuration parameter specifies how often to refresh the LDAP bindings to the preferred Active Directory site under these conditions:

- If the computer is currently bound to a local domain controller, bindings are refreshed only if adclient.binding.refresh.force is set to true.
- If the computer is currently bound to a domain controller in another site, bindings are refreshed regardless the adclient.binding.refresh.force setting.

If the agent is unable to communicate with a local domain controller, it automatically connects to an available domain controller in another site until a domain controller in its preferred site becomes available. To determine when a domain controller in the preferred site is available, the agent periodically attempts to re-connect to domain controllers in its preferred site whenever it is connected to a backup domain controller in another site. This parameter controls how frequently the agent performs the attempt to re-connect to the preferred site.

The parameter value specifies the number of minutes between refresh attempts. It must be an integer greater than zero. The following example sets the interval time to 60 minutes:

adclient.binding.refresh.interval: 60

If this parameter is not defined in the configuration file, its default value is 30 minutes.

In changing this parameter, you should consider your network and site topology and the reliability of your servers. If you have highly reliable network links and very good connections between sites, you may find it safe to increase this value, but if communication between sites is slow you should keep this interval short to ensure the agent communicates with domain controllers in its preferred site as soon as possible.

adclient.get.builtin.membership

This configuration parameter determines whether the agent checks for valid users in built-in Active Directory groups, such as Administrators. By default, this parameter's value is false, in which case, the adclient process ignores members of built-in groups.

To include members of built-in groups, set this parameter to true in the configuration file:

adclient.get.builtin.membership: true

adclient.cache.cleanup.interval

This configuration parameter specifies how often the agent should clean up the local cache. At each cleanup interval, the agent checks the cache for objects to be removed or expired, and at every 10th interval, the agent rebuilds local indexes. This parameter's value should be less than the values specified for the adclient.cache.negative.lifetime, adclient.cache.flush.interval, and adclient.cache.object.lifetime parameters.

The default cleanup interval is 10 minutes.

For example:

adclient.cache.cleanup.interval: 10

adclient.cache.encrypt

This configuration parameter specifies whether you want to encrypt the local cache of Active Directory data. If you set this parameter to true, all of the Active Directory data stored in the cache is encrypted and the cache is flushed each time the agent starts up. If you set this parameter to false, the cache is not encrypted and is not flushed when the agent starts up.

For example, to encrypt all data in the cache:

adclient.cache.encrypt: true

If this parameter is not defined in the configuration file, its default value is false.

adclient.cache.encryption.type

This configuration parameter specifies the type of encryption to use when encrypting the local cache. The encryption type you specify must be a type supported in the Kerberos environment. For example, Windows Server 2003 Kerberos supports the following cryptographic algorithms: RC4-HMAC, DES-CBC-CRC and DES-CBC-MD5.

For example:

adclient.cache.encryption.type: des-cbc-md5

This configuration parameter is only used if adclient.cache.encrypt is set to true. If the adclient.cache.encrypt parameter is set to false, this configuration parameter is ignored.

adclient.cache.expires

This configuration parameter specifies the number of seconds before an object in the domain controller cache expires. This parameter controls how frequently the agent checks Active Directory to see if an object in the cache has been updated.

Every object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object—for example because the computer is disconnected from the network—the agent returns the currently cached object until it can successfully contact Active Directory.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you aren't using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time to 600 seconds (10 minutes):

adclient.cache.expires: 600

If this parameter is not defined in the configuration file, its default value is 3600 seconds (1 hour).

The adclient.cache.expires parameter defines the default cache expiration time for all objects types. You can override this default value for specific object types by appending the object type to the parameter name. For example, if you want to explicitly override the default expiration time for computer objects, you can define a different value for the adclient.cache.expires.computer parameter. The valid object types you can append to the parameter name to override the default value are: computer, extension, gc, group, search, user, user.membership and zone. Note that adclient.cache.expires.gc, if not set, does not default to the value of adclient.cache.expires, but has its own default value.

adclient.cache.expires.computer

This configuration parameter specifies the number of seconds before a computer object in the domain controller cache expires. If this parameter is not specified, the generic object cache expiration value is used.

Every computer object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object–for example because the computer is disconnected from the network–the agent returns the currently cached object until it can successfully contact Active Directory.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for computer objects to 600 seconds (10 minutes):

adclient.cache.expires.computer: 600

The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.computer parameter, its value overrides the default value for cached objects.

adclient.cache.expires.extension

This configuration parameter specifies the number of seconds before an extension object in the domain controller cache expires. If this parameter is not specified, the generic object cache expiration value is used.

Every object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object–for example because the computer is disconnected from the network–the agent returns the currently cached object until it can successfully contact Active Directory.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for extension objects to 1800 seconds (30 minutes):

adclient.cache.expires.extension: 1800

> The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.extension parameter, its value overrides the default value for cached objects.

adclient.cache.expires.gc

This configuration parameter specifies the number of seconds before information in the global catalog cache expires. The global catalog cache contains the distinguished name (DN) for each object that has been looked up in Active Directory. The primary purpose of the global catalog cache is to store the results from paged object searches. Object attributes are stored in the domain controller cache.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for global catalog objects to 3600 seconds (60 minutes), which is the default value:

adclient.cache.expires.gc: 3600

> If you do not define the adclient.cache.expires.gc parameter in the configuration file, it has a default value of 3600 seconds (1 hour). Unlike the default value for other object types, the default value for adclient.cache.expires.gc is not dependent on the value of adclient.cache.expires.

adclient.cache.expires.group

This configuration parameter specifies the number of seconds before a group object in the domain controller cache expires. The domain controller cache contains object attributes including the object's Active Directory properties, memberships, indexes and other parameters. If this parameter is not specified, the generic object cache expiration value is used.

Every group object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object–for example because the computer is disconnected from the network–the agent returns the currently cached object until it can successfully contact Active Directory.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for group objects to 1800 seconds (30 minutes):

adclient.cache.expires.group: 1800

> The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.group parameter, its value overrides the default value for cached objects.

adclient.cache.expires.group.membership

This configuration parameter specifies the number of seconds before a group membership object in the domain controller cache expires. The domain controller cache contains object attributes including the object's Active Directory properties, memberships, indexes and other parameters. If this parameter is not specified, the generic object cache expiration value is used.

Every group membership object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object–for example because the computer is disconnected from the network–the agent returns the currently cached object until it can successfully contact Active Directory.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for group objects to 1800 seconds (30 minutes):

adclient.cache.expires.group: 1800

> The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.group.membership parameter, its value overrides the default value for cached objects.

adclient.cache.expires.search

This configuration parameter specifies the number of seconds before the results of an Active Directory search expire.

Search expiration is handled separately from object expiration because a search result may include objects that have been deleted or be missing objects that have been added that meet the search criteria.

You can set this configuration parameter by manually adding it to the centrifydc.conf configuration file and specifying the maximum number of seconds for a search result to be kept in the local cache.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for search to 1800 seconds (30 minutes):

adclient.cache.expires.search: 1800

> The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.search parameter, its value overrides the default value for cached objects.

adclient.cache.expires.user

This configuration parameter specifies the number of seconds before a user object in the domain controller cache expires. If this parameter is not specified, the generic object cache expiration value is used.

Every user object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object—for example because the computer is disconnected from the network—the agent returns the currently cached object until it can successfully contact Active Directory.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for user objects to 1800 seconds (30 minutes):

adclient.cache.expires.user: 1800

> The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.user parameter, its value overrides the default value for cached objects.

adclient.cache.expires.user.membership

This configuration parameter specifies the number of seconds before a user's group membership information in the domain controller cache expires. If this parameter is not specified, the user object cache expiration value (adclient.cache.expires.user) is used.

Every user object retrieved from Active Directory is stamped with the system time when it enters the domain controller cache. Once an object expires, if it is needed again, the agent contacts Active Directory to determine whether to retrieve an updated object (because the object has changed) or renew the expired object (because no changes have been made). To make this determination, the agent checks the highestUSN for the expired object. If the value has changed, the agent retrieves the updated object. If the highestUSN has not changed, the agent resets the object's timestamp to the new system time and retrieves the object from the cache.

If the agent is unable to contact Active Directory to check for updates to an expired object—for example because the computer is disconnected from the network—the agent returns the currently cached object until it can successfully contact Active Directory.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time for user objects to 1800 seconds (30 minutes):

adclient.cache.expires.user.membership: 1800

> The default cache expiration time for all objects types is defined with the adclient.cache.expires parameter. If you explicitly set the adclient.cache.expires.user.membership parameter, its value overrides the default value for cache objects.

adclient.cache.flush.interval

This configuration parameter specifies how frequently, in hours, to flush all objects from the domain controller cache. The domain controller cache contains object attributes including the object's Active Directory properties, memberships, indexes and other parameters.The parameter value must be a positive integer. Unlike the other cache management parameters, which flush objects selectively, this parameter removes all objects in the cache at the interval you specify.

Specify the interval, in hours, using an integer value. The default value is 0, which disables the complete flushing of the cache.

For example, the following setting flushes all values in the cache every 12 hours:

adclient.cache.flush.interval: 12

adclient.cache.negative.lifetime

This configuration parameter specifies how long, in minutes, a negative object should remain in the domain controller cache. The domain controller cache contains object attributes including the object's Active Directory properties, memberships, indexes and other parameters. A negative object is returned when an object is not found in a search result. This configuration parameter determines how long that negative result should remain in the cache, regardless of the object type or object expiration time. By storing this negative result in the cache, the agent does not need to connect to Active Directory to look for an object that was previously not found.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be a positive integer. The default period of time for keeping negative results is 5 minutes. Setting the parameter value to 0 keeps negative objects in the cache indefinitely.

The following example sets the lifetime for negative objects to 10 minutes:

adclient.cache.negative.lifetime: 10

adclient.cache.object.lifetime

This configuration parameter specifies how long, in hours, an Active Directory object should remain in the domain controller cache. Setting the parameter value to 0 keeps objects in the cache indefinitely. When you set this parameter to 0, objects remain in the cache until they are deleted from Active Directory or the cache is manually flushed with the adflush command. If you don't want objects to remain in the cache indefinitely, you can use this parameter to set the maximum amount of time an object should be available in the cache.

For example, if you want to set the maximum time for an object to be held in the cache to 12 hours, you can set this configuration parameters as follows:

adclient.cache.object.lifetime: 12

With this setting, object values can be retrieved from the local domain controller cache for 12 hours. At the end of the 12 hour period, however, the object is removed from the local cache and must be retrieved from Active Directory if it is needed again.

If this parameter is not defined in the configuration file, its default value is 0.

adclient.cache.refresh

This configuration parameter specifies the maximum number of seconds an object can be read from the domain controller cache before it needs to be refreshed. This parameter allows an object to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh: 5

This configuration parameter applies to generic objects in the domain controller cache and becomes the default refresh period for all object types. You can set separate refresh periods for specific objects types using the object-specific configuration parameters. For example, you can set different refresh times for computer objects and user objects using the adclient.cache.refresh.computer, and adclient.cache.refresh.user configuration parameters. This generic object refresh setting applies to any object for which you do not set an object-specific refresh period.

adclient.cache.refresh.computer

This configuration parameter specifies the maximum number of seconds a computer object can be read from the domain controller cache before it needs to be refreshed. This parameter allows a computer object to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh.computer: 5

> The default refresh time for all objects types is defined with the adclient.cache.refresh parameter. If you set the adclient.cache.refresh.computer parameter, its value overrides the default value for objects.

adclient.cache.refresh.extension

This configuration parameter specifies the maximum number of seconds an extension object can be read from the domain controller cache before it needs to be refreshed. The domain controller cache contains object attributes including the object's Active Directory properties, memberships, indexes and other parameters. This parameter allows an extension object to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh.extension: 5

> The default refresh time for all objects types is defined with the adclient.cache.refresh parameter. If you set the adclient.cache.refresh.extension parameter, its value overrides the default value for objects.

adclient.cache.refresh.gc

This configuration parameter specifies the maximum number of seconds an entry can be read from the global catalog cache before it needs to be refreshed. This parameter allows an object to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh.gc: 5

The default refresh time for all objects types is defined with the adclient.cache.refresh parameter. If you set the adclient.cache.refresh.gc parameter, its value overrides the default value for refreshing objects.

adclient.cache.refresh.group

This configuration parameter specifies the maximum number of seconds a group object can be read from the domain controller cache before it needs to be refreshed. This parameter allows a group object to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh.group: 5

The default refresh time for all objects types is defined with the adclient.cache.refresh parameter. If you set the adclient.cache.refresh.group parameter, its value overrides the default value for refreshing objects.

adclient.cache.refresh.search

This configuration parameter specifies the maximum number of seconds search results can be read from the domain controller cache before it needs to be refreshed. This parameter allows the search results to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh.search: 5

> The default refresh time for all objects types is defined with the adclient.cache.refresh parameter. If you set the adclient.cache.refresh.search parameter, its value overrides the default value for refreshing objects.

adclient.cache.refresh.user

This configuration parameter specifies the maximum number of seconds a user object can be read from the domain controller cache before it needs to be refreshed. This parameter allows a user object to be read from the cache if the age of the object in the cache is less than the parameter value.

This parameter is useful in cases where reading objects from Active Directory may result in duplicate object requests. For example, the PAM-enabled login process is designed to always retrieve the user object from Active Directory first to ensure that the most recent version of the user object is available for logging on. It only retrieves the user object from the cache if Active Directory is unavailable. Logging on, however, may require this same information to be requested from Active Directory more than once.

To prevent sending the duplicate object requests during the login process, the Delinea Agent checks this parameter. If the age of the object in the cache is less than the refresh time specified by this configuration parameter, the object is allowed to be read from cache. If the object in the cache is older than the refresh interval, the login process retrieves the information from Active Directory.

The parameter value must be a positive integer. The default value is 5 seconds. For example:

adclient.cache.refresh.user: 5

> The default refresh time for all objects types is defined with the adclient.cache.refresh parameter. If you set the adclient.cache.refresh.user parameter, its value overrides the default value for refreshing objects.

adclient.cache.upn.index

This configuration parameter specifies whether to index user principle names (UPNs) that are stored in the Delinea user cache. You can use this parameter to differentiate between two users when the UPN of one user is equal to the SAM@domain_name of another user, and both user objects are stored in the user cache.

To enable UPN indexing, set this parameter to true. For example:

adclient.cache.upn.index: true

By default, this parameter is set to false, and UPNs are not indexed.

adclient.client.idle.timeout

This configuration parameter specifies the number of seconds before the agent will drop a socket connection to an inactive client.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be an integer greater than zero. The following example sets the inactive client timeout to 900 seconds:

adclient.client.idle.timeout: 900

If you set this parameter to zero, the agent will never drop the socket connection. Therefore, you should always specify a value greater than zero.

If this parameter is not defined in the configuration file, its default value is 5 seconds.

You must restart adclient for changes to this parameter to take effect. There is a Group Policy setting for this property but changing it has no effect until adclient is restarted on the affected computers. (Ref: CS-18792c)

adclient.clients.listen.backlog

This configuration parameter specifies the number of backlog connections to maintain when all threads are busy. Through operating system services, the agent maintains a queue of pending connection requests that are received from the processes that need the services of the agent. This configuration parameter controls the maximum number of pending requests to hold in the queue.

Decreasing the value of this parameter may prevent processes from performing tasks that require adclient services, for example, a login request may be unable to authenticate a user. Increasing the value of this parameter may reduce the chance of service request failure, but may waste system memory resources and impact system performance.

For example:

adclient.clients.listen.backlog: 50

If you change this parameter, you must restart the adclient process for the change take effect.

adclient.clients.socket

This configuration parameter specifies the named socket through which clients communicate with the agent.

The parameter value must be the name of the socket. For example:

adclient.clients.socket: /var/centrifydc/daemon

If this parameter is not defined in the configuration file, its default value is daemon.

adclient.clients.threads

This configuration parameter specifies the number of threads the agent pre-allocates for processing client requests.

The parameter value must be an integer zero or greater. If you set this parameter to zero, the agent processes requests sequentially. For example:

adclient.clients.threads: 4

If this parameter is not defined in the configuration file, its default value is 4 threads.

If you change this parameter, you must restart the adclient process for the change take effect.

adclient.clients.threads.max

This configuration parameter specifies the maximum number of threads the agent will allocate for processing client requests. This parameter value should be greater than or equal to the number of pre-allocated threads specified by the adclient.clients.threads parameter. The default value is 20 threads. For example:

adclient.clients.threads.max: 20

If you change this parameter, you must restart the adclient process for the change take effect.

adclient.clients.threads.poll

This configuration parameter specifies the number of milliseconds the agent waits between checks to see if a client's request has been completed.

Request completion polling is necessary to eliminate race conditions in operating environments such as Linux that don't have pselect implemented in the kernel. This polling mechanism should be disabled if the operating system has an atomic pselect.

The parameter value must be an integer zero or greater. A value of zero turns off polling. For example:

adclient.clients.threads.poll: 100

If this parameter is not defined in the configuration file, its default value is 100 milliseconds.

adclient.cloud.auth.token.max

This configuration parameter specifies the maximum number of cloud authentication requests that can be processed simultaneously. The default is 10 requests.

If you change this parameter, you must restart the adclient process. When the number of simultaneous connection requests exceeds this setting, the next authentication request will fail. If an authentication request times out waiting for a response, the connection is closed and the token is cleared to allow a new request

The default value of this parameter is 10 simultaneous requests. For example:

adclient.cloud.auth.token.max: 10

adclient.cloud.cert.store

Use this configuration parameter to specify the file in which to store the certificate that verifies cloud server connections.

By default, if there is no set file location, adclient will automatically locate the certificate.


The agent searches the following locations by default:

- /etc/ssl/certs/ca-certificates.crt
- /etc/pki/tls/certs/ca-bundle.crt
- /user/share/ssl/certs/ca-bundle.crt

- /usr/local/share/certs/ca-root-nss.crt
- /etc/ssl/cert.pem

This configuration parameter should only be used if adclient.cloud.skip.cert.verification.

For example:

adclient.cloud.cert.store: /etc/ssl/ca-bundle.crt

adclient.cloud.connector

This configuration parameter specifies cloud connectors to use in the current Active Directory forest. This parameter enables you to explicitly designate cloud connectors to use for connections between Server Suite-managed Linux and UNIX computers and the cloud instance providing cloud authentication services.

By default, `adclient` will automatically select the most appropriate cloud connector to use based on network topology. You can use this parameter, however, to manually specify IP addresses or fully-qualified domain names of cloud connectors separated by commas you want connections to go through. By designating some cloud connectors, `adclient` will select one of them to use and won't do automatic discovery to other connectors.

For example, to specify cloud connectors by IP addresses:

```
adclient.cloud.connector: 192.168.1.61:8080, 192.168.1.62:8080
```

To specify cloud connectors using fully-qualified domain names:

```
adclient.cloud.connector: connector1.mydomain.com:8080, connector2.mydomain.com:8080
```

Port 8080 is the default port for cloud connectors to use.

adclient.cloud.connector.refresh.interval

This configuration parameter specifies how frequently `adclient` contacts its cloud connector. The refresh task is a background process that searches for and selects the nearest available cloud connector to use for connectivity between the Active Directory forest and the cloud service.

By default, the refresh process runs every 2 hours. You can use this group policy to modify that interval.

For example, to set the cloud connector refresh interval to 12 hours:

```
adclient.cloud.connector.refresh.interval: 12
```

adclient.cloud.skip.cert.verification

Use this configuration parameter to skip verification of the security certificate for cloud connections.

By default, this parameter is set to false, and certificate verification is required.

For example:

adclient.cloud.skip.cert.verification: false

adclient.cloud.connector.subnet.preference.enabled

This configuration parameter specifies whether or not to enable the ability to select subnet preferences when the agent connects to a cloud connector.

By default, this option is not enabled (false), which means that the agent selects the cloud connector based on the closest Active Directory site.

If you enable this option, the agent selects the cloud connector located in the same subnet as the client within the current Active Directory site, then in different subnets within the current Active Directory site, and then in an Active Directory site that's different than the current one.

adclient.custom.attributes

This configuration parameter enables you to add Active Directory attributes to the Delinea authentication cache that are not retrieved by default. You can specify computer, user, or group attributes by using the appropriate form of the parameter:

adclient.custom.attributes.
computer
:attributeNameadclient.custom.attributes.**user**:attributeNameadclient.custom.attributes.**group**:attributeName

Separate multiple attributes by a space. For example, to specify the user attributes comment and company and the group attributes info and telephoneNumber:

adclient.custom.attributes.user: comment company
adclient.custom.attributes.group: info telephoneNumber

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

You can use the adquery --dump command to see a list of the attributes that adclient caches for users or groups.

adclient.deploy.report.update.interval

The adclient.deploy.report.update.interval configuration parameter specifies how often adclient updates the postalAddress attribute of computer objects. You specify a number to represent how many hours the update interval is.

By default, this parameter is 1, so that the postalAddress is updated every hour.

Within a computer object's postalAddress are the following sub-attributes:

- CurrentDC (the current domain controller)
- AdclientProcessElapseTime (how long since adclient started, in seconds)
- ComputerUpTime (how long the computer has been up and running, "xxx days, hh:mm" format)
- DCUpdateTime (the timestamp when the domain controller was last updated with this information, in Windows UTC time format)
- CurrentConnector (the current connector in use)
- ConnectorUpdateTime (the timestamp when the connector was last updated with this information, in Windows UTC time format)

For example, to set the interval to 8 hours:

adclient.deploy.report.update.interval:8

adclient.disk.check.free

This configuration parameter specifies the size, in KB, of disk space available for the local cache that should generate a warning message. The agent will check the availability of free disk space at the interval specified with the adclient.disk.check.interval parameter. If the disk space available at any interval is less than the value you set for the adclient.disk.check.free parameter, the agent stops saving data in the local cache and displays a warning message to indicate that you should free up disk space. At the next interval when the available disk space exceeds the size you set for this parameter, the agent resumes normal operation and saving data to its cache.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an integer of zero or greater. A value of zero disables the display of a warning message about the available disk space. The default minimum of available disk space that triggers a warning message is 51200 KB. For example:

adclient.disk.check.free: 51200

Keep in mind that the value you set for this parameter can affect the recovery of a system. The agent will only resume saving data in its local cache if there is more disk space available than what you have specified to generate the warning. For example, if you have specified that the agent issue a warning when the available disk space falls to 51200 KB, there must be more than 51200 KB of disk space available for the agent to return to normal operation and write to the cache.

adclient.disk.check.interval

This configuration parameter specifies how frequently the agent should check the disk space available for the local cache. The default interval checks the available disk space every 5 minutes. If the disk space available at any interval is less than the value you set for the adclient.disk.check.free parameter, the agent will stop saving data in the local cache and will discard any new data until you free up enough disk space for it to resume saving data in the local cache.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an integer zero or greater. A value of zero disables checking for available disk space. For example:

adclient.disk.check.interval: 5

Keep in mind that the value you set for this parameter can affect the recovery of a system after the agent stops writing data to the local cache. If you set this parameter to 0, the agent will not check for available disk space so it will not return to normal operation when disk space is freed up. In addition, setting this parameter to 0 or to a long interval may cause the agent to consume too much of the disk for its local cache and make the computer unstable or unusable. Therefore, you should keep the interval for checking the available disk space relatively short. Keeping the interval short will also help to ensure that the agent resumes normal operation and saving data to its cache at the earliest opportunity.

adclient.dns.cache.timeout

This parameter has been deprecated in favor of dns.cache.timeout.

This configuration parameter specifies the amount of time, in seconds, before a cached DNS response expires.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be a positive integer. For example, the default values expires a cached DNS response after 300 seconds:

adclient.dns.cache.timeout: 300

adclient.dns.cachingserver

Cache-only DNS servers cannot provide sufficient authoritative responses to DNS requests directly. They refer to authoritative servers, such as a Windows server and then relay the answer to the DNS request. This means, for some cache-only DNS servers, DNS requests, sent to cache-only DNS server, need to have recursive flag. For example dnscache. Other cache-only DNS servers do not require setting the recursive flag. See your DNS server specifications.

Examples of cache-only DNS servers, include:

- dnsmasq
- dnscache
- tinyDNS
- pdnsd
- unbound
- dnrd

The adclient.dns.cachingserver configuration parameter determines whether to send recursive DNS requests or not. When set to true, this parameter sends recursive DNS requests, as apposed to the standard non-recursive requests. Default is false.

To use a cache-only DNS server, in the centrifydc.conf file, set in the adclient.dns.cachingserver parameter to true. There might be some DNS functionality loss in adclient, when this parameter is set to true.

Parameter syntax:

adclient.dns.cachingserver: false

The default setting is false.

When set to true, recursive DNS requests are allowed.

Optionally, the install.sh script also provides an option for handling cache-only DNS servers with adcheck.

install.sh [--dns_cache]

This invokes adcheck with option -r and allows DNS recursion with cache-only DNS servers.

adclient.dumpcore

This configuration parameter specifies whether the agent should be allowed to dump core.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The value you set for this parameter overrides the default ulimit setting. The parameter value must be one of the following valid options:

- never to specify that the agent never dump core.
- once to specify that the agent should dump core only when there is no existing core dump file.
- always to specify that the agent dump core on every crash.

For example:

adclient.dumpcore: never

adclient.dynamic.dns.command

This configuration parameter specifies the parameters to use for the addns command if it is launched by adclient (see adclient.dynamic.dns.enabled).

For example, the default setting is:

adclient.dynamic.dns.command: /usr/sbin/addns -U -m

The -U option creates or updates the IP address and domain name pointer (PTR) records in the DNS server for the local computer.

The -m option uses the local computer account's Active Directory credentials to establish a security context with the DNS server.

UNIX computers that act as a gateway between networks may require you to specify the network adapter IP address in the addns command line. To ensure that you register the correct network address with the Active Directory DNS server, set adclient.dynamic.dns.command with a command line that uses the correct IP address for the network interface you want to use. (Ref: CS-20319c)

adclient.dynamic.dns.enabled

This configuration parameter specifies whether adclient will automatically launch the addns command. The addns command dynamically updates DNS records on an Active Directory-based DNS server in environments where the DHCP server cannot update DNS records automatically.

In most cases, you do not need to use the addns command if a host's IP address is managed by a Windows-based DNS server and the host obtains its IP address from a Windows-based DHCP server because the DHCP server updates the DNS record for the host automatically. If you are not using a Windows-based DNS server, you should use nsupdate or a similar command appropriate to the operating environment of the DNS server to update DNS records.

The addns command is launched with the parameters specified by the adclient.dynamic.dns.command configuration parameter.

The default value for Mac OS X computers is True

The default value for all other platforms is False.

adclient.dynamic.dns.refresh.interval

This configuration parameter specifies whether or not dynamic DNS records are periodically updated for this host and, if there are updates, the interval between updates. The parameter takes an integer of 0 or greater. If set to 0, it turns the DNS update feature off. If set to 1 or greater, it specifies the number of seconds between DNS update attempts.

The default value for this parameter is 0 (off).

adclient.excluded.domains

This configuration parameter specifies a list of domains to exclude from the list of trusted domains.

For example, you might want to exclude specific domains that are contained within a trusted forest. To specify domains to exclude, enter one or more domain names in dotted-name format, separated by spaces, For example:

adclient.excluded.domains: eng.acme.com qa.acme.com

The Delinea Agent does not probe any excluded domains and consequently ignores users from these domains.

The default value for this parameter is the empty list, which does not exclude any domains.

adclient.exit.on.incomplete.zone.hierarchy

This configuration parameter specifies whether or not the agent stops if it can't load the complete zone hierarchy.

Adclient loads the zone hierarchy during startup only. There might be some situations where not all zones can be loaded: for example, if this is the first time loading zones since running adjoin. Normally, adclient will run with an incomplete or incorrect zone hierarchy.

The parameter value must be a boolean value of true or false. For example:

adclient.exit.on.incomplete.zone.hierarchy: true

If this parameter is not defined in the configuration file, its default value is false.

adclient.fetch.object.count

This configuration parameter specifies the number of objects to obtain in a single LDAP request. You can use this parameter to optimize the number of objects to suit your environment.

The parameter value must be a positive integer. For example:

adclient.fetch.object.count: 5

With this parameter, there is a trade-off here between speed and memory usage as well as bandwidth and latency. As you increase the number of objects included in an LDAP request, you may improve the overall performance by decreasing the number of connections to Active Directory and reducing the overall demand on the server, but you

increase the RAM used by the agent. If you decrease the number of objects included in an LDAP request, you may reduce overall performance because of the additional network traffic, but decrease the memory used by the agent.

On faster networks, you can safely retrieve a small number of objects. On slower networks or when retrieving information for large groups (for example, groups with more than 1000 users), you may want to increase the value for this parameter.

adclient.force.salt.lookup

This configuration parameter specifies that you want to force the Delinea Agent to look up the complete principal name, including the Kerberos realm used as the key salt, from the KDC. Setting this parameter to true is required if you remove arcfour-hmac-md5 from the list of encryption types specified for the adclient.krb5.tkt.encryption.types parameter and if you change a userPrincipalName attribute in Active Directory without changing the user's password.

The parameter value can be true or false. The default value is true. For example:

adclient.force.salt.lookup: false

When this parameter value is set to true it may cause "pre-authrequired" warning messages to appear in the Active Directory event log.

adclient.gc.locator.shortcut

If set to true, the adclient.gc.locator.shortcut configuration parameter specifies to use a shortcut to the global catalog on the domain controller, as long as the domain controller is also a valid global catalog server.

This process bypasses the usual DNS lookup for the global catalog. Setting this parameter to true can be useful in situations where the root domain is blocked, thereby also blocking the global catalog.

By default, the adclient.gc.locator.shortcut configuration parameter is set to false.

adclient.get.primarygroup.membership

This configuration parameter specifies whether zone users are added as members of a primary group.

By default, Active Directory users are not members of their primary Active Directory group. This parameter is used to control whether zone users are added as members of this primary group.

The parameter value can be true or false. If you set this parameter to true, zone users are added to the primary group. If you set this parameter to false, zone users are not added to the primary group.

Setting this parameter to true can have performance implications when you query the group (for example, by using the adquery group command) because adclient has to search for all Active Directory users who have has this group as their primary group.

The default value is false. For example:

adclient.get.primarygroup.membership: false

adclient.gmsa

Use this configuration parameter to specify the gMSA (Microsoft group Managed Service Accounts on Windows) that adclient will treat either as Active Directory or Unix user accounts.

adclient.gmsa: **<gmsa>**

When you specify a gMSA, it is recommended to not use a field or format that uses special characters. Special characters have to be formatted with escape sequences and they're likely to cause errors. For example, if you use CN (CommonName), DisplayName, UPN (UserPrincipalName), those are fine, but samAccountName$ can be problematic because of its use of the $ character.

For each gMSA that you specify, you also need to specify the location where the password is stored using the following format:

<gmsa>.krb5.keytab: **<file_path>**

Example:

adclient.gmsa: serviceXYZ

serviceXYZ.krb5.keytab: /some/secure/location/serviceXYZ.keytab

adclient.group.ignore.blocked.domain.members

You can use this parameter to ignore group members from explicitly blocked domains. This parameter prevents `adclient` from refreshing the group membership due to blocked or unreachable domains; in this way, other membership changes can still be picked up.

For example: some cross domains are blocked by the firewall and some groups have members of those blocked domains. In this case, the group membership refresh fails and reverts to an old list. To ensure that groups from a blocked domains are ignored, you enable this parameter and explicitly block those domains with the `adclient.excluded.domains` or `adclient.included.domains` parameters.

This `adclient.group.ignore.blocked.domain.members` parameter is for use with cross domains. For cross forest domain members, please use the `adclient.one-way.x-forest.trust.force` parameter.

The default value for this parameter is false.

```
adclient.group.ignore.blocked.domain.members: false
```

adclient.hash.allow

This configuration parameter specifies the list of users you want to allow to have their password hash stored. By default, the Delinea Agent stores a UNIX-style SHA256 hash of each user's password in the cache when the user is authenticated during login. Storing the password hash allows previously authenticated users to log on when the computer is disconnected from the network or Active Directory is unavailable.

Although the default behavior is to store the password hash for all users, you can use this parameter to explicitly list the users whose hashed passwords are stored in the cache. If you use this parameter, only the users you specify can log on when the computer is disconnected from the network or Active Directory is unavailable.

The parameter value can be one or more user names. If more than one name, the names can be separated by commas or spaces. For example:

adclient.hash.allow: jdoe bsmith

If no user names are specified or the parameter is not defined in the configuration file, the password hash is stored for all users.

adclient.hash.deny

This configuration parameter specifies the list of users you want to prevent from having their password hash stored. By default, the Delinea Agent stores a UNIX-style SHA256 hash of each user's password in the cache when the user is authenticated during login. Storing the password hash allows previously authenticated users to log on when the computer is disconnected from the network or Active Directory is unavailable.

Although the default behavior is to store the password hash for all users, you can use this parameter to explicitly list the users whose hashed passwords must not be stored in the cache. If you use this parameter, the users you specify cannot log on when the computer is disconnected from the network or Active Directory is unavailable. All other users are permitted to have their password hash stored and allowed to log on when the computer is disconnected from the network or Active Directory is unavailable.

The parameter value can be one or more user names. If more than one name, the names can be separated by commas or spaces. For example:

adclient.hash.deny: jdoe bsmith

If no user names are specified or the parameter is not defined in the configuration file, the password hash is stored for all users.

adclient.hash.expires

This configuration parameter specifies the number of days the password hash for any user can be stored in the cache before it expires.

The parameter value must be a positive integer. A value of zero (0) specifies that the password hash should never expire. For example, to set this parameter so that the password hash expires after 7 days:

adclient.hash.expires: 7

If this parameter is not defined in the configuration file, its default value is 0.

adclient.heartbeat.interval

The adclient.heartbeat.interval configuration parameter specifies how often (in minutes) adclient will send an INFO message to the UNIX syslog.

By default, this parameter is set to zero (0), which means that this task is disabled.

For example, to set the interval to 5 minutes:

adclient.heartbeat.interval:5

adclient.ignore.setgrpsrc

This configuration parameter specifies whether adclient accesses the ~/home/.setgrpsrc file when a user issues commands such as groups and id that return information about users' group membership.

Whenever it accesses the ~/home/.setgrpsrc file, adclient mounts the specified user's home directory. This behavior can be problematic because it makes it difficult for administrators to control mounts to file servers. For example, moving a file server requires removing all mounts, so before doing so, an administrator must scan for mounts that may have been created by running groups or id. In addition, the extra NFS mounts generated by this behavior reduce the number of reserved ports available on Red Hat systems and can slow system performance.

You can set this parameter's value to either true or false. When true, adclient ignores the ~/home/.setgrpsrc file when a user issues commands such as groups and id, and does *not* mount the specified user's home directory. When false, adclient does check the ~/home/.setgrpsrc file when a user issues commands such as groups and id, and does mount the specified user's home directory.

The default value is false.

To change the value to true, such that adclient does not check the ~/home/.setgrpsrc file and mount a user's home directory when checking for group membership, set this parameter's value to true in the configuration file:

adclient.ignore.setgrpsrc: true

After setting this parameter, you must run adreload to reload the configuration file.

> Setting this parameter does not affect the use of the adsetgroups command by the current user to view or change group membership. For a logged on user, the home directory is already mounted.

adclient.included.domains

This configuration parameter specifies a list of domains to include as trusted domains.

If this parameter specifies any domains (that is, is not empty), only the specified domains and the joined domain will be trusted. For example, you might want to specify specific domains to trust in a trusted forest, rather than trust all domains in the forest.

> Alternately, you may use the adclient.excluded.domains parameter to exclude from the trusted list specific domains that are contained within a trusted forest.

To specify domains to include, enter one or more domain names in dotted-name format, separated by spaces, For example:

adclient.included.domains: eng.acme.com qa.acme.com

In this example, the only trusted domains are eng.acme.com, qa.acme.com, and the domain to which the computer is joined.

The Delinea Agent does not probe any domains that are not on the list (except the joined domain) and consequently ignores users from other domains.

The default value for this parameter is the empty list, which has no effect on determining which domains to trust.

adclient.ipv4.port.range.low / high

You can use the adclient.ipv4.port.range.low and adclient.ipv4.port.range.high parameters to specify the low and high ends of the range of IP ports for adclient and adnisd to use. These parameters control the outbound connection port for both TCP and UDP connections.

By specifying an IP port range, you can then configure your firewall to allow traffic through that port range only.

The typical port number is between 1024 and 65535. Setting this parameter does require a restart of adclient.

adclient.iterate.private.groups

This configuration parameter specifies whether adclient iterates through users to look for private groups when searching for groups.

The adclient process may receive periodic requests from processes such as adnisd for all zone-enabled users and groups. adclient queries Active Directory for those users and groups. By default, adclient queries only for group objects when searching for groups. When dynamic private groups are turned on (using the configuration parameter auto.schema.private.group), it creates private groups with a single user where the primary GID of the private group is set to the user's UID. When dynamic private groups are present, adclient must search through user objects as well as group objects when looking for groups.

This parameter's value must be either true or false. When true, adclient iterates through user objects in Active Directory when searching for groups. When false, adclient does not iterate through user objects when searching for groups.

Note that iterating through users isn't noticeably slower than iterating only through groups until the numbers of users get into tens or hundreds of thousands. In these numbers, iteration may take more time.

If this parameter is not defined in the configuration file, its default value is initially false. Once adclient encounters a private group, it sets this parameter's value to true for the rest of adclient's process lifetime or until a user sets this parameter in the configuration file.

adclient.krb5.principal.lower

This configuration parameter converts the principal in Kerberos tickets to lowercase for compatibility with some third-party applications.

Set to true to change the principal in Kerberos tickets to lowercase.

Set to false to leave the case unchanged for the principal in Kerberos tickets.

The default value is false.

Use this parameter when a machine is joined to classic zones or hierarchical zones. When a machine is in Auto Zone, please use auto.schema.name.lower instead.

adclient.krb5.cache.infinite.renewal.gmsa

Use this parameter to specify a list of Group Managed Service Accounts (gMSA) for which `adclient` will issue and renew a Kerberos credential cache indefinitely. You can specify the gMSA account by CN (Common name), Display Name, or UPN.

For example:

```
adclient.krb5.cache.infinite.renewal.gmsa: joe.user@acme.com
```

adclient.krb5.conf.domain_realm.anysite

This configuration parameter specifies whether or not to search for all domain controllers in a kerberized realm or just the domain controllers within the current, preferred site.

If this parameter is set to true, then the system will list all reachable domain controllers in a kerberized realm, regardless of which site they're located in.

If this parameter is set to false, then only the domain controller in the current, preferred site is listed.

For example:

adclient.krb5.conf.domain_realm.anysite: true

If this parameter is not defined in the configuration file, its default value is false.

adclient.ldap.packet.encrypt

This configuration parameter specifies the LDAP encryption policy you use. For example, if your organization has a security policy that does not allow unencrypted LDAP traffic, you can use this parameter to specify that all connections to Active Directory are encrypted. If your organization isn't concerned with the encryption of LDAP data and you want better performance, you can force all connections to be unencrypted.

The parameter value must be one of the following valid options:

- Allowed to allow both encrypted and unencrypted LDAP traffic.
- Disabled to prevent encrypted LDAP traffic.
- SignOnly to require all LDAP traffic to be signed to ensure packet integrity, but not encrypted.
- Required to require all LDAP traffic to be signed and encrypted. If you select this setting and a server doesn't support encryption, the connection will be refused.

For example:

adclient.ldap.packet.encrypt: Allowed

If this parameter is not defined in the configuration file, its default value is Allowed.

adclient.ldap.socket.timeout

This configuration parameter specifies the time, in seconds, the agent will wait for a socket connection timeout during LDAP binding.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer greater than zero. For example:

adclient.ldap.socket.timeout: 30

If this parameter is not defined in the configuration file, its default value is 5 seconds.

adclient.ldap.timeout

This configuration parameter specifies the time, in seconds, the agent will wait for a response from Active Directory before it gives up on the LDAP connection during fetch, update, or delete requests.

If a request is made to Active Directory and a response is not received within the number of seconds specified by this parameter, that request is retried once. For the second request, the agent will wait up to twice as long for a response. If the second request is not answered within that amount of time, the connection to that specific domain controller is considered disconnected. For example, if you set this parameter value to 7, the agent waits 7 seconds for a response from Active Directory to a fetch, update, or delete request. If the request isn't answered within 7 seconds, the agent retries the request once more and waits up to 14 seconds for a response before switching to disconnected mode. This results in a maximum elapsed time of 21 seconds for the agent to determine that Active Directory is unavailable.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. For example:

adclient.ldap.timeout: 10

If this parameter is not defined in the configuration file, its default value is 7 seconds.

adclient.ldap.timeout.search

This configuration parameter specifies the time, in seconds, the agent will wait for a response from Active Directory before it gives up on the LDAP connection during search requests.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. For example:

adclient.ldap.timeout: 10

If this parameter is not defined in the configuration file, its default value is double the value specified for the adclient.ldap.timeout parameter.

adclient.ldap.trust.enabled

This configuration parameter specifies whether you want to allow the agent to query trusted domains and forests for transitive trust information. The parameter's value can be true or false. If you set this parameter to true, the adclient process generates a krb5.conf that includes information from all trusted forests and can be used to authenticate cross-forest users to Kerberos applications. If you set this parameter to false, the agent does not query external trusted domains or forests for information.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be true or false. The default value is true. For example:

adclient.ldap.trust.enabled: true

Querying external trusted forests can take a significant amount of time if the other forests are blocked by firewalls. You may want to set this parameter to false if your trust relationships, network topology, or firewalls are not configured properly for access.

adclient.ldap.trust.timeout

This configuration parameter specifies the maximum number of seconds to wait for responses from external forests and trusted domains when attempting to determine trust relationships. If your trusted domains and forests are widely distributed, have slow or unreliable network connections, or are protected by firewalls, you may want to increase the value for this parameter to allow time for the agent to collect information from external domains and forests.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be a positive integer. For example, to time out if a response is not received in within two minutes, you can set this parameter value to 120:

adclient.ldap.trust.timeout: 120

The default value is 5 seconds. Before changing this setting, you should consider your network topology, the reliability of network connections, and the network bandwidth, speed, and latency for connecting to external forests and domains. If the value is set too low to consistently receive a response, you may be unable to search trusted external domains.

adclient.legacyzone.mfa.background.fetch.interval

This configuration parameter specifies how often the Delinea Agent updates the cache with the list of groups in classic zones and Auto Zones specified in the following parameters:

adclient.legacyzone.mfa.required.groups

This is a background process that updates the cache periodically according to the interval specified. Enabling this configuration parameter will improve multi-factor authentication performance.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy, or to temporarily override group policy.

For example, to set the parameter interval to 45 minutes:

adclient.legacyzone.mfa.background.fetch.interval: 45

To disable this process, set the parameter value to 0.

The default parameter value is 30 minutes.

adclient.legacyzone.mfa.cloudurl

This configuration parameter specifies which cloud instance URL the agent will accesses in order to implement multi-factor authentication for users in classic zones and Auto Zones.

If all of the cloud connectors in the Active Directory forest use a single cloud instance URL, the agent will use this instance for multi-factor authentication by default, and you do not have to specify the URL using this parameter. If

you have access to more than one cloud instance URL, you must specify the URL you would like use for multi-factor authentication for the zone using this parameter or the group policy that modifies this parameter.

If you have access to more than one cloud instance URL, but do not specify which one should be used for multi-factor authentication, you will not be able to configure the zone to use multi-factor authentication.

In most cases, you set this configuration parameter using group policy. If you are manually setting this parameter, the parameter value must be a URL in the following format:

https://tenantid.domainfqdn:port/

For example:

adclient.legacyzone.mfa.cloudurl: https://abc0123.mydomain.com:8080/

adclient.legacyzone.mfa.enabled

This configuration parameter specifies whether multi-factor authentication is enabled for a classic zone or an Auto Zone. If you enable multi-factor authentication, users must be authenticated using more than one method. For example, users might be required to provide a password and respond to a text message or a phone call, or answer a security question. To enable multi-factor authentication, set this parameter to true. Set the parameter to false if multi-factor authentication is not required for any users.

In most cases, you set this configuration parameter using group policy. If you are manually setting this parameter, the parameter value must true or false. For example:

adclient.legacyzone.mfa.enable: true

If this parameter is not defined in the configuration file, its default value is false.

adclient.legacyzone.mfa.required.groups

This configuration parameter specifies a list of Active Directory groups in a classic zone or an Auto Zone that are required to use multi-factor authentication when logging on or using privileged commands. For example, if you want to require all members of the Qualtrak Admin group to use multi-factor authentication when they log on to computers that host sensitive information, you can add that group to this parameter.

Groups specified in this parameter must be security groups; distribution groups are not supported.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy, or to temporarily override group policy.

By default, multi-factor authentication is not enabled for groups in classic or Auto Zones.

You can separate each group by a space or a comma and you can use double quotes or escape characters to included spaces or special characters in group names. For example:

adclient.legacyzone.mfa.required.groups: centrify_users, “Qualtrak Admins”, Domain\ Users

Supported group name formats

You can specify groups by name or you can list the group names in a file in the following formats:

- SAM account name: sAMAccountName
- SAM account name of a group in a different domain: sAMAccountName@domain

- canonicalName: domain/container/cn

Specifying the parameter value in a separate file

To specify a file that contains a list of Active Directory group names, you can set the parameter value using the file: keyword and a file location. For example:

adclient.legacyzone.mfa.required.groups: file:/etc/centrifydc/legacy_user_groups_mfa.require

In the etc/centrifydc/legacy_user_groups_mfa.require file, you would type each group name on its own line using any of the supported name formats. For example:

server_users
“Qualtrak Admins”
Domain\ Users
group4@domain.com

adclient.legacyzone.mfa.required.users

This configuration parameter specifies a list of Active Directory users in a classic zone or an Auto Zone that are required to use multi-factor authentication when logging on or using privileged commands. For example, if you want to require Bill Hill to use multi-factor authentication to log on to a computer that hosts sensitive information, you can add her to this parameter.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy, or to temporarily override group policy.

By default, multi-factor authentication is not enabled for users in classic or Auto zones.

You can separate each user name by a space or a comma and you can use double quotes or escape characters to include spaces or special characters in user names.

For example, to specify that multi-factor authentication is required for users bill hill and tetsu.xu to log on to computers in an Auto Zone you would define the parameter value in the following way:

adclient.legacyzone.mfa.required.users: “bill.hill”, tetsu.xu@ajax.org

Supported user name formats

You can specify users by name or you can list the user names in a file in the following formats:

- SAM account name: sAMAccountName
- SAM account name of a user in a different domain: sAMAccountName@domain
- User Principal Name: name@domain
- Canonical Name: domain/container/cn
- Full DN: CN=commonName,...,DC=domain_component,DC=domain_component
- An asterisk (*), which includes all Active Directory users.

Specifying the parameter value in a separate file

To specify a file that contains a list of Active Directory user names, you can set the parameter value using the file: keyword and a file location. For example:

adclient.legacyzone.mfa.required.users: file:/etc/centrifydc/legacy_user_users_mfa.require

In the etc/centrifydc/legacy_user_users_mfa.require file, you would type each user name on its own line using any of the supported name formats. For example:

tetsu.xu
jane/ doe@ajax.org
Domain Users

adclient.legacyzone.mfa.rescue.users

This configuration parameter specifies a list of Active Directory users who can log on to computers in a classic zone or an Auto Zone when multi-factor authentication is required, but the agent cannot connect to the Delinea cloud service. You should specify at least one user account for this parameter to ensure that someone can access the computers in the event that multi-factor authentication is required but not available.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy, or to temporarily override group policy.

You can separate each user by a space or a comma and you can use double quotes or escape characters to include spaces or special characters in user names.

For example, to specify that user amy adams has the ability to log on to a computer in an Auto Zone if she is required but unable to authenticate using multi-factor authentication, you would define the parameter value in the following way:

adclient.legacyzone.mfa.rescue.users: amy.adams

Supported user name formats

You can specify users by name or you can list the user names in a file in the following formats:

- SAM account name: sAMAccountName
- SAM account name of a user in a different domain: sAMAccountName@domain
- User Principal Name: name@domain
- Canonical Name: domain/container/cn
- Full DN: CN=commonName,...,DC=domain_component,DC=domain_component
- An asterisk (*), which includes all Active Directory users.

Specifying the parameter value in a separate file

To specify a file that contains a list of Active Directory user names, you can set the parameter value using the file: keyword and a file location. For example:

adclient.legacyzone.mfa.rescue.users: file:/etc/centrifydc/legacy_user_users_mfa.rescue

In the etc/centrifydc/legacy_user_users_mfa.rescue file, you would type each user name on its own line using any of the supported name formats. For example:

tetsu.xu
amyadams
jane/ doe@ajax.org
user1@domain.com

adclient.legacyzone.mfa.tenantid

This configuration parameter specifies which Delinea Platform instance ID (also known as the tenant ID) the agent will access in order to implement multi-factor authentication for users in classic zones and Auto Zones.

By default, this parameter is empty and the agent uses the adclient.legacyzone.mfa.cloudurl parameter to locate Delinea Connectors.

For example:

adclient.legacyzone.mfa.tenantid: ABC1234

adclient.local.account.manage

This configuration parameter specifies whether the agent manages local user and local group accounts on computers where the agent is installed.

When this parameter is set to true:

- The agent gets the local user and local group profiles from the zone, and updates the local /etc/passwd and /etc/group files using the information defined in the zone.
- You can view and manage local users and groups in Access Manager as described in the *System Administrator's Guide for Linux and UNIX*.

The default value of this parameter is false, unless you upgraded from an Server Suite release in which local account management was enabled (in which case, it is set to true).

You can also set this configuration parameter using group policy.

adclient.local.account.manage.strict

This configuration parameter applies enforcement mode for local account management. The default is false and it is defined as not strict.

The following are sub-parameters for this configuration parameter:

- adclient.local.account.manage.strict.passwd: false
- adclient.local.account.manage.strict.group: false

When enabled in strict mode for user (except user with UID 0) any unmanaged local user's password entry is removed from /etc/passwd. If /etc/shadow file exist, shadow entry is removed as well. If user's extended attributes exist, those are removed.

When enabled in strict mode for group (except user with GID 0), any unmanaged local group entry is removed from /etc/group. If group's extended attributes exist, those are removed as well.

After switching to strict enforcement of local account management, switching back to non strict local account management does not restore the unmanaged local user or group.

adclient.local.account.notification.cli

This configuration parameter lets you define a command to process changes to local account profiles after the agent synchronizes local user and group profiles with profiles defined in a zone.

For example, if new local users are added, removed, or have their enabled/disabled status changed locally, the command that you define in this parameter is executed. Typical activities that this command might perform include setting the password for new or updated local accounts, or notifying password vault about changes to local accounts and defining actions to take regarding those accounts.

When this parameter is enabled, the agent invokes the defined command in another process and passes a comma separated UNIX name list to the command for further processing.

By default, this parameter's value is empty (that is, no command is defined). This parameter takes effect only when local account management is enable through group policy, or when the adclient.local.account.manage parameter is set to true.

You can also set this configuration parameter using group policy.

adclient.local.account.notification.cli.arg.length.max

This configuration parameter specifies the maximum argument length for the command that you define in the adclient.local.account.notification.cli parameter.

To determine the default argument length for your environment, execute getconf ARG_MAX.

After determining the default argument length for your environment, you can set this parameter to the same value to ensure that the agent's setting is consistent with the environment setting.

The default value of this parameter is 131072, which is 128KB. This parameter takes effect only when the adclient.local.account.manage parameter is set to true.

adclient.local.forest.altupn.lookup

This configuration parameter specifies whether or not to perform the local forest altupn lookup. The default is true. If you set this parameter to false, the local forest altupn lookup is skipped.

adclient.local.group.merge

This configuration parameter determines whether to merge local group membership from the /etc/group file into the zone group membership for groups that have the same name and GID. For example, if the Delinea Agent retrieves the membership list of kwan, emily, and sam for the group profile with the group name performx1 and GID 92531 from Active Directory and there is also a local group named performx1 with the GID 92531 with users wilson and jae, the merged group would include all five members (kwan,emily,sam,wilson,jae).

By default, this parameter value is set to false to prevent unexpected results. For example:

adclient.local.group.merge: false

Setting this parameter to true violates normal NSS behavior and, therefore, may have unexpected side effects. You should analyze your environment carefully before changing this parameter to true. If you determine you can safely merge local and Active Directory group profiles, you can uncomment this parameter and change its value.


If you set this parameter to true, you must run adreload to detect changes in the local group file.

adclient.logonhours.local.enforcement

This configuration parameter determines whether the agent and Active Directory both check for user logon hour restrictions, or whether only Active Directory checks for logon hour restrictions. This parameter is useful in cases where users are in time zones that are different from the time zone that the agent is in.

When this parameter is set to true, the agent and Active Directory both check for local logon hour restrictions. If the agent and user are in different time zones, and one time zone recognizes Daylight Savings Time while the other does not, the user may not be able to log on during permissible hours. (Ref: CS-33553 a)

When this parameter is set to false, only Active Directory checks for local hour restrictions, so there is no Daylight Savings Time conflict with the agent.

The default value for this parameter is true.

You should set this parameter to false if you have users that are not in the same time zone as the agent.

For example:

adclient.logonhours.local.enforcement: false

adclient.lookup.sites

This configuration parameter specifies a list of sites, and optionally a domain, to search for domain controllers and the global catalog if they are not found in the preferred site.


You can specify the preferred site in the adclient.preferred.site configuration parameter, and the preferred site is displayed when you execute the adinfo command.

The format for this parameter is:

adclient.lookup.sites: site1 [site2] [site3]...

The agent performs the following steps whenever it attempts to connect to a DC or GC:

1. Discover the preferred site.
2. From DNS, get a list of DCs or GCs in the preferred site and attempt to connect to each one until a connection is successful or the list is exhausted.
3. If unable to connect to a DC or GC in the preferred site, try to connect to a DC or GC in any site.

By using this configuration parameter, you can restrict step 3 to a specific set of alternate sites to search for DCs or GCs. Run Active Directory Sites and Services to see a list of sites for your environment. Sites are searched in the list order that you specify.

You can use any legal Active Directory site name when you set this parameter. For example:

adclient.lookup.sites USTEXAS USCALIFORNIA

You can optionally specify a domain suffix in this parameter, so that the site list is searched only in the domain that you specify. Use the following format to specify a domain:

adclient.lookup.sites.domainsuffix: site1 [site2] [site3]...

For example:

adclient.lookup.sites.example.com: USTEXAS USCALIFORNIA

If this configuration parameter is not configured, the agent tries to connect to a DC or GC in any site, as described in step 3 above. By default, this configuration parameter is not configured.

Do not add the preferred site to this list, as the preferred site will be searched anyway.

adclient.lrpc2.receive.timeout

This configuration parameter specifies how long, in seconds, the agent should wait to receive data coming from a client request.

In most cases, you set this configuration parameter using group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. For example:

adclient.lrpc2.receive.timeout: 30

If this parameter is not defined in the configuration file, its default value is 30 seconds.

adclient.lrpc2.send.timeout

This configuration parameter specifies the maximum number of seconds the agent should wait for reply data to be sent in response to a client request.

In most cases, you set this configuration parameter using group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. For example:

adclient.lrpc2.send.timeout: 30

If this parameter is not defined in the configuration file, its default value is 30 seconds.

adclient.next.closest.site.lookup.enabled

The adclient.next.closest.site.lookup.enabled configuration parameter specifies whether or not the Microsoft "Try Next Closest Site" is enabled. If it is enabled, the agent locates a domain controller according to the following order:

1. Tries to find a domain controller in the same site.
2. If there isn't a domain controller in the same site, the agent tries to find a domain controller in the next closest site.
   A site is closer if it has a lower site-link cost than another site with a higher site-link cost.
3. If no domain controller is available in the next closest site, the agent tries to find a domain controller in the domain.

By default, this parameter is set to true.

For example: adclient.next.closest.site.lookup.enabled:true.

adclient.nss.statistic.interval

The `adclient.nss.statistic.interval` configuration parameter specifies how much time passes before adclient updates the NSS query statistics information. The value represents the number of minutes.

By default, this parameter is set to 30 minutes.

For example: `adclient.nss.statistic.interval:30`.

adclient.ntlm.domains

This configuration parameter allows you to manually map Active Directory domain names to NTLM domains. This parameter is useful in cases where you need to use NTLM authentication because firewalls prevent Kerberos authentication and when firewall constraints prevent the automatic discovery of Active Directory to NTLM domain mapping.

You can specify the parameter's value as one or more domain name pairs, separated by a colon (:), or using the file: keyword and a file location. For example, you can set the parameter value using the format ActiveDirectory_DomainName:NTLM_DomainName to specify a list of domain name pairs:

adclient.ntlm.domains: AJAX.ORG:AJAX FIREFLY.COM:FIREFLY

To specify a file that contains a list of colon-separated values in the form of ActiveDirectory_DomainName:NTLM_DomainName, you can set the parameter value using the file: keyword and a file location:

adclient.ntlm.domains: file:/etc/centrifydc/domains.conf

Keep in mind that you must manually define how Active Directory domains map to NTML domains. If you define this information in a separate file, such as domains.conf, the file should consist of entries similar to the following:

AJAX.ORG:AJAX

FIREFLY.COM:FIREFLY

HR1.FIREFLY.COM:HR1

After you have manually defined the mapping of Active Directory domains to NTLM domains, you can use the pam.ntlm.auth.domains parameter to specify the list of domains that should use NTLM authentication instead of Kerberos authentication. For more information about defining the domains that should use Kerberos authentication, see pam.ntlm.auth.domains.

Alternatively, you can set the group policy, **Computer Configuration >Delinea Settings > DirectControl Settings > Network and Cache Settings > Specify AD to NTLM domain mappings**.

adclient.ntlm.separators

This configuration parameter specifies the separators that may be used between the domain name and the user name when NTLM format is used. For example, the following setting:

adclient.ntlm.separators: +/\\

allows any of the following formats (assuming a user joe in the acme.com domain):

acme.com+joe
acme.com/joe
acme.com\joe

> The backslash character (\) can be problematic on some UNIX shells, in which case you may need to specify domain\\user.

The first character in the list is the one that adclient uses when generating NTLM names.

The default values are +/\\, with + being the adclient default.

adclient.one-way.x-forest.trust.force

Use this configuration parameter, adclient.one-way.x-forest.trust.force, to specify a list of two-way trusted domains that need to be treated as one-way trusted domains. This is useful when two-way trusted domains are not accessible from currently joining machine, for example, they are behind a firewall. Configuring this parameter allows x-forest users to authenticate onto the trusting machines.

The options are:

- An empty list (default)
- A list of forests or domains to be treated as one-way trusted.

  Specify a list of two-way trusted forests, and domains that have two-way external trust relationship with the local domain, to be treated by DirectControl Agent as one-way trusted forests or domains.

This parameter is likely to be used together with the configuration parameters, pam.ntlm.auth.domains and adclient.ntlm.domains, if these forests and domains are not accessible from the currently joining machine.

- Use the pam.ntlm.auth.domains parameter to specify the list of domains that use NTLM authentication instead of Kerberos authentication.
- Use the adclient.ntlm.domains parameter to map AD domains to NTLM domains.

Alternatively, you can set the group policy **Computer Configuration > Centrify Settings > DirectControl Settings > Adclient Settings > Force domains and forests to be one-way trusted**.

adclient.os.name

This configuration parameter specifies the name of the operating system for the local computer. This information is dynamically determined by the uname command and stored in the Active Directory computer object. The configuration parameter value can be manually overridden by defining a different value, if desired. If you change the value, however, you must restart adclient for the change to take effect.

For example, to set the parameter value manually to Linux:

adclient.os.name: Linux

adclient.os.version

This configuration parameter specifies the version of the operating system for the local computer. This information is dynamically determined by the uname command and stored in the Active Directory computer object. The configuration parameter value can be manually overridden by defining a different value, if desired. If you change the value, however, you must restart adclient for the change to take effect.

For example, to set the parameter value manually to 3.0-125:

adclient.os.version: 3.0-125

adclient.os.version.use.win7prefix

This configuration parameter specifies whether the operating system version prefix (6.1:) should be added automatically to the computer object's operatingSystemVersion attribute when a computer joins the domain. This prefix is used to indicate whether a computer supports FIPS encryption. The valid values are:

- 1 to add the prefix only when FIPS encryption is enabled.
- 2 to add the prefix regardless of FIPS encryption.

Depending on the version of the agent you have installed, the default value might be either of these values. The recommended setting for this parameter is 2. For example, to always add the prefix:

adclient.os.version.use.win7prefix: 2

adclient.paged.search.max

This configuration parameter specifies the maximum number of items included in each page of a paged LDAP search.

The parameter value must be a positive integer. For example:

adclient.paged.search.max: 100

If this parameter is not defined in the configuration file, its default value is 100 items.

Before changing this parameter setting, you should consider its impact on your environment. As you decrease the number of items included in each LDAP page, you increase the number of connections made to Active Directory and the added demand that increased traffic places on the server, but you decrease the RAM used by the agent. If you increase the number of items included in each LDAP page, you decrease the number of connections to Active Directory and reduce the overall demand on the server, but you increase the RAM used by the agent.

adclient.prefer.cache.validation

This configuration parameter instructs adclient to authenticate the user using the cached credentials first regardless of the current connectivity state with the Active Directory domain controller.

The parameter value is either true or false. The default is false; for example

adclient.prefer.cache.validation: false

Set this option to true to reduce traffic on slow networks. However, if the Active Directory credentials are not synchronized with the cached credentials, you run the risk of undesired side affects when the computer is online.

You can also set this configuration parameter using group policy.

adclient.preferred.login.domains

This configuration parameter enables you to specify the domain names against which to authenticate SAM account names. Use this parameter if your environment contains identical SAM account names on multiple domains, and you want to authenticate against a specific domain.

If you use this parameter, the adclient.cache.upn.index parameter must be set to true.

To use this parameter, type a space-separated list of domains as the parameter value. For example:

adclient.preferred.login.domains: demo1.acme.com demo2.acme.com

adclient.preferred.site

This configuration parameter enables you to identify a specific site to use to locate available domain controllers. By default, the adclient process uses CLDAP NETLOGON requests to automatically discover its site based on how sites are configured using Active Directory Sites and Services. This default behavior enables adclient to select domain controllers in the same site as preferred domain controllers because they are likely to provide the best performance and least replication delays. This configuration parameters enables you to override the site returned by Active Directory and use a specific site.

If you don't define a value for the parameter, adclient continues to discover sites based on how sites are configured using Active Directory Sites and Services.

If you want to define a specific site to use, you can use the following override options:

- You can specify a "universal" site override that does not include an Active Directory forest in the parameter name. The override applies to all Active Directory domains that do not have a forest-specific override.
- You can specify one or more "forest-specific" site overrides that includes the name of an Active Directory forest in the parameter names. This type ofoverride limits the domain controllers to the domain controllers in the specified forest-specific site.

Forest-specific site overrides take precedence over universal site overrides. Depending on your requirements, you can use the site override options to override sites for all forests, specific forests, or a combination of the two.

The following is an example a "universal" site override that applies to all forests that do not have a forest specific override:

adclient.preferred.site: my-preferred-site

To specify a forest-specific site override, you specify the configuration parameter using the following format:

adclient.preferred.site.forest_name: my-forest-site

The following example illustrates how you would define the configuration parameters to use the USNORTH Active Directory site for all forests except the ocean-site forestspecific site.

adclient.preferred.site: USNORTH
adclient.preferred.site.ocean.net: ocean-site

adclient.prevalidate.allow.groups

This configuration parameter specifies the groups that are prevalidated to access the local UNIX computer using Active Directory credentials when the computer is offline even if users in the group have not previously logged onto the computer.

Under normal circumstances, only users who have previously logged on to a computer can be authenticated when the computer is disconnected from the network. For those users, authentication is based on the password hashes stored during the previous log-on. In some cases, however, you may require users who have never logged on to a particular computer to be authenticated when the computer is disconnected from the network. For example, you may have an administrative group that requires access to computers that are disconnected from the network but on

which they have never previously logged in. To accommodate the users in that group, you can configure the group for prevalidation.

In most cases, you set this configuration parameter using group policy.

If you are manually setting this parameter, the parameter value must be a comma-separated list of UNIX group names. Enclose group names with spaces in double quotes, for example:

adclient.prevalidate.allow.groups: performx,qualtrak,"domain admins

Using this parameter with other prevalidation parameters

If you do not specify any groups for this parameter, then no group accounts are prevalidated to access the local computer. If you specify either the adclient.prevalidate.allow.users or adclient.prevalidate.allow.groups parameters, only those users and groups are prevalidated, with the exception of any users or groups specified by adclient.prevalidate.deny.users and adclient.prevalidate.deny.groups parameters. For example, to allow all users in the admins group to be prevalidated, except the users who are also members of the outsource group, you could set the adclient.prevalidate.allow.groups and adclient.prevalidate.deny.groups parameters like this:

adclient.prevalidate.allow.groups: admins
adclient.prevalidate.deny.groups: outsource

To allow prevalidation for all users in the zone without any exceptions, you can set the adclient.prevalidate.allow.groups parameter to all@zone. For example:

adclient.prevalidate.allow.groups: all@zone

For users or groups of users to be prevalidated, their accounts must be active accounts with permission to log on to the local computer and have a service principal name (SPN) set in the form of:

preval/username

Where preval is the service name specified by the adclient.prevalidate.service parameter and username is the user logon name, which can be either of the following:

- the name part of the user's UPN, if the domain part matches the user's domain
- samAccountName, if the UPN is empty or the UPN's domain part is different from the user's domain

Registering service principal names

To enable prevalidation for a user, you can use the Windows setspn.exe utility to add a service principal name for the user. For example, to register the service principal name for the user kai@arcade.com using preval as the service name, you could type a command similar to the following in a Windows Command Prompt window:

setspn -A preval/kai kai

This setspn command registers the SPN in Active Directory for the preval service for the specified user account, the Active Directory user kai. On the computers where this user is allowed to be prevalidated, the user can be authenticated without having logged on previously.

If you are allowing prevalidation for an administrative group, you must register a service principal name (SPN) for each member of the group. For example, if you are allowing prevalidation for the admins group and this group has five members, you would use the setspn.exe utility to register a Service Principal Name for each of those members.

Specifying the supported encryption types

All prevalidated users must have their Active Directory msDSSupportedEncryptionTypes attribute set to 0x18 (for just AES128 and AES256 support) or above to be able to login when disconnected. The parameter value represents the sum of the encryption types supported. Use the sum of the following encryption type values to determine the parameter value:

DES_CBC_CRC = 0x01
DES_CBC_MD5= 0x02
RC4_HMAC_MD5 = 0x4
AES128_CTS_HMAC_SHA1_96 = 0x08
AES256_CTS_HMAC_SHA1_96 = 0x10

For example, 0x1c indicates support for RC4_HMAC-MD5, AES128_CTS_HMAC_SHA1_96, and AES256_CTS_HMAC_SHA1_96.

Refreshing prevalidated credentials

To ensure their validity, the credentials for prevalidated users and groups are periodically retrieved from Active Directory. For example, the credentials are refreshed whenever you do the following:

- Reboot the local computer.
- Start or restart the adclient process.
- Run the adflush command to clear the cache.
- Changes a password from the local system.

The credentials are also periodically refreshed at the interval defined by the adclient.prevalidate.interval parameter to ensure that prevalidation will continue working after password changes.

adclient.prevalidate.allow.users

This configuration parameter specifies the users that are prevalidated to access the local UNIX computer using Active Directory credentials when the computer is offline even if they have not previously logged onto the computer.

Under normal circumstances, only users who have previously logged on to a computer can be authenticated when the computer is disconnected from the network. For those users, authentication is based on the password hashes stored during a previous log on. In some cases, however, you may require users who have never logged on to a particular computer to be authenticated when the computer is disconnected from the network. For example, you may have administrative users who require access to computers that are disconnected from the network but on which they have never previously logged in. To accommodate those users, you can configure them for prevalidation.

In most cases, you set this configuration parameter using group policy.

If you are manually setting this parameter, the parameter value must be a comma-separated list of UNIX user names. Enclose user names with spaces in double quotes, for example:

adclient.prevalidate.allow.users: jesse,rae,tai,"sp1 user"

Using this parameter with other prevalidation parameters

If you do not specify any users for this parameter, then no specific user accounts are prevalidated to access the local computer. If you specify either the adclient.prevalidate.allow.users or adclient.prevalidate.allow.groups parameters, only those users and groups are prevalidated, with the exception of any users or groups specified by adclient.prevalidate.deny.users and adclient.prevalidate.deny.groups parameters. For example, to allow all users in the admins group and the users ali, kai, and tanya who are not members of the admins group to be prevalidated, but prevent the users jorge and maurice from being prevalidated, you could set the allow and deny parameters like this:

adclient.prevalidate.allow.groups: admins
adclient.prevalidate.allow.users: ali,kai,tanya
adclient.prevalidate.deny.users: jorge,maurice

For users or groups to be prevalidated, their accounts must be active accounts with permission to log on to the local computer and have a Service Principal Name (SPN) set in the form of:

preval/username

Where preval is the service name specified by the adclient.prevalidate.service parameter and username is the user logon name, which can be either of the following:

- the name part of the user's UPN, if the domain part matches the user's domain
- samAccountName, if the UPN is empty or the UPN's domain part is different from the user's domain

Registering service principal names

To enable prevalidation for a user, you can use the Windows setspn.exe utility to add a service principal name for the user. For example, to register the Service Principal Name for the user kai@arcade.com using preval as the service name, you could type a command similar to the following in a Windows Command Prompt window:

setspn -A preval/kai kai

This setspn command registers the SPN in Active Directory for the preval service for the specified user account, the Active Directory user kai. On the computers where this user is allowed to be prevalidated, the user can be authenticated without having logged on previously.

Specifying the supported encryption types

All prevalidated users must have their Active Directory msDSSupportedEncryptionTypes attribute set to 0x18 (for just AES128 and AES256 support) or above to be able to login when disconnected. The parameter value represents the sum of the encryption types supported. Use the sum of the following encryption type values to determine the parameter value:

DES_CBC_CRC = 0x01
DES_CBC_MD5= 0x02
RC4_HMAC_MD5 = 0x4
AES128_CTS_HMAC_SHA1_96 = 0x08
AES256_CTS_HMAC_SHA1_96 = 0x10

For example, 0x1c indicates support for RC4_HMAC-MD5, AES128_CTS_HMAC_SHA1_96, and AES256_CTS_HMAC_SHA1_96.

Refreshing prevalidated credentials

To ensure their validity, the credentials for prevalidated users and groups are periodically retrieved from Active Directory. For example, the credentials are refreshed whenever you do the following:

- Reboot the local computer.
- Start or restart the adclient process.
- Run the adflush command to clear the cache.
- Changes a password from the local system.

The credentials are also periodically refreshed at the interval defined by the adclient.prevalidate.interval parameter to ensure that prevalidation will continue working after password changes.

adclient.prevalidate.deny.groups

This configuration parameter specifies the groups that cannot be prevalidated to access the local UNIX computer. If you allow any groups or users to be prevalidated, you can use this parameter to define exceptions for any groups that should be prevented from prevalidation. In most cases, you would use this parameter to exclude a subset of users that are in a member group of an allowed group. For example, to allow all users in the admins group to be prevalidated, except the users who are members of the outsource subgroup, you could set the adclient.prevalidate.allow.groups and adclient.prevalidate.deny.groups parameters like this:

adclient.prevalidate.allow.groups: admins
adclient.prevalidate.deny.groups: outsource

In most cases, you set this configuration parameter using group policy.

If you are manually setting this parameter, the parameter value must be a comma-separated list of UNIX group names. Enclose group names with spaces in double quotes, for example:

adclient.prevalidate.deny.groups: performx,qualtrak,"domain admins"

adclient.prevalidate.deny.users

This configuration parameter specifies the users that cannot be prevalidated to access the local UNIX computer. If you allow any groups or users to be prevalidated, you can use this parameter to define exceptions for any users who should be prevented from prevalidation. In most cases, you would use this parameter to exclude a subset of users that are members of an allowed group. For example, to allow all users in the admins group except the users jorge and maurice who are members of the admins group to be prevalidated, you could set the allow and deny parameters like this:

adclient.prevalidate.allow.groups: admins
adclient.prevalidate.deny.users: jorge,maurice

In most cases, you set this configuration parameter using group policy.

If you are manually setting this parameter, the parameter value must be a comma-separated list of UNIX user names. Enclose user names with spaces in double quotes, for example:

adclient.prevalidate.deny.users: jesse,rae,tai,"sp1 user"

adclient.prevalidate.interval

This configuration parameter specifies the interval, in hours, for refreshing the credentials for prevalidated user and group accounts. The credentials for prevalidated users must be periodically refreshed to ensure they are in sync with Active Directory and that prevalidation will continue working after password changes.

The parameter value should be a positive integer. A value of 0 disables all prevalidation of users. For example, to refresh the credentials for prevalidated users every 8 hours:

adclient.prevalidate.interval: 8

In most cases, you set this configuration parameter using group policy.

adclient.prevalidate.service

This configuration parameter specifies the service name to use for prevalidated users and groups. You must use the name you specify in this parameter when you register the Service Principal Name (SPN) for a user or group with the setspn.exe utility.

For example, to set the service name to preval:

adclient.prevalidate.service: preval

In most cases, you set this configuration parameter using group policy.

adclient.random.password.generate.try

This configuration parameter specifies the maximum number of times that the agent attempts to generate a random Active Directory password. Depending on the complexity requirements of your environment, you may need to set this value higher than the default to ensure an appropriately complex password is generated.

The default value is 10.

For example:

adclient.random.password.generate.try: 10

adclient.random.password.complexity.pattern

This configuration parameter specifies the complexity requirements for the generation of a random Active Directory password. Each complexity requirement is assigned a numeric value:

English uppercase characters (A through Z) = **1**

English lowercase characters (a through z) = **2**

Base 10 digits (0 through 9) = **4**

Special, non-alphanumeric characters (!, $, #, %, etc...) = **8**

The parameter value is the additive value assigned to the different complexity requirements you require of the password.

For example, if you wanted to require the generated password to include at least one uppercase letter, at least one lower case letter, and at least one digit, you would set the value at 1 + 2 + 4 = **7**; or:

adclient.random.password.complexity.pattern: 7

The default value for this configuration parameter is 7.

adclient.random.password.length.min

This configuration parameter specifies the minimum character length of a randomly generated Active Directory password.

The default value is 15 characters. For example:

adclient.random.password.length.min: 15

adclient.random.password.length.max

This configuration parameter specifies the maximum character length of a randomly generated Active Directory password.

The default value is 21 characters. For example:

adclient.random.password.length.max: 21

adclient.samba.sync

This configuration parameter specifies whether you want to have the Delinea Agent work in conjunction with Samba. The parameter value can be either true or false. You should set this parameter to false if you do not want any interaction between Delinea and Samba.

If you want the agent to work with Samba, you may need to make changes to your environment or configure additional settings. For Delinea and Samba to operate in the same environment, you need to do the following:

- Check that the samba.base.path configuration parameter specifies the correct path to the Samba binaries.
- Check that the samba.winbind.listen.path configuration parameter specifies the correct path to the Samba winbindd listen path.
- Check that Samba is configured for ADS security.
- Check that Samba belongs to the same REALM as the Delinea Agent.
- Verify that Samba and the Delinea Agent share an Active Directory computer object.
- Set the adclient.samba.sync configuration parameter to true.

For example:

adclient.samba.sync: true
samba.base.path: /usr
samba.windbindd.listen.path: /run/samba/windbindd

For more information about installing and configuring Samba to work with Delinea software, see the *Samba Integration Guide* available on the Delinea web site.

adclient.server.try.max

This configuration parameter specifies the maximum number of servers per domain the agent should attempt to connect to before going into disconnected mode. This parameter is used if the agent is unable to connect to it's primary domain controller to enable it to query DNS for a list of other domain controllers and try each server in the

list up to the maximum number of servers you specify. For example, if you have a large number of replica domain controllers for a given domain, you may want to use this parameter to limit the number of servers for the agent to try in order to limit network traffic and improve performance.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer or 0. Setting the parameter value to 0 means that the agent attempts to connect to every server in the list until successful.

The default value is 0.

For example, to allow the agent to attempt to contact up to five domain controllers before going into disconnected mode:

adclient.server.try.max: 5

This parameter is ignored if you have defined a master domain controller for the zone to which the computer belongs because the computer only connects to that domain controller.

This parameter is deprecated for versions of adclient from 4.4.3 to 5.0.*x*. It is available in version 5.1.0 and later.

adclient.skip.inbound.trusts

This configuration parameter specifies whether you want adclient to skip probing inbound trusts for the domaininfomap.

Options are:

- false: If set to false, when building domaininfomap, both two-way and incoming trusts are probed. (Default)
- true: If set to true, when building domaininfomap, only two-way trusts are probed.

Set adclient.skip.inbound.trusts in the centrifydc.conf file. For example:

adclient.skip.inbound.trusts: true

To apply this configuration parameter while adclient is running, follow the recommended sequence:

1. Perform adreload.
2. Rebuild the domaininfomap. Choose a method:
   - Run adflush -t to rebuild the domaininfomap manually.
   - Wait for the next rebuild cycle from adclient.

adclient.skip.unused.outbound.trusts

This configuration parameter specifies whether you want to prevent the agent from sending network queries to outbound trust domains that do not have users in Delinea zones.

If you set this parameter to true, the agent will only send network queries to outbound trust domains that have users in Delinea zones.

If you are manually setting this parameter, the parameter value must be true or false. For example:

adclient.skip.unused.outbound.trusts: true

If the parameter is not explicitly defined in the configuration file or by group policy, its default value is false.

adclient.sntp.enabled

This configuration parameter specifies whether you want to use the Windows Time Service to keep the local system clock in sync with the domain the computer has joined.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be true or false. For example:

adclient.sntp.enabled: true

If the parameter is not explicitly defined in the configuration file or by group policy, its default value is true.

adclient.sntp.poll

This configuration parameter specifies the interval between SNTP clock updates when you are using the Windows Time Service to keep the local system clock in sync with the domain the computer has joined.

In most cases, you set the polling interval using group policy.

If you are manually setting this parameter, the value is the base 2 logarithm of the time in seconds. For example, setting this parameter value to 6 sets the update interval to 64 seconds (26), and a value of 15 sets the update interval to 32768 seconds, or 9.1 hours. For example, to set the update interval to 256 seconds:

adclient.sntp.poll: 8

If the parameter is not explicitly defined in the configuration file or by group policy, its default value is 15 (9.1 hours).

dclient.tcp.connect.timeout

This parameter specifies the timeout of all TCP port probing used in adclient. This parameter default is ten seconds.

adclient.udp.timeout

This configuration parameter specifies the maximum number of seconds to allow to complete UDP binding. The agent will attempt to bind twice. If the first bind request is not complete within the period specified by this parameter, the agent sends a second request with a timeout period that is double the setting of this parameter. If both bind requests fail to complete within the allotted time, the agent sets its status to disconnected.

For example, if you set this parameter to 10 seconds and the bind request is not complete within 10 seconds, the agent sends a second bind request and waits a maximum of 20 seconds for the bind to complete before assuming the computer is disconnected from the network or Active Directory is unavailable.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be a positive integer. The default value for this parameter is 15 seconds. For example:

adclient.udp.timeout: 15

adclient.update.os.interval

This configuration parameter specifies the number of seconds to wait before updating operating system information after adclient starts in disconnected mode.

If you are manually setting this parameter, the parameter value should be a positive integer. The default value for this parameter is 30 seconds. For example:

adclient.update.os.interval: 30

adclient.use.all.cpus

This configuration parameter specifies whether to use all processors on a multi-processor system. The parameter value can be true or false. Setting this parameter to true allows the adclient process to use additional CPUs on a computer to process background tasks in parallel when logging on and can significantly decrease the startup time in sites with a large number of domain controllers.

For example:

adclient.use.all.cpus: true

If the parameter is not explicitly defined in the configuration file, its default value is true. If you change this parameter, you must restart the adclient process for the change take effect.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

adclient.use.tokengroups

This configuration parameter specifies whether the agent should attempt to use the Active Directory tokenGroups attribute on the user object to determine a user’s group membership when the Kerberos Privilege Attribute Certificate (PAC) is not available.

In most cases, allowing the agent to use this attribute when necessary is desirable and the default setting for this attribute is true. For example:

adclient.use.tokengroups: true

In mixed-mode domains with both Windows 2000 and Windows 2003 computers, however, the tokenGroups attribute can include Universal groups in the user's group membership list. If you have Universal groups in mixed-mode domains and want to prevent those Universal groups from being included in the user's group membership list, you can set this parameter value to false. Setting this value to false will force the agent to use a slower mechanism for finding group membership instead of the tokenGroups attribute and can result in a slower user login experience, but the results will be consistent with what would be retrieved using the Kerberos PAC.

adclient.user.computers

This configuration parameter specifies whether to allow computer principals to be treated as users with login capabilities when added to the zone. The parameter value can be true or false. The configuration parameter must be set to true to allow Distributed File System support for Samba. Setting this to true may impact performance, however, in domains with heavily-loaded domain controllers or large user and computer populations.

For example:

adclient.user.computers: true

adclient.user.lookup.cn

This configuration parameter specifies whether you want to allow users to be found by their common name (cn) attribute. The parameter value can be true or false.

By default, you can allow users to login using their UNIX profile name, Active Directory displayName, or Active Directory cn attribute. However, allowing users to log on using these additional attributes can require the agent to perform multiple searches to locate a user account in Active Directory. In environments with domain controllers under heavy load or with large user populations, searching Active Directory multiple times might negatively impact performance.

If you want to prevent the agent from attempting to access to user information by the common name, you can set this configuration parameter to false. For example:

adclient.user.lookup.cn: false

The default value for Mac OS X computers is false.

The default parameter value for all other platforms is true.

adclient.user.lookup.display

This configuration parameter specifies whether you want to allow users to be found by their display name (displayName) attribute. The parameter value can be true or false.

By default, you can allow users to login using their UNIX profile name, Active Directory displayName, or Active Directory cn attribute. However, allowing users to log on using these additional attributes can require the agent to perform multiple searches to locate a user account in Active Directory. In environments with domain controllers under heavy load or with large user populations, searching Active Directory multiple times might negatively impact performance.

If you want to prevent the agent from attempting to access to user information by the displayName attribute, you can set this configuration parameter to false. For example:

adclient.user.lookup.display: false

The default value for Mac OS X computers is false.

The default parameter value for all other platforms is true.

adclient.user.name.max.exceed.disallow

When this parameter is set to false, users with a login name longer than eight characters are permitted to log in. When set to true, users with a login name longer than eight characters are not permitted to log in. This configuration parameter applies to local account management in that a local user with rights in addition to the platform-specified limit is not be added to the system.

adclient.version2.compatible

This configuration parameter is used to maintain compatibility with zones created using version 2.0 or 3.0 of Access Manager. The default is true for zones created using the 2.0 or 3.0 console. The default is false for zones created with the 4.x or later console.

If you do not have users or groups that were given access to UNIX computers using an older console, having this parameter set to false results in a performance improvement on Windows 2000 domain controllers. Setting the value to true decreases login performance on Windows 2000 domain controllers.

For example:

adclient.version2.compatible: false

If you have users or groups that were given access to UNIX computers using an older console, you may want to upgrade those users and groups to take advantage of the performance improvements.

To determine whether you have zones and users from an older version of Delinea software , open the console and click **Analyze**. You can then review the Analysis Results and attempt to update user properties, if needed.

adclient.watch.cpu.utilization.info.threshold

When adclient's CPU usage is higher than the value specified by this parameter, cdcwatch will write a message to the INFO log.

The default value is -1, which means that no threshold is set.

If the adclient.use.all.cpus parameter is set to true, the CPU utilization will be divided by the total number of CPUs.

For example, the setting below sets the info CPU utilization threshold to 10%:

adclient.watch.cpu.utilization.info.threshold: 10

adclient.watch.cpu.utilization.warning.threshold

When adclient's CPU usage is higher than the value specified by this parameter, cdcwatch will write a message to the WARN log.

The default value is -1, which means that no threshold is set.

If the adclient.use.all.cpus parameter is set to true, the CPU utilization will be divided by the total number of CPUs.

For example, the setting below sets the warn CPU utilization threshold to 20%:

adclient.watch.cpu.utilization.warn.threshold: 20

adclient.watch.slow.lookup.info.threshold

This configuration parameter specifies the adclient threshold (in milliseconds) for the time spent on a complete NSS request. When a NSS request exceeds this threshold, the NSS module writes information to a message to the INFO log file.

By default, this parameter is set to -1, which means that there is no threshold.

For example, the example below specifies that information goes into the INFO log if the request exceeds 20 milliseconds:

```
adclient.watch.slow.lookup.info.threshold:20
```

adclient.watch.slow.lookup.info.threshold.group

This configuration parameter specifies the adclient threshold (in milliseconds) for the time spent on a complete NSS request categorized by group. When a NSS request exceeds this threshold for the user category, the NSS module

writes to a message to the INFO log file.

The group category indicates the following NSS calls: `getgrnam*getgrgid*`

The nss.watch.slow.lookup.info.threshold.group setting overrides that set by the `adclient.watch.slow.lookup.info.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `adclient.watch.slow.lookup.info.threshold.group:35`.

adclient.watch.slow.lookup.info.threshold.user

This configuration parameter specifies the adclient threshold (in milliseconds) for the time spent on a complete NSS request categorized by user. When a NSS request exceeds this threshold for the user category, the NSS module writes to a message to the INFO log file.

The user category indicates the following NSS calls: `getpwnam*getpwuid*getgrouplist`

The nss.watch.slow.lookup.info.threshold.user setting overrides that set by the `adclient.watch.slow.lookup.info.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `adclient.watch.slow.lookup.info.threshold.user:15`.

adclient.watch.slow.lookup.warn.threshold

This configuration parameter specifies the adclient threshold (in milliseconds) for the time spent on a complete NSS request. When a NSS request exceeds this threshold, the NSS module writes information to a WARN log file.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `adclient.watch.slow.lookup.warn.threshold:20`.

adclient.watch.slow.lookup.warn.threshold.group

This configuration parameter specifies the adclient threshold (in milliseconds) for the time spent on a complete NSS request for the group category. When a NSS request exceeds this threshold, the NSS module writes information to a WARN log file.

The group category indicates the following NSS calls: `getgrnam*getgrgid*`

The nss.watch.slow.lookup.info.threshold.user setting overrides that set by the `adclient.watch.slow.lookup.warn.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `adclient.watch.slow.lookup.warn.threshold.group:30`.

adclient.watch.slow.lookup.warn.threshold.user

This configuration parameter specifies the adclient threshold (in milliseconds) for the time spent on a complete NSS request for the user category. When a NSS request exceeds this threshold, the NSS module writes information to a WARN log file.

The user category indicates the following NSS calls: `getpwnam*getpwuid*getgrouplist`

The nss.watch.slow.lookup.info.threshold.user setting overrides that set by the `adclient.watch.slow.lookup.warn.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `adclient.watch.slow.lookup.warn.threshold.user:25`.

adclient.zone.group.count

This configuration parameter provides a calculated value that controls the method used to determine group membership for users. If the calculated value for this parameter is larger than the number of groups a user is a member of, the Delinea Agent iterates over the user's group list to determine group membership. For example, if there are more group profiles defined for the zone than the number of groups the user is a member of, the agent uses the user's group list to determine group membership.

If the calculated value for this parameter is smaller than the typical number of groups a user is a member of, the agent iterates over all of the group profiles enabled for the zone to determine group membership. For example, if there are fewer group profiles defined for the zone than the number of groups the user is a member of, the agent uses the zone's group profile list to determine group membership.

Switching between the two methods for determining group membership may improve the log-in time for some users. You can use this configuration parameter to override the calculated value. For example, if you always want to use the user's group membership list rather than iterate through the list of group profiles defined for the zone, you can set this parameter to an artificially high value. If you always want to use the zone's group profile list rather iterate through the user's group membership list, you can set this parameter to an artificially low value.

For example:

adclient.zone.group.count: 6

addns.tcp.timeout

This configuration parameter controls the amount of time, in seconds, that the addns process waits for responses to its requests for updates.

The parameter value can be any positive integer. The default value of this parameter is 7 seconds:

addns.tcp.timeout: 7

addns.wait.time

This configuration parameter controls the amount of time, in seconds (default 60), that the addns process should wait for another addns process to exit before proceeding.

Because the addns process enables dynamic updates to DNS records on Active Directory-based DNS servers, it includes a mechanism to prevent two addns processes from running at the same time. This configuration parameter value controls how long a addns command request will wait for another addns process to complete its execution before proceeding.

The parameter value can be any positive integer. For example, to set the wait time to 45 seconds:

addns.wait.time: 45

adjust.offset

This configuration parameter specifies the time difference between the local host and the domain that should trigger an adjustment to the local computer's time-of-day setting.

The default parameter value is 5 minutes. With this setting, if the time difference between the local host and the domain controller is less than 5 minutes, the adclient process calls the adjtime function to update the local host time to match the Active Directory domain. If the offset between the local computer and the domain controller is more than 5 minutes, adclient process calls the settimeofday function to update local computer's time.

The parameter value can be any positive integer. For example:

adjust.offset.time: 5

audittrail.audited.command.with.args

This configuration parameter controls whether audit trails for audited command include command parameters. If set to true, the command name and parameters are displayed in the audit trail. If set to false, just the command name is displayed in the audit trail.

The default value is false.

audittrail.Centrify_Suite.Trusted_Path.machinecred.skipda

This configuration parameter specifies whether trusted path audit trail events are sent to the audit installation database in situations where the user is using a computer credential. The default value is true (that is, events are not sent to the audit database). For example:

audittrail.Centrify_Suite.Trusted_Path.machinecred.skipda: true

Events are sent to the system log even if this parameter is set to true.

audittrail.targets

This configuration parameter specifies the target for audit trail information. Possible settings are:

1. Audit information is not sent.
2. Audit information is sent to DirectAudit. This capability is supported by DirectAudit version 3.2 and later.
3. Audit information is sent to the local logging facility (syslog on UNIX systems, Windows event log on Windows systems).
4. Audit information is sent to both DirectAudit and the local logging facility.

If DirectAudit 3.2 or later is installed, the default value is 3 (local logging facility and DirectAudit). Otherwise, the default value is 2 (local logging facility only). For example:

audittrail.targets: 3

In most cases, you set this configuration parameter using group policy.

adittrail.<product>.<component>.overrides

This parameter specifies whether to override the global audit trail targets. If this parameter is set, the system uses the targets value in the current component; otherwise, the system uses the global configured value.

There are two target settings that can be overridden:

- Whether the system sends the audit trail information to DirectAudit or not
- Whether the system sends the audit trail information to the local logging system or not. On UNIX systems, the local logging system is syslog and on Windows systems it's the Windows event log.

For this setting, you specify a single numeric value to represent where the system will send the audit trail information. (Setting one value to signify two settings is called a bit mask.) The possible settings are as follows:

Value	Override whether the audit trail information is sent to DirectAudit?	Override whether the audit trail information is sent to the local logging system?	Description
0	No	No	There is no override to the audit trail target of the current component. The system uses the global audit trail target value.
1	Yes	No	The system overrides just the audit trail target for DirectAudit. This capability is supported by DirectAuditversion 3.2 and later.
2	No	Yes	The system overrides just the audit trail target for the local logging system. If you're using a DirectAuditversion prior to version 3.2, this is the default setting.
3	Yes	Yes	The system overrides both the audit trail targets for DirectAuditand the local logging system. If you're using DirectAuditversion 3.2 or later, this is the default setting.

In most cases, you set this configuration by way of group policy.

adittrail.<product>.<component>.targets

This parameter specifies how to calculate where the system sends the audit trail information for a particular component if you have also set the corresponding adittrail.<product>.<component>.overrides parameter.

There are two kinds of audit trail targets that can be overridden:

- Whether to enable the DirectAudit audit trail target for the component or not
- Whether to enable the local logging system audit trail target or not. On UNIX systems, the local logging system is syslog and on Windows systems it's the Windows event log.

For this setting, you specify a single numeric value to represent which audit trail targets are enabled for the component. The possible settings are as follows:

Value	Enable the DirectAudit audit trail target for the component?	Enable the local logging audit trail target for the component?	Description
-1	No	No	Use the global audit trail target value. This is the default setting.
0	No	No	Neither the DirectAudit nor the local logging target are enabled for the component.
1	Yes	No	Enable only the DirectAudit audit trail target for the component. This capability is supported by DirectAudit version 3.2 and later.
2	No	Yes	Enable only the local logging audit trail target for the component.
3	Yes	Yes	Enable the audit trail targets for both DirectAudit and the local logging system.

In most cases, you set this configuration parameter using the **Computer Configuration > Policies > Administrative Templates Policy definitions (ADMX files) > Delinea Audit Trail Settings** group policy.

The system calculates the final audit trail targets for a component based on the following information:

- If audittrail.<product>.<component>.overrides is not specified, the system uses the global audit trail target value
- If audittrail.<product>.<component>.overrides is specified, for each target (DirectAudit and local logging), whether the audit trail information will be sent to this target is determined by the following:
  - If audittrail.<product>.<component>.targets is set to -1, or the setting is not overridden inaudittrail.<product>.<component>.overrides, the system uses the global audit trail target value
  - If the target is overridden by audittrail.<product>.<component>.overrides and enabled byaudittrail.<product>.<component>.targets, the system sends the audit trail information to this target

capi.cache.enabled

This configuration parameter specifies whether the in-process memory CAPI cache is enabled. If the cache is enabled, lookups are sent to the cache before being sent to adclient.

- If the object is found in the cache and has a valid TTL (as configured in the `capi.cache.negative.ttl` and `capi.cache.ttl` parameters), the object is returned.
- If the TTL has expired, the lookup is sent to adclient.
- If the object is not found in the cache, the lookup is sent to adclient.

If the object is found in adclient, the cache entry (that is, the key-value and acquisition time stamp) is updated.

If you set this parameter to true, the CAPI cache is enabled.

The following attributes are supported:

- `Sid`
- `_UnixName`
- `sAMAccountName`
- `userPrincipalName`
- `Guid`
- `Unixid`

The default value of this parameter is true. For example:

```
capi.cache.enabled: true
```

capi.cache.hash.table.size

This configuration parameter specifies the number of hash map buckets that are allocated if the in-memory CAPI SID cache is enabled through the capi.cache.enabled parameter.

The default value of this parameter is 769. For example:

capi.cache.hash.table.size: 769

capi.cache.log.interval

This configuration parameter specifies the number of seconds between log events that dump information about the performance of the in-memory CAPI SID cache. This parameter takes effect only if the in-memory CAPI SID cache is enabled through the capi.cache.enabled parameter.

- Summary information such as hits, misses, and so on are DEBUG level events.
- Details about the bucket distributions are TRACE level events.

Setting this parameter to 0 disables all hash map log dumps pertaining to the in-memory CAPI SID cache.

The default value of this parameter is 0. For example:

capi.cache.log.interval: 0

capi.cache.max.objects

This configuration parameter specifies the maximum number of objects that are kept in the in-memory CAPI SID cache if the cache is enabled through the capi.cache.enabled parameter. If the number is exceeded, cached objects that are the oldest are replaced with new objects.

The default value of this parameter is ten thousand objects. For example:

capi.cache.max.objects: 10000

capi.cache.negative.ttl

This configuration parameter specifies the number of seconds that a negative cached SID object remains in the in-memory CAPI SID cache before it is refreshed. This parameter takes effect only if the in-memory CAPI SID cache is enabled through the capi.cache.enabled parameter.

The default value of this parameter is 3,600 seconds. For example:

capi.cache.negative.ttl: 3600

capi.cache.ttl

This configuration parameter specifies the number of seconds that a positive cached SID object remains in the in-memory CAPI SID cache before it is refreshed. This parameter takes effect only if the in-memory CAPI SID cache is enabled through the capi.cache.enabled parameter.

The default value of this parameter is 3,600 seconds. For example:

capi.cache.ttl: 3600

db2.implement.pam.ignore.users

Starting with Delinea DB2 agent 5.2.3, this configuration parameter specifies whether the Delinea DB2 agent checks pam.ignore.users for a list of users to authenticate locally, without first attempting to authenticate those users in Active Directory.

By default, the Delinea DB2 agent authenticates users in Active Directory first. If users do not exist in Active Directory, the Delinea DB2 agent then authenticates users locally.

If you set this parameter to true, users defined in the pam.ignore.users list are authenticated locally only (that is, no attempt is made to authenticate them in Active Directory first). For example:

db2.implement.pam.ignore.users: true

To specify that an Active Directory authentication attempt should be made for all users, and that local authentication be attempted only for users not in Active Directory, set this parameter to false:

db2.implement.pam.ignore.users: false

If you change the setting of this parameter, restart the DB2 instance to activate the new setting.

db2.user.zone_enabled

This configuration parameter specifies whether to constrain the DB2 agent authentication to zone enabled Active Directory users only. By default, the DB2 agent authenticates all Active Directory users even if the Active Directory user is not in the zone. To constrain the authentication to zone enabled Active Directory users only, add the following parameter to the /etc/centrifydc/centrifydc.conf file:

db2.user.zone_enabled.db2_instance_name: true

In this parameter, db2_instance_name is the name of the DB2 instance (for example, db2inst1).

After you add this parameter, restart the DB2 instance to pick up the new setting.

db2.userpass.username.lower

This configuration parameter specifies whether the DB2 userpass plugin is used to convert the user name to lowercase before attempting authentication (true) or not make the conversion (false, the default).

dc.dead.cache.refresh

This configuration parameter specifies how long, in seconds, to keep in cache the fact that a domain controller is dead.

The default value is 60 seconds. For example:

dc.dead.cache.refresh: 60

dc.live.cache.refresh

This configuration parameter specifies how long, in seconds, to keep in cache the fact that a domain controller is alive.

The default value is 3600 seconds (one hour). For example:

dc.live.cache.refresh: 3600

dc.penalty.time

This configuration parameter controls how long a domain controller that has failed is considered less preferable to the other domain controllers in the forest that either have not failed or have failed farther back in time.

The default setting is 3600 seconds (one hour).

This parameter helps you avoid domain controllers that appear to be alive, but when they are selected exhibit higher level failures such as crashed, tombstoned, or dead netlogon service.

The value specifies the number of seconds. For example, the following specifies two hours:

dc.penalty.time: 7200

dns.alive.resweep.interval

This configuration parameter specifies the amount of time to wait, when DNS is active, before triggering a DNS server sweep to see if any DNS servers are responding faster than the current one.

The adclient process periodically checks in the background to see if any DNS servers are available with faster response times than the currently active DNS server. This parameter, dns.alive.resweep.interval, determines how often this check, or sweep, occurs. The default is one hour (3600 seconds).

For the sweep, the dns.sweep.pattern parameter determines the probe pattern that is used to find a live DNS server; that is, it sets:

- The protocol to use (TCP or UDP)
- The amount of time to wait for a response.

The DNS server that responds fastest is selected, is cached in memory, and is used for all DNS requests until one of the following occurs:

- It stops responding.
- A new server sweep discovers a faster DNS server and replaces it.
- Adclient is stopped and restarted.

If the newly selected server is different than the previous server, the kset.dns.server file is updated with the address of the newly selected server.

The default value for this parameter is 3600 seconds.

The parameter value must be a positive integer. For example:

dns.alive.resweep.interval: 3600

dns.block

This configuration parameter specifies the list of domain controllers that should be filtered out when resolving the domain controller to contact through DNS. This configuration parameter enables you to prevent the adclient process from attempting to contact domain controllers that are known to be inaccessible, for example, because they reside behind a firewall, or domain controllers that shouldn't be contacted, for example, because of their physical location or because they are no longer valid domain controllers for the site.

The parameter value can be one or more fully-qualified domain controller server names. If you are specifying more than one domain controller name, the names can be separated by commas or spaces. For example:

```
dns.block: ginger.ajax.org,salt.ajax.org,nc1.sea.ajax.org
```

In most cases, you set this configuration parameter using group policy.

If you don't specify a value for this parameter, access is not blocked for any domain controllers.

dns.cache.negative

This configuration parameter specifies whether to cache negative DNS responses. A negative response is returned when a DNS server is not found. By storing a negative result in the cache, the agent does not look for a server that was previously not found.

Set this parameter to true to cache negative DNS responses or false to not cache negative responses. When this parameter is false, the system attempts to respond to all requests. A cached response expires after the amount of time specified by the dns.cache.timeout parameter (default value is 300 seconds).

The default is true; for example:

dns.cache.negative:true

dns.cache.timeout

This configuration parameter specifies the amount of time, in seconds, before a cached DNS response expires.

The default value is 300 seconds.

Specify a positive integer; for example:

dns.cache.timeout:300

dns.dc.domain_name

This configuration parameter can be used to specify the domain controller host names if your DNS is not configured to use Active Directory. In most cases, you should not use this configuration parameter in a production environment because Active Directory automatically updates DNS with fail-over and replica servers optimized for the Active Directory site configuration. This configuration parameter is used primarily for configuring an evaluation environment when the DNS server is on a UNIX computer and can't provide the _ldap service records.

To set this parameter, the Active Directory domain name must be specified as the last portion of the configuration parameter name, and the parameter value is the host name of the domain controller. For example, if the Active Directory domain is acme.com and the domain controller for that domain is coyote.acme.com:

dns.dc.acme.com: coyote.acme.com

You must specify the name of the domain controller, not its IP address. In addition, the domain controller name must be resolvable using either DNS or in the local /etc/hosts file. Therefore, you must add entries to the local /etc/hosts for each domain controller you want to use if you are not using DNS or if the DNS server cannot locate your domain controllers.

To specify multiple servers for a domain, use a space to separate the domain controller server names. For example:

dns.dc.lab.test: dc1.lab.test dc2.lab.test

dns.dead.resweep.interval

This configuration parameter specifies the amount of time to wait, in seconds, when DNS is down, before triggering a DNS server sweep to see if any DNS servers are alive.

If the current DNS server times out on a request (does not respond within the interval and number of retries specified by dns.tcp.timeout or dns.udp.timeouts), the agent attempts to acquire another DNS server. If it fails to find a live server, DNS is considered down and the agent waits for the interval specified by this parameter, dns.dead.resweep.interval, before attempting to acquire another DNS server.

The default is 60 seconds.

The parameter value must be a positive integer. For example:

dns.dead.resweep.interval: 60

dns.gc.domain_name

This configuration parameter can be used to specify the domain controller used as the global catalog if your DNS is not configured to use Active Directory. In most cases, you do not use this configuration parameter in a production environment. This configuration parameter is used primarily for configuring an evaluation environment when the DNS server is on a UNIX computer and can't provide the _gc service records.

To set this parameter, the Active Directory domain name must be specified as the last portion of the configuration parameter name, and the parameter value is the host name of the domain controller. For example, if the Active Directory domain is arcade.com and the domain controller for that domain is fire.arcade.com:

dns.gc.arcade.com: fire.arcade.com

> You must specify the name of the domain controller, not its IP address. In addition, the domain controller name must be resolvable using either DNS or in the local /etc/hosts file. Therefore, you must add entries to the local /etc/hosts for each domain controller you want to use if you are not using DNS or if the DNS server cannot locate your domain controllers.

To specify multiple servers for a domain, use a space to separate the domain controller server names. For example:

dns.dc.lab.test: dc1.lab.test dc2.lab.test

dns.query.all.servers

This configuration parameter specifies whether the DNS subsystem should try all live DNS servers until either the lookup succeeds or the list is exhausted.

When this parameter is set to true (the default), DNS tries each server on the list of all DNS servers in /etc/resolv.conf (or dns.servers) one-by-one until either the list is exhausted or the object is resolved. By default, this configuration parameter is configured as true:

dns.query.all.servers: true

When this parameter is set to false, the DNS subsystem stops querying after the first “record not found” response.

This feature is useful in environments that contain multiple DNS servers that do not all hold the same records (and are therefore not all aware of the same AD domains).

dns.servers

This configuration parameter specifies a space separated list of IP addresses of DNS servers that are used to resolve domain controller names. Set this parameter if a computer running Mac OS X 10.7 or later cannot connect to a domain controller through a VPN connection.

Starting with Mac OS X 10.7, /etc/resolv.conf is no longer used for domain controller name resolution. Therefore, some VPN programs no longer update DNS server information in /etc/resolv.conf when signing on. On computers running Mac OS X 10.7 and later, this can result in the computer not being able to connect to a domain controller through a VPN if the DNS server locations are not specified as described here.

The following example shows the setting of two IP addresses for DNS servers:

dns.servers: 111.22.333.4 555.66.777.8

dns.sort

This configuration parameter determines whether to sort by speed during background sweeps or to pick the first DNS server that responds.

> This parameter only applies to *background* sweeps. During *initial* sweeps, the first server to respond is always chosen, regardless of how dns.sort is set.

Generally, the first server in the list (as specified in /etc/resolv.conf or by the dns.servers parameter) responds first. However, if a server was previously chosen, and is still configured in /var/centrify/kset.dns.server, it is always tried first regardless of how dns.sort is set.

This parameter is useful if you have multiple DNS servers specified in /etc/resolv.conf, some of which are not compatible with DirectControl. If you list the DirectControl-compatible first, and set this parameter to false, an incompatible server will never be chosen unless the compatible servers are unavailable.

Set the value of this parameter to true to sort by speed. Set the value to false to select the first server that responds.

The default is to sort by speed (true); for example:

dns.sort: true

dns.sweep.pattern

This configuration parameter specifies a comma separated list to use when scanning for live DNS servers. For each item in the list, specify the type of scan (t for TCP; u for UDP) and the number of seconds to wait for a response.

For example, the following pattern:

dns.sweep.pattern: t1, u1,u2

specifies:

- A TCP scan with a one second wait for a response
- A UDP scan with a one second wait for a response
- Another UDP scan with a two second wait for a response

For each value, all known DNS servers are queried. If the kset.dns.server file exists, the server it defines is queried first.

For initial DNS server acquisition, the first DNS server to respond is chosen, at which point the sweep is terminated. Since the kset.dns.server file is queried first, the server it defines is most likely to be selected. Otherwise, the first server specified in /etc/resolv.conf responds first

For background DNS sweeps, the entire sweep pattern is completed, at which point the fastest server to respond is chosen and the sweep is terminated.

If a new DNS server is selected, the kset.dns.server file is updated with its address.

If the end of the list is reached and no DNS servers respond, DNS is considered down. A new sweep begins after the period of time specified by the dns.dead.resweep.interval.

The default pattern for Linux and Unix is:

dns.sweep.pattern: t1,u1,u1,t2,u2,u2

The default pattern for OS X is:

dns.sweep.pattern: u1,u1

dns.tcp.timeout

This configuration parameter specifies the amount of time, in seconds, to wait before re-sending a TCP request, when there is no response from the current DNS server. If the current server does not respond to this request, it is considered down, which triggers a sweep to acquire a new server as specified by the dns.sweep.pattern parameter. The new server becomes the selected server (it is cached in memory and its address is put in kset.dns.server), and it attempts to handle the DNS request.

The default value is 1 second. You may specify only one TCP retry.

Specify a positive integer; for example:

dns.tcp.timeout: 1

This parameter specifies the timeout values for TCP requests. Use dns.udp.timeouts to specify timeout values for UDP requests.

dns.udp.timeouts

This configuration parameter specifies the number of times to re-send a UDP request, and the number of seconds to wait for each, when there is no response from the current DNS server to a UDP request. Specify a comma separated list of values, up to three entries. If the current server does not respond to any of the requests, it is considered down, which triggers a sweep to acquire a new server as specified by the dns.sweep.pattern parameter. The new server becomes the selected server (it is cached in memory and its address is put in kset.dns.server), and it attempts to handle the DNS request.

The default value on Linux and Unix is three retries of 1, 2, and 4 seconds, respectively.

The default value on OS X is 1 second.

Specify a positive integer; for example:

dns.udp.timeouts: 1, 2, 4

This parameter specifies the timeout values for UDP requests. Use dns.tcp.timeout to specify timeout values for TCP requests.

domain.dead.cache.refresh

This configuration parameter specifies how long, in seconds, to keep in cache the fact that a domain is dead (that is, the domain does not contain any live domain controllers).

The default value is 60 seconds. For example:

domain.dead.cache.refresh: 60

domain.live.cache.refresh

This configuration parameter specifies how long, in seconds, to keep in cache the fact that a domain is alive (that is, the domain contains at least one live domain controller).

The default value is 3600 seconds (one hour). For example:

domain.live.cache.refresh: 3600

fips.mode.enable

This configuration parameter indicates whether FIPS 140-2 compliant algorithms are used in the authentication protocols. FIPS 140-2 compliance is available for authentication using Kerberos and NTLM with the following caveats and requirements:

- FIPS mode is available on Centrify Agents version 5.0.2 or later but only on specific UNIX platforms. See the NIST validation entry for the Centrify FIPS mode for the current list of supported platforms.

- Domain controllers must be at Windows 2008 domain functional level or greater. If the domain controller domain functional level does not meet the required level, adclient does not start and returns an error message.
- FIPS 140-2 compliance uses only the following algorithms: AES128-CTS or AES256-CTS encryption types, RSA for public key generation, DSA for digital signature generation and SHA1, SHA256, SHA384 or SHA512 for hashing.
- Inter-realm keys for the AES128-CTS or AES256-CTS encryption types must be established between any trusted domains to enable Active Directory users tolog on to a joined computer (see the ksetup utility to set up inter-realm keys).
- FIPS mode only allows NTLM pass-through authentication over SChannel; FIPS mode is not available for 'NTLM authentication over SMB or SMB2.

In most cases, you set this configuration parameter using group policy. As long as the UNIX computer is running a supported platform, this policy sets the fips.mode.enable configuration parameter to true and restarts adclient.

The administrator must explicitly add the centrifydc_fips.xml or centrifydc_fips.adm group policy template on the domain controller to set fips.mode.enable. The template needs to be imported to just one domain controller in a forest.

If you are manually setting this parameter, the parameter value must be true or false. For example, to enable FIPS 140-2 compliant algorithms, set the following:

fips.mode.enable: true

The default is false.

After manually setting this parameter, you must restart adclient to enable FIPS mode.

There are several restrictions and rules governing the use of FIPS mode. For example:

- Prevalidated groups and users that use FIPS mode to log in when disconnected must have their Active Directory msDS-SupportedEncryptionTypes attribute setto at least 0x18 (prevalidated login for users in FIPS mode requiresKerberos AES 128- or 256-bit encryption).Seeadclient.prevalidate.allow.groups and adclient.prevalidate.allow.users forthe full explanation of the Active Directory msDS-SupportedEncryptionTypes options.
- The value of the corresponding Windows policy (**Computer Configuration > Policies > Windows Settings > Security Settings > Local Policies > Security Option > System Cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing**) has no effect on the Windows, Linux, UNIX, or Mac OS X computers managed through the Delinea Agent. You must use the configuration parameter or the Delinea policy to enable FIPS mode.

The following configuration parameters affect adclient operation when FIPS mode is enabled:

- adclient.krb5.keytab.clean.nonfips.enctypes: Set this configuration parameter to true to have adclient scan the computer's keytab file andremove all non-AES encryption keys for service principal names (SPNs) during startup. (The default is false.)
- adclient.krb5.permitted.encryption.types: If you include the arcfour-hmac-md5 encryption type in this configuration parameter ANDadclient.krb5.extra_addresses is true, adclient generates the MD4 hash for the computer password and saves it in the keytab file.

For more information about using FIPS encryption, see the *Administrator's Guide for Linux and UNIX*.

log

This configuration parameter defines the level of detail written to the agent log file. The log level works as a filter to define the type of information you are interested in and ensure that only the messages that meet the criteria are written to the log. For example, if you want to see warning and error messages but not informational messages, you can change the log level from INFO to WARN.

The parameter value can be FATAL, ERROR, WARN, INFO, DEBUG, or TRACE. For example:

log: WARN

You can also modify this configuration parameter to define a different logging level for specific library messages. For example:

log: info
log.pam: debug

logger.facility.adclient

This configuration parameter defines the syslog facility to use for logging general adclient activity. You can specify separate syslog facilities for logging general adclient messages, adclient auditing messages, and adnisd messages. This parameter's value can be any valid syslog facility. For example, you can set this parameter to log messages to auth, authpriv, daemon, security, or localn facilities.

The default facility is auth. For example:

logger.facility.adclient: auth

You can specify other process names for logging, or use an asterisk (*) to specify the default facility to use for all agent processes. For example, you can specify logger.facility.*: auth in the configuration file to direct all agent processes send messages to the auth facility of syslog.

logger.facility.adclient.audit

This configuration parameter defines the syslog facility to use for logging adclient auditing messages. You can specify separate syslog facilities for logging general adclient messages, adclient auditing messages, and adnisd messages. This parameter's value can be any valid syslog facility. For example, you can set this parameter to log messages to auth, authpriv, daemon, security, or localn facilities.

The default facility is auth. For example:

logger.facility.adclient.audit: auth

If this parameter is not defined in the configuration file, the audit messages are logged in the facility defined for the logger.facility.adclient parameter.

logger.facility.diag

This configuration parameter defines the syslog facility to use for logging diagnostic messages. Diagnostic messages are intended to help you troubleshoot operations and trace all of the LDAP, Kerberos, NTLM and RPC

messages that are generated for the following tasks:

- adjoin operations
- adleave operations
- lookup object operations
- authentication operations
- log on operations
- password change

This parameter enables you to specify a separate syslog facilities for logging diagnostic from the facility used to log general adclient messages, adclient auditing messages, and adnisd messages. This parameter's value can be any valid syslog facility. For example, you can set this parameter to log messages to auth, authpriv, daemon, security, or localn facilities.

The default facility is auth. For example:

logger.facility.diag: auth

You should note that diagnostic messages are only logged if you enable logging with the addebug command. If the parameter is not defined in the configuration file, the messages are logged in the default facility or the facility defined for the logger.facility.adclient parameter.

logger.memory.bufsize

This configuration parameter specifies the default size for the in-memory circular log buffer. The in-memory circular log buffer is only enabled if the adclient watchdog process is forced to restart the adclient process. The default parameter value is 128K. You should not manually set this parameter value in the configuration file unless you are instructed to make the setting by Centrify Support.

logger.memory.enabled

This configuration parameter specifies whether the in-memory circular log buffer is enabled. The in-memory log buffer should only be enabled automatically if the adclient watchdog process is forced to restart the adclient process. Therefore, the default value for this parameter is false. You should not manually set this parameter value in the configuration file unless you are instructed to make the setting by Delinea Support.

logger.memory.log

This configuration parameter specifies the default log level for the in-memory circular log buffer. The in-memory circular log buffer is only enabled if the adclient watchdog process is forced to restart the adclient process. The default value for this parameter is DEBUG. You should not manually set this parameter value in the configuration file unless you are instructed to make the setting by Delinea Support.

logger.queue.size

This configuration parameter controls the maximum number of messages that may be queued before they are sent to syslog. The messages in the queue are sent to syslog asynchronously. During normal operation, if the number of

messages in the queue reaches the value set for this parameter, no new messages are added until the number of messages in the queue decreases below the maximum number you have specified.

Each message consumes about 100 bytes of storage in the message queue.

If the logging level is set to DEBUG, this parameter's value is automatically multiplied by a factor of 4 to allow additional messages to be logged.

The parameter value must be a positive integer. For example:

log.queue.size: 256

> Setting this parameter to zero (0) disables the message queue, and causes all log messages to be written to the syslog facility synchronously. In most cases, disabling the message queue degrades system performance, and in extreme cases, may cause a dead lock with the syslog daemon during log rotations. Therefore, Delinea recommends that you never set this parameter value to 0.

If this parameter is not defined in the configuration file, its default value is 256 KB.

If you change this parameter, you must restart the agent, adclient, for the change take effect.

lrpc.connect.timeout

This configuration parameter specifies the number of seconds the NSS or PAM service should wait for a response from the agent during an initial connection attempt. If the initial connection to adclient takes longer than specified by this parameter, the service will time out and terminate the attempt to connect. In most cases, there's no need to modify this parameter.

The parameter value must be a positive integer. For example:

lrpc.connect.timeout: 5

If this parameter is not defined in the configuration file, its default value is 5 seconds.

lrpc.session.timeout

This configuration parameter specifies the maximum number of seconds to keep the adclient connection open to respond to contextdependent requests, such as pwgetent or lsgroup requests. Lowering this value reduces the chance of a multi-threaded program being affected by an adclient restart, but may cause slow context-dependent commands to fail to return results because the session times out before the command completes its operation. Increasing the value of this parameter reduces the overhead of re-establishing a connection for multiple requests.

For example:

ldap.session.timeout: 30

lrpc.timeout

This configuration parameter specifies the number of seconds the local client should wait for a response from the agent before ending a requested operation.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be an integer greater than zero. The following example sets the inactive client timeout to 5 minutes:

lrpc.timeout: 300

If this parameter is not defined in the configuration file, its default value is 5 minutes.

Although in some environments increasing or decreasing the value of this parameter may be beneficial to optimize agent operations and Active Directory for your network topology, you should take care in changing this setting. For example, in most cases, you should not decrease this value because of the potential problems it may cause when transferring data. If you set this value too low and have a slow connection or a large amount of data to be transferred, the local client may end the operation prematurely and prevent the data transfer from completing successfully.

secedit.system.access.lockout.allowofflinelogin

This configuration parameter specifies whether to allow users to log in when the user account is locked out and the computer is not connected to Active Directory. The default value is false (that is, users cannot log in). For example:

secedit.system.access.lockout.allowofflinelogin: false

You can also set this parameter using group policy.

queueable.random.delay.interval

This configuration parameter specifies a delay, in minutes, for activities to stagger background tasks. Once defined, scheduling of those background tasks calculates a random period of time within the interval and adds the same time to the delay of those tasks. If you change the interval setting, however, the period of time is recalculated. The default setting is 0 and no delay.

Customizing Kerberos-Related Configuration Parameters

This chapter describes the configuration parameters that affect the operation of Kerberos-related activity on the local host computer.

adclient.dc.switch.update.krb5.conf

The adclient.dc.switch.update.krb5.conf configuration parameter specifies that adclient updates the krb5.conf file immediately with the current domain controller when adclient switches the domain controller, such as in failover situations. This can be helpful in situations where third party applications use the krb5.conf file to locate the domain controllers that adclient uses.

By default, this parameter is true.

If this parameter is set to false, then adclient does not update the krb5.conf file with the updated domain controller information immediately but at the next update interval that's specified by the krb5.config.update parameter.

adclient.krb5.allow_weak_crypto

This configuration parameter specifies whether to allow weak encryption types for Kerberos authentication. When this parameter is set to false, then weak encryption types (as noted in the Encryption types section of the kdc.conf file) are filtered out of the following lists:

- default_tgs_enctypes
- default_tkt_enctypes
- permitted_enctypes.

The default value for this parameter is false, which may cause authentication failures in existing Kerberos infrastructures that do not support strong crypto. Users in affected environments should set this parameter to true until their infrastructure adopts stronger ciphers.

By default, this parameter is set to false.

adclient.krb5.allow_weak_crypto: false

adclient.krb5.autoedit

This configuration parameter specifies whether the agent should automatically update the Kerberos configuration file with new information, such as domains and IP addresses, as the agent discovers this information.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be true or false. In most cases, this parameter should be set to true to allow the agent to maintain the configuration files automatically. For example:

adclient.krb5.autoedit: true

If this parameter is not defined in the configuration file, its default value is true.

adclient.krb5.cache.renewal.service.accounts

This configuration parameter specifies which service accounts are renewed automatically.

The parameter value can be a comma-separated list of service accounts, or the name of a file that contains the list of service accounts.

For example, if you specify a file that contains the service accounts using the file: keyword and a file location:

adclient.krb5.cache.renewal.service.accounts: file:/etc/centrifydc/service_accts.lst

The default value of this parameter is file:/etc/centrifydc/service_accts.lst as shown in the example.

adclient.krb5.ccache.dir

The adclient.krb5.ccache.dir parameter specifies the directory where Kerberos ccache files are stored when krb5.cache.type is FILE.

This is useful when kerberos applications in docker containers use the kerberos cache files. This parameter, in conjunction with adclient.krb5.ccache.dir.secure.usable.check enables volume bind mapping so that kerberos cache files in the host OS are available to the docker containers.

Default is empty string.

- If adclient.krb5.ccache.dir is not configured or set to default empty string, then:

  The system default ccache directory is used. If a default_ccache_name exists in the [libdefaults] stanza of krb5.conf, it is removed.

- If adclient.krb5.ccache.dir is specified, AND adclient.krb5.ccache.dir.secure.usable.check is false, then:

  The specified directory is used for the default_ccache_name in the [libdefaults] stanza of krb5.conf.

- If adclient.krb5.ccache.dir is specified, AND adclient.krb5.ccache.dir.secure.usable.check is true, BUT the kerberos cache directory is neither secure nor usable, then:

  The system default ccache directory is used. If a default_ccache_name exists in the [libdefaults] stanza of krb5.conf, it is removed.

- If adclient.krb5.ccache.dir is specified, AND adclient.krb5.ccache.dir.secure.usable.check is true, AND the kerberos cache directory is secure and usable then:

  The specified directory is used for the default_ccache_name in the [libdefaults] stanza of krb5.conf.

  Note: When the ccache type is KCM, the klist lists KCM caches and file ccaches under the system default ccache directory. If the ccachedirectory is changed when ccache type is FILE, the newly created file ccaches might not be listed when ccache type is switched to KCM.

adclient.krb5.ccache.dir.secure.usable.check

The adclient.krb5.ccache.dir.secure.usable.check parameter specifies whether to perform a secure and usability check on a configured Kerberos ccache directory. Only used when adclient.krb5.ccache.dir set. Options are:

- false – Default. No action taken.
- true – If adclient.krb5.ccache.dir is configured, then adclient.krb5.ccache.dir.secure.usable.check checks the specified directory.

For the kerberos cache directory to be secure and usable it must meet the following criteria:

- the directory exists
- the directory is not a symlink
- the directory is root owned
- the directory is world writable and has sticky bit set

adclient.krb5.conf.file.custom

This configuration parameter enables the merging of custom krb5.conf entries into the original krb5.conf file. To use this parameter, you specify the keyword file: and the absolute path to a syntactically valid custom krb5.conf file.

For example:

adclient.krb5.conf.file.custom: file:/etc/custom.conf

By default, this parameter is not enabled, and the default value is an empty string.

After you enable this parameter, when krb5.conf is regenerated the additional directives in the custom krb5.conf file are merged into the original krb5.conf file, and conflicting lines are discarded.

The required format of the custom krb5.conf file is as follows:

```
[libdefaults]
keyword1 = value1
keyword2 = value2
[domain_realm]
domain = realm
hostname = realm
[realms]
REALM1 = {
tag1 = value1
tag2 = value2
}
REALM2 = {
tag1 = value1
}
[appdefaults]
to-be-copied-as-is
[capaths]
to-be-copied-as-is
[dbdefaults]
to-be-copied-as-is
[dbmodules]
to-be-copied-as-is
[kadmin]
to-be-copied-as-is
[kdc]
to-be-copied-as-is
[kdcdefaults]
to-be-copied-as-is
[logging]
to-be-copied-as-is
[login]
to-be-copied-as-is
[otp]
to-be-copied-as-is
[password_quality]
to-be-copied-as-is
[plugins]
to-be-copied-as-is
```

When you use this parameter, the following actions take place when the krb5.conf file is regenerated:

- For the directives [libdefaults], [domain_realm], and [realms], the new keyword = value pairs from the custom krb5.conf file are added to the corresponding directive in the original krb5.conf file.
- New realms from the custom krb5.conf file are added under [realms] in the original krb5.conf file.
- If a keyword already exists in the original krb5.conf file, the keyword entry from the custom file is discarded.

- For the additional sections [appdefaults], [capaths], [dbdefaults], [dbmodules], [kaadmin], [kdc], [kdcdefaults], [logging], [login], [otp], and[plugins], the entire section from the custom file is added directly intothe original krb5.conf file, and any existing entries in those sections in the original krb5.conf file are overwritten.
- Warning messages are displayed in the log for every conflict.


The specified custom krb5.conf file must be owned by root.


To use this parameter in a Mac environment, the configuration parameter adclient.krb5.autoedit must be set to true.

adclient.krb5.conf.domain_realm.anysite

This configuration parameter specifies whether or not to search for all domain controllers in a kerberized realm or just the domain controllers within the current, preferred site.

If this parameter is set to true, then the system will list all reachable domain controllers in a kerberized realm, regardless of which site they're located in.

If this parameter is set to false, then only the domain controller in the current, preferred site is listed.

For example:

adclient.krb5.conf.domain_realm.anysite: true

If this parameter is not defined in the configuration file, its default value is false.

adclient.krb5.extra_addresses

This configuration parameter specifies 0, 1, or more IP addresses. The Delinea Agent adds these IP addresses to the host computer's own IP address when it makes a Kerberos authentication request that includes IP addresses. Multiple addresses accommodate authentication in a network that uses NAT.

The IP addresses in this parameter should be in dotted quad form, each address separated from the next by a comma. As an example:

adclient.krb5.extra_addresses: 192.68.21.189,192.68.35.2

adds two IP addresses to the host machine's own IP address.

Note that this configuration parameter sets the Kerberos configuration parameter extra_addresses in krb5.conf.

This parameter has no effect unless adclient.krb5.use.addresses is set to true.

If this parameter is not defined in the configuration file, its default value is empty, which defines no extra IP addresses.

adclient.krb5.keytab.clean.nonfips.enctypes

This configuration parameter specifies whether adclient scans the computer's keytab file and removes any non-AES encryption keys for service principal names during startup. The default is false.

Use this configuration parameter to remove the keys for encryption types that are not supported when you enable FIPS mode (see fips.mode.enable). To remove the non-AES keys, enter the following

adclient.krb5.keytab.clean.nonfips.enctypes: true

If you specify arcfour-hmac-md5 in the adclient.krb5.permitted.encryption.types configuration parameter, the MD4 hash of the computer password is generated and saved in the keytab file.

adclient.krb5.keytab.entries

This configuration parameter specifies the number of entries that the agent maintains in the Kerberos key table for a service principal.

This value determines the number of key versions that are kept per service principal. Its value must be a positive integer. For example:

adclient.krb5.keytab.entries: 3

If this parameter is not defined in the configuration file, its default value is 3 entries.

adclient.krb5.keytab.use.all.etypes

By default, the Delinea Agent for *NIX does not always generate krb5.keytab entries of all supported encryption types. Instead, the agent generates krb5.keytab entries of the types specified in the adclient.krb5.tkt.encryption.types and adclient.krb5.permitted.encryption.types parameters.

The adclient.krb5.keytab.use.all.etypes parameter specifies whether or not to write the krb5.keytab entries of all encryption types, regardless of the adclient.krb5.tkt.encryption.types and adclient.krb5.permitted.encryption.types setting.

By default, the adclient.krb5.keytab.use.all.etypes parameter is set to false.

If you set the adclient.krb5.keytab.use.all.etypes parameter to true, then the agent generates all types of keys in the krb5.keytab file, regardless of the adclient.krb5.tkt.encryption.types and adclient.krb5.permitted.encryption.types setting.

adclient.krb5.password.change.hook

The adclient.krb5.password.change.hook configuration parameter specifies the full path of the command that adclient runs after adclient has changed a password and updated the krb5.keytab file.

By default, this parameter is empty.

Here's an example where you would use this parameter:

You want adclient to maintain an external keytab file for the ftp service that a non-privileged user "ftp" runs. You need adclient to copy only the ftp keys from the machine keytab file to a keytab file that only the "ftp" user can read. You can create a script, for example, /var/ftp/create_keytab_for_ftp.sh to help you to do this:

#/bin/sh

/usr/sbin/adkeytab -o -P ftp -K /var/ftp/ftp.keytab -b /etc/krb5.keytab && \

chown ftp:ftp /var/ftp/ftp.keytab

And then you add the script to the adclient.krb5.password.change.hook parameter:

adclient.krb5.password.change.hook: /var/ftp/create_keytab_for_ftp.sh

adclient.krb5.password.change.interval

This configuration parameter specifies the number of days in the interval between the last Active Directory password change for the computer account and the next password change for the account. At the interval, Active Directory prompts for a new account password. The agent then automatically generates a new password for the computer account and issues the new password to Active Directory.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be an integer equal to or greater than zero. If the value is zero, then the change interval is turned off and the account is not prompted for password change. For example:

adclient.krb5.password.change.interval: 28

If this parameter is not defined in the configuration file, its default value is 28 days.

adclient.krb5.password.change.verify.interval

This configuration parameter controls how long adkeytab waits between attempts to verify password changes. For example, to set the interval between verification attempts to 600 seconds (10 minutes), enter the following:

```
adclient.krb5.password.change.verify.interval: 600
```

The default setting for this parameter is 60 (seconds).

You can specify the number of password change verifications that adkeytab attempts by using the adclient.krb5.password.change.verify.retries configuration parameter.

adclient.krb5.password.change.verify.retries

This configuration parameter controls how many times adkeytab tries to verify password changes running in the background.

In some Active Directory environments, such as those employing a read-only domain controller (RODC), Kerberos password changes may not be verified through adclient due to a replication delay. As a result of this delay, the new password is not saved to the keytab file. When this parameter is set to a value other than 0, adclient will retry verification of the new password a corresponding number of times.

If your RODC has latency problems, you may want to address this by setting adkeytab to attempt to verify password changes multiple times. For example, to direct adkeytab to attempt a total of 4 password change verifications, you would set this parameter to 3 as follows:

```
adclient.krb5.password.change.verify.retries: 3
```

The time between verification attempts can be set using the adclient.krb5.password.change.verify.interval configuration parameter.

The default setting for this parameter is 15, meaning that adkeytab will try to verify the password change 15 times after the initial attempt (a total of 16 attempts).

adclient.krb5.passwd_check_s_address

This configuration parameter specifies whether Kerberos should ignore the source address on private messages. This setting is useful when Active Directory uses NAT.

The parameter value can be true or false. The default value for this parameter is true. For example:

adclient.krb5.passwd_check_s_address: false

adclient.krb5.permitted.encryption.types

This configuration parameter specifies the types of encryption that can be used in Kerberos client credentials.

The parameter value must be one or more encryption types, separated by a space. For example:

adclient.krb5.permitted.encryption.types: arcfour-hmac-md5 des-cbc-md5

If this parameter is not defined in the configuration file, the default encryption types permitted are:

- Windows 2000 server and Windows Server 2003: arcfour-hmac-md5, des-cbc-md5, and des-cbc-crc.
- Windows Server 2008 domain functional level supports these additional types:

  aes128-cts and aes256-cts. Although you can specify these types in an environment other than 2008 domain functional level, they are not useful and may cause extra network round trips during the authentication process.

adclient.krb5.permitted.encryption.types.strict

The adclient.krb5.permitted.encryption.types.strict parameter controls whether to add to or replace the encryption types specified in the setting, permitted_enctypes, in krb5.conf with the encryption types specified in the setting, adclient.krb5.permitted.encryption.types, in centrifydc.conf.

- When adclient.krb5.permitted.encryption.types.strict is false (default), then:

  The encryption types listed in adclient.krb5.permitted.encryption.types in centrifydc.conf,are added to the list of encryption types in permitted_enctypes in krb5.conf.

  This only ensures that what is specified in centrifydc.conf is present in krb5.conf. It does not remove unknown items.
- When adclient.krb5.permitted.encryption.types.strict is set to true, then:

  The encryption types listed in adclient.krb5.permitted.encryption.types in centrifydc.conf replace the encryption types specified in the setting, permitted_enctypes, in krb5.conf.

  The permitted encryption types in krb5.conf exactly match the permitted encryption types in centrifydc.conf. Extra or unknown encryption types are removed.

Example:

adclient.krb5.permitted.encryption.types.strict: false

- false – Default is false. No change in behavior. permitted_enctypes are updated from the centrifydc.conf file.

  Items from centrifydc.conf are added, if they were not already listed. Other items that were already in permitted_ enctypes are left alone and not removed.
- true – replace the targeted krb5.conf parameters so they match exactly what is specified in centrifydc.conf.

Items from centrifydc.conf are added, if they were not already listed. Other items that were already in permitted_enctypes, and not in centrifydc.conf, are removed.

To apply changes to this parameter, either restart adclient or ensure the group policy is set as follows: **Computer Configuration > Centrify Settings > DirectControl Settings > Kerberos Settings > Control if strictly enforce the permitted_encTypes**.

adclient.krb5.principal

This configuration parameter specifies whether SAM account names or user principal names (UPNs) are used as the principal in Kerberos tickets. Supported values are sam and upn.

For example:

adclient.krb5.principal: sam

The default value is sam.

If you set this parameter to upn and no UPN is available, the sAMAccountName attribute with the format SAMAccountName@DomainName is used.

In MIT Kerberos environments, however, the UPN is used even if this parameter is set to sam.

adclient.krb5.send.netbios.name

This configuration parameter specifies whether the Delinea Agent sends the host computer's NetBIOS name (the computer's pre-Windows 2000 name) together with the host computer's IP address (or addresses) when the agent makes a Kerberos authentication request that includes IP addresses. The NetBIOS name appears in the domain controller log on the host Windows server and helps identify the computer making the request.

If this parameter is set to true, the agent sends the NetBIOS name. If set to false, the agent does not send the NetBIOS name.

This parameter has no effect unless adclient.krb5.use.addresses is set to true.

If this parameter is not defined in the configuration file, its default value is true.

adclient.krb5.service.principals

This configuration parameter specifies additional service principals for entries in the Kerberos key table. The key table is populated by default with the following service principals:

- host
- ftp
- cifs
- ldap

You specify the value for this parameter with one or more of these principal service names, separating multiple entries with a space or comma. For example:

```
adclient.krb5.service.principals: ldap nfs
```

If this parameter is not defined in the configuration file, the default service principal names (host, ftp, cifs, ldap) are added to the Kerberos key table.

adclient.krb5.tkt.encryption.types

This configuration parameter specifies the types of encryption that can be presented to the server in the TGT when the computer is requesting service tickets.

The parameter value must be one or more encryption types, separated by a space. For example:

adclient.krb5.tkt.encryption.types: arcfour-hmac-md5 des-cbc-md5

If this parameter is not defined in the configuration file, the default encryption types permitted are:

- Windows 2000 server and Windows Server 2003: arcfour-hmac-md5, des-cbc-md5, and des-cbc-crc.
- Windows Server 2008 domain functional level supports these additional types:

  aes128-cts and aes256-cts.
  Although you can specify these types in an environment other than 2008domain functional level, they are not useful and may cause extra network round trips during the authentication process.

adclient.krb5.tkt.encryption.type.strict

The adclient.krb5.tkt.encryption.type.strict parameter controls whether to replace the encryption types set in default_tgs_enctypes and default_tkt_enctypes in krb5.conf with the encryption types specified in adclient.krb5.tkt.encryption.types in centrifydc.conf.

- When adclient.krb5.tkt.encryption.type.strict is false (default), then:

  The encryption types listed adclient.krb5.tkt.encryption.types in centrifydc.conf are added to the list of encryption types in default_tgs_enctypes and default_tkt_enctypes in krb5.conf.

  This only ensures that what is specified in centrifydc.conf is present in krb5.conf. It does not remove unknown items.
- When adclient.krb5.tkt.encryption.type.strict is set to true, then:

  The encryption types listed in adclient.krb5.tkt.encryption.types in centrifydc.conf replace the encryption types specified in the settings, default_tgs_enctypes and default_tkt_enctypes, in krb5.conf.

  The permitted encryption types in krb5.conf exactly match the permitted encryption types in centrifydc.conf. Extra or unknown encryption types are removed.

Example:

adclient.krb5.tkt.encryption.type.strict: false

- false – Default is false. No change in behavior. default_tgs_enctypes and default_tkt_enctypes are updated from the centrifydc.conf file.

  Items from centrifydc.conf are added, if they were not already listed. Other items that were already in default_tgs_enctypes and default_tkt_enctypes are left alone and not removed.
- true – Replace the targeted krb5.conf parameters so they match **exactly** what is specified in centrifydc.conf.

  Items from centrifydc.conf are added, if they were not already listed. Other items that were already in default_tgs_enctypes and default_tkt_enctypes, and not in centrifydc.conf, are removed.

To apply changes to this parameter, either restart adclient or ensure the group policy is set as follows: **Computer Configuration > Centrify Settings > DirectControl Settings > Kerberos Settings > Control if strictly enforce the encTypes**.

adclient.krb5.use.addresses

This configuration parameter controls whether the Delinea Agent should send the host computer's local IP address (or addresses) to the Windows domain controller as part of a Kerberos authentication request. When set to true, the agent sends the IP addresses; when set to false, the agent does not send the IP addresses.

When the agent sends the host computer's IP address with a Kerberos request, the IP address appears in the Windows event logs associated with the request.

This configuration parameter works with the parameters adclient.krb5.extra_addresses and adclient.krb5.send.netbios.name. Use the first of these two parameters to add additional IP addresses to the host computer's IP address (useful in networks using NAT). Use the second to add the host computer's NetBIOS name to the IP address (or addresses) (useful for identifying the requesting computer in event logs).

If adlcient.krb5.use.addresses is set to false, neither of these two parameters has any effect because the agent does not send addresses with an authentication request.

> This configuration parameter sets the Kerberos configuration parameter noaddresses in krb5.conf. Setting adclient.krb5.use.addresses to true sets noaddresses to false; setting adclient.krb5.use.addresses to false sets noaddresses to true.

If adclient.krb5.use.addresses is not defined in the configuration file, its default value is false.

fips.mode.enable

This configuration parameter specifies whether Kerberos uses the algorithms in the FIPS 140-2 compliant library to sign and seal messages. See fips.mode.enable for the description.

krb5.conf.include.file

The `krb5.conf` file can include another file using the directive `include`.

With this `krb5.conf.include.file` configuration parameter, adclient adds the directive `include` into the `krb5.conf` file.

> **Note:** Specify the file using an absolute path. Included profile files are syntactically independent of their parents, so each included file must begin with a section header. For more information about included files or the directory please refer to the official `krb5.conf` man page.

By default, this parameter is empty and no `include` directive is added to the `krb5.conf` file.

krb5.cache.clean

This configuration parameter specifies whether Kerberos credentials in the cache should be deleted when a user logs out. By default, credentials stored in the Kerberos cache that belong to users who are not logged in are periodically deleted.

To keep the credentials available in the cache use this parameter to turn off the cache clean process entirely. Alternatively, use the krb5.cache.clean.exclusion to turn off cache cleaning for specific users.

This configuration parameter allows you to control this operation specifically for zone users or for all users.

The parameter value must be one of the following valid settings:

- off to turn off the deletion of the credentials cache for all users.
- cdc to remove all of the /tmp/krb5cc* files created by the agent (adclient) that belong to any user not found in the utmp database (that is, the user has logged out).
- all to remove all of the /tmp/krb5cc* files that belong to any user not found in the utmp database. This setting removes files created by the agent (adclient), telnet, and openssh.

For example, to remove the credentials cache for all users when they log out:

krb5.cache.clean: all

The default value for this parameter is cdc.

krb5.cache.clean.exclusion

This configuration parameter specifies a list of users whose credentials in the Kerberos cache will *not* be deleted during a periodic Kerberos cache clean-out of unlogged-in users.

Each user is specified by the user's UNIX name. Separate the names in the list using a comma.

For example, to specify that three users be excluded from periodic credential clean-up:

krb5.cache.clean.exclusion: admin,paula,jeffrey

This parameter is useful in a batch processing environment where a logged-out user may leave behind running processes that require Kerberos credentials. It allows some users' credentials to remain for processes while cleaning out all other users' credentials.

The default value for this parameter is empty.

krb5.cache.clean.force.max

This configuration parameter controls whether adclient deletes credentials from the Kerberos cache if they are the specified number of days old.

If you activate this parameter, the credentials will be cleared for all users whether or not they are logged on, have active processes running, or are specified in the following lists:

krb5.cache.clean.exclusion
krb5.cache.infinite.renewal.batch.users
krb5.cache.infinite.renewal.batch.groups

For example, to force adclient to clear the cache of credentials that were authenticated 6 days previously:

krb5.cache.clean.force.max: 6

The default value for this parameter is 0, which means that this configuration parameter will not clear the credential cache for any users.

krb5.cache.clean.interval

This configuration parameter specifies how frequently in minutes to check the Kerberos cache for credentials that belong to users who are not logged on. If the user is not logged on, the credentials are deleted.

The parameter value should be a positive integer. Setting this parameter to zero disables periodic clean-up of the cache.

For example, to set the clean-up interval to 5 minutes:

krb5.cache.clean.interval: 5

The default value for this parameter deletes the credential cache for users who have logged off every one minute.

krb5.cache.infinite.renewal

This configuration parameter specifies whether you want user credentials to be automatically reissued when they expire. The parameter value can be set to true or false. If you set this parameter to true, the agent keeps a hash of the user's password in memory indefinitely. If you set this parameter to false, a user's credentials periodically expire and the user must be re-authenticated by re-entering a valid password.

If you set this parameter to true, user credentials are automatically reissued, as needed, as long as the adclient process continues to run even if the computer is disconnected from Active Directory. If you stop or restart adclient, however, the user's password hash is removed from memory. After stopping or restarting adclient, users must be re-authenticated by logging on with a valid user name and password.

The default parameter value is false. For example:

krb5.cache.infinite.renewal: false

krb5.cache.infinite.renewal.batch.groups

This configuration parameter specifies a list of Active Directory groups whose members' Kerberos credentials require infinite renewal even after the users have logged out.

Requirements to use this parameter:

- Specified groups must be Active Directory groups.
- Groups do not need to be zone enabled.
- To have their credentials automatically renewed, users in the group must:
  - Be zone enabled (that is, mapped users are not supported).
  - Log into the desired system once using the Account Password.

You must use the following format to specify group names:

SamAccountName@domain

For example:

krb5.cache.infinite.renewal.batch.groups: test_group_sam@example.com

By default, this parameter does not list any groups.

You can also use group policy to set this parameter.

krb5.cache.infinite.renewal.batch.users

This configuration parameter specifies a list of users whose Kerberos credentials require infinite renewal even after the users have logged out.

Requirements to use this parameter:

- The users must be zone enabled (that is, mapped users are not supported).
- The users must log into the desired system once using the Account Password.

You can use any of the following formats to specify user names:

unixName
userPrincipleName
SamAccountName
SamAccountName@domain

For example:

krb5.cache.infinite.renewal.batch.users: test_user, test_user@example.com, test_user_sam, test_user_sam@example.com

By default, this parameter does not list any users.

You can also use group policy to set this parameter.

krb5.cache.renew.exclusion

This configuration parameter specifies a list of UNIX users for whom you don't want adclient to automatically renew their Kerberos credential caches. This parameter is useful in situations where you need to directly manage certain users' Kerberos caches.

Specify each user by the user's UNIX name. Separate the names in the list using a comma.

For example, to specify that adclient doesn't renew these three users' Kerberos credential caches:

krb5.cache.renew.exclusion: admin,paula,jeffrey

Alternatively, you can using the file: keyword to specify a separate file that contains UNIX user names.

For example:

krb5.cache.renew.exclusion: file:/etc/centrifydc/renew.exclude

You can put a UNIX user name in each single line, and be sure to run the adreload command after modifying the file to have the changes take effect.

The default value for this parameter is empty.

krb5.cache.renew.interval

This configuration parameter specifies, in hours, how often to renew the Kerberos credentials stored in the cache for users who have logged on successfully. Because Kerberos tickets expire after a set period of time, you can use this configuration parameter to periodically renew the existing Kerberos ticket to keep existing credentials valid.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. A value of zero disables renewal. For example, to set the renewal interval to 8 hours:

krb5.cache.renew.interval = 8

If this parameter is not defined in the configuration file, its default value is 4 hours. The default value of 4 hours allows two attempts at renewal over a typical Kerberos ticket lifespan of 10 hours. If possible, you should allow enough time for at least two renewal attempts if you reset the value to something other than the 4-hour default.

krb5.conf.plugins.ccselect.disable

This configuration parameter controls whether adclient disables the Kerberos built-in ccselect plugins.

If you set this parameter to false, the plugins will not be disabled.

For example,

krb5.conf.plugins.ccselect.disable: false

By default, this parameter is set to true, and the built-in ccselect plugins are disabled.

You can also set this parameter using group policy.

krb5.cache.type

This configuration parameter specifies the type of Kerberos credential cache that the agent (adclient) creates when an Active Directory user logs in. The parameter value can be set to FILE or KCM.

The use of in-memory credential caches such as KCM is not supported on Mac OS X computers. In Mac OS X environments, credential caches are file-based, and setting this parameter has no effect.

If you set this parameter to FILE, the agent creates a file-based credential cache for each Active Directory user in /tmp when the user logs in. A file-based credential cache persists until the file is deleted.

If you set this parameter to KCM, the agent creates an in-memory credential cache for each Active Directory user when the user logs in. The Centrify-KCM service, run as root, manages in-memory credential caches. When the agent, adclient, starts up, if the parameter is set to KCM, adclient starts the KCM service. If you change the parameter from FILE to KCM while adclient is running, adclient starts the KCM service the next time it is forced to reload configuration parameters, for example, if you run the adreload command or if a user opens a new session.

Setting this parameter affects new users only – not users who have already logged in. For example, if you change from a file-based, to an in-memory credential cache, the agent will continue to use the file-based credential cache for any user who was logged in at the time of the change. If a logged in user opens a new session, or a new user logs in, the agent will use an in-memory cache for them.

An in-memory credential cache ends as soon as the Centrify-KCM service is stopped.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The default parameter value is FILE, which specifies a file-based credential cache. To specify an in-memory credential cache, set the value to KCM. For example:

krb5.cache.type: KCM

krb5.conf.include.directory

The `krb5.conf` file can include other files using the directive `includedir`.

With the configuration parameter, adclient adds the directive `includedir` into the `krb5.conf` file.

Note: Specify the directory using an absolute path. Including a directory includes all files within that directory whose names consist solely of alphanumeric characters, dashes, or underscores. Included profile files are syntactically independent of their parents, so each included file must begin with a section header. For more information about included files or directories please refer to the official `krb5.conf` man page.

By default, this parameter is empty and no `includedir` directive is added to the `krb5.conf` file.

krb5.conf.k5login.directory

Use this policy to specify an alternative location for user .k5login files.

If specified, this string value will be used for the k5login_directory in the [libdefaults] stanza in krb5.conf and the user's .k5login file will be named as <k5login_directory>/<unix_name>.

For security reasons the specified directory should be owned by root and writeable by root only. If the directory does not exist, adclient will create it.

krb5.conf.kcm.socket.path

The krb5.conf.kcm.socket.path parameter specifies an alternate socket path for the KCM server. It applies when krb5.cache.type is KCM.

This is useful, as it allows you to configure an alternative kcm socket path, for example, /var/centrifydc. Using an alternative socket path then allows the socket to be shared between docker hosts and docker containers. It requires adreload after a change in value.

- When the parameter is an empty string (default), the default path /var/run/.centrify-kcm-socket is used.
- When the parameter is set to an non-empty string AND krb5.conf.kcm.socket.path.secure.usable.check is false, then this socket path is used without secure and usable check.
- When the parameter is set to an non-empty string AND krb5.conf.kcm.socket.path.secure.usable.check is true, then the configured socket path is checked to see if it is valid:
  - If the socket path is valid, this configured socket path is used.
  - If the socket path is not valid, the default socket path, /var/run/.centrify-kcm-socket, is used.

To change the socket path:

1. In centrifydc.conf, set krb5.conf.kcm.socket.path to a valid path.
2. If the configured kcm socket path is not secure, but you still want to use it, ensure the parameter, krb5.conf.kcm.socket.path.secure.usable.check, is false.
3. Run adreload.

krb5.conf.kcm.socket.path.secure.usable.check

The krb5.conf.kcm.socket.path.secure.usable.check parameter specifies whether to perform a secure and usable check on the alternate socket path for the KCM server. This parameter works in conjunction with krb5_conf_kcm_socket_path. Options are:

- false – Default. No action taken.
- true – If krb5.conf.kcm.socket.path is configured, then krb5.conf.kcm.socket.path.secure.usable.check checks the specified directory.

A socket path is valid when it meets the following criteria:

- the parent directory exists
- the parent directory is not a symlink
- the parent directory is writable by root only
- the socket path does not exist, or it exists but it is not directory

krb5.config.update

This configuration parameter specifies, in hours, how frequently the agent updates the Kerberos configuration file.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If adclient.krb5.autoedit is set to false, this parameter has no effect. If adclient.krb5.autoedit is set to true, this parameter value must be a positive integer. For example, to set the update interval to 8 hours:

krb5.config.update: 8

If this parameter is not defined in the configuration file, its default value is 8 hours.

krb5.forcetcp

This configuration parameter specifies whether to allow Kerberos requests to use UDP or to force all Kerberos requests to use TCP.

If krb5.forcetcp is set to false, Kerberos requests may use UDP. If krb5.forcetcp is set to true, all Kerberos requests use TCP only.

In most cases, you set this configuration parameter using group policy.

You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If this parameter is not defined in the configuration file, its default value is true.

krb5.forwardable.user.tickets

This configuration parameter specifies whether you want the agent to create forwardable Kerberos user tickets. Creating a forwardable ticket allows a user's logon ticket to be sent to another computer and used to access to additional systems and resources. For example, if a user logs on and is authenticated on one computer, then uses a

Kerberized telnet session to connect to a second computer, a forwarded ticket allows the user to access to additional Kerberized resources from that second computer without separate authentication.

In most environments, forwarding user tickets is a safe practice. However, if you do not want tickets to be forwarded, you can use this parameter to prevent the agent from creating forwardable tickets.

The parameter value should be 1 is you want to allow ticket forwarding or 0 is you want to prevent ticket forwarding. For example, if you want the agent to create forwardable user tickets:

krb5.forwardable.user.tickets: 1

If this parameter is not defined in the configuration file, its default value is 1 (yes).

krb5.pac.validation

This configuration parameter specifies whether or not to verify that the user's PAC (Privilege Authorization Certificate) information is from a trusted KDC (Key Distribution Center) so as to prevent what's referred to as a "silver ticket" attack.

When performing credential verification, a service ticket is fetched for the local system. After the credential is verified, the local system uses the PAC information in the service ticket.

This setting take effect when krb5.verify.credentials is enabled or when DirectControl is using the user's PAC from a service ticket. This setting does not apply to retrieving the PAC by way of the S4U2Self protocol.

There are 3 possible values for krb.pac.validation:

- disabled (default): NO PAC validation will be done at all.
- enabled: If PAC Validation fails, the PAC information is used and the user login is allowed.
- enforced: If PAC Validation fails, the PAC information is discarded and the user login is denied.

Setting this parameter to enabled or enforced will have significant impact on the user login and user's group fetch performance.

For example:

krb5.pac.validation: disabled

If this parameter is not defined in the configuration file, its default value is disabled.

krb5.permit.dns.spn.lookups

This configuration parameter specifies whether you want to permit the agent to look up service principal names (SPN) using DNS. In most cases, you should set this parameter to false to ensure the security of the system. You should only set this configuration parameter to true if you can safely rely on DNS for security and want to use programs that use the Delinea Kerberos libraries to access a computer using an IP address or localhost.

For example:

krb5.permit.dns.spn.lookups: false

If this parameter is not defined in the configuration file, its default value is false.

krb5.sso.block.local_user

This configuration parameter specifies whether single sign-on (SSO) is permitted for local users, or if only zone-enabled Active Directory users are allowed to log in through SSO.

By default, this parameter is set to true, and the user UNIX name is checked against the nss.ignore.user list. If the UNIX name is in the list, the user is considered a local user, and SSO is not allowed. In this situation, the user must enter the local user password to log in.

If this parameter is set to false, local users are allowed to log in through SSO.

For example:

krb5.sso.block.local_user: true

krb5.sso.ignore.k5login

This configuration parameter specifies whether the k5login module should ignore .k5login for SSO.

The default value is false.

krb5.support.alt.identities

This configuration parameter specifies whether the agent uses the Kerberos altSecurityIdentities name for user authentication (true) or not (false) instead of the Windows user name, regardless of which names are supplied.

Using altSecurityIdentities for authentication works as long as the alternate name is always used or the passwords are synchronized, and if the third-party key distribution center (KDC) is reachable. If these two conditions aren't met, you can disable the feature by setting this parameter to false. In that case, the agent uses only Windows to authenticate the user and ignores any Kerberos altSecurityIdentities.

For example:

krb5.support.alt.identities: false

If this parameter is not defined in the configuration file, its default value is true.

krb5.unique.cache.files

This configuration parameter specifies whether to generate a unique ticket cache file name for each Kerberos authentication for a given user (except the first). The unique ticket cache file name takes the following form:

krb5cc_cdc<uid>_XXXXXX

The <uid> is the users Unix ID, and the XXXXXX is a unique set of characters (i.e. krb5cc_cdc512_u0PSdt). This allows a given user to log on more than once, without subsequent logoffs interfering with other logon instances.

If this parameter is set to false, the ticket cache filename takes the following form:

krb5cc_<UID>

With this parameter set to false, old versions of the ticket cache file are overwritten. If a user logs in twice, the first logout causes the file to be deleted, leaving the other logon instance without a credential cache.

The environment variable KRB5CCNAME is populated with the generated name.

The default value is true, except on macOS where it is false.

krb5.use.kdc.timesync

This configuration parameter enables Kerberos to automatically correct for a time difference between the system clock and the clock used by the KDC. You only need to set this parameter if your system clock is drifting and the system is not using NTP and adclient SNTP settings.

In most cases, you set this configuration parameter using group policy.

You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

For example:

krb5.use.kdc.timesync: true

If this parameter is not defined in the configuration file, its default value is false.

krb5.verify.credentials

This configuration parameter specifies whether to perform a spoofing check to verify a TGT for the local system.

By default, the agent verifies a user's TGT by retrieving and verifying a service ticket for the local system. This check is done to prevent a well-known attack (the Zanarotti or screen-saver attack) whereby a rogue KDC could respond to the agent’s request for the user’s TGT.

However, the spoofing check can be time consuming, so you can set this parameter to false to disable the spoofing check and significantly improve authentication performance.

For example, to disable the check:

krb5.verify.credentials: false

If this parameter is not defined in the configuration file, the default value is true.

krb5.udp.preference.limit

This configuration parameter sets the maximum size packet that the Kerberos libraries will attempt to send over a UDP connection before retrying with TCP. If the packet size is larger than this value, only TCP will be tried. If the value is set to 1, TCP will always be used. The hard UDP limit is 32700. Values larger than this are ignored and the UDP hard limit is enforced.

This key only takes effect if krb5.forcetcp is set to false.

If krb5.forcetcp is true, and the agent is managing the krb5.conf file, it will set udp_preference_limit = 1, so that the Kerberos libraries will always use TCP.

In most cases, you set this configuration parameter using group policy to set a specific value.

You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If this parameter is not defined in the configuration file, the default value is 1465; for example:

krb5.udp.preference.limit:1465

Customizing PAM-Related Configuration Parameters

This section describes the configuration parameters that affect the operation of PAM related activity on the local host computer.

Configuring PAM-related parameters on IBM AIX computers

On IBM AIX computers, the PAM configuration parameters described in this chapter apply to the AIX Loadable Authentication Module (LAM) or to the PAM interface. If you have configured the AIX computer to use the PAM interface, the configuration parameters apply to the PAM settings. If the AIX computer is configured to use the LAM interface, the parameters configure LAM settings, as applicable. For more information about AIX-specific configuration parameters, see the Customizing AIX configuration parameters.

Controlling access to AIX computers

On most computers, the predefined login-all PAM access right is required to allow users who are assigned the UNIX Login role to log on and use PAM-enabled applications in the zones they have permission to access. However, if you have AIX computers that are configured to use the Loadable Authentication Module (LAM) instead of PAM in a zone, users will be able to log on even if they have not been assigned the UNIX Login role. In addition, if you define your own custom PAM access rights, those rights will not be applicable on AIX computers that use the LAM interface.

To prevent users from logging on to or using unauthorized applications on AIX computers is a zone, you can explicitly allow or deny access to specific users and groups through configuration parameters or group policies or change the configuration of your AIX computers to use the more commonly supported Pluggable Authentication Module (PAM) interface. For more information about controlling access, see Enforcing access rights on AIX computers.

Explicitly allowing and denying access

If you have AIX computers that use the Loadable Authentication Module (LAM) interface, you cannot use the predefined login-all PAM access right or custom PAM access rights to authorize who can log on and who can use specific applications. Therefore, the default UNIX Login role does not apply on AIX computers that use the LAM interface. If you are primarily concerned with who can log on to those computers, you can use the pam.allow.groups, pam.allow.users, or both parameters to explicitly specify the groups and users who can log on to AIX computers that use the LAM interface. All other groups and users—including those assigned the UNIX Login role—will be denied access. Alternatively, you can use the pam.deny.users, pam.deny.groups, or both parameters to explicitly specify the users and groups who are not allowed to log on.

Changing the configuration of AIX computers

By default, AIX computers are configured to use the Loadable Authentication Module (LAM) instead of the Pluggable Authentication Module (PAM) subsystem. If you want to be able to use the default or custom PAM access rights to authorize access to specific applications, you might want to reconfigure your AIX computers to use the PAM interface instead of the LAM interface. If you choose to reconfigure AIX computers, you should also be sure to replace the OpenSSH package for LAM with the OpenSSH for PAM and thoroughly test your applications.

pam.account.conflict.both.mesg

This configuration parameter specifies the message displayed if both user name and user ID conflicts are detected during login; that is, there are two local account conflicts. For example, a local user (user2) and the Active Directory user (user1) have the same UID (10001) but different user names, and another local account has the same user name (user1) as the Active Directory user but has a different UID value (10002):

```
user1 10001 #AD User
 user1 10002 #local user
 user2 10001 #local user
```

When the message is displayed, the %s token in the message string is replaced with the name of the first conflicting local account, and the %d token is replaced with the UID of the second conflicting local account. The message string you define must contain exactly one %s token and exactly one %d token, in that order, and no other string replacement (%) characters.

For example:

```
pam.account.conflict.both.mesg: \
 Accounts with conflicting name (%s) and UID (%d) exist locally
```

For more information about displaying a warning when local conflicts are detected, see pam.uid.conflict.

pam.account.conflict.name.mesg

This configuration parameter specifies the message displayed if a user name conflict is detected during login; that is, if there is a local user with the same name but a different UID than the Active Directory user logging on; for example,

```
user1 10001 #local user
 user1 10002 #AD user
```

When the message is displayed, the %s token in the message string is replaced with the name of the conflicting local account. The message string you define must contain exactly one %s token, and no other string replacement (%) characters.

For example:

```
pam.account.conflict.name.mesg: \
 Accounts with conflicting name (%s) exist locally
```

For more information about displaying a warning when local conflicts are detected, see pam.uid.conflict.

pam.account.conflict.uid.mesg

This configuration parameter specifies the message displayed if a user identifier (UID) conflict is detected during login; that is, if there is a local user with a different user name but the same UID as the Active Directory user logging on. For example:

```
user1 10001 #local user
 user2 10001 #AD user
```

When the message is displayed, the %d token is replaced with the UID of the conflicting local account. The message string you define must contain exactly one %d token, and no other string replacement (%) characters.

For example:

pam.account.conflict.uid.mesg: \
Account with conflicting UID (%d) exists locally

For more information about displaying a warning when local conflicts are detected, see pam.uid.conflict.

pam.account.disabled.mesg

This configuration parameter specifies the message displayed if a user attempting to log on is denied access because the user's account has been disabled in Access Manager or Active Directory Users and Computers.

For example:

pam.account.disabled.mesg: Account cannot be accessed at this time. Please contact your system administrator.

pam.account.expired.mesg

This configuration parameter specifies the message displayed if a user attempting to log on is denied access because the user's account has expired.

For example:

pam.account.expired.mesg:
Account cannot be accessed at this time. Please contact your system administrator.

pam.account.locked.mesg

This configuration parameter specifies the message displayed if a user account is locked because of too many failed login attempts.

For example:

pam.account.locked.mesg: Account locked

These messages may not be displayed depending on the login method, the daemon version, or the version of the operating system. (Ref: CS-16710c)

pam.adclient.down.mesg

This configuration parameter specifies the message displayed during password change if user is a local UNIX user that's mapped to an Active Directory account, and the Delinea Agent (adclient) is not accessible.

For example:

pam.adclient.down.mesg: (Unable to reach Active Directory - using local account)

In most cases, you set this configuration parameter by selecting **Enabled** and specifying the message to be displayed.

pam.allow.groups

This configuration parameter specifies the groups allowed to access PAM-enabled applications. When this parameter is defined, only the listed groups are allowed access. All other groups are denied access.

This parameter does not support cross-forest groups. (Ref: CS-18659a)

If you want to use this parameter to control which users can log in based on group membership, the groups you specify should be valid Active Directory groups, but the groups you specify do not have to be enabled for UNIX. Local group membership and invalid Active Directory group names are ignored.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you use this parameter to control access by group name, the agent checks the Active Directory group membership for every user who attempts to use PAM-enabled applications on the host computer.

When a user attempts to log on or access a PAM-enabled service, the pam_centrifydc module checks with Active Directory to see what groups the user belongs to. If the user is a member of any Active Directory group specified by this parameter, the user is accepted and authentication proceeds. If the user is not a member of any group specified by this parameter, authentication fails and the user is rejected.

The parameter's value can be one or more group names, separated by commas, or the file: keyword and a file location. For example, to allow only members of the administrators, sales, and engineering groups in Active Directory to log in:

pam.allow.groups: administrators,sales,engineering

You can use the short format of the group name or the full canonical name of the group.

To enter group names with spaces, enclose them in double quotes; for example:

pam.allow.groups: "domain admins",sales,"domain users"

To specify a file that contains a list of the groups allowed access, type the path to the file:

pam.allow.groups: file:/etc/centrifydc/groups.allow

If no group names are specified, no group filtering is performed.

If you make changes to this parameter, you should run adflush to clear the cache to ensure your changes take effect.

Specifying group names for computers joined to Auto Zone

If a computer is configured to use the Auto Zone instead of a specific zone, you should specify group names using the format defined by the auto.schema.name.format parameter. For example the auto.schema.name.format parameter can be set to the following:

- SAM (default) uses the samAccountName attribute for the group—web_qa
- SAM@domainName uses the samAccountName@domain_name format—web_qa@acme.com
- NTLM uses the NTLM format and separator defined for adclient.ntlm.separators—acme.com+web_qa

You can look in the centrifydc.conf configuration file for the value of auto.schema.name.format, or run adedit or adquery commands to see the UNIX name for any group. For example, to see the UNIX name for the Web_qa Active Directory group when the auto.schema.name.format parameter is set to SAM, you can execute a command similar to this to return the UNIX group profile name:

```
adquery group -n web_qa
webqa.us
```

pam.allow.override

This configuration parameter is used to override authentication through Active Directory to ensure the root user or another local account has permission to log on when authentication through Active Directory is not possible, when there are problems running the adclient process, or when there are network communication issues.

When you specify a user account for this parameter, authentication is passed on to a legacy authentication mechanism, such as /etc/passwd. You can use this parameter to specify an account that you want to ensure always has access, even if communication with Active Directory or the adclient process fails. For example, to ensure the local root user always has access to a system even in an environment where you have enabled root mapping, you can specify:

pam.allow.override: root

To log in locally with the override account, you must specify the local user name and password. However, because the account is mapped to an Active Directory account, you must append @localhost to the user name. For example, if you have specified root as the override account and are using root mapping, you would type root@localhost when prompted for the user name. You can then type the local password for the root account and log in without being authenticated through Active Directory.

If you are mapping the root user to an Active Directory account and password, you should set this parameter to root or to a local user account with root-level permissions (UID 0), so that you always have at least one local account with permission to access system files and perform privileged tasks on the computer even if there are problems with the network connection, Active Directory, or the adclient process.

If you are using a Solaris machine with the Name Switch Cache Daemon (NSCD) running, you will not be able to log in as an override user using \<*username*\>@localhost. (Ref: CS-29816c)

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The pam.allow.override configuration parameter is not supported on AIX computers. This is because using the user name with the suffix @localhost is not supported on AIX. The LAMGetEntry call that is used to get user information and extended attribute information does not support login name changes. So, the login fails as there is no way to find the user or authenticate the user. There is no equivalent setting for AIX computers. (Ref: CS-33506a)

pam.allow.password.change

This configuration parameter specifies whether users who log in with an expired password should be allowed to change their password. You can set this parameter to true or false and use it in conjunction with the pam.allow.password.expired.access parameter to control access for users who attempt to log on with an expired password.

If both this parameter and pam.allow.password.expired.access are set to true, users logging on with an expired password are allowed to log on and are prompted to change their password.

If the pam.allow.password.expired.access parameter is set to true, but this parameter is set to false, users logging on with an expired password are allowed to log on but are not prompted to change their password and the message defined for the pam.allow.password.change.mesg parameter is displayed.

If both this parameter and pam.allow.password.expired.access are set to false, users who attempt to log on with an expired password are not allowed to log on or change their password and the message defined for the pam.allow.password.change.mesg parameter is displayed.

For example, to allow users with expired passwords to change their password:

pam.allow.password.change: true

pam.allow.password.change.mesg

This configuration parameter specifies the message displayed when users are not permitted to change their expired password because the pam.allow.password.change parameter is set to false.

For example:

pam.allow.password.change.mesg: Password change not permitted

pam.allow.password.expired.access

This configuration parameter specifies whether users who log in with an expired password should be allowed access. You can set this parameter to true or false and use it in conjunction with the pam.allow.password.change parameter to control access for users who attempt to log on with an expired password.

If this parameter is set to true, users logging on with an expired password are allowed to log on, and either prompted to change their password if the pam.allow.password.change parameter is set to true, or notified that they are not allowed to change their expired password if the pam.allow.password.change parameter is set to false.

If this parameter is set to false, users logging on with an expired password are not allowed to log on and the message defined for the pam.allow.password.expired.access.mesg parameter is displayed.

For example, to allow users with expired passwords to log on:

pam.allow.password.expired.access: true

pam.allow.password.expired.access.mesg

This configuration parameter specifies the message displayed when users are not permitted to log on with an expired password because the pam.allow.password.expired.access parameter is set to false.

For example:

pam.allow.password.expired.access.mesg: Password expired - access denied

pam.allow.users

This configuration parameter specifies the users who are allowed to access PAM-enabled applications. When this parameter is defined, only the listed users are allowed access. All other users are denied access.

If you want to use this parameter to control which users can log in, the users you specify should be valid Active Directory users that have a valid UNIX profile for the local computer's zone. If you specify local user accounts or invalid Active Directory user names, these entries are ignored.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you specify one or more users with this parameter, user filtering is performed for all PAM-enabled applications on the host computer.

When a user attempts to log on or access a PAM-enabled service, the pam_centrifydc module checks the users specified by this parameter to see if the user is listed there. If the user is included in the list, the user is accepted and authentication proceeds. If the user is not listed, the user is rejected.

The parameter value can be one or more user names, separated by commas, or the file: keyword and a file location. For example:

pam.allow.users: root,joan7,bbenton
pam.allow.groups: administrators,sales,engineering

You can use the short format of the user name or the full canonical name of the user.

To enter user names with spaces, enclose them in double quotes; for example:

pam.allow.users: "sp1 user@acme.com",joan@acme.com,"sp2 user@acme.com"

To specify a file that contains a list of the users allowed access, type the path to the file:

pam.allow.users: file:/etc/centrifydc/users.allow

If no user names are specified, then no user filtering is performed.

If you make changes to this parameter, you should run adflush to clear the cache to ensure

Specifying user names for computers joined to Auto Zone

If a computer is configured to use the Auto Zone instead of a specific zone, you should specify user names using the format defined by the auto.schema.name.format parameter. For example the auto.schema.name.format parameter can be set to the following:

- SAM (default) uses the samAccountName attribute for the user—jcool
- SAM@domainName uses the samAccountName@domain_name format—jcool@acme.com
- NTLM uses the NTLM format and separator defined for adclient.ntlm.separators

You can look in the centrifydc.conf configuration file for the value of auto.schema.name.format parameter or run adedit or adquery commands to see the UNIX name for any user. For example, to see the UNIX name for the jcool Active Directory user when the auto.schema.name.format parameter is set to SAM, you can execute a command similar to this to return the UNIX user profile name:

adquery user -n jcool

pam.auth.create.krb5.cache

This configuration parameter specifies whether PAM creates the Kerberos user credential cache. A value of true specifies that the Kerberos user credential cache is created. A value of false specifies that the Kerberos user credential cache is not created. The default value is true. For example:

pam.auth.create.krb5.cache: true

- When this parameter is set to false, the Kerberos user credential cache is not created, and any attempt to perform an SSO operation will fail.
- The Kerberos user credential cache can be file-based or it can be a KCM in-memory cache, depending on the krb5.cache.type setting (seekrb5.cache.type.
- This parameter is also controlled by group policy.

pam.auth.failure.mesg

This configuration parameter specifies the message displayed during a password change if the user enters an incorrect old password.

For example:

pam.auth.failure.mesg: Password authentication failed

pam.config.program.check

This configuration parameter specifies a list of extra PAM configuration files that are in the pam.d directory and that the authentication service updates (in addition to the standard PAM configuration files, such as /pam.d/system-auth, /pam.d/common-auth and so forth).

The default list is as follows:

pam.config.program.check: ftp,pure-ftpd,vsftpd,wu-ftpd,dzdo,sasauth

pam.create.k5login

This configuration parameter specifies whether the .k5login file should be created automatically in the user's home directory. This file is used to enable Kerberos authentication and single sign-on in PAM-aware applications.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value can be true or false. If set to true, the agent will create the .k5login file in the user's home directory.

For example:

pam.create.k5login: true

pam.deny.change.shell

This configuration parameter specifies whether a user who is denied access, for example, because they are listed as a user in the pam.deny.user or are not listed in the pam.allow.user parameter, should have their shell set to the shell defined by the nss.shell.nologin parameter. The parameter value can be set to true or false.

If set to true, this parameter adds an extra level of security by ensuring that the zone user who is denied access cannot obtain any shell access, even if authenticated through Kerberos, SSH, or some other non-PAM related method. If this parameter is set to false, the denied user's shell is not changed and so may be able to access the system.

Because of the potential security issue, the default value for this parameter is true. However, since group lookups can be time-consuming for simple NSS queries, you can set this parameter to false to prevent the agent from changing the user's shell when denied access.

For example, to leave the user's shell unchanged when denied access, set this parameter to false.

pam.deny.change.shell: false

pam.deny.groups

This configuration parameter specifies the groups that should be denied access to PAM-enabled applications. When this parameter is defined, only the listed groups are denied access. All other groups are allowed access.

This parameter does not support cross-forest groups. (Ref: CS-18659a)

If you want to use this parameter to control which users can log in based on group membership, the groups you specify should be valid Active Directory groups, but the groups you specify do not need to be enabled for UNIX. Local group membership and invalid Active Directory group names are ignored.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

When a user attempts to log on or access a PAM-enabled service, the pam_centrifydc module checks with Active Directory to see which groups the user belongs to. If the user is a member of any Active Directory group specified by this parameter, the user is denied access and authentication fails. If the user is not a member of any group specified by this parameter, authentication succeeds and the user is logged on.

The parameter's value can be one or more group names, separated by commas or spaces, or the file: keyword and a file location. For example, to prevent all members of the vendors and azul groups in Active Directory from logging on:

pam.deny.groups: vendors,azul

You can use the short format of the group name or the full canonical name of the group.

To enter group names with spaces, enclose them in double quotes; for example:

pam.deny.groups: "domain admins",sales,"domain users"

To specify a file that contains a list of the groups that should be denied access:

pam.deny.groups: file:/etc/centrifydc/groups.deny

If a computer is configured to use Auto Zone without a zone, enter group names in the format specified by the auto.schema.name.format parameter:

- SAM (samAccountName – this is the default); for example: finance_admins
- samAccountName@domain_name; for example: finance_admins@acme.com
- NTLM; for example: acme.com+finance_admins

> You can look in the centrifydc.conf configuration file for the value of auto.schema.name.format, or run adquery group -n to see the UNIX name for any group. For example, to see the UNIX name for the Finance_Admins group (and SAM, the default, is set for auto.schema.name.format), execute the following command, which returns the UNIX name as shown:

```
[root]#adquery group -n Finance_Admins
finance_admins
```

If this parameter is not defined in the configuration file, no group filtering is performed.

> If you make changes to this parameter, you should run adflush to clear the cache to ensure your changes take effect.

pam.deny.users

This configuration parameter specifies the users that should be denied access to PAM-enabled applications. When this parameter is defined, only the listed users are denied access. All other users are allowed access.

If you want to use this parameter to control which users can log in, the users you specify should be valid Active Directory users that have been enabled for UNIX. If you specify local user accounts or invalid Active Directory user names, these entries are ignored.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

When a user attempts to log on or access a PAM-enabled service, the pam_ module checks the users specified by this parameter to see if the user is listed there. If the user is included in the list, the user is rejected and authentication fails. If the user is not listed, the user is accepted and authentication proceeds.

The parameter value can be one or more user names, separated by commas or spaces, or the file: keyword and a file location. For example, to prevent the user accounts starr and guestuser fcentrifydcrom logging on:

pam.deny.users: starr,guestuser

You can use the short format of the user name or the full canonical name of the user.

To enter user names with spaces, enclose them in double quotes; for example:

pam.deny.users: "sp1 user@acme.com",joan@acme.com,"sp2 user@acme.com"

To specify a file that contains a list of the users that should be denied access:

pam.deny.users: file:/etc/centrifydc/users.deny

> If a computer is configured to use Auto Zone without a zone, enter user names in the format specified by the auto.schema.name.format parameter:

- SAM (samAccountName – this is the default); for example: jcool
- samAccountName@domain_name; for example: jcool@acme.com
- NTLM; for example: acme.com+jcool

You can look in the centrifydc.conf configuration file for the value of auto.schema.name.format, or run adquery user -n to see the UNIX name for any user. For example, to see the UNIX name for jcool (and SAM, the default, is set for auto.schema.name.format), execute the following command, which returns the UNIX name as shown:

```
[root]#adquery user -n jcool
jcool
```

If this parameter is not defined in the configuration file, no user filtering is performed.

If you make changes to this parameter, you should run adflush to clear the cache to ensure your changes take effect.

pam.homedir.create

This configuration parameter specifies whether a new home directory should be created automatically when a new Active Directory user logs on to a system for the first time.

For example, to specify that home directories be created automatically when new Active Directory users log on to a system for the first time:

pam.homedir.create: true

In most cases, you set this configuration parameter using group policy.

For computers that use NFS to mount home directories, you should set this parameter to false. If you have a Solaris environment and set this parameter to true, you should make sure the default location for creating a home directory is not /home/{$user} since this path is not allowed in a typical Solaris environment. In addition, some platforms may require you to manually create a skeleton directory that contains default initial profiles to use when creating new home directories. You can use the pam.homeskel.dir parameter to specify the location of this skeleton directory if it exists in your environment.

pam.homedir.create.hook

By default, the agent uses the mkdir() function to create the user's home directory. However, if desired, you can set this parameter so that you create the user's home directory by way of a script.

The script should be:

- root owned and only writeable by owner
- executable
- not a symlink

When you create the script, be sure that it accepts the following arguments:

- -h (home directory path)
- -u (the UID for the home directory)

- -g (the GID for the home directory)

There is a sample script /usr/share/centrifydc/samples/homedir.sh.sample; this script can create a Solaris ZFS dataset for a user's home directory.

For example:

pam.homedir.create.hook: /usr/bin/homedir.sh

When you specify the script for this parameter, be sure to also specify the absolute path to the script.

pam.homedir.create.mesg

This configuration parameter specifies the message displayed when a user's home directory is created.

For example:

pam.homedir.create.mesg: Created home directory

pam.homedir.perms

This configuration parameter specifies the permissions for a user's home directory if a new home directory is created for the user on the local computer.

For example, to give read, write, and execute permissions on the directory to the user and no other permissions:

pam.homedir.perms: 0700

In most cases, you set this configuration parameter using group policy.

pam.homedir.perms

This configuration parameter specifies the permissions for a user's home directory if a new home directory is created for the user on the local computer.

For example, to give read, write, and execute permissions on the directory to the user and no other permissions:

pam.homedir.perms: 0700

In most cases, you set this configuration parameter using group policy.

pam.homedir.update.ownership

This configuration parameter specifies whether or not to update the home directory ownership when a user logs in.

By default, this parameter is set to false.

```
pam.homedir.update.ownership: true
```

pam.homedir.perms.recursive

This configuration parameter specifies whether to use the permissions defined in the PAM skeleton directory or the permissions defined in pam.homedir.perms when a new home directory is created for a user.

This parameter can have a value of true or false. When set to true, a user's new home directory is created with the contents of the skeleton directory and the permissions defined in pam.homedir.perms. When set to false, a user's new home directory is created using the contents and permissions of the skeleton directory.

This parameter has a default value of false. For example:

pam.homedir.perms.recursive: false

pam.homeskel.dir

This configuration parameter specifies where the PAM skeleton directory is located. The skeleton directory to used to automatically create a new home directory and UNIX profile for a new user, if needed.

The parameter value must be a path name. For example:

pam.homeskel.dir: /etc/skel

If this parameter is not defined in the configuration file, no files are copied when a new user directory is created.

pam.ignore.users

This configuration parameter specifies one or more users that the agent will ignore for lookup in Active Directory. This configuration parameter ignores listed users for authentication and NSS lookups. Because this parameter allows you to intentionally skip looking up an account in Active Directory, it allows faster lookup for system accounts such as tty, root, and bin and local login accounts.

Starting with Delinea DB2 agent 5.2.3, the db2.implement.pam.ignore.users parameter controls whether the agent checks pam.ignore.users. The pam.ignore.users parameter is checked only if db2.implement.pam.ignore.users is set to true. If db2.implement.pam.ignore.users is set to false, pam.ignore.users is not checked, and all users are authenticated in Active Directory. See db2.implement.pam.ignore.users for more information about db2.implement.pam.ignore.users.

In most cases, you set this configuration parameter using group policy. This list is then stored in the /etc/centrifydc/user.ignore file and used to disable lookups in Active Directory for the users specified.You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be one or more user names, separated by a space, or the file: keyword and a file location. For example, to specify a list of users to authenticate locally:

pam.ignore.users: root sys tty

To specify a file that contains a list of the users to ignore:

pam.ignore.users: file:/etc/centrifydc/users.ignore

If this parameter is not defined in the configuration file, no users are specified.

Skipping Active Directory authentication for local AIX users

By default, the agent modifies the AIX Loadable Authentication Module (LAM) for the SYSTEM user attribute to look like this:

SYSTEM=CentrifyDC OR CentrifyDC[NOTFOUND] AND compat

This setting specifies that the first attempt to authenticate a user should be passed to Active Directory through the agent. In some cases, however, you may have local user accounts that you only want to authenticate locally. Although there are parameters in the access control configuration file (centrifydc.conf) that enable you to ignore Active Directory authentication for specific local users, these parameters are not completely applicable on

computers running AIX. To exclude any local user account from Active Directory authentication on AIX, you can run the following command for the user:

chuser SYSTEM=compat username

Alternatively, you can edit the /etc/security/user file and change the stanza for a particular user's SYSTEM attribute to:

SYSTEM=compat

If you later decide you want to migrate the local user account to use Active Directory, you can run the following command for the user to reset the default authentication:

chuser SYSTEM= username

To reset the user account to be authenticated through Active Directory, there must be a space after the equal sign (=) in the command line.

pam.mapuser.username

This configuration parameter maps a local UNIX user account to an Active Directory account. Local user mapping allows you to set password policies in Active Directory even when a local UNIX account is used to log in. This parameter is most commonly used to map local system or application service accounts to an Active Directory account and password, but it can be used for any local user account. For more information about mapping local accounts to Active Directory users, see "Mapping local UNIX accounts to Active Directory in the *Administrator's Guide*.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, you should note that the local account name you want to map to Active Directory is specified as the last portion of the configuration parameter name. The parameter value is the Active Directory account name for the specified local user. For example, the following parameter maps the local UNIX account oracle to the Active Directory account oracle_storm@acme.com if the host computer's name is storm:

pam.mapuser.oracle: oracle_$HOSTNAME@acme.com

You can specify the user name in the configuration file with any of the following valid formats:

- Standard Windows format: domain\user_name
- Universal Principal Name (UPN): user_name@domain
- Alternate UPN: alt_user_name@alt_domain
- UNIX user name: user

You must include the domain name in the format if the user account is not in the local computer's current Active Directory domain.

If this parameter is not defined in the configuration file, no local UNIX user accounts are mapped to Active Directory accounts.

pam.mfa.program.ignore

This configuration parameter specifies a list of programs for which multi-factor authentication is ignored. If you have configured roles to require multi-factor authentication, users assigned to those roles will be required to provide two types of authentication to access PAM applications. However, some PAM applications do not support more than one authentication challenge.

You can use this parameter to add the program names that do not support multi-factor authentication. When users access the PAM applications you specify for this parameter, the multi-factor authentication requirement is ignored so that users can log on rather than be denied access.

For example, if you have configured a role with the login-all PAM application right and the Require multi-factor authentication system right, you can use this parameter to skip multifactor authentication for specific PAM applications—such as xscreensaver and vsftpd—where multi-factory authentication is not needed or not supported.

pam.mfa.program.ignore: xscreensaver vsftpd

You can specify multiple options separated by spaces.

By default, ftpd, proftpd, vsftpd, java, httpd, cdc_chkpwd, kdm, and unix2_chkpwd are all added to this parameter.

pam.ntlm.auth.domains

This configuration parameter specifies the list of domains that should use NTLM authentication instead of Kerberos authentication. This parameter enables you to authenticate users behind a firewall when the Kerberos ports are blocked, but a trust relationship exists between domains inside and outside the firewall. When you set this parameter, the local domain controller outside of the firewall passes its authentication requests through the transitive trust chain for authentication inside of the firewall.

The parameter value must be one or more fully-qualified Active Directory domain names. The Active Directory domain names must be mapped to NTLM domain names, either automatically if the firewall does not prevent the mapping from being discovered, or manually by modifying the contents of the /etc/centrifydc/domains.conf file if the firewall prevents the mapping from automatically being discovered.

If firewall constraints prevent the automatic discovery of Active Directory to NTLM domain mapping, you can manually configure how Active Directory domain names map to NTLM domains by editing the /etc/centrifydc/domains.conf file to consist of a list of colon-separated values in the form of:

AD_DomainName:NTLM_DomainName

For example, the domains.conf file should consist of entries similar to the following:

AJAX.ORG:AJAX

FIREFLY.COM:FIREFLY

HR1.FIREFLY.COM:HR1

You can then use the adclient.ntlm.domains parameter using the file: keyword to specify the location of this file. For example:

adclient.ntlm.domains: file:/etc/centrifydc/domains.conf

If you don't want to define the Active Directory to NTLM mapping in a separate file, you can set the adclient.ntlm.domains parameter to map domain names using the format AD_DomainName:NTLM_DomainName. For example:

adclient.ntlm.domains: AJAX.ORG:AJAX FIREFLY.COM:FIREFLY

After you have configured the mapping, you can list the Active Directory domain names for this parameter. For example, to specify that the Active Directory domains AJAX.ORG and FIREFLY.COM, which are outside of the firewall with a one-way trust to the forest inside the firewall, should use NTLM authentication, you could set the parameter like this:

pam.ntlm.auth.domains: AJAX.ORG, FIREFLY.COM

For more information about manually defining the mapping of Active Directory domains to NTLM domains, see adclient.ntlm.domains.

Alternatively, you can set the group policy **Computer Configuration > Centrify Settings > DirectControl Settings > Pam Settings > Specify NTLM authentication domains**.

pam.password.change.mesg

This configuration parameter specifies the text displayed by a PAM-enabled application when it requests a user to change a password.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an ASCII string. UNIX special characters and environment variables are allowed. For example:

pam.password.change.mesg: Changing Active Directory password for\

If this parameter is not present, its default value is "Change password for".

pam.password.change.required.mesg

This configuration parameter specifies the message displayed if the user enters the correct password, but the password must be changed immediately.

For example:

pam.password.change.required.mesg: \
You are required to change your password immediately

pam.password.confirm.mesg

This configuration parameter specifies the text displayed by a PAM-enabled application when it requests a user to confirm his new password by entering it again.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an ASCII string. UNIX special characters and environment variables are allowed. For example:

pam.password.confirm.mesg: Confirm new Active Directory password:\

If this parameter is not present, its default value is “Confirm new password:”.

pam.password.empty.mesg

This configuration parameter specifies the message displayed if the user enters an empty password.

For example:

pam.password.empty.mesg: Empty password not allowed

pam.password.enter.mesg

This configuration parameter specifies the text displayed by a PAM-enabled application when it requests a user to enter his password.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an ASCII string. UNIX special characters and environment variables are allowed. For example:

pam.password.enter.mesg: Active Directory password:\

If this parameter is not present, its default value is “Password:”.

pam.password.expiry.warn

This configuration parameter specifies how many days before a password expires the PAM-enabled applications should start issuing the pam.password.expiry.warn.mesg to the user.

The parameter value must be a positive integer. For example, to issue a password expiration warning 10 days before a password is set to expire:

pam.password.expiry.warn: 10

If this parameter is not present, the default value is 14 days.

pam.password.expiry.warn.mesg

This configuration parameter specifies the text displayed by a PAM-enabled application to warn the user that her password will expire in pam.password.expiry.warn days or less.

When the message is displayed, the '%d' token is replaced with the number of days until expiration. The message must contain exactly one '%d' token and no other '%' characters.

For example:

pam.password.expiry.warn.mesg: Password will expire in %d days

pam.password.new.mesg

This configuration parameter specifies the text displayed by a PAM-enabled application when it requests a user to enter his new password during a password change.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an ASCII string. UNIX special characters and environment variables are allowed. For example:

pam.password.new.mesg: Enter new Active Directory password:\

If this parameter is not present, its default value is “Enter new password:”.

pam.password.new.mismatch.mesg

This configuration parameter specifies the message displayed during password change when the two new passwords do not match each other.

For example:

pam.password.new.mismatch.mesg: New passwords don't match

pam.password.old.mesg

This configuration parameter specifies the message displayed by a PAM-enabled application when it requests a user to enter his old password during a password change.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The parameter value must be an ASCII string. UNIX special characters and environment variables are allowed. For example:

pam.password.old.mesg: (current) Active Directory password:\

If this parameter is not present, its default value is “(current) password:”.

pam.policy.violation.mesg

This configuration parameter specifies the message displayed during password change if the operation fails because of a domain password policy violation. For example, if the user attempts to enter a password that doesn’t contain the minimum number of characters or doesn’t meet complexity requirements, this message is displayed.

For example:

pam.policy.violation.mesg: \
The password change operation failed due to a policy restriction set by the Active Directory administrator.
This may be due to the new password length, lack of complexity or a minimum age for the current password.

pam.setcred.respect.sufficient

This configuration parameter overrides an anomaly in the operation of the PAM interface on some platforms that denies access to a user who has entered the correct password. The default setting depends upon the platform as follows:

- For HPUX and Mac OSX platforms the default is true
- For all other platforms the default is false.

Some Solaris 2.6 and Solaris 8 users have reported getting the error message PAM_AUTH_ERR after entering the correct password. If this occurs, set pam.setcred.respect.sufficient: true.

pam.setcred.support.refresh

This parameter specifies whether the PAM flag PAM_REFRESH_CRED is supported and can be used to trigger creation of the credential cache and renew Kerberos tickets. The default is false, in which case the PAM_ESTABLISH_CRED flag is used to trigger creation of the credential cache and renew Kerberos tickets. For example:

pam.setcred.support.refresh: false

pam.setcred.support.reinitialize

This parameter specifies whether the PAM flag PAM_REINITIALIZE_CRED is supported and can be used to trigger creation of the credential cache and renew Kerberos tickets. The default is false, in which case the PAM_ESTABLISH_CRED flag is used to trigger creation of the credential cache and renew Kerberos tickets.

For example:

pam.setcred.support.reinitialize: false

pam.sync.mapuser

This configuration parameter controls whether the password synchronization service keeps passwords synchronized for local users that are mapped to an Active Directory account.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you set this parameter in the configuration file, the parameter value should be a list of local user accounts that are mapped to Active Directory accounts. For example:

pam.sync.mapuser: root oracle sanchez

If you set this parameter and a mapped user changes his password, PAM updates the password hash for the corresponding local UNIX account in the local /etc/shadow file so that the passwords match. Synchronizing the passwords in this way ensures that local users can still log on even if there are problems with the network, Active Directory, or the adclient process. For example, if Active Directory is not available, the mapped user can log on as a local user by appending @localhost to the user name:

sanchez@localhost

Password synchronization requires you to do the following:

- Install either the Delinea Password Synchronization component or the Microsoft Password Synchronization Service on all domain controllers.

  If you do not have the Microsoft Password Synchronization Service installed on your domain controllers, you can install and use the Delinea PasswordSynchronization extension instead. You can install the Delinea PasswordSynchronization extension when you install other Delinea ManagementServices using the setup program or by running the standalone password extension installation program.

- Configure the zone properties for the computer's zone to support agentless clients and to use the proper NIS domain name and Active Directory attribute for storing the user's password hash.
- Map the specified local users to Active Directory using either the pam.mapuser.username configuration parameter or group policy.
- Verify the Active Directory user to which the local user is mapped has a profile in the zone you have configured for agentless authentication.

This parameter has no effect on Mac OS X systems.

pam.uid.conflict

This configuration parameter specifies how you want the agent to respond if a user logs on with an Active Directory account and either the Active Directory user name or Active Directory UID conflicts with a local user account. The purpose of detecting a duplicate user name or duplicate UID is to prevent an Active Directory user from signing on and receiving privileges to modify files created by a different local user.

The pam.uid.conflict configuration parameter determines what happens when this type of conflict is found. The parameter value must be set to one of the following valid options:

Use this value	To do this
ignore	Do not report duplicate user names or UID conflicts. If detected, log the conflict at the info level if logging is enabled.
warn	Warn the user of the user name or UID conflict after s successful login. Log the conflict at warning level if logging is enabled. This is the default value.
error	Report UID conflict to user after user name is entered. Don't accept password. Don't allow log in. Log conflict at error level.

For example:

pam.uid.conflict: warn

> If both the Active Directory user name and Active Directory UID are the same as a local user name and UID, the accounts do not conflict and the user can log on regardless of how you set this parameter. Although this situation is rare, you should avoid using Active Directory user names and UIDs that duplicate local user names and UIDs but apply to different individual users.

If this parameter is not present, its default value is warn.

pam.workstation.denied.mesg

This configuration parameter specifies the message displayed if a user attempting to log on is denied access because of a workstation restriction.

For example:

pam.workstation.denied.mesg: \
Your account is configured to prevent you from using this computer. Please try another computer.

microsoft.pam.privilege.escalation.enabled

The configuration parameter specifies if the Microsoft Privileged Access Management (PAM) Privilege Escalation feature is supported or not within the Delinea environment.

If microsoft.pam.privilege.escalation.enabled is true, then, when an Active Directory user logs in, the configured privilege that's granted to the user through PAMGroup takes effect until the granted period has elapsed.

The Privileged Access Management (PAM) Privilege Escalation feature can be enabled or disabled through Group Policy. Select **Computer Configuration > Centrify Settings > DirectControl Settings > Enable Active Directory PAM Privilege Escalation feature**

The Microsoft PAM Privilege Escalation feature specifies if Delinea DirectControl uses Microsoft PAM Privilege Escalation feature in the computer.

For example:

microsoft.pam.privilege.escalation.enabled: true

Default is false, the Microsoft PAM Privilege Escalation feature support is disabled. Setting it to true enables grants the Active Directory user, at log in, the same configured privilege as the user's PAMGroup. This is in effect until the grant period expires.

Customizing Group Policy Configuration Parameters

This section describes the configuration parameters that affect group policy support on the local host computer.

gp.disable.all

This configuration parameter can be used to disable both computer and user group policies on a local computer. If set to true, all group policy settings are ignored.

For example:

gp.disable.all: true

If this parameter is not defined in the configuration file, its default value is false.

gp.disable.machine

This configuration parameter can be used to disable computer-based group policies on a local computer. If set to true, all computer-based group policy settings are ignored.

For example:

gp.disable.machine: true

If this parameter is not defined in the configuration file, its default value is false.

gp.disable.user

This configuration parameter can be used to disable user-based group policies on a local computer. If set to true, all user-based group policy settings are ignored.

For example:

gp.disable.user: true

If this parameter is not defined in the configuration file, its default value is false.

gp.disk.space.check.folders

This configuration parameter specifies the folders that need the free disk space check. If the free space in any specified folder is less than the value in gp.disk.space.min, then group policy settings will not be updated.

Specify a comma-separated list of folders; for example, the default is:

gp.disk.space.check.folders: /,/etc,/var

gp.disk.space.min

This configuration parameter specifies the minimum free disk space in kilobytes (KB) that is required for a group policy update. If the free disk space in any folder specified in gp.disk.space.check.folders is less than this value, then group policy settings will not be updated.

When updating the configuration file, the Perl mapper scripts create a temp file, print to it, and replace the original file. If the disk is full, the mapper cannot write to the temp file, so the temp file is empty, and the original file is replaced by the empty temp file. This configuration parameter and gp.disk.space.min prevent the mapper writing to a temp file when disk space is low.

The default value is 5120 KBytes. Set this parameter to 0 to not check free disk space.

gp.mappers.certgp.pl.additional.cafiles

This setting defines a list of certificate files which will be included in the certgp.pl install, if found.

It can be a list of certificates to be added. For example:

gp.mappers.certgp.pl.additional.cafiles: <ca-file> <ca-file> ...

It can also point to a file that contains a list of certificate files to be added. For example:

gp.mappers.certgp.pl.additional.cafiles: file:/etc/centrifydc/cert_included.list

The default value is empty.

gp.mappers.certgp.pl.exclude.cacerts

This setting defines a certificate list which will be excluded from the certgp.pl install, if matched.

It can be a list of fingerprints of the certificates to be excluded. For example:

gp.mappers.certgp.pl.exclude.cacerts: <fingerprint> <fingerprint> ...

It can also point to a file that contains a list of fingerprints of the certificates to be excluded. For example:

gp.mappers.certgp.pl.exclude.cacerts: file:/etc/centrifydc/cert_excluded.list

The default value is empty.

gp.mappers.directory.machine

This configuration parameter specifies the root directory that contains all of the mapping programs for computer-based group policy settings. Individual programs map entries from the virtual registry into configuration settings in the appropriate files on the local computer.

The parameter value must be a path name. For example:

gp.mappers.directory.machine: /usr/share/centrifydc/mappers/machine

If this parameter is not defined in the configuration file, its default value is /usr/share/centrifydc/mappers/machine.

gp.mappers.directory.user

This configuration parameter specifies the root directory that contains all of the mapping programs for user-based group policy settings. Individual programs map entries from the virtual registry into configuration settings in the appropriate files on the local computer.

The parameter value must be a path name. For example:

gp.mappers.directory.machine: /usr/share/centrifydc/mappers/user

If this parameter is not defined in the configuration file, its default value is /usr/share/centrifydc/mappers/user.

gp.mappers.error_file

This configuration parameter specifies the name of the file where the group policy mapper programs write error messages.

For example:

gp.mappers.error_file: mapper.errors

gp.mappers.machine

This configuration parameter specifies the list of mapping programs to run to configure computer-based policies. The mapping programs are contained in the root directory specified by gp.mappers.directory.machine (/usr/share/centrifydc/mappers/machine by default). The mapping programs are executed in the order in which they are specified. The mapping program centrifydc.conf.pl will always run even if unspecified and does not run only if you specify that it not run (described later).

In most cases you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you want to temporarily override group policy.

To specify mapping programs to run, you can list each individual program name literally, or you can use wild card characters that are a subset of regular expression wild card characters:

- An asterisk (*) specifies any set of zero or more characters. “map*”, for example, specifies any program names starting with “map”. “set*.pl”specifies any program names starting with “set” and ending with “.pl”. And“*dc*” specifies any program names that include “dc”. “*” means all programs.

- A question mark (?) specifies any single character. “map???”, for example, specifies any six-character program name starting with “map”.
- Square brackets ([ ]) enclosing a set of characters specifies a single character that is one of the enclosed characters. “mapprogram[123]”, forexample, matches the program names mapprogram1, mapprogram2, and mapprogram3.

You can specify a program name *not* to execute by preceding it with an exclamation point (!). If you specify “* !mapprogram1”, for example, you specify that all mapping programs in the mapping program root directory should execute except for “mapprogram1”. Note that the only way you can stop the automatically executing program centrifydc.conf.pl from executing is to specify “!centrifydc.conf.pl” in this parameter.

You can combine all of these rules to give you precise control over which mapping programs run. Some examples:

gp.mappers.machine: * specifies all mapping programs in the mapping program parent directory.

gp.mappers.machine: mapgp* !mapgp2 specifies all mapping programs in the mapping program parent directory that start with “mapgp” *except* for “mapgp2”. Note that centrifydc.conf.pl will execute because it hasn’t been specified not to execute and so executes automatically.

gp.mappers.runcommand.as.root.env.list

This configuration parameter specifies the list of environment variables that are exported to the environment so that a root user can run Group Policy commands. Use the forward slash "/" to specify environment variables and their values. Use a space to separate multiple name/value pairs. If an environment variable contains spaces, enclose the value in quotes or add a backslash "\" before the space.

You can also specify other environment variables as a value.

For example:

gp.mappers.runcommand.as.root.env.list: env1/value1 env2/va\ lue2 env3/"va lue3" env4/value4_${HOSTNAME}

If the gp.mappers.runcommand.as.user parameter is set to true, the gp.mappers.runcommand.as.root.env.list has no effect for user Group Policy commands because the service runs the user's group policy commands as the user's login shell and resets all environment variables.

gp.mappers.runcommand.as.user

This configuration parameter specifies whether to run user group policy commands as the current user. The default for this parameter is false, which means that the service runs these commands as root.

The RunCommand.pl script reads this parameter setting and if the parameter is set to true, then it runs commands as follows:

su - $args ->user() -c $command

gp.mappers.runmappers

This configuration parameter specifies the location of the runmappers program. The runmappers program is started by the agent and invokes individual mapping programs for computers, users or both.

The parameter value must be a path name. For example:

gp.mappers.runmappers: /usr/share/centrifydc/mappers/runmappers

If this parameter is not defined in the configuration file, its default value is /usr/share/centrifydc/mappers/runmappers.

gp.mappers.timeout

This configuration parameter specifies the maximum time, in seconds, to allow for a single mapping program to complete execution. If a mapping program takes longer than this period to successfully complete its execution, the process is stopped and the next mapping program is started.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer that is less than the value set for the gp.mappers.timeout.all parameter. For example, to set the timeout interval to 60 seconds:

gp.mappers.timeout: 60

The default value for this parameter on Mac is 120 seconds.

The default value for this parameter on all other platforms is 30 seconds.

gp.mappers.timeout.all

This configuration parameter specifies the maximum time, in seconds, to allow for all mapping programs to complete execution. The parameter value must be a positive integer that is less than the value set for the lrpc.timeout parameter.

The default value for this parameter on Mac is ten minutes (600 seconds). For example:

gp.mappers.timeout.all: 600

The default value for this parameter on all other platforms is four minutes (240 seconds). For example:

gp.mappers.timeout.all: 240

gp.mappers.umask

This configuration parameter specifies the default umask for mapping programs that create files. The default value for this parameter sets the following read and write permissions for mapping programs that create files:

u=rwx
 g=rx
 o=

The parameter value specifies these permissions using numeric mode. For example:

gp.mappers.umask: 0027

gp.mappers.user

This configuration parameter specifies the mapping programs that map user-based policy settings to run. The mapping programs are executed in the order in which they are specified.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you want to temporarily override group policy.

In defining the list of mapping programs to run, you can use an asterisk (*) as a wild card to match a set of program names. For example, you can specify a* to match all programs with names that start with the letter a. You can use square brackets ([ ]) to match any character within the brackets. For example, you can specify mapprogram[123] to match the program names of mapprogram1, mapprogram2, and mapprogram3. You can also use an exclamation point (!) with a program name to exclude a program from the list. For example, you can specify !mysample to prevent the mapping program mysample from running.

To run all of the mapping programs for user-based policy settings, you can specify:

gp.mappers.user: *

To run a subset of the mapping program, you can explicitly define the order and which programs to run. For example, to run the program mapgp1, followed by mapgp4 and mapgp3, but skipping the execution of mapgp2:

gp.mappers.user: mapgp1 !mapgp2 mapgp4 mapgp3

gp.refresh.disable

This configuration parameter specifies whether to disable the background processing of group policy updates. This configuration parameter applies to both computer- and user-based policies.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you want to temporarily override group policy. For example:

gp.refresh.disable: false

gp.reg.directory.machine

This configuration parameter specifies the root directory of the virtual registry for computer-based group policies. The parameter value must be a path name. For example:

gp.reg.directory.machine: /var/centrifydc/reg/machine

If this parameter is not defined in the configuration file, its default value is/var/centrifydc/reg/machine.

gp.reg.directory.user

This configuration parameter specifies the root directory of the virtual registry for user-based group policies.

The parameter value must be a path name. For example:

gp.reg.directory.user: /var/centrifydc/reg/users

If this parameter is not defined in the configuration file, its default value is /var/centrifydc/reg/users.

gp.use.user.credential.for.user.policy

This configuration parameter specifies whether to use the user's credentials to retrieve user group policies. By default, all group policies are retrieved using the computer account credentials, which are associated with the adclient process rather than the user who is currently logged on. In most cases, this default behavior is sufficient because most of the Delinea group policies are computer configuration policies. However, if the computer account

does not have permission to access the Group Policy Object where user policies are defined, the default behavior prevents user policies from being applied.

You can set this configuration parameter to true to use the user's credentials to retrieve user group policies. For example:

gp.use.user.credential.for.user.policy: true

If this parameter is not defined in the configuration file, its default value is false.

gp.user.login.run

This configuration parameter specifies when user-based group policies should run. By default, user-based group policies are applied when a user first logs on to a computer, then at a regular interval in background to check for updates and changes while the user's session remains active. However, running group policies at every login and refresh interval for users who are already logged on can impact performance on computers where there are a large number of group policies being applied. You can use this parameter to reduce the load on those computers by customizing when group policies should be applied.

This configuration parameter enables you to specify whether the user-based group policies should be applied:

- Only once when the user first logs on and not again until the user logs off and logs back on.
- When the user first logs on and regularly at the refresh interval for as long as the user remains logged on.
- Never when the user logs on, but periodically at the refresh interval thereafter.

The valid parameter values for this configuration parameter are once, always, and never.

For example, to specify that user-based group policies should only run once when the user first logs on but not thereafter, you can set this parameter to once:

gp.user.login.run: once

If this parameter is not defined in the configuration file, its default value is always to apply the user group policies when a user first logs on and periodically refresh the policies in the background for as long the user remains logged on.

Customizing NSS-Related Configuration Parameters

This section describes the configuration parameters that affect the operation of NSS-related activity on the local host computer.

On AIX, the NSS configuration parameters described in this chapter may apply to interfaces in the AIX Loadable Authentication Module (LAM). For consistency across platforms, most of the parameter names are the same and retain the reference to NSS settings they configure, but NSS is not used on AIX.

nss.alias.source

This configuration parameter specifies the source to look up aliases, and you specify one of the following values:

- nismaps (default)
- mail
- proxyaddresses

To look up the alias from an Active Directory user object, use the mail or proxyAddresses value. Because proxyaddresses is a custom attribute, you need to also include it in the adclient.custom.attributes.user parameter or else the alias source reverts to nismaps.

Using the mail or proxyAddresses values don't work with users in a one-way trusted forest.

nss.gecos.attribute

This configuration parameter specifies the Active Directory user object attribute to use for the GECOS field. The default value for this parameters is the gecos attribute in the Active Directory RFC2307 schema.

The order of precedence for the GECOS field setting is:

1. The GECOS setting for the UNIX service connection point (SCP) in Active Directory.
2. The nss.gecos.attribute setting.
3. The displayName attribute of the user object.

If nss.gecos.attribute is set and GECOS is not set for the UNIX SCP, the user attribute specified by nss.gecos.attribute is used for the GECOS field in UNIX profiles and NSS lookups. If nss.gecos.attribute is not defined or the Active Directory RFC2307 schema is not used, the user object's displayName attribute is used as the GECOS field for UNIX profiles.

If you set this configuration parameter, the parameter value is case-sensitive and must exactly match the case used for the attribute name in Active Directory. For example:

nss.gecos.attribute: displayName

nss.gid.ignore

This configuration parameter specifies a set of one or more group identifiers that the Delinea NSS module will ignore for lookup in Active Directory.

In most cases, this configuration parameter's value is generated automatically by group policy.

If you select the **Specify group names to ignore** policy and click **Enabled**, you can type the list of local group names not stored in Active Directory. The list you specify for the group policy is then stored in the /etc/centrifydc/group.ignore file and used to automatically generate the /etc/centrifydc/gid.ignore file. These files are then used to disable looking up account information in Active Directory for the groups specified, which results in faster name lookup service for system group accounts such as tty and disk.

You can, however, define this parameter manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you manually set this parameter, the parameter value should be one or more group identifiers, separated by a space, or the file: keyword and a file location. For example:

nss.gid.ignore: 0 20 5861
nss.gid.ignore=file:/etc/centrifydc/gid.ignore

A default set of groups to ignore are defined in sample /etc/centrifydc/group.ignore and /etc/centrifydc/gid.ignore files. If you edit either file, be sure to run the adreload command after modifying the file to have the changes take effect.

nss.group.ignore

This configuration parameter specifies a set of one or more groups that the Delinea NSS module will ignore for lookup in Active Directory.

In most cases, this configuration parameter's value is generated automatically by group policy.

If you select the **Specify group names to ignore** policy and click **Enabled**, you can type the list of local group names not stored in Active Directory. The list you specify for the group policy is then stored in the /etc/centrifydc/group.ignore file and used to automatically generate the /etc/centrifydc/gid.ignore file. These files are then used to disable looking up account information in Active Directory for the groups specified, which results in faster name lookup service for system group accounts such as tty and disk.

You can, however, set this parameter manually in the configuration file if you aren't using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be one or more group names, separated by a space, or the file: keyword and a file location. For example:

nss.group.ignore: maintenance apps
nss.group.ignore=file:/etc/centrifydc/group.ignore

A default set of groups to ignore are defined in sample /etc/centrifydc/group.ignore and /etc/centrifydc/gid.ignore files. If you are not using group policies, you can uncomment the nss.group.ignore parameter in the /etc/centrifydc/centrifydc.conf file to ignore the default set of groups.

If you plan to edit the group.ignore file, be sure to run the adreload command after modifying the file to have the changes take effect.

nss.group.override

This configuration parameter allows you to override group profile entries for zone groups. Using this parameter is similar to defining override filters for local groups in the /etc/group file. By defining override filters, you can use this parameter to give you fine-grain control over the groups that can access a local computer. You can also use the override controls to modify the information for specific fields in each group entry on the local computer. For example, you can override the group ID or member list for a specific group on the local computer without modifying the group entry itself.

In most cases, you set this configuration parameter using group policy. The entries created by group policy are then stored in the /etc/centrifydc/group.ovr file and used to filter group access to a local computer.You can, however, set this parameter manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The syntax for overriding group entries is similar to the syntax used for overriding NIS. You use + and – entries to allow or deny access for specific groups on the local system. Additional fields correspond to the standard /etc/group fields separated by colons (:).

In most cases, the nss.group.override parameter is used to identify a file location of an override file that contains all of group override entries you want to use on the local computer. For example:

nss.group.override: file:/etc/centrifydc/group.ovr

Within the override file, you use the following format:

+zone_group_name:group_name:group_password:group_id:member_list
-zone_group_name:group_name:group_password:group_id:member_list

For example:

+users::::
+admins::::jdoe,bsmith,frank
+ftpusers:ftp::300:
-webusers
+::::


Changes to the group password field are ignored.

For more information about overriding group entries, see the sample group override file /etc/centrifydc/group.ovr.


If you make changes to this parameter or the override file, you should run adflush to clear the cache to ensure your changes take effect.

nss.group.skip.members

This configuration parameter allows you to skip the retrieval of group membership information for specific groups. Retrieving group membership information from Active Directory can be a very time-consuming and memory-intensive operation for groups with a large number of users, or when using nested groups, but in many cases this information is not needed to perform common UNIX operations. Using this configuration parameter to skip the retrieval of group membership information for specific groups can greatly improve performance for groups with a large number of members.

The parameter value should be a comma-separated list of the UNIX commands for which you can skip group member expansion in the getgrent() call.

The default setting for this configuration parameter is the following for most systems:

ls,chown,find,ps,chgrp,dtaction,dtwm,pt_chmod,id,login,sshd,sshd2,getty,dtlogin,su,adsetgrps,adid

For AIX system, the default is the following:

nss.group.skip.members=ls,chown,find,ps,chgrp,dtaction,dtwm,pt_chmod,id,
login,sshd,sshd2,getty,dtlogin,su,adsetgrps,adid


Setting this parameter does not affect the information returned when the nscd or pwgrd daemon is running on a system. The nscd or pwgrd daemons provide a cache for faster user and group lookups, but when the response comes from this cache, the agent cannot modify the response to skip the members listed with this parameter.

nss.nobody.gid

This configuration parameter specifies the group ID (GID) of the system's nobody group.

For example:

nss.nobody.gid: 99

nss.nobody.group

This configuration parameter specifies the group name of the system's nobody group.

For example:

nss.nobody.group: nobody

nss.nobody.uid

This configuration parameter specifies the user ID (UID) of the system's nobody user.

For example:

nss.nobody.uid: 99

nss.nobody.user

This configuration parameter specifies the user name of the system's nobody user.

For example:

nss.nobody.user: nobody

nss.passwd.hash

This configuration parameter specifies whether to include the UNIX password hash in response to the getpw* commands. The parameter value can be true or false. The default value for the parameter is false because the password hash is sensitive information and can make a system vulnerable to a brute force attack. However, if you have applications, such as Informix, that validate users based on the password hash retrieved from NSS, you can set this parameter to true to accommodate those applications.

If you set this parameter to true, however, you must also install a password synchronization service on all of the domain controllers in the domain. The password synchronization service can be the Delinea Password Filter, or the Password Synchronization Service provided by Microsoft in Windows Server 2003 R2 or in the Microsoft Services for UNIX (SFU) package.

nss.passwd.info.hide

This configuration parameter specifies whether to hide the following password attributes from non-root users:

- Maximum Password Age
- Password Expiration Date
- Minimum Password Age

- Change Password Needed
- Password Last Changed On

The parameter value can be true or false. When this parameter is set to true, only users with root permissions can view the password attributes shown above. When this parameter is set to false, users without root permissions can view the password attributes.

The default value for this parameter is true on all UNIX operating systems except HP-UX. On HP-UX, the default is false because HP-UX does not support hiding these attributes.

nss.passwd.override

This configuration parameter allows you to override user profile entries for zone users. Using this parameter is similar to defining override filters for local users in the /etc/passwd file. By defining override filters, you can use this parameter to give you fine-grain control over the user accounts that can access a local computer. You can also use the override controls to modify the information for specific fields in each /etc/passwd entry on the local computer. For example, you can override the user ID, primary group ID, default shell, or home directory for specific login accounts on the local computer without modifying the account entry itself.

In most cases, you set this configuration parameter usinggroup policy. The entries created by group policy are then stored in the /etc/centrifydc/passwd.ovr file and used to filter user access to a local computer.You can, however, set this parameter manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The syntax for overriding passwd entries is similar to the syntax used for overriding NIS. You use + and – entries to allow or deny access for specific users on the local system. Additional fields correspond to the standard /etc/passwd fields separated by colons (:).

In most cases, the nss.passwd.override parameter is used to identify a file location of an override file that contains all of passwd override entries you want to use on the local computer. For example:

nss.group.override: file:/etc/centrifydc/passwd.ovr

> Although the passwd.ovr file is generated from the list of override entries you specify using group policy, you can also manually create or update the override file on any local computer, if needed. A sample illustrating the syntax is provided in the /etc/centrifydc/passwd.ovr.sample file.

Within the override file, you use the following format for entries:

+zone_username:username:password:uid:gid:GECOS:home_directory:shell

For example:

```
+mike:::::::/usr/local/ultrabash
+kris:kdavis:x:6:6:Kris Davis:/home/kdavis:/bin/bash
+janedoe@acme.test:jdoe::300:300:::
+@sysadmins:::::::
-ftp
+@staff:::::::
+@rejected-users:::32767:32767:::/bin/false
+:::::::/sbin/nologin
+:::::::
```

Overriding the password hash field is ignored. Changing this field in the override file does not affect zone user passwords. In overriding passwd entries, users accounts must be enabled for UNIX in the zone, but the groups do not need to be UNIX-enabled.

In the example above, the @ symbol denotes an Active Directory name. It may be an Active Directory group name, a zone name, or some other container name. You may also specify an Active Directory user principal name instead of the zone name.

Entries in the override file are evaluated in order from first to last with the first match taking precedence. This means the system will only use the first entry that matches a particular user. For example, if the user cruz is a member of both the staff group and the rejected-users group and you have defined the override entries as listed in the example above, the cruz user account is allowed to log on to the computer because the staff entry is evaluated and matched before the rejected-users entry. If the order were reversed in the override file, the cruz account would be flagged as a rejected-users account and denied access.

If you manually create the passwd.ovr file, you must include the following as the last line in the file:

+:::::::

For more information about overriding group entries, see the sample passwd override file /etc/centrifydc/passwd.ovr. For information about using the NSS Overrides group policy to generate and maintain the passwd.ovr file, see the Access Manager online help.

If you make changes to this parameter or the override file, you should run adflush to clear the cache to ensure your changes take effect.

nss.process_group.ignore

This configuration parameter specifies a set of one or more process groups that the Delinea NSS module will ignore for lookup in Active Directory. A *process group* is a collection of related processes which can be called at the same time.

nss.program.ignore

This configuration parameter specifies one or more programs that should not look up account information in Active Directory. The programs you specify for this parameter do not use the agent to contact Active Directory.

Setting this parameter helps to ensure that local programs that create, manage, or use local user and group information do not attempt to look up conflicting information in Active Directory. For example, you can specify programs such as adduser and addgroup to ensure those programs can still be used to create and update local accounts independent of Active Directory:

nss.program.ignore: addgroup,adduser

The specific programs you should include in the list vary by platform and the specific operating environment you are using. The default setting for this configuration parameter includes the most common program names that shouldn't make calls to Active Directory through the agent.

If you have auditing enabled, the agent's auditing service maintains a cache of user information for performance reasons. When you have auditing enabled, you can also use this parameter to circumvent the agent accessing its local cache when you use commands that manipulate local user information directly. For example, you would want the agent to skip checking its local cache when you use commands such as useradd, userdel, adduser, usermod, mkuser, rmuser, chuser, and any other programs that directly access the local /etc/passwd file.

Setting this parameter does not affect the information returned when the nscd or pwgrd daemon is running on a system. The nscd and pwgrd daemons provide a cache for faster user and group lookups, but when the response comes from this cache, the agent cannot modify the response to skip the programs listed with this parameter.

You can also set this configuration parameter usinggroup policy.

nss.program.ignore.check.parents

This configuration parameter specifies whether to recursively check the parent processes' names for the "nss.program.ignore" parameter. The default value is false.

You can also set this configuration parameter using group policy.

nss.shell.emergency.enabled

This configuration parameter specifies whether to use the default login shell when a user or group attempting to access the computer is not allowed to log in.

The default no-login shell and its location is typically platform-specific. For example, on machines running Red Hat Linux, the default shell for users who are denied access is:

/sbin/nologin

The default for this parameter is false, which means that the nologin shell configured in nss.shell.nologin is returned.

nss.shell.nologin

This configuration parameter specifies the default login shell to use when a user or group attempting to access the computer is not allowed to log on. The default no-login shell and its location is typically platform-specific. For example, on Red Hat Linux the default shell for users who are denied access is /sbin/nologin.

For example:

nss.shell.nologin: /sbin/nologin

If you make changes to this parameter, you should run adflush to clear the cache to ensure your changes take effect.

nss.split.group.membership

This configuration parameter specifies whether to split up or truncate large groups when you use the getent group UNIX command to retrieve group information.

In operating environments that do not support large groups, commands that return group information could fail or return incomplete results when a group has a membership list exceeds the maximum size allowed. Typically, the maximum size allowed for groups is 1024 bytes, which is roughly equivalent to 125 users. If your environment contains large groups that exceed the 1024-byte limit, you can set this parameter to true to have those groups automatically split into multiple groups when they reach the maximum size.

When this parameter is set to true and you issue the getent group command without specifying a group name, large groups are split into sublists, and all sublists are returned. When this parameter is set to false, large groups are truncated, and only the truncated results of the group list (typically the first 1024 bytes) are returned.

This policy has no effect in Mac OS X environments.

This configuration parameter takes effect only when you do not specify a group name on the getent group command line. Because of the way in which group information is queried in NSS, group lists are always truncated (and not split) when you specify a group name on the getent group command line (for example, getent group group_name).

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

The default value is true for Solaris, HPUX, and IRIX, but false for all other operating environments. For example:

nss.split.group.membership: true

nss.squash.root

This configuration parameter specifies whether you want to force root and wheel super-user accounts to be defined locally. If you set this parameter to true, Active Directory users with a UID of 0, a GID of 0, a user or group name of root, or a group name of wheel are not permitted to log on. Because the agent cannot prevent Active Directory users or groups from being assigned a UID or GID of 0, which would give those users or groups root-level access to the computers in a zone, you can use this parameter to prevent any Active Directory users with a UID or GID of 0 from logging on. Setting this parameter to true forces the privileged accounts to be defined as local accounts and not authenticated through Active Directory.

For example:

nss.squash.root: true

If you set this parameter to false, you should use other configuration parameters, such as pam.ignore.users or user.ignore to skip Active Directory authentication for system accounts so that Active Directory users cannot be granted root access on the computers in the zones they are permitted to access.

The default value for this parameter is true. It is possible, however, for an Active Directory administrator to override this setting through the use of group policy applied to a local computer, for example, by using the **Sudo rights** group policy. There is no way to effectively prevent the setting from being changed, except by disabling computer-based group policies in the local centrifydc.conf file or by strictly controlling who has permission to enable and apply group policies to computers that join an Active Directory domain. For information about disabling group policies using parameters in the local centrifydc.conf file, see gp.disable.all or gp.disable.machine in Customizing group policy configuration parameters

nss.uid.ignore

This configuration parameter specifies a set of one or more user identifiers that the Delinea NSS module will ignore for lookup in Active Directory.

In most cases, this configuration parameter's value is generated automatically by group policy.

If you select the **Specify user names to ignore** group policy and click **Enabled**, you can type the list of local user names not stored in Active Directory. The list you specify for the group policy is then stored in the /etc/centrifydc/user.ignore file and used to automatically generate the /etc/centrifydc/uid.ignore file. These files are then used to disable looking up account information in Active Directory for the users specified, which results in faster name lookup service for system user accounts such as tty and disk.

You can, however, define this parameter manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you manually set this parameter, the parameter value should be one or more user identifiers, separated by a space, or the file: keyword and a file location. For example:

```
nss.uid.ignore: 0 20 5861
 nss.uid.ignore=file:/etc/centrifydc/uid.ignore
```

A default set of system user accounts to ignore is defined in the sample /etc/centrifydc/user.ignore file and in the /etc/centrifydc/uid.ignore file. If you edit either file, be sure to run the adreload command after modifying the file to have the changes take effect.

nss.user.group.prefer.cache

Use this parameter to specify whether or not to always use the cached information and defer the refreshing of Active Directory information in the background.

If you have a lot of NSS queries for users or groups, you can improve adclient performance by enabling this parameter.

The default value for this parameter is false.

This parameter applies to NSS user and group queries (getpw* and getgr*).

nss.user.ignore

This configuration parameter specifies one or more users that the Delinea NSS module will ignore for lookup in Active Directory. Because this parameter allows you to intentionally skip looking up specific accounts in Active Directory, it allows faster lookup for system accounts such as tty, root, and bin.

This configuration parameter only ignores the listed users for NSS lookups. To ignore users for authentication and NSS lookups, use the pam.ignore.users configuration parameter.

In most cases, this configuration parameter's value is generated automatically by group policy.

If you select the **Specify user names to ignore** policy and click **Enabled**, you can type the list of local user names not stored in Active Directory. This list is then stored in the /etc/centrifydc/user.ignore file and used to automatically generate the /etc/centrifydc/uid.ignore file. These files are

then used to disable looking up account information in Active Directory for the users specified, which results in faster name lookup service for system user accounts such as tty and disk.

You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value should be one or more user names, separated by a space, or the file: keyword and a file location. For example:

nss.user.ignore: root sys tty
nss.user.ignore=file:/etc/centrifydc/user.ignore

A default set of users to ignore are defined in sample /etc/centrifydc/user.ignore and /etc/centrifydc/uid.ignore files. If you are not using group policies, you can uncomment the nss.user.ignore parameter in the /etc/centrifydc/centrifydc.conf file to ignore the default set of users.

If you plan to edit the user.ignore file, be sure to run the adreload command after modifying the file to have the changes take effect.

nss.user.ignore.all

This configuration parameter specifies how the list of users in nss.user.ignore is applied during lookups.

The parameter value can be true or false.

When you set this parameter to true, lookups generated by NSS, ldapproxy, or JAPI ignore the Active Directory users listed in nss.user.ignore.

When you set this parameter to false, only lookups generated by NSS ignore the Active Directory users listed in nss.user.ignore.

The default value is false.

nss.watch.slow.lookup.info.threshold

This configuration parameter specifies the threshold (in milliseconds) for the time spent on a complete NSS request. When a NSS request exceeds this threshold, the NSS module writes information to a message to the INFO log file.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `nss.watch.slow.lookup.info.threshold:10`.

nss.watch.slow.lookup.info.threshold.group

This configuration parameter specifies the threshold (in milliseconds) for the time spent on a complete NSS request categorized by group. When a NSS request exceeds this threshold for the user category, the NSS module writes to a message to the INFO log file.

The group category indicates the following NSS calls: `getgrnam*getgrgid*`

The nss.watch.slow.lookup.info.threshold.group setting overrides that set by the `nss.watch.slow.lookup.info.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `nss.watch.slow.lookup.info.threshold.group:35`.

nss.watch.slow.lookup.info.threshold.user

This configuration parameter specifies the threshold (in milliseconds) for the time spent on a complete NSS request categorized by user. When a NSS request exceeds this threshold for the user category, the NSS module writes to a message to the INFO log file.

The user category indicates the following NSS calls: `getpwnam*getpwuid*getgrouplist`

The nss.watch.slow.lookup.info.threshold.user setting overrides that set by the `nss.watch.slow.lookup.info.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `nss.watch.slow.lookup.info.threshold.user:15`.

nss.watch.slow.lookup.warn.threshold

This configuration parameter specifies the threshold (in milliseconds) for the time spent on a complete NSS request. When a NSS request exceeds this threshold, the NSS module writes information to a WARN log file.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `nss.watch.slow.lookup.warn.threshold:20`.

nss.watch.slow.lookup.warn.threshold.group

This configuration parameter specifies the threshold (in milliseconds) for the time spent on a complete NSS request for the group category. When a NSS request exceeds this threshold, the NSS module writes information to a WARN log file.

The group category indicates the following NSS calls: `getgrnam*getgrgid*`

The nss.watch.slow.lookup.info.threshold.user setting overrides that set by the `nss.watch.slow.lookup.warn.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `nss.watch.slow.lookup.warn.threshold.group:30`.

nss.watch.slow.lookup.warn.threshold.user

This configuration parameter specifies the threshold (in milliseconds) for the time spent on a complete NSS request for the user category. When a NSS request exceeds this threshold, the NSS module writes information to a WARN log file.

The user category indicates the following NSS calls: `getpwnam*getpwuid*getgrouplist`

The nss.watch.slow.lookup.info.threshold.user setting overrides that set by the `nss.watch.slow.lookup.warn.threshold` parameter.

By default, this parameter is set to -1, which means that there is no threshold.

For example: `nss.watch.slow.lookup.warn.threshold.user:25`.

lam.attributes.group.ignore

This parameter points to a file containing a list of AIX group attributes that the lam module should ignore and let AIX handle it to either provide the default value or return ENOATTR. The default is file:/etc/centrifydc/attributes.group.ignore.

lam.attributes.user.ignore

This parameter points to a file containing a list of AIX user attributes that the lam module should ignore and let AIX handle it to either provide the default value or return ENOATTR. The default is file:/etc/centrifydc/attributes.user.ignore.

lam.max.group.count

This configuration parameter applies to the AIX Loadable Authentication Module (LAM) and specifies the maximum number of Active Directory groups that the lsgroup ALL command will return.

The parameter value must be an integer. The default value for this parameter is 1000 groups. If you specify 0 or a negative value (for example, -1), there is no limit on the number of groups returned. For example:

lam.max.group.count: 100

Before changing this parameter setting or using a value of 0, you should consider its impact on your environment. Increasing the value of this parameter may provide more complete information about the number of Active Directory UNIX groups, but may result in slower performance if there are more Active Directory UNIX groups in the zone than the maximum you specify. Similarly, if you do not set a limit, you may experience performance problems if you have a large number of Active Directory groups. Decreasing the value of this parameter may provide better response time if there are more Active Directory UNIX groups in the zone than the maximum you specify, but further limits how much information is returned.

If this parameter is not defined in the configuration file, its default value is 1000 groups.

lam.max.user.count

This configuration parameter applies to the AIX Loadable Authentication Module (LAM) and specifies the maximum number of Active Directory users that the lsuser ALL command will return. This value also limit the results returned by the getpwent() and nextuser() functions.

The parameter value must be an integer. The default value for this parameter is 1000 users. If you specify 0 or a negative value (for example, -1), there is no limit on the number of users returned. For example:

lam.max.user.count: 100

Before changing this parameter setting or using a value of 0, you should consider its impact on your environment. Increasing the value of this parameter may provide more complete information about the number of Active Directory UNIX users, but may result in slower performance if there are more Active Directory UNIX users in the zone than the maximum you specify. Similarly, if you do not set a limit, you may experience performance problems if you have a large number of Active Directory users. Decreasing the value of this parameter may provide better response time if there are more Active Directory UNIX users in the zone than the maximum you specify, but further limits how much information is returned.

If this parameter is not defined in the configuration file, its default value is 1000 users.

Customizing NIS Configuration Parameters

This section describes the configuration parameters that affect the operation of the Delinea Network Information Service on the local host computer. The Delinea Network Information Service—`adnisd`—provides a mechanism for responding to NIS client requests from computers not managed by a Server Suite Agent.

log.adnisd

This configuration parameter specifies the logging level for the Delinea Network Information Service. The default logging level is the logging level set for the log configuration parameter or INFO if neither parameter is defined in the configuration file. For example, to diagnose problems with the Delinea Network Information Service without changing the logging level for other components:

log.adnisd: DEBUG

log.adnisd.netgroup

This configuration parameter specifies the logging level for netgroup processing of the Centrify Network Information Service. The default logging level is the logging level set for the log.adnisd parameter if that parameter is defined. This parameter value can be set to DEBUG to log netgroup diagnostics or to INFO to suppress messages.

For example:

log.adnisd.netgroup: INFO

You can also set lower-level logging for netgroup processing using the following parameters:

Use this parameter	To log
log.adnisd.netgroup.syntax	Syntax warnings and errors for netgroup processing. The default value is the value defined for the log.adnisd.netgroup parameter.
log.adnisd.netgroup.inv	Inversion processing. The default value is the value defined for the log.adnisd.netgroup parameter. This parameter value can be set to DEBUG to log netgroup diagnostics or to INFO to suppress messages.

logger.facility.adnisd

This configuration parameter specifies the syslog facility to use for logging adnisd operations. This parameter enables you to log adnisd messages using a different syslog facility than the facilities used for logging general adclient messages or adclient audit messages. This parameter's value can be any valid syslog facility. For example, you can set this parameter to log messages to auth, authpriv, daemon, security, or localn facilities. The default is the auth facility. For example:

logger.facility.adnisd: auth

nisd.domain.name

This configuration parameter specifies the NIS domain name for the adnisd process to use when communicating with NIS clients.

For example, to specify that you want to use euro-all as the NIS domain name in the zone named Europe-00-Zone, you can set this parameter as follows:

nisd.domain.name: euro-all

If this parameter is not defined in the configuration file, the zone name is used by default.

nisd.exclude.maps

This configuration parameter specifies the name of the NIS maps you want to prevent the NIS service from using in response to NIS clients. This parameter enables you to exclude specific maps rather than explicitly specifying the maps you want to make available. For example, if you have a large number of automount maps or other network information that you want to make available to NIS clients but do not want to use agentless authentication, you can use this parameter to exclude the passwd and group maps but respond to automount or netgroup requests.

To use this configuration parameter, you must add the parameter name to the /etc/centrifydc.conf configuration file, then define its value. The parameter value must be a list of valid NIS map names, separated by spaces. For example:

nisd.exclude.maps: group passwd

This parameter excludes the named map and all derived maps. For example, if you specify group, the derived maps, group.byname, and group.bygid, are excluded. If this parameter is not defined in the configuration file, all NIS maps found in Active Directory are retrieved and available for service.

This configuration parameter overrides the setting of the nisd.maps parameter. If the same map is specified for both the nisd.exclude.maps and nisd.maps parameters, the map is excluded.

nisd.largegroup.name.length

This configuration parameter specifies the maximum number of characters to use in group names when groups with a large number of members are split into multiple new groups. Because some devices that submit NIS requests have limitations on the length of group names, you can use this parameter to specify the maximum length for group names.

When the adnisd process splits the group membership for a large group into multiple smaller groups, it truncates the original group name as needed to append the suffix defined in the nisd.largegroup.suffix parameter and not exceed the number of characters specified by this parameter. For example, if you have a large group named worldwide-all-corp, and have defined the suffix string as “-all” and the maximum length for group names as 10, when the worldwide-all-corp group membership is split into multiple groups, the groups are named as follows:

world-all1
world-all2
world-all3
world-all3

For example, to set the maximum length for group names to 20 characters:

nisd.largegroup.name.length: 20

If this parameter is not defined in the configuration file, the maximum group name length is 1024 characters by default.

nisd.largegroup.suffix

This configuration parameter specifies the suffix string or character to use in group names when automatically splitting up a group with large number of members.

Because group.bygid and group.byname NIS maps can often contain membership lists that exceed the 1024 limit for how much NIS data can be served to clients, the adnisd process will automatically truncate the membership list when this limit is reached. To allow the additional membership data to be retrieved, you can configure the Delinea Network Information Service to automatically split a large group into as many new groups as needed to deliver the complete membership list.

If you specify any value for the nisd.largegroup.suffix parameter, you enable the adnisd process to automatically split a large group into multiple new groups. When a group's data size exceeds 1024 data limit, a new group is created. The new group name is formed using the original group name, followed by the string defined for the nisd.largegroup.suffix parameter and ending in a number that represents the numeric order of the new group created.

For example, if you have a large group named performix-worldwide-corp, and have defined the suffix string as "-all" and the maximum length for group names as 10, when the performix-worldwide-corp group membership is split into multiple groups, the groups are named as follows:

performix-worldwide-corp-all1
performix-worldwide-corp-all2
performix-worldwide-corp-all3
performix-worldwide-corp-all4

All of the new groups have the same group identifier (GID) as the original group. If the new group names would exceed the maximum length for group names on a platform, you can use the nisd.largegroup.name.length parameter to set the maximum length for the new groups created.

If this configuration parameter is not set, the adnisd process truncates the group membership list such that each group entry is under 1024 characters.

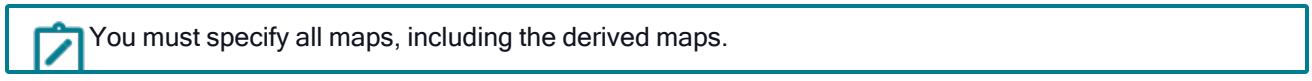
nisd.maps

This configuration parameter specifies the name of the NIS maps currently available for NIS service. When the adnisd daemon connects to Active Directory, it retrieves the list of NIS maps available for the local computer's zone, creates a local map data store, and updates this configuration parameter, if necessary, to indicate the maps retrieved. If any NIS client requests a map that is not in the list specified by this parameter, the daemon refuses the request.

The parameter value must be a list of NIS map names. If the parameter is included in the configuration file but no value is set, no maps are retrieved from Active Directory or available for service.

For example, to make the netgroup maps available, but no other maps, you can set this parameter as follows:

nisd.maps: netgroup,netgroup.byhost,netgroup.byuser



If this parameter is not defined in the configuration file, all NIS maps found in Active Directory are retrieved and available for service.

nisd.maps.max

This configuration parameter specifies the number of alternate sets of NIS maps to retain. A new set of NIS maps is normally created when adnisd switches to an alternate domain controller. Keeping these alternate sets of maps allows Centrify Network Information Service to more efficiently switch between domain controllers.

The parameter value must be an integer greater than zero. The default is 2 map sets. For example:

nisd.maps.max: 2

nisd.net_addr

This configuration parameter sets the IP address the adnisd process uses for the NIS client socket. For example, the following sets the IP address to 192.168.212.11:

nisd.net_addr: 192.168.212.11

On systems with multiple Ethernet interfaces, adnisd configures RPC to the first interface. If an NIS client is trying to communicate on a different interface, adnisd will not receive the request.

Before creating sockets, adnisd reads centrifydc.conf file to see if an IP address and TCP and UPD ports are specified. If not, it uses localhost and random port numbers assigned by the operating system.

Use the nisd.port.udp and nisd.port.tcp parameters to complete the NIS port assignment.

nisd.passwd.expired.allow

This configuration parameter specifies whether a user with an expired Active Directory password should be allowed to log on to computers authenticated through NIS requests. The parameter value can be set to true or false.

By default, when a user's Active Directory password expires the password hash field in the passwd NIS map is replaced by two exclamation marks (!!), and the user is not allowed to log on to the local NIS client computer without first logging on to a Windows computer or an agent-managed computer running adclient to update the expired password. You can use this parameter to allow the user to log on locally using the expired password.

If you set the parameter value to true, users with an existing password hash in the passwd map generated from Active Directory do not have their password hash replaced by the exclamation marks and they can continue to log on using the expired password until they update their password in Active Directory. Once they update their password in Active Directory, in the NIS map is updated with a new password hash and users can log on with the new password. If a user never updates the Active Directory password by logging on to a Windows or agent-managed computer, however, the user's expired password may be used indefinitely.

The default value for this parameter is false. For example:

nisd.passwd.expired.allow: false

nisd.port.tcp

This configuration parameter sets the TCP port number the adnisd process uses to create the socket for NIS client communications. For example, the following sets the TCP port to 2556:

nisd.port.tcp: 2556

By default, no port number is specified. If you do not specify the port number, the operating system assigns a random port number.

Use the nisd.port.udp and nisd.net_addr parameters to complete the NIS client socket configuration.

nisd.port.udp

This configuration parameter sets the UDP port number the adnisd process uses to create the socket for NIS client communications. For example, the following sets the UPD port to 2555

nisd.port.udp: 2555

By default, no port number is specified. If you do not specify the port number, the operating system assigns a random port number.

Use the nisd.port.tcp and [nisd.net_addr]nisd-net-addr.md) parameters to complete the NIS client socket configuration.

nisd.securenets

This configuration parameter specifies a list of one or more subnets from which the daemon will accept NIS requests. You use this parameter to restrict access to the Delinea Network Information Service by IP address. NIS requests that do not come from the IP addresses specified in this configuration parameters are refused by the asnisd daemon.

> You do not need to specify the local IP address for this parameter. The Delinea Network Information Service will always accept local NIS client requests.

The parameter value must include both the specific IP address or subnet and the subnet mask, separated by a forward slash. For example:

nisd.securenets: 192.168.111.0/255.255.255.0

You can specify multiple IP addresses by separating each IP address-subnet mask pair with a comma or a space. For example:

nisd.securenets: 192.68.11.0/255.255.255.0,192.147.10.0/255.255.255.0

If this parameter is not defined in the configuration file, only local NIS client requests are accepted by the asnisd process.

nisd.server.switch.delay

This configuration parameter specifies how long, in seconds, to wait before loading maps from a backup domain controller when the connection to the primary domain controller is lost. If the Delinea Network Information Service is unable to connect to its primary Active Directory domain controller, it will respond to NIS client requests using information in the local cache until the switch to the backup domain controller is complete.

The parameter value must be an integer equal to or greater than zero. If the value is zero, then the delay is disabled. For example, to set the delay period to 2 hours:

nisd.server.switch.delay: 7200

If this parameter is not defined in the configuration file, the default delay for switching to the backup domain controller is ten minutes (600 seconds).

nisd.startup.delay

This configuration parameter specifies the maximum number of seconds that the adnisd process should wait before responding to NIS client requests.

While adnisd retrieves and generates its NIS maps, it does not respond to client requests for the maximum number of seconds specified by this parameter. At the end of the startup delay time, adnisd will respond to NIS client requests whether all maps are loaded or not. Therefore, setting this parameter enables the adnisd process to begin responding to NIS clients requests before all NIS maps are loaded or created. You should be aware, however, that if the delay time is reached before all of the NIS maps are available, NIS clients may receive partial or empty answers to their requests.

If all of the NIS maps are loaded or created in less time than specified by this parameter, adnisd will begin responding to NIS requests without any startup delay.

By default, the maximum startup delay is 180 seconds. If you set this configuration parameter to zero, the adnisd process will only respond to NIS client requests after all NIS maps have been loaded or created. Therefore, in most cases, the parameter value should be a positive integer. For example, to set the startup delay to two minutes, you would set the parameter value to 120:

nisd.startup.delay: 120

nisd.threads

This configuration parameter specifies the maximum number of threads to allocate for processing NIS client requests.

The parameter value must be a positive integer within the valid range of 1 to 200. If you want to increase or decrease the number of threads used, you should stop the adnisd process, modify this parameter and save the configuration file, then restart the adnisd process.

The default value for this parameter is 4 threads. For example:

nisd.threads: 4

nisd.update.interval

This configuration parameter specifies the interval, in seconds, that the adnisd daemon waits between connections to Active Directory. At each interval, the adnisd daemon connects to Active Directory, gets the latest NIS maps for the local computer's zone, and updates its local NIS map data store.

The parameter value must be an integer equal to or greater than zero. If the value is zero, then the update interval is disabled and the local NIS map data store is not updated. For example, to set the interval for getting NIS maps to 1 hour:

nisd.update.interval: 3600

If this parameter is not defined in the configuration file, the default interval is 30 minutes (1800 seconds).

Customizing AIX Configuration Parameters

This section describes the configuration parameters that affect the administration of users and groups on AIX computers.

Setting extended attributes

AIX provides extended user and group attributes that enable administrators to specify user or group characteristics, such as the ability to login remotely to a user account, use the system resource controller (SRC) to execute programs, and so on. You can define these attributes for specific users and groups or for all user and group accounts on a local computer by editing specific configuration files such as /etc/security/user, /etc/security/group, and /etc/security/limits. The specific extended attributes available depend on the version of AIX you are using. For information about the extended attributes available for users and groups, see the AIX documentation for the security configuration files.

You can centralize administration of AIX computers by setting extended attributes for individual AIX users and groups in Active Directory. You can also set configuration parameters to set default extended attribute values for all Active Directory users or groups on a particular AIX computer.

> Certain extended attributes, such as the system privileges, or capabilities attributes, are only supported by methods in the Loadable Authentication Module (LAM) version 5.2 or later.

The agent configuration file can include AIX configuration parameters that correspond to AIX extended attributes. For example:

AIX attribute	Parameter
admin	aix.user.attr.admin
daemon	aix.user.attr.daemon
rlogin	aix.user.attr.rlogin
su	aix.user.attr.su

Each configuration parameter has a hard-coded default value. You can edit the centrifydc.conf configuration file on any computer to change its default value. You should note that changes you make in the centrifydc.conf file only affect Active Directory users and groups. The settings do not affect local users or groups. Local users and groups get their extended attributes from the settings in the AIX configuration files, such as /etc/security/user and /etc/security/limits.

Enforcing access rights on AIX computers

If you are using the AIX Loadable Authentication Module (LAM), users who do not have the PAM login-all right can still log in. For example, an Active Directory user joined to the zone with the AIX computer and assigned to a role that does NOT include the login-all right can, in fact, log in to the AIX servers using the LAM interface. This is

because the LAM interface does not use the rights defined in the user's Delinea role to control access. If the same server is configured with the PAM authentication module, that user would not be able to log in.

To control user log in activity, you have two choices:

- Keep the LAM interface and use one of the following PAM configuration parameters to define who has or does not have access:
  - pam.allow.groups: This configuration parameter specifies the groups allowed to access PAM-enabled applications.
  - pam.allow.users: This configuration parameter specifies the users who are allowed to access PAM-enabled applications.
  - pam.deny.groups: This configuration parameter specifies the groups that should be denied access to PAM-enabled applications.
  - pam.deny.users: This configuration parameter specifies the users that should be denied access to PAM-enabled applications.
- Replace the LAM interface with PAM. See the IBM AIX documentationfor the instructions. The conversion procedure is fairly simple, however,you should test all applications on the server to ensure that they work thesame with PAM. In addition, if you are using Delinea OpenSSH there are twoversions: one for LAM and one for PAM. Both a LAM and PAM versions aredistributed in the package. If you convert to PAM, uninstall the LAM version and install the PAM version.

Setting extended attributes

To set an extended attribute for an individual user, you can use adedit commands.

For example, to set the value of the extended attributes aix.ttys and aix.rlogin for the user joe, you might run commands similar to the following after binding to a domain and selecting a zone:

```
select_zone_user joe@ajax.acme.test
set_zone_user_field aix.ttys r1,r2,r3
set_zone_user_field aix.rlogin true
```

To verify the value of the extended attributes you have set, you might run commands similar to the following:

```
get_zone_user_field aix.ttys
r1,r2,r3
save_zone_user
```

You can also use adedit abbreviations to set and get extended attribute values. For example:

```
slzu joe@ajax.acme.test
szuf aix.fsize 209715
szuf aix.core 2097151
szuf aix.cpu -1
szuf aix.data 262144
```

Alternatively, you can also use configuration parameters to supplement the settings in the AIX /etc/security/user file. For example, if you have not explicitly defined the aix.rlogin attribute in /etc/security/user, you can set the following parameter in the centrifydc.conf file:

```
aix.user.attr.rlogin: false
```

You can use adquery and the keyword help to view a list of the supported extended attributes. For example:

adquery user --extattr help

aix.cache.extended.attr.enable

Use this parameter to specify whether to cache extended attribute default values. Caching extended attribute default values improves performance of the lsuser command.

The default value is false.

aix.user.attr.admgroups

This configuration parameter specifies the groups that the user account administers.

For the parameter value, enter a comma-separated list of groups; for example:

aix.user.attr.admgroups: unixAdmins,dnsAdmins

This parameter corresponds to the aix.admingroups attribute in the /etc/security.user file.

The default value is the empty string (no groups).

aix.user.attr.admin

This configuration parameter specifies the administrative status of the user.

Set the parameter value to true to define the user as an administrator; for example:

aix.user.attr.adm: true

Set the value to false to specify that the user is not an administrator. This is the default value.

This parameter corresponds to the aix.admin attribute in the /etc/security.user file.

aix.user.attr.auditclasses

This configuration parameter specifies the audit classes for the user.

You may enter a list of audit classes separated by commas, or the keyword ALL or an asterisk (*) to specify all audit classes. For example:

aix.user.attr.auditclasses: general,system

Place an exclamation point in front of a class to exclude it. For example, the following setting specifies all classes except system:

aix.user.attr.auditclasses: ALL,!system

This parameter corresponds to the aix.auditclasses attribute in the /etc/security.user file.

The default value is the empty string (no audit classes).

aix.user.attr.core

This configuration parameter specifies the soft limit for the largest core file that the user can create. Use -1 to set an unlimited size.

For example, to set the value to 2097151:

aix.user.attr.core: 2097151

This parameter corresponds to the aix.core attribute in the /etc/security.limits file.

The default value is 2097151.

aix.user.attr.cpu

This configuration parameter specifies the soft limit (in seconds) for the amount of system time that a user's process can use.

Use -1 to set an unlimited size; for example, to set the limit to one hour:

aix.user.attr.cpu: 3600

This parameter corresponds to the aix.cpu attribute in the /etc/security.limits file.

The default value is -1.

aix.user.attr.data

This configuration parameter specifies the soft limit for the largest data-segment for a user's process. Use -1 to set an unlimited size.

For example, to se the value to 2097151:

aix.user.attr.data: 2097151

This parameter corresponds to the aix.data attribute in the /etc/security.limits file.

The default value is 2097151.

aix.user.attr.daemon

This configuration parameter specifies whether the user can execute programs using the system resource controller (SRC), which manages system daemons and sub systems such as adclient and NFS.

Set the parameter value to true to allow users to execute programs using the SRC. Set the value to false to prevent users from executing programs using the SRC.

This parameter corresponds to the aix.daemon attribute in the /etc/security.user file.

The default value is false, which prevents a user from executing programs using SRC.

aix.user.attr.fsize

This configuration parameter specifies the soft limit for the largest file that the user process can create. Use -1 to set an unlimited size.

For example, to set the value to 2097151:

aix.user.attr.fsize: 2097151

This parameter corresponds to the aix.fsize attribute in the /etc/security.limits file.

The default value is 2097151.

aix.user.attr.nofiles

This configuration parameter specifies the soft limit for the number of file descriptors that the user's process may have open at one time.

Use -1 to set an unlimited size.

For example, to set the limit to 2000:

aix.user.attr.nofiles: 2000

This parameter corresponds to the aix.nofiles attribute in the /etc/security.limits file.

The default value is -1.

aix.user.attr.nprocs

This configuration parameter specifies the soft limit on the number of processes a user can have running at one time.

Use -1 to specify the maximum number allowed by the system; for example:

aix.user.attr.nprocs: -1

This parameter corresponds to the aix.nprocs attribute in the /etc/security/limits file.

The default value is -1.

aix.user.attr.rlogin

This configuration parameter specifies whether remote users can access the user account through rlogin and telnet.

Set the parameter value to true to allow remote access to the user account.

Set the parameter value to false to prevent remote access to the user account.

This parameter corresponds to the aix.rlogin attribute in the /etc/security.user file.

The default value is true, which allows remote access to the user account.

aix.user.attr.rss

This configuration parameter specifies the soft limit for the largest amount of system memory that the user process can allocate. Use -1 to set an unlimited size.

For example, to set the value to 2097151:

aix.user.attr.rss: 2097151

This parameter corresponds to the aix.rss attribute in the /etc/security.limits file.

The default value is 65536.

aix.user.attr.stack

This configuration parameter specifies the soft limit for the largest stack segment for the user's process. Use -1 to set an unlimited size.

For example, to set the value to 2097151:

aix.user.attr.stack: 2097151

This parameter corresponds to the aix.stack attribute in the /etc/security.limits file.

The default value is 65536.

aix.user.attr.su

This configuration parameter specifies whether other users can use the su command to switch to this user account.

Set the parameter value to true to allow other users to switch to this user account.

Set the value to false to prevent users from switching to this user account.

This parameter corresponds to the aix.su attribute in the /etc/security.user file.

The default value is true, which allows other users to switch to this user account.

aix.user.attr.sugroups

This configuration parameter specifies the groups that can use the su command to switch to this user account.

You may enter a list of groups separated by commas, or the keyword ALL or an asterisk (*) to specify all groups. For example:

aix.user.attr.sugroups: admins,unixAdmins,dnsAdmins,enterpriseAdmins

Place an exclamation point in front of a group to exclude it. For example, the following setting specifies all groups except dnsAdmins:

aix.user.attr.sugroups: ALL,!dnsAdmins

This parameter corresponds to the aix.sugroups attribute in the /etc/security.user file.

The default value is ALL, which allows all groups to switch to the user account.

aix.user.attr.threads

This configuration parameter specifies the soft limit for the largest number of threads that a user process can create.

Use -1 to specify an unlimited number; for example:

aix.user.attr.threads: -1

This parameter corresponds to the aix.thread attribute in the /etc/security/limits file.

The default value is -1, which specifies an unlimited number of threads.

aix.user.attr.tpath

This configuration parameter specifies the status of the user's trusted path. The trusted path prevents unauthorized programs from reading data from the user terminal.

Set one of the following values for this parameter:

Use this value	To do this
always	Allows the user to execute trusted processes only, which means the that the user's initial program must be in the trusted shell or another trusted process.
notsh	Prevents the user from invoking the trusted shell on a trusted path. Entering the secure attention key (SAK) causes the login session to terminate.
nosak	Disables the secure attention key (SAK) for all processes run by the user. Specify nosak if the user transfers binary that may contain the SAK. This is the default value.
on	Provides the user with normal trusted path characteristics; the user can invoke a trusted path (enter a trusted shell) with the secure attention key (SAK).

This parameter corresponds to the aix.tpath attribute in the /etc/security.user file.

The default value is nosak.

aix.user.attr.ttys

This configuration parameter specifies the terminals that can access the user account.

You may enter a list of terminals separated by commas, or the keyword ALL or an asterisk (*) to specify all terminals. For example:

aix.user.attr.ttys: /dev/pts

You must specify /dev/pts or ALL for network logins to work.

Place an exclamation point in front of a group to exclude it.

This parameter corresponds to the aix.ttys attribute in the /etc/security.user file. The default value is ALL, which allows all terminals to access the user account.

aix.user.attr.umask

This configuration parameter specifies the default umask to define permissions for the user. The umask value along with the permissions of the creating process determine the permissions for a new file.

This parameter corresponds to the aix.ttys attribute in the /etc/security.user file.

The parameter value can be set to a three-digit octal value. The default value is 022.

lam.attributes.group.map

You can use this parameter to map AIX group attributes to Active Directory group attributes. This mapping works on a per-system basis. With this parameter in use, `adclient` returns the mapped Active Directory attributes values from a LAM (Loadable Authentication Module) query of the configured AIX group attributes.

In most cases, you set this configuration parameter using group policy. The entries created by the group policy are then stored in the `/etc/centrifydc/attributes.group.map` file. You can, however, set this parameter manually in the configuration file if you are not using group policy or if you want to temporarily override the group policy.

In most cases, you use the `lam.attributes.group.map` parameter to specify the location of an mapping configuration file; this mapping file contains entries you want to use on the local computer. For example:

```
lam.attributes.group.map: file:/etc/centrifydc/attributes.group.map
```

> Although the `attributes.group.map` file is generated from the list of mapping entries you specify using group policy, you can also manually create or update the mapping configuration file on any local computer, if needed. A sample illustrating the syntax is provided in the `/etc/centrifydc/attributes.group.map.sample` file.

The syntax for the mapping configuration file is:

```
AIX_ATTR AD_ATTR BYPASS_CACHE
```

`AIX_ATTR` indicates AIX attribute name `AD_ATTR` indicates Active Directory attribute name `BYPASS_CACHE` is optional, by default it's not specified. If it is specified, then `adclient` always tries to directly get the mapped attribute from Active Directory first, instead of trying to read from the cache first.

> The following AIX attributes below are not supported for group mapping: `id`, `registry`, and `users`.

for example: `adms memberUid`

The example above maps the AIX group attribute `adms` to the Active Directory group attribute `memberUid`. The Delinea LAM module would return the `memberUid` value for any queries that include the `adms` AIX group attribute. And, `adclient` will try to read the `memberUid` value first from the cache.

For more information about AIX attributes mapping syntax, see the sample file `/etc/centrifydc/attributes.group.map.sample`.

lam.attributes.user.map

You can use this parameter to map AIX user attributes to Active Directory user attributes. This mapping works on a per-system basis. With this parameter in use, `adclient` returns the mapped Active Directory attributes values from a LAM (Loadable Authentication Module) query of the configured AIX user attributes.

In most cases, you set this configuration parameter using group policy. The entries created by the group policy are then stored in the `/etc/centrifydc/attributes.user.map` file. You can, however, set this parameter manually in the configuration file if you are not using group policy or if you want to temporarily override the group policy.

In most cases, you use the `lam.attributes.user.map` parameter to specify the location of an mapping configuration file; this mapping file contains entries you want to use on the local computer. For example:

```
lam.attributes.user.map: file:/etc/centrifydc/attributes.user.map
```

> Although the `attributes.user.map` file is generated from the list of mapping entries you specify using group policy, you can also manually create or update the mapping configuration file on any local computer, if needed. A sample illustrating the syntax is provided in the `/etc/centrifydc/attributes.user.map.sample` file.

The syntax for the mapping configuration file is:

```
AIX_ATTR AD_ATTR BYPASS_CACHE
```

`AIX_ATTR` indicates AIX attribute name `AD_ATTR` indicates Active Directory attribute name `BYPASS_CACHE` is optional, by default it's not specified. If it is specified, then `adclient` always tries to directly get the mapped attribute from Active Directory first, instead of trying to read from the cache first.

The following AIX attributes below are not supported for user mapping: `id`, `password`, `shell`, `gecos`, `pgrp`, `pgid`, `home`, `expires`, `login`, `registry`, `auth1`, `auth2`, `system`, `account_locked`, `groups`, `groupsids`, `usrenv`, `maxage`.

for example: `unsuccessful_login_count badPwdCount bypass_cache`

The example above maps the AIX user attribute `unsuccessful_login_count` to the Active Directory user attribute `badPwdCount`. The Delinea LAM module would return the `badPwdCount` value for any queries that include the `unsuccessful_login_count` AIX user attribute. By setting the `bypass_cache` option you can also make sure that the system always does a query to get the attributes instead of relying on the cached values.

For more information about AIX attributes mapping syntax, see the sample file `/etc/centrifydc/attributes.user.map.sample`.

Customizing Delinea UNIX programs Configuration Parameters

This section describes the configuration parameters that affect the operation of Delinea UNIX command line programs on the local host computer.

adjoin.adclient.wait.seconds

This configuration parameter specifies the number of seconds the adjoin command should wait before exiting to ensure that the agent is available to complete the join operation.

For example, to configure the adjoin command to wait 10 seconds:

adjoin.adclient.wait.seconds: 10

adjoin.krb5.conf.file

This configuration parameter specifies the path to a customized Kerberos configuration file you want to use to join a domain.

The parameter value must be a path name. For example:

adjoin.krb5.conf.file: /etc/centrifydc/krb5_join.conf

adjoin.samaccountname.length

This configuration parameter specifies the maximum number of characters to use when the adjoin command must generate a pre-Windows 2000 computer name by truncating the host name. This parameter also determines how

adjoin creates the computer account in Active Directory.

The default value is 15 characters to conform to the maximum length allowed by the NetLogon service, which is the preferred service for adclient to use for NTLM pass-through authentication. NetLogon is fast and automatically returns a user's group membership.

The maximum length allowed for the pre-Windows 2000 computer name, which is stored in the sAMAccountName attribute for the computer account in Active Directory, is 19 characters. However, if you specify more than 15 characters (up to the 19 character limit) adclient will use slower NTLM authentication methods, and will use additional LDAP searches to fetch the user's group membership.

This configuration parameter is ignored if you run the adjoin command with the --prewin2k option to manually specify the pre-Windows 2000 computer name.

The parameter value should be a positive integer in the valid range of 1 to 19 characters. For example:

adjoin.samaccountname.length: 15

If you specify a value greater than 19, the parameter setting is ignored and the computer name is truncated at 19 characters in the sAMAccountName attribute for the computer account.

If the computer's host name size exceeds the specified value for this parameter, adjoin will use LDAP (and require administrative privileges) to create computer accounts, instead of MS-RPC. In any case, if the computer's short host name exceeds 19 characters, then it is no longer possible to create computer accounts by using MS-RPC methods and LDAP will be used instead.

adpasswd.account.disabled.mesg

This configuration parameter specifies the message displayed by the adpasswd program when users cannot change their password because their account is locked.

For example:

```
adpasswd.account.disabled.mesg:
 Account cannot be accessed at this time. Please contact your system administrator.
```

adpasswd.account.invalid.mesg

This configuration parameter specifies the message displayed by the adpasswd program when a user account is unrecognized or the password is invalid.

For example:

```
adpasswd.account.invalid.mesg: \
 Invalid username or password
```

adpasswd.password.change.disabled.mesg

This configuration parameter specifies the message displayed by the adpasswd program when users are not allowed to change their password because password change for these users has been disabled in Active Directory.

For example:

adpasswd.password.change.disabled.mesg: \
Password change for this user has been disabled in Active Directory

adpasswd.password.change.perm.mesg

This configuration parameter specifies the message displayed by the adpasswd program when a user cannot change another user's password because of insufficient permissions.

For example:

adpasswd.password.change.perm.mesg:
You do not have permission to change this users password. Please contact your system administrator.

Customizing Smart Card Configuration Parameters

This section describes the configuration parameters that affect the use of Delinea access control smart cards on the local host computer.

smartcard.allow.noeku

This configuration parameter allows the use of certificates that do not have the Extended Key Usage (EKU) attribute. Normally, smart card use requires certificates with the EKU attribute. The value of this parameter can be true or false.

If you set this parameter to true, certificates without an EKU attribute can be used for SmartCard logon, and certificates with the following attributes can also be used to log on with a smart card:

- Certificates with no EKU
- Certificates with an All Purpose EKU
- Certificates with a Client Authentication EKU

If you set this parameter to false, only certificates that contain the smart card logon object identifier can be used to log on with a smart card. The default value of this parameter is false.

After changing the value of this parameter, you must re-enable smart card support by running the following sctool command as root:

[root]$ sctool -E

When you run sctool with the -E option, you must also specify the -a or -k option. You can also control this feature using group policy.

smartcard.login.force

This configuration parameter forces users to log in with a smart card.

By default, this parameter is set to `False`, which means that users are not forced to use a smart card (it's optional).

To force the use of smart cards, set this parameter to `True`:

```
smartcard.login.force: true
```

smartcard.name.mapping

This configuration parameter turns on support for multi-user smart cards.

By default, this parameter is set to False, which prevents the use of multi-user smart cards.

To allow the use of multi-user smart cards, set this parameter to True:

smartcard.name.mapping: true

smartcard.pkcs11.module

This configuration parameter specifies the path to the PKCS #11 module to be used by smart card components on the computer.

By default, smart card components use the Delinea Coolkey PKCS #11 module. However, Coolkey does not support all smart cards so you may specify a different module if necessary by specifying the absolute path to your PKCS #11 module with this parameter. For example:

rhel.smartcard.pkcs11.module /usr/$LIB/pkcs11/opensc-pkcs11.so

> In the path specification, this parameter supports the use of the $LIB environment variable, which allows a single path specification to work for 32-bit and 64-bit systems. At run time, on 32-bit systems, $LIB resolves to lib, while on 64-bit systems it resolves to lib64.

After changing the value of this parameter, you must re-enable smart card support by running the following sctool commands as root:

```
[root]$ sctool --disable
[root]$ sctool --enable
```

Also, refresh the GNOME desktop by running the following command as root:

```
[root]$ systemctl restart gdm
```

In most cases, you set this configuration parameter using group policy.

rhel.smartcard.pkcs11.module (Deprecated)

This configuration parameter specifies the path to the PKCS #11 module to be used by smart card components on the computer.

By default, smart card components use the Delinea Coolkey PKCS #11 module. However, Coolkey does not support all smart cards so you may specify a different module if necessary by specifying the absolute path to your PKCS #11 module with this parameter. For example:

rhel.smartcard.pkcs11.module /usr/$LIB/pkcs11/opensc-pkcs11.so

> In the path specification, this parameter supports the use of the $LIB environment variable, which allows a single path specification to work for 32-bit and 64-bit systems. At run time, on 32-bit systems, $LIB resolves to lib, while on 64-bit systems it resolves to lib64.

After changing the value of this parameter, you must re-enable smart card support by running the following sctool commands as root:

[root]$ sctool --disable
[root]$ sctool --enable

Also, refresh the GNOME desktop by running the following command as root:

[root]$ /usr/sbin/gdm-safe-restart

In most cases, you set this configuration parameter using group policy.

smartcard.cert.upn.mapping

This configuration parameter controls whether to use the Subject Alternative Name (SAN) for User Principal Pame (UPN) mapping for SmartCard authentication. This parameter is similar to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Kdc\UseSubjectAltName` for Windows.

The default is true, meaning that SAN for UPN mapping will be used.

```
smartcard.cert.upn.mapping: true
```

Customizing Authorization Configuration Parameters

This section describes the configuration parameters that affect the operation of authorization features (privilege elevation service) on the local host computer. You can configure authorization rules by defining specific command- or application-level rights, combining those rights into roles, and assigning users to those roles to control the operations they are allowed to perform on specific computers in a zone.

adclient.azman.refresh.interval

This configuration parameter is deprecated and is replaced by the adclient.refresh.interval.dz parameter. See adclient.refresh.interval.dz for details about adclient.refresh.interval.dz.

The Server Suite upgrade utility renames this parameter if it is being used.

adclient.cache.flush.interval.dz

This configuration parameter specifies the frequency (in seconds) with which the Delinea Agent for *NIX flushes its authorization cache. You should note that this parameter only forces periodic updates to the authorization cache. It does not affect the agent's primary domain controller cache.

The default value is 0, which completely disables periodic flushing of the authorization cache.

The parameter value must be a positive integer. For example, to force the authorization cache to be cleared every 30 minutes, set the parameter as follows:

adclient.cache.flush.interval.dz: 1800

adclient.dz.refresh.hook

This parameter specifies the full path of the command that will be executed after adclient finishes the authorization cache refresh. By default, the value of this parameter is as follows:

adclient.dz.refresh.hook: /usr/share/centrifydc/etc/hooks/dz_refresh

The dz_refresh script will check for and remove any expired files in the /var/centrifydc/dz.ovr.d directory. Files in that directory have filenames in the format of yymmddHHMMSS-*.ovr, where the yymmddHHMMSS is the expiration date and time.

You can configure how often the authorization cache refreshes with the adclient.refresh.interval.dz parameter.

adclient.dzdo.clear.passwd.timestamp

This configuration parameter specifies whether users must re-authenticate with dzdo after logging out.

When a user authenticates with dzdo, a ticket is temporarily created that allows dzdo to run without re-authentication for a short period of time (set by the dzdo.timestamp_timeout parameter). If a user logs out, the ticket is reused when the user logs back in.

The parameter value can be true or false. Setting this parameter to true clears the ticket and requires users to re-authenticate to use dzdo after logging out and back in. The default parameter value is false.

For example:

adclient.dzdo.clear.passwd.timestamp: true

You can also set this parameter using group policy.

adclient.refresh.interval.dz

Starting with agent version 5.1.3, this configuration parameter replaces the deprecated adclient.azman.refresh.interval parameter.

This configuration parameter specifies the maximum number of minutes to keep access control information from the authorization store cached before refreshing the data from Active Directory. Access control information consists of rights, roles, and role assignments that the Delinea Privilege Elevation Serviceuses to control access to dzdo privileged commands, dzsh restricted environments, PAM-enabled applications, and some third-party application.

Because the agent handles connecting to and retrieving information from Active Directory, this configuration parameter controls how frequently adclient checks for updates to the privilege elevation service set of information from Active Directory. If any privilege elevation service information has been modified, the cache is refreshed with the new information.

If local account management is enabled, this configuration parameter also specifies how often etc/group and etc/passwd are updated on individual computers based on the local group and local user settings that you configure in Access Manager.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

If you are manually setting this parameter, the parameter value must be a positive integer. The following example sets the cache expiration time to 30 minutes:

adclient.refresh.interval.dz: 30

If this parameter is not defined in the configuration file, its default value is 30 minutes.

adclient.sudo.clear.passwd.timestamp

This configuration parameter is used together with the tty_tickets parameter in the sudoers configuration file (/etc/sudoers) to specify whether users must re-authenticate with sudo after logging out.

When a user authenticates with sudo, a ticket is temporarily created that allows sudo to run without re-authentication for a short period of time. If a user logs out and the ticket is not cleared, the ticket is reused when the user logs back in, and the user does not need to re-authenticate. If a user logs out and the ticket is cleared, the user must re-authenticate with sudo when logging back in.

Starting with release 2015, the way that you configure whether re-authentication is required depends on the tty_ tickets parameter in the sudoers configuration file (/etc/sudoers.conf). In some situations, re-authentication requirements are also controlled by this parameter. Details are as follows:

- If tty_tickets is enabled, tickets are always removed when a sudo user logs out, regardless of whether this parameter is set to true or false. That is,when tty_tickets is enabled, this parameter has no effect, and sudo users must always re-authenticate.
- If tty_tickets is disabled, the requirement for sudo users to re-authenticate is controlled by this parameter and the **Force sudo re-authentication when relogin** group policy.

Tickets are cleared, and sudo re-authentication is required, under these scenarios:

- The tty_ticket parameter in the sudoers configuration file is enabled (it is enabled by default), or
- The tty_ticket parameter in the sudoers configuration file is disabled and the adclient.sudo.clear.passwd.timestamp parameter is set to true, or
- The tty_ticket parameter in the sudoers configuration file is disabled and the **Force sudo re-authentication when relogin** group policy is enabled.

Tickets are not cleared, and sudo re-authentication is not required, under these scenarios:

- The tty_ticket parameter in the sudoers configuration file is disabled and the adclient.sudo.clear.passwd.timestamp parameter is set to false, or
- The tty_ticket parameter in the sudoers configuration file is disabled and the **Force sudo re-authentication when relogin** group policy is disabled.

The default parameter value is false.

For example:

adclient.sudo.clear.passwd.timestamp: false

You can also set this parameter using group policy.

adclient.sudo.timestampdir

This configuration parameter specifies the directory where authentication tickets reside. By default, the directory is /var/run/sudo. Some platforms use a different directory for tickets, such as /var/db/sudo/user (RHEL) or /var/lib/sudo/user (Ubuntu), which you can specify in this parameter.

The default value of this parameter is /var/run/sudo.

For example:

adclient.sudo.timestampdir: /var/run/sudo

audittrail.dz.command.with.args

This configuration parameter specifies whether to show command parameters in the audit log for dzdo and dzsh or just the command name. The default (false) is to show only the command name. For example, to keep passwords entered on the command line out of the log, leave this parameter set to false.

Set to true to show the command parameters as well as the command name.

For example:

audittrail.dz.command.with.args: true

dz.auto.anchors

This configuration parameter specifies whether you want to add anchors ($) automatically to the regular expressions you define as command rights and use in role definitions.The default setting is true to avoid matching unintended paths or commands if the regular expression pattern is not carefully set. If you set this parameter to false, you should carefully review all regular expressions used as command rights to identify all possible matches for the pattern defined.

For example:

dz.auto.anchors: true

dz.enabled

This configuration parameter is only applicable for classic zones to specify whether authorization services are enabled or disabled. In hierarchical zones, which must have agents version 5.x or later, this parameter is not applicable and is ignored. In classic zones, however, authorization is an optional feature that can be explicitly enabled or disabled.

In classic zones, users can log on as long as they have a profile in a zone. In hierarchical zones, users must be assigned to a role that grants them permission to log on. If you have agents that are joined to a classic zone, you can set this parameter to false to explicitly prevent the agent from looking up authorization information to reduce network traffic.

If you have agents from version 4.x, the default value for this parameter is true. This parameter is not defined for agents version 5.x and later.

For example:

dz.enabled: false

dz.system.path

This parameter specifies that the match path uses the standard system path. The standard system path includes paths such as `/sbin`, `/usr/sbin`, and so forth.

When the `dzdo` or `dzsh` process goes to run a command with a full path, those processes will check if the command is associated with any DZ command rights. The process checks for command rights by matching the criteria of the DZ command rights in the assigned roles.

If a DZ command right is defined to use the "Standard system path", the process will see if the command path matches one of the paths configured by this parameter.

For example, if a user specifies either just the command or the command and its path, such as `id_test` or `/user/local/bin/id_test`, the shell finds the command and then `dzdo` or `dzsh` will get the full path. With that full path to compare against, the `dzdo` or `dzsh` processes will see if they match against the paths set by this parameter.

In this example, let's say that the `dz.system.path` parameter is set to the default value. When the user tries to run the `id_test` command, `dzdo` or `dzsh` will try to match the path to one of the following:

`/sbin/id_test/usr/sbin/id_test/usr/local/sbin/id_test`

If the command actually is in one of those directories, then the operation will continue and the command can run according to the DZ command rights.

The default value for this parameter lists the most common locations for matching command line programs in the system path. For example:

`dz.system.path: "/sbin:/usr/sbin:/usr/local/sbin"`

dz.user.path

This parameter specifies that the match path uses the standard user path. The standard user path includes paths such as `/sbin`, `/usr/sbin`, and so forth.

When the `dzdo` or `dzsh` process goes to run a command with a full path, those processes will check if the command is associated with any DZ command rights. The process checks for command rights by matching the criteria of the DZ command rights in the assigned roles.

If a DZ command right is defined to use the "Standard user path", the process will see if the command path matches one of the paths configured by this parameter.

For example, if a user specifies either just the command or the command and its path, such as `id_test` or `/user/local/bin/id_test`, the shell finds the command and then `dzdo` or `dzsh` will get the full path. With that full path to compare against, the `dzdo` or `dzsh` processes will see if they match against the paths set by this parameter.

In this example, let's say that the `dz.user.path` parameter is set to the default value. When the user tries to run the `id_test` command, `dzdo` or `dzsh` will try to match the path to one of the following:

`/bin/id_test/usr/bin/id_test/usr/local/bin/id_test`

If the command actually is in one of those directories, then the operation will continue and the command can run according to the DZ command rights.

The default value for this parameter lists the most common locations for matching command line programs in the user path. For example:

`dz.user.path: "/bin:/usr/bin:/usr/local/bin"`

dzdo.always_set_home

This configuration parameter specifies whether privileged commands run with dzdo commands should set the HOME environment variable to the home directory of the target user (which is root by default). The parameter value can be true or false. Setting this parameter to true effectively implies that the -H command line option should always used. The default parameter value is false.

For example:

dzdo.always_set_home: false

This configuration parameter provides functionality equivalent to the always_set_home flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.badpass_message

This configuration parameter specifies the message that should be displayed if a user enters an incorrect password. The parameter value can be any text string enclosed by quotation marks.

For example:

dzdo.badpass_message: “The password provided is not valid.”

The default value is “Sorry, try again.”

This configuration parameter provides functionality equivalent to the badpass_message flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.command_alias

This configuration parameter specifies a mapping file containing mappings between command aliases and command files for all of the command aliases that a customer uses. If you specify a mapping file in dzdo.command_alias and then issue a dzdo command using a command alias, dzdo searches the mapping file to see if the first dzdo parameter matches any of the aliases.

If there is a match, the command path specified for the alias in the mapping file is used by dzdo to perform command matching to determine whether the command is allowed to run.

The parameter value has the following syntax:

dzdo.command_alias: *aliasfile_full_pathname*

For example, the following line in centrifydc.conf results in the default mapping file (dzdo.commandalias.map) being used:

dzdo.command_alias: /etc/centrifydc/dzdo.commandalias.map

The syntax of the content within the mapping file is:

command_alias_1: command_path [*arguments*]
command_alias_n: command_path [*arguments*]

For example, a mapping file could contain the following, which defines two command aliases—oracle_startup and centrifydc_startup:

oracle_startup: /opt/oracle/startup
centrifydc_startup: /opt/centrifydc/startup

Actual mapping files can contain any number of aliases.

dzdo.edit.checkdir

This configuration parameter prevents a user from editing files using the dzedit command in a directory that the user already has permissions to edit using their own account.

If a user who can already write to a directory with their own account uses dzedit to edit the same directory, it is possible that they may unintentionally edit arbitrary files in the directory if wild cards are used to specify the files the user intends to edit.

Set this configuration parameter to true to specify whether dzedit will check the user's directory permissions, and deny the user the ability to modify files in the directory when they run as root if they have sufficient permissions to edit the directory using their own account.

For example:

dzdo.edit.checkdir: true

The default value of this configuration parameter is true.

dzdo.edit.follow

This configuration parameter prevents users from editing a file in a directory using dzedit that is reached by following a symbolic link (symlink) if the user already has permissions to edit the directory. Edits are also prevented on all sub-directories on the file path.

In some cases, if a user that already has permissions to write to a directory but invokes dzedit to edit a file in that directory which contains a symlink, they may edit the linked file as well.

If set to false, this configuration parameter will not allow a user to edit files reached by symbolic link by using dzedit.

It is strongly recommended that you keep the specified value as false.

For example:

dzdo.edit.follow: false

The default value of this configuration parameter is false.

dzdo.env_check

This configuration parameter specifies the list of environment variables that the dzdo process should check for the special characters, % or /, in the value. If the dzdo process finds environment variable values containing the special characters, it removes those variables from the user's environment. Variables with % or / characters are removed regardless of whether you have selected the **Reset environment variables** option for the command in Access Manager.

The default list of variables to check is displayed when you run dzdo -V command as root. You can customize the list by modifying this configuration parameter in the centrifydc.conf file.

The parameter value can be a comma-separated list of environment variable names.

For example:

dzdo.env_check: COLORTERM,LANG,LANGUAGE,LC_*,LINGUAS,TERM

This configuration parameter provides functionality equivalent to the env_reset flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.env_delete

This configuration parameter specifies the default list of environment variables to be removed from the user's environment. This configuration parameter only applies if you have selected the **Remove unsafe environment variables** option for the command in the Access Manager. The variables specified with this parameter are removed in addition to the default list of variables displayed when you run the dzdo -V command as root.

The parameter value can be a comma-separated list of environment variable names.

For example:

dzdo.env_delete: IFS,CDPATH,LOCALDOMAIN,RES_OPTIONS,HOSTALIASES, \ NLSPATH,PATH_ LOCALE,LD_*,*RLD*,TERMINFO,TERMINFO_DIRS, \ TERMPATH,TERMCAP,ENV,BASH_ ENV,PS4,GLOBIGNORE,SHELLOPTS,\ JAVA_TOOL_OPTIONS,PERLIO_DEBUG,PERLLIB,PERL5LIB, \ PERL5OPT,PERL5DB,FPATH,NULLCMD,READNULLCMD,ZDOTDIR,TMPPREFIX, \ PYTHONHOME,PYTHONPATH,PYTHONINSPECT,RUBYLIB,RUBYOPT,KRB5_CONFIG, \ KRB5_ KTNAME,VAR_ACE,USR_ACE,DLC_ACE,SHLIB_PATH,LDR*, \ LIBPATH,DYLD_*

This configuration parameter provides functionality equivalent to the env_delete flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.env_keep

This configuration parameter specifies the default list of environment variables to preserve in the user's environment. This configuration parameter only applies if you have selected the **Reset environment variables** option for the command in the Access Manager. The variables specified with this parameter are preserved in addition to the default list of variables displayed when you run the dzdo -V command as root.

The parameter value can be a comma-separated list of environment variable names.

For example:

dzdo.env_keep: COLORS,DISPLAY,HOME,HOSTNAME,KRB5CCNAME, LS_ COLORS,MAIL,PATH,PS1,PS2,TZ,XAUTHORITY,XAUTHORIZATION

This configuration parameter provides functionality equivalent to the env_keep flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.lecture

This configuration parameter specifies whether dzdo displays a warning message about using the program before displaying the password prompt. The valid parameter values are:

Use this value	To do this

once	To display the warning message only the first time the command is run.
never	To never display a warning message.
always	To display the warning message every time the program is invoked.

The default parameter value is once. For example:

dzdo.lecture: once

This configuration parameter provides functionality equivalent to the lecture flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.lecture_file

This configuration parameter specifies the full path to a file containing the warning message you want displayed. If this parameter is not set, a default message is displayed.

For example, to use a custom message in the file dzdo_warning:

dzdo.lecture_file: /etc/custom/dzdo_warning

This configuration parameter provides functionality equivalent to the lecture_file flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.legacyzone.mfa.enabled

Enable this configuration parameter to require multi-factor authentication for users to run the dzdo command. If you enable this parameter, users will be required to authenticate with MFA if they are required to re-authenticate to run dzdo, and are listed in either adclient.legacyzone.mfa.required.users or adclient.legacyzone.mfa.required.groups.

You must enable adclient.legacyzone.mfa.enabled for this policy to take effect.

This configuration parameter does not support rescue rights; users listed in adclient.legacyzone.mfa.rescue.users will not be able to run dzdo without MFA.

To enable this policy, set this parameter to true. The default value for this parameter is false.

For example:

dzdo.legacyzone.mfa.enabled: true

dzdo.log_good

This configuration parameter specifies whether you want to log messages for successful command execution. By default, the dzdo program logs both valid and invalid command execution. To log information about only invalid command execution, set this parameter to false. The default value for this parameter is true.

For example:

dzdo.log_good: true

The dzdo program typically logs messages to the file /var/log/secure.

You can also set this parameter using group policy.

dzdo.passprompt

This configuration parameter lets you specify the password prompt displayed when running privileged commands. This parameter serves the same function as the dzdo -p command.

You can use the following escapes in the prompt:

Escape	Description
%u	Expands to the invoking user's login name
%U	Expands to the login name of the user the command will be run as. If not specified, defaults to root
%h	Expands to the local hostname without the domain name
%H	Expands to the local hostname including the domain name
%p	Expands to the user whose password is asked for
%%	Collapses to a single % character

The default prompt is [dzdo] password for %p: where %p is root unless specified otherwise.

For example,

dzdo.passprompt: "[dzdo] Enter password for %U@%h"

You can also set this parameter using group policy.

dzdo.passwd_timeout

This configuration parameter specifies the number of minutes before the dzdo password prompt times out. The default parameter value is 5 minutes. You can set this parameter to zero (0) to have the password prompt never timeout.

For example:

dzdo.passwd_timeout: 5

This configuration parameter provides functionality equivalent to the passwd_timeout flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.path_info

This configuration parameter specifies whether the dzdo program should inform the user when it cannot find a command in the user's PATH. By default, the parameter value is true and the program will display an error statement indicating that the command could not be found in the user's PATH. You can set this configuration

parameter to false if you want to prevent dzdo from indicating whether a command was not allowed or simply not found.

For example:

dzdo.path_info: true

This configuration parameter provides functionality equivalent to the path_info flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.search_path

This configuration parameter specifies the search path for the dzdo program to use to look for commands and scripts that require privileges to run. You can specify a list of directories for the dzdo program to search for commands and scripts. If you configure this parameter, the dzdo program will search in the specified directories no matter which path the command rights are configured to use in the Access Manager **System search path** option.

If commands are configured to use the path defined in the Access Manager **System search path** option and the dzdo.search_path parameter is not defined, the following actions take place:

- The current user's path is used to search for the commands.
- Only the commands located under the System path are allowed to execute.

There is no default value for this parameter.

The parameter value can be a list of directories or the name of a file that contains the list of directories. For example, you can specify a file that contains the directories to search using the file: keyword and a file location:

dzdo.search_path: file:/etc/centrifydc/customized_dzdo_directories

If you specify a file name for this parameter, you should ensure the file is owned by root and not accessible to any other users.

You can also set this parameter using group policy.

dzdo.requiretty

This configuration parameter specifies whether a user needs to be logged in to a valid tty session in order to run dzdo. If you set this parameter to true, this means that the user can run dzdo only from a login session and not from a cgi-bin or cron(8) script.

By default, this parameter is set to false so that it's not required to run a tty session in order to run dzdo.

dzdo.secure_path

This configuration parameter specifies the path for the dzdo program to use when executing commands and scripts that require privileges to run. If you specify a directory using this parameter, the dzdo program will only execute commands and scripts that are found in that directory.

Setting both the dzdo.search_path and dzdo.secure_path parameters to the same value is equivalent to setting the secure_path parameter in the sudoers configuration file.

There is no default value for this parameter.

The parameter value can be a list of directories or the name of a file that contains the list of directories. For example, you can specify a file that contains the directories to search using the file: keyword and a file location:

dzdo.secure_path: file:/etc/centrifydc/customized_dzdo_directories

Within the file, lines should contain path separated by colons. For example, a file specifying two paths might look like this:

/etc/centrifydc/reports/exec_report_cmds:/usr/sbin/ora_cmds

If you specify a file name for this parameter, you should ensure the file is owned by root and not accessible to any other users.

You can also set this parameter using group policy.

dzdo.set_home

This configuration parameter sets the HOME environment variable to the home directory of the target user when the -s command line option is used. The parameter value can be true or false. The default parameter value is false.

For example:

dzdo.set_home: false

This configuration parameter provides functionality equivalent to the set_home flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.set.runas.explicit

This configuration parameter specifies whether a user must explicitly identify the ‘runas’ user when executing a command with dzdo.

The parameter value can be true or false; the default value is true.

When the parameter value is true, if a user executes a command with dzdo and does not explicitly identify the user or group to run as (with the -u or -g option), adclient assumes that the command should be run as root. If the user is not authorized to run the command as root, dzdo fails to execute the command and issues an error message; for example:

```
User u1 is authorized to run adinfo as user qa1
 dzdo.set.runas.explicit: true
 ...
 [u1@rh6]$dzdo adinfo
 Sorry, user u1 is not allowed to execute ‘/usr/bin/adinfo’ as root on rh6.
```

When the parameter value is false, if a user executes a command with dzdo and does not explicitly identify the user or group to run as (with the -u or -g option), adclient attempts to resolve the user. If the command defines a single runas user, dzdo executes the specified command and sends a message to the log file; for example:

```
User u1 is authorized to run adinfo as user qa1
 dzdo.set.runas.explicit: false
 ...
 [u1@rh6]$dzdo adinfo
 Local host name: rh6
```

```
Joined to domain acme.com
...
```

If the command defines multiple runas users, dzdo cannot resolve the user to run as and attempts to run the command as root. Since the user is not authorized to run the command as root, dzdo fails to execute the command and issues an error message; for example:

```
User u1 is authorized to run adinfo as users qa1 and adm
dzdo.set.runas.explicit: true
...
[u1@rh6]$dzdo adinfo
Sorry, user u1 is not allowed to execute '/usr/bin/adinfo' as root on rh6.
```

In all cases, a user can execute a command successfully with dzdo by using the -u option to explicitly identify the runas user; for example:

```
[u1@rh6]$dzdo -u qa1 adinfo
Local host name: rh6
Joined to domain acme.com
...
```

You can also set this parameter using group policy.

dzdo.timestampdir

This configuration parameter specifies the directory where dzdo stores the user's login timestamp files. The default is directory is /var/run/dzdo.

For example:

dzdo.timestampdir: /var/run/dzdo

This configuration parameter provides functionality equivalent to the timestampdir flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.timestamp_timeout

This configuration parameter specifies the maximum number of minutes allowed between operations before prompting the user to re-enter a password. The default parameter value is 5 minutes. You can set this parameter to zero (0) to always prompt for a password when users run privileged commands with dzdo. If set to a value less than 0 the user's timestamp never expires.

For example:

dzdo.timestamp_timeout: 5

This configuration parameter provides functionality equivalent to the timestamp_timeout flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.timestamp_type

The privilege elevation service uses per-user timestamp files for credential caching. You can use this configuration parameter to specify the type of timestamp record for the service to use.

By default, this parameter is set to tty.

You can set this parameter to any of the following values:

- **global**: A single time stamp record is used for all of a user's login sessions, regardless of the terminal or parent process ID.
- **ppid**: A single time stamp record is used for all processes with the same parent process ID (usually the shell). Commands run from the same shell (or other common parent process) will not require a password for dzdo.timestamp_timeout minutes (5 by default). Commands run by way of sudo with a different parent process ID, for example from a shell script, will be authenticated separately.
- **tty**: One time stamp record is used for each terminal, which means that a user's login sessions are authenticated separately. If no terminal is present, the behavior is the same as ppid. Commands run from the same terminal will not require a password for dzdo.timestamp_timeout minutes (5 by default).

For example:

```
dzdo.timestamp_type:ppid
```

You can also set this parameter using group policy.

dzdo.tty_tickets

This configuration parameter specifies whether dzdo should require authentication once per-tty rather than once per user. The parameter value can be true or false. The default parameter value is false.

For example:

dzdo.tty_tickets: false

This configuration parameter provides functionality equivalent to the tty_tickets flag for configuring the sudoers file and sudo operation.

You can also set this parameter using group policy.

dzdo.use_pty

The dzdo.use_pty configuration parameter specifies if dzdo will always run commands in pseudo-terminal, also called a pseudo-pty or pseudo-tty. If you enable this parameter, dzdo runs commands in a pseudo-terminal even if there's no input or output logging. Using this option would make it impossible for a malicious program to run under dzdo to fork a background process that retains information to the user's terminal device after the main program finishes.

By default, this parameter is false.

dzdo.use.realpath

This configuration parameter specifies whether dzdo uses command paths resolved by realpath when searching for commands. The default parameter value is false, meaning that realpath is not used.

When set to true, this parameter specifies that realpath is used to expand all symbolic links and resolve references to:

- /./
- /../
- extra / characters

You can also set this parameter using group policy.

dzdo.user.command.timeout

When set to true, this parameter specifies a timeout on the DZDO command line with a -T option. If the timeout expires before the command has exited, the command is terminated.

The default setting is false.

dzdo.validator

This configuration parameter specifies the full path to a script that is executed each time the dzdo command is run. The script is run synchronously under the user's Active Directory name.

The dzdo command always runs the /usr/share/centrifydc/sbin/dzcheck script before it executes the command specified. However, the distribution package does not include a dzcheck script.

You do not need to create a dzcheck script to use dzdo. You only need to create a script if you want to modify dzdo behavior—for example, to prompt the user to enter some information before executing the command. To incorporate your modification, you would write the script, name it dzcheck and put it in /usr/share/centrifydc/sbin.

Use the dzdo.validator command only if you need to specify a different path or file name. (If you name your script dzcheck and store it at the default location, you do not need to use dzdo.validator.) For example, if the script was named myvalidator and it was in the /etc/centrifydc directory, you would add the following command in centrifydc.conf:

dzdo.validator: /etc/centrifydc/myvalidator

The dzdo command sets three environment variables:

- DZDO_USER: the Active Directory name of the user invoking dzdo
- DZDO_COMMAND: the command
- DZDO_RUNASUSER: the user name that the command will be run as

The script should return one of the following values:

- 0 Success. dzdo will continue and run the command.
- non-zero Failure: dzdo will not run the command. In this event, dzdo does NOT show a message on the console. If you want to notify the user of the failure, include the message in the script.

When the logging level is set to DEBUG, the call to the script and the return value are logged in var/log/centrifydc.log. If DEBUG is off, the call to the script and return value are logged in /val/log/messages.

dzdo.validator.required

This configuration parameter specifies whether dzdo is required to run the validator script. The default value is false.

> The dzdo command skips the validator script if the script is not available, is not owned by root, or is group/world writable. By default, dzdo continues to run the command even if the validator script is skipped. When this parameter is set to true, dzdo does not run the command if validator script is skipped.

dzsh.roleswitch.silent

This configuration parameter specifies whether to display role information when changing from one role to another is a restricted shell.

By default, changing from one role to another displays a message indicating that you have changed your current role. For most commands that run in a restricted shell, displaying this message has no affect on the execution of the command.

There are cases, however, where a command–such as `sftp` or git–expects a specific type of response. Because the role change message is not the expected response, the message can cause the command to fail.

You can use this parameter to address those cases where the role change message would cause a command to fail.

Set this configuration parameter to true to prevent the role switch information from being displayed when running commands in a restricted shell. The default value is false.

For example:

dzsh.roleswitch.silent: true

Customizing Auto Zone Configuration Parameters

This section describes the configuration parameters that affect the operation of a local host computer joined to Auto Zone. These parameters have no effect if the computer is not joined to Auto Zone.

auto.schema.allow.groups

This configuration parameter specifies a list of Active Directory groups that define which Active Directory users are valid users in the Auto Zone. Members of the specified groups are considered valid users in the Auto Zone.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

Adding zone users based on group membership

By default, all Active Directory users are included in the Auto Zone. If you specify one or more groups using this parameter the only users who can log in using their Active Directory account are members of the specified groups,

members of nested groups, users whose primary group is set to one of the groups specified, and all users specified in auto.schema.allow.users.

For example, to specify that only the members of the sf-adms and sf-apps groups should be allowed to log on to computers in Auto Zone, you would enter the following:

auto.schema.allow.groups: sf-adms sf-apps

The groups you specify for the auto.schema.allow.groups parameter must be security groups, but can be domain local, global, or universal groups.Distribution groups are not supported.

You can separate each group by a space or a comma and you can use double quotes or escape characters to include spaces or special characters in group names. For example: in group names. For example,

auto.schema.allow.groups: server_users, "Domain Admins", Domain\ Users

You should note that this parameter does not add the Active Directory groups you specify to Auto Zone. It does not assign the groups a numeric identifier (GID) or make the groups available to use as a primary group for any of the users added to Auto Zone. This parameter simply enables UNIX profiles for the users that are members of the specified groups. You can use the auto.schema.groups parameter to specify the Active Directory groups to include an in the Auto Zone and assign it a GID. You can configure the primary group for users using the auto.schema.primary.gid parameter.

Supported group name formats

You can specify groups by name or you can list the group names in a file using any of the following formats:

- SAM account name: sAMAccountName@domain
- User Principal Name: name@domain
- NTLM: DOMAIN/sAMAccountName
- Full DN: CN=commonName,...,DC=domain_component,DC=domain_component
- Canonical Name: domain/container/cn

The adclient process writes any group name that is not recognized to the agent log file.

Specifying the parameter value in a separate file

To specify a file that contains a list of Active Directory group names, you can set the parameter value using the file: keyword and a file location. For example:

auto.schema.allow.groups: file:/etc/centrifydc/auto_user_groups.allow

In the /etc/centrifydc/auto_user_groups.allow file, you would type each group name on its own line using any of the supported name formats. For example:

server_users
"Domain Admins"
Domain Users
CN=group6,CN=Users,DC=domain,DC=com

Limitations of this parameter

Auto Zone does not support one-way trusts. If there are any users in a specified group who belong to a domain that has a one-way trust relationship to the joined domain, they will not become valid users on the computer.

If you set this parameter, you should be aware of search limit defined for the auto.schema.search.return.max parameter. The setting for that parameter will limit the number of users returned in search results and stored in the cache. For example, if the auto.schema.search.return.max parameter is set to 100, and you use this parameter to specify an Active Directory group with 200 members, a query would only return results for the first 100 users. The remaining members of the group will still be allowed to log on to computers in the Auto Zone, but the results of queries might be misleading.

If desired, you can disable the auto.schema.search.return.max parameter by setting the parameter value to 0. Disabling the search limit ensures that all of the users in the specified Active Directory groups are listed as valid zone users when you run queries whether the number of users exceeds or falls short of the number specified for the auto.schema.search.return.max parameter. If you are not concerned about whether search results accurately reflect the users in the Active Directory groups you have defined for the auto.schema.allow.groups parameter, however, you don't need to modify the auto.schema.search.return.max parameter.

auto.schema.allow.users

This configuration parameter specifies which Active Directory users to include in the Auto Zone.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

Adding specific Active Directory users to Auto Zone

By default, all Active Directory users in a forest are included in the Auto Zone. If you specify one or more users using this parameter, however, only the specified users and members of the groups specified in the auto.schema.allow.groups parameter can log in using their Active Directory account.

For example, to specify that only the users jane and sai.wu should be allowed to log on to computers in Auto Zone:

auto.schema.allow.users: jane.doe sai.wu@ajax.org

You can separate each user name by a space or comma and use double quotes or escape characters to include spaces or special characters in group names. For example,

auto.schema.allow.groups: jane.doe, "Alex Adams", jae\ chin

Supported user name formats

You can specify users by name or you can list the user names in a file in any of the following formats:

- SAM account name: sAMAccountName@domain
- User Principal Name: name@domain
- NTLM: DOMAIN/sAMAccountName
- Full DN: CN=commonName,...,DC=domain_component,DC=domain_component
- Canonical Name: domain/container/cn

The adclient process writes any user name that is not recognized to the agent log file.

Specifying the parameter value in a separate file

To specify a file that contains a list of Active Directory user names, you can set the parameter value using the file: keyword and a file location. For example:

auto.schema.allow.users: file:/etc/centrifydc/auto_user_users.allow

In the /etc/centrifydc/auto_user_users.allow file, you would type each user name on its own line using any of the supported name formats. For example:

jane.doe
sai/wu@ajax.org
CN=Alex Adams,CN=Users,DC=ajax,DC=org

auto.schema.apple_scheme

This configuration parameter specifies that you want to use the Apple algorithm to automatically generate user and group identifiers. The Apple algorithm for generating identifiers is based on the objectGuid attribute for the user or group object. The Delinea mechanism for automatically generating UIDs and GIDs is based on the security identifier for the user or group objects. Both methods ensure a globally unique and consistent identifier for the user or group.

By default, this parameter value is set to false. If you want to use the Apple algorithm, set the parameter value to true. For example:

auto.schema.apple_scheme: true

If you set this parameter to use the Apple algorithm, you must use adflush to clear the cache, then restart the adclient process to update UIDs, GIDs, and user primary GIDs. Note that the user's primary group must be available in Auto Zone. If a user's primary group is not in the zone, the user will have an incomplete profile and unable to log on. If a user is provisioned with an incomplete profile, an error is recorded in the Window Event log.

After clearing the cache and restarting the agent, run the fixhome.pl script to correct conflicts between the new user UID and the home directory ownership.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

auto.schema.domain.prefix

This configuration parameter specifies a unique prefix for a trusted domain. You must specify a whole number in the range of 0 to 511.

The Delinea algorithm for generating unique identifiers combines the prefix with the lower 22 bits of each user or group RID (relative identifier) to create unique UNIX user (UID) and group (GID) IDs for each user and group in the forest and in any two-way trusted forests.

Ordinarily, you do not need to set this parameter because the Delinea Agent automatically generates the domain prefix from the user or group security identifier (SID). However, in a forest with a large number of domains, domain prefix conflicts are possible. When you join a computer to a domain, the Centrify Agent checks for conflicting domain prefixes. If any conflicts are found, the join fails with a warning message. You can then set a unique prefix for the conflicting domains.

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

To set this parameter, append the domain name and specify a prefix in the range 0 - 511. For example:

auto.schema.domain.prefix.acme.com: 3
auto.schema.domain.prefix.finance.com: 4
auto.schema.domain.prefix.corp.com: 5

The default behavior, if you do not set this parameter, is for the agent to automatically generate the domain prefix from the user or group security identifier (SID).

auto.schema.groups

This configuration parameter specifies the Active Directory groups to include in the Auto Zone. When you specify one or more groups in this parameter, the groups specified are assigned a group ID on this computer.

The command syntax is:

auto.schema.groups: groupname [, groupname, groupname, ...]

By default all Active Directory groups are included.

> If an Active Directory user specified in auto.schema.allow.users is a member of a group and that group is NOT specified in auto.schema.groups, that group is ignored.

Any groups listed under auto.schema.groups can be domain local, global or universal security groups. Distribution groups are not supported.

You specify each group by name or you can list the groups in a file. The group name can be specified in any of the following formats:

- SAM account name: sAMAccountName@domain

  (specify the domain if the group is not in the current domain)
- User Principal Name: name@domain
- NTLM: DOMAIN/sAMAccountName

  > Use the adclient.ntlm.separators parameter to specify different NTLM separators.
- Full DN: CN=commonName,...,DC=domain_component,DC=domain_component
- Canonical Name: domain/container/cn

adclient writes any name that is not recognized to the agent log file.

You can also define the groups using group policy.

Examples:

auto.schema.groups: finance_users
auto.schema.groups: “Mktg Users”
auto.schema.groups: ops@domain.com

You can specify multiple groups in a single command. Separate each group by a comma and use escape characters to include, for example, spaces, backslashes, or a comma in the group specification. For example,

auto.schema.allow.groups: server_users, "Domain Admins", Domain\ Users, \ group1, group2@domain.com, domain\\group3, domain+group4, \ domain/group5, CN=group6\,CN=Users\,DC=domain\,DC=com, \ domain/Users/group7

You can also use a file instead. The syntax is file:/path. For example,

auto.schema.allow.groups: file:/etc/centrifydc/auto_user_groups.allow

In the file, enter each group line by line. However, you do not need the escape characters. For example, the following list enters the same groups as the previous example:

server_users
"Domain Admins"
Domain Users
group1
group2@domain.com
domain\group3
domain+group4
domain/group5
CN=group6,CN=Users,DC=domain,DC=com
domain/Users/group7

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

auto.schema.homedir

This configuration parameter specifies the home directory for logged in users. The default, if you do not specify this parameter, is:

- Mac OS X: /Users/%{user}.
- Linux, HP-UX, AIX: /home/%{user}
- Solaris: /export/home/%{user}

The syntax %{user} specifies the logon name of the user. For example, in the centrifydc.conf configuration file, if you add:

auto.schema.homedir:/Users/%{user}

and jsmith logs on to a Mac OS X machine, the home directory is set to /Users/jsmith.

If the parameter auto.schema.use.adhomedir is true, the home directory is set to the value in Active Directory for the user, if one is defined. If auto.schema.use.adhomedir, is false or if a home directory is not specified for the user in Active Directory, the home directory is set to the value defined for this parameter, auto.schema.homedir.

The configuration parameter auto.schema.homedir.illegal_chars defines characters that are not allowed in home directory names. Any illegal characters in the specified name are removed from the home directory name on the computer.

You can also specify the home directory on all machines joined to Auto Zone by using group policy.

auto.schema.primary.gid

This configuration parameter specifies the primary GID for Auto Zone users. The auto.schema.private.group parameter must be set to false to use this parameter.

Note: On Mac OS X, the default value of auto.schema.private.group is false. On Linux, HP-UX, Solaris, and AIX, the default value of auto.schema.private.group is true.

To specify the GID for an existing group, you must first find the GID for the group. To find the GID for a group, you can use the adquery command or adedit. For example, to find the GID for the group Support, open a terminal session and type:

>adquery group --gid Support

The command returns the GID for the Active Directory group Support:

1003

You can then set this parameter to the value returned. For example:

auto.schema.primary.gid: 1003

If you do not set this parameter, the value defaults to the following:

- On Mac OS X:

  auto.schema.primary.gid: 20

- On Linux, HP-UX, Solaris, and AIX:

  auto.schema.primary.gid: -1

If you are using the Apple algorithm to automatically generate user and group identifiers, including the group identifier for primary groups, set this parameter to -1 to disable it. For example:

auto.schema.primary.gid: -1

In most cases, you set this configuration parameter using group policy. You can, however, set it manually in the configuration file if you are not using group policy or want to temporarily override group policy.

auto.schema.private.group

This configuration parameter specifies whether to use dynamic private groups.

Specify true to create dynamic private groups. If you specify true, the primary GID is set to the user's UID and a group is automatically created with a single member.

Specify false to not create private groups.

On Mac OS X, the default value of this parameter is false. On Linux, HP-UX, Solaris, and AIX, the default value is true.

If you specify false, the primary GID is set to the value of auto.schema.primary.gid. On Mac OS X, the default value of auto.schema.primary.gid is 20. On Linux, HP-UX, Solaris, and AIX, the default value of auto.schema.primary.gid is -1.

auto.schema.shell

This configuration parameter specifies the default shell for the logged in user. The default value is:

- /bin/bash on Mac OS X and Linux systems
- /bin/sh on UNIX systems, including Solaris, HPUX, AIX.

You can also set the default shell on all machines joined to Auto Zone by using group policy.

auto.schema.use.adhomedir

This configuration parameter applies to Mac OS X computers only.

This configuration parameter specifies whether or not to use the Active Directory value for the home directory if one is defined. Set to true to use the Active Directory value (the default), or false to not use the Active Directory value. If you set the value to false, or if you set the value to true but a home directory is not specified in Active Directory, the value for auto.schema.homedir is used.

auto.schema.name.format

This configuration parameter specifies how the Active Directory username is transformed into a UNIX name (short name in Mac OS X). The options are

- SAM (default)

  An example SAM name is joe
- SAM@domainName

  An example SAM@domainName is joe@acme.com
- NTLM

  An example NTLM name is acme.com-joe

auto.schema.separator

This configuration parameter has been deprecated in favor of adclient.ntlm.separators, which applies whenever NTLM format is used. The auto.schema.separator parameter only applies when the computer is connected to Auto Zone.

This configuration parameter specifies the separator to be used between the domain name and the user name if NTLM format is used. The default separator is a plus (+). For example:

auto.schema.separator:+

which results in a name such as:

acme.com+jcool

auto.schema.search.return.max

This configuration parameter specifies the number of users that will be returned for searches by utilities such as dscl and the Workgroup Manager application. Because Auto Zone enables access to all users in a domain, a search could potentially return tens of thousands of users. This parameter causes the search to truncate after the specified number of users.

The default is 1000 entries.

auto.schema.name.lower

This configuration parameter converts all usernames and home directory names to lower case in Active Directory.

Set to true to convert usernames and home directory names to lowercase.

Set to false to leave usernames and home directories in their original case, upper, lower, or mixed.

The default for a new installation is true.

auto.schema.iterate.cache

This configuration parameter specifies that user and group iteration take place only over cached users and groups.

Set the value for auto.schema.iterate.cache to true to restrict iteration to cached users and groups.

Set the value for auto.schema.iterate.cache to false to iterate over all users and groups. The default value is false.

auto.schema.uid.conflict

This configuration parameter specifies what is done if adclient discovers that an Active Directory user already exists with the same UID. There are two options:

- allow: Allow the duplicate UID; an information message is logged.
- disallow: If a duplicate UID already exists, the second user with the same UID is ignored; a warning message is logged.

Examples:

auto.schema.uid.conflict: allow
auto.schema.uid.conflict: disallow

auto.schema.homedir.illegal_chars

This configuration parameter specifies the characters in a home directory name that are not allowed in UNIX, Linux or Mac OS X home directory names. Each character in a home directory name that matches one of the specified characters is simply removed from the name; for example:

/home/user$34 /* illegal $ character
/home/user34 /* illegal character removed

The default setting in centrifydc.conf for UNIX (HP-UX, Solaris, AIX) and Linux systems is the following:

auto.schema.homedir.illegal_chars: \t\n /\\$><?*%|\"\'`[]

The default setting in centrifydc.conf for Mac OS X systems is the following (space is omitted):

auto.schema.homedir.illegal_chars: \t\n/\\$><?*%|\"\'`[]

Run the adflush command after you change the value to flush the cache.

auto.schema.thycotic.rids

Use this parameter to specify that the service generates UIDs and GIDs based on the algorithm used by Delinea Secret Server instead of the algorithm that Server Suite uses.

By default, this parameter is set to false, which means that the service generates UIDs and GIDs based on Server Suite.

The Delinea UID/GID generation algorithm is as follows:

uid/gid = RID of object * 100 + suffix

The service generates the suffix by getting a list of the Active Directory domain names that are in the Active Directory forest and then sorts that list. The suffix is the same as the index, but it starts from 1 instead of zero.

auto.schema.unix.name.disallow.chars

This configuration parameter specifies the characters in an Active Directory user or group name that are not allowed in UNIX, Linux or Mac OS X names. Each character in the name that matches the characters specified is replaced in the corresponding UNIX name by the character specified in auto.schema.substitute.chars.

Be sure to specify the replacement character in auto.schema.substitute.chars. Otherwise, the offending character is simply removed from the name, and you run the risk of duplicate UNIX names.

The default setting in centrifydc.conf for UNIX (HP-UX, Solaris, AIX) and Linux systems is the following:

```
auto.schema.unix.name.disallow.chars: \t\n
/\\><?|\"\'`[],:;~!@#$%^&*()=
```

The default setting in centrifydc.conf for Mac OS X systems is the following (space is omitted):

```
auto.schema.unix.name.disallow.chars:
\t\n/\\><?|\"\'`[],:;~!@#$%^&*()=
```

Run the adflush command after you change the value to flush the cache.

auto.schema.substitute.chars

This configuration parameter specifies the character that replaces any characters specified in auto.schema.unix.name.disallow.chars encountered in an Active Directory user or group name in the corresponding UNIX name.

The default setting in centrifydc.conf is the following:

```
auto.schema.substitute.chars: _ (underbar)
```

Run the adflush command after you change the value to flush the cache.

auto.schema.max.unix.name.length

This configuration parameter specifies the maximum length for a generated UNIX user or group name. The UNIX names are generated from the Active Directory user and group names.

The default setting in centrifydc.conf is the following:

auto.schema.max.unix.name.length: 33

Run the adflush command after you change the value to flush the cache.

auto.schema.remote.file.service

This configuration parameter applies to Mac OS X computers only.

This configuration parameter specifies the type of remote file service to use for the network home directory. The options are: SMB (default) and AFP.

When you type a path for the network home directory in Active Directory, it requires a specific format: /server/share/path, but on Mac OS X, the format for mounting a network directory requires the remote file service type: /type/server/share/path. By identifying the remote file-service type, you can type the network path in the format required by Active Directory, and the agent converts the path into the format required by Mac OS X.

For example:

auto.schema.remote.file.service:SMB

You can also specify the remote file service type on machines joined to Auto Zone by using group policy.

Customizing Auditing Configuration Parameters

This section describes the configuration parameters that you can set on audited computers that have a Centrify Agent for *NIX installed. These parameters affect the operation of the auditing service (dad) and the UNIX shell wrapper (cdash).

The parameters are defined in a text file named centrifyda.conf in /etc/centrifyda on each audited computer.

For information about specifying an audit trail target in the centrifydc.conf file, see audittrail.targets.

agent.max.missed.update.tolerance

This configuration parameter specifies the number of unsuccessful attempts the Delinea auditing agent makes to join a collector before displaying a notification that the agent is not joined to a collector. Each attempt is made after an interval of 5 minutes.

For example, if you want the agent to warn you that it is not connected to a collector after 3 attempts, you would enter the following:

agent.max.missed.update.tolerance: 3

The default value for this parameter is 4.

You can use this parameter with the dad.collector.connect.timeout parameter which specifies the amount of time, in seconds, the agent waits during each connection attempt before it determines that it cannot connect to a collector.

agent.send.hostname

This configuration parameter enables audited sessions to display the host name specified by the agent on audited computers instead of the host name resolved by the collector through DNS. This configuration parameter is useful

in configurations where the DNS servers used by the collectors cannot reliably resolve host names from IP addresses. The most common scenarios that might require you to use this configuration parameter are when the agents are in a virtual environment using network address translation (NAT) or in a perimeter network outside of a firewall.

You can set this parameter to true if you want the agent to determine the host name used. If you set this configuration parameter to false, the collector determines the agent's host name based on its IP address.

For example:

agent.send.hostname: true

agent.video.capture

This configuration parameter enables or disables saving the video capture for a specific agent, which overrides the video capture settings configured for the entire DirectAudit installation. If video capture is disabled, the collector does not display the video output and does not save it to the database.

The default value uses the settings that you have configured for the entire installation.

To save the captured video output to the database, you set this parameter to enabled. To not save the captured video output, set this parameter to disabled.

For example:

agent.video.capture: enabled

autofix.nss.conf

This configuration parameter enables dad to fix /etc/nsswitch.conf automatically if anything goes wrong. If set to true, the dad process configures the /etc/nsswitch.conf file automatically. If set to false, the /etc/nsswitch.conf file is left unmodified.

The default value is true.

For example, to disable changes to the /etc/nsswitch.conf file:

autofix.nss.conf: false

cache.enable

This configuration parameter controls whether the dad process caches name service query results about users and groups. If set to true, the dad process stores query results, for example, from user lookup requests, in memory for better performance. If set to false, query results are not saved and must be retrieved whenever they are needed.

If set to true, you can use the cache.max.size and cache.time.to.live parameters to control the number and duration of entries in the cache. You can also use the daflush command to clear the cache manually when you want to ensure you get updated information. For example, if you remove the UNIX Login role for an Active Directory user, some information for that user might remain in the cache and be returned when you run a command such as getent passwd. You can run daflush to ensure the user is removed completely from the local computer cache, including the auditing name service cache.

The default value for this parameter is true.

For example, to disable the name service cache on an audited computer:

cache.enable: true

cache.max.size

This configuration parameter controls the maximum number of entries that can be stored in the dad name service cache. query results about users and groups. This parameter is only applicable if the cache.enable parameter is set to true. The dad process stores query results up to the value set for this parameter in memory for better performance.

The default value for this parameter is 80,000 entries.

For example, to increase the maximum number of name service results that can be stored on an audited computer:

cache.max.size: 85000

cache.time.to.live

This configuration parameter controls the length of time entries should remain valid in the name service cache. You can specify the maximum number of seconds cached query result should be available in the cache. This parameter is only applicable if the cache.enable parameter is set to true.

The default value for this parameter is 10 minutes (600 seconds).

For example, to increase the number of seconds query results are available in the cache on an audited computer:

cache.time.to.live: 900

cagent.audit.session

This configuration parameter determines if session auditing is enabled with the Delinea Client. A value of 1 means that session auditing is enabled and a value of 0 (zero) means that session auditing is disabled. The default value is 1.

To change the setting, run dacontrol -d to disable auditing or dacontrol -e to enable auditing. Do not use cedit to edit this parameter.

dad.client.idle.timeout

This configuration parameter determines the time interval within which dad checks for disconnected dash sessions.

The default value for this parameter is 30 minutes (1800 seconds).

dad.collector.connect.timeout

This configuration parameter specifies the amount of time, in seconds, the agent waits during each connection attempt before it determines that it cannot connect to a collector.

The default value for this parameter is 60 seconds.

You can use this parameter with the agent.max.missed.update.tolerance parameter which allows you to specify the number of unsuccessful attempts that the agent can make to connect to a collector before notifying the user that it is not connected to a collector.

dad.dumpcore

This configuration parameter enables dad to do a core dump if an audited computer crashes. This parameter overrides the default ulimit setting. If set to true, the agent will generate a core dump if the computer crashes. If set to false, no core dump is generated.

The default value is **false.**

dad.gssapi.seal

This configuration parameter specifies whether the auditing service seals network communications with the collector using a secure GSSAPI connection. If set to **true**, the network connection is sealed and cannot be read. If set to **false**, the connection is not sealed and is humanreadable.

The default value is **true.**

dad.gssapi.sign

This configuration parameter specifies whether the auditing service signs network communications with the collector over a secure GSSAPI connection. If set to **true**_, the network connection is signed. If set to **false**, the connection is not signed.

The default value is **true.**

dad.process.fdlimit

This configuration parameter specifies the number of file descriptors that can be used for audited sessions.

For some UNIX platforms, such as Solaris, the default number of available file descriptors for each process is insufficient of auditing sessions, because the Delinea Agent requires two descriptors per session.

Use this parameter to increase the number of file descriptors available. For example:

dad.process.fdlimit: 2048

This configuration parameter can also be set using Group Policy.

dad.resource.cpulimit

This configuration parameter specifies the maximum percentage of CPU usage that dad can use before dad is restarted, or before the event is logged in /var/log/centrifydc.log. Whether dad is restarted when the threshold is exceeded is controlled by [dad.resource.restart]dad-resource-restart.md).

The default value of this parameter is 50, meaning that dad is restarted or the event is logged when dad CPU usage exceeds 50%. For example:

dad.resource.cpulimit: 50

The dad resource monitor automatically checks the usage of various dad resources during runtime. For each resource that is monitored, you can configure the threshold value that triggers a dad restart or a log entry.

When dad is restarted, the client is purged, and counters for resources such as CPU usage, file descriptors, and memory are reset. See dad.resource.restart for more information about the advantages of setting a threshold that is lower than the default system value.

dad.resource.cpulimit.tolerance

This configuration parameter specifies the number of times that CPU usage can exceed the threshold set in dad.resource.cpulimit before dad is restarted, or before the event is logged in /var/log/centrifydc.log. Whether dad is restarted when the value of this parameter is exceeded is controlled by dad.resource.restart.

The default value of this parameter is 5, meaning that the CPU usage set in dad.resource.cpulimit can be exceeded four times before dad is restarted on the fifth instance or the event is logged. For example:

dad.resource.cpulimit.tolerance: 5

The dad resource monitor automatically checks the usage of various dad resources during runtime. For each resource that is monitored, you can configure the threshold value that triggers a dad restart or a log entry.

When dad is restarted, the client is purged, and counters for resources such as CPU usage, file descriptors, and memory are reset. See dad.resource.restart for more information about the advantages of setting a threshold that is lower than the default system value.

dad.resource.fdlimit

This configuration parameter specifies the maximum file descriptors that dad can use before dad is restarted, or before the event is logged in /var/log/centrifydc.log. Whether dad is restarted when the threshold is exceeded is controlled by dad.resource.restart.

The default value of this parameter is 500, meaning that dad is restarted or the event is logged when dad file descriptor usage exceeds 500. For example:

dad.resource.fdlimit: 500

The dad resource monitor automatically checks the usage of various dad resources during runtime. For each resource that is monitored, you can configure the threshold value that triggers a dad restart or a log entry.

When dad is restarted, the client is purged, and counters for resources such as CPU usage, file descriptors, and memory are reset. See dad.resource.restart for more information about the advantages of setting a threshold that is lower than the default system value.

dad.resource.memlimit

This configuration parameter specifies the maximum memory usage (in bytes) that dad can use before dad is restarted, or before the event is logged in /var/log/centrifydc.log. Whether dad is restarted when the threshold is exceeded is controlled by dad.resource.restart.

The default value of this parameter is 104857600 (100 MB), meaning that dad is restarted or the event is logged when dad memory usage exceeds that value. For example:

dad.resource.memlimit: 104857600

The dad resource monitor automatically checks the usage of various dad resources during runtime. For each resource that is monitored, you can configure the threshold value that triggers a dad restart or a log entry.

When dad is restarted, the client is purged, and counters for resources such as CPU usage, file descriptors, and memory are reset. See dad.resource.restart for more information about the advantages of setting a threshold that is lower than the default system value.

dad.resource.restart

This configuration parameter specifies whether dad restarts or just logs the event when a resource threshold is exceeded. Events that are logged are recorded in /var/log/centrifydc.log.

The default value of this parameter is false, meaning that when a resource threshold is exceeded, the event is logged, but dad is not restarted. For example:

dad.resource.restart: false

The dad resource monitor automatically checks the usage of various dad resources during runtime. For each resource that is monitored, you can configure the threshold value that triggers a dad restart or a log entry.

You can set resource thresholds in these parameters:

- dad.resource.cpulimit
- dad.resource.cpulimit.tolerance
- dad.resource.fdlimit
- dad.resource.memlimit
- dad.resource.timer

When dad is restarted, the client is purged, and counters for resources such as CPU usage, file descriptors, and memory are reset.

Setting a low threshold for restarting dad and purging the client can avoid problems with resources being consumed prematurely. For example, when cdash calls another cdash recursively, dad receives a large number of client requests. Solaris has only 256 file descriptors for ulimit by default. Unless you configure a threshold lower than 256, cdash does not stop recursive calling until 257 calls, and all of dad's file descriptors could be consumed by that one operation.

dad.resource.timer

This configuration parameter specifies how often (in seconds) the dad resource monitor checks dad resource usage.

The default value of this parameter is 600 (10 minutes), meaning that the dad monitor checks dad resource usage every 10 minutes. For example:

dad.resource.timer: 600

The dad resource monitor automatically checks the usage of various dad resources during runtime. For each resource that is monitored, you can configure the threshold value that triggers a dad restart or a log entry.

When dad is restarted, the client is purged, and counters for resources such as CPU usage, file descriptors, and memory are reset. See dad.resource.restart for more information about the advantages of setting a threshold that is lower than the default system value.

dad.timer.diskspace

This configuration parameter specifies the number of seconds between checks of disk space when the disk space reserved for offline storage is less than the value specified in the spool.diskspace.min parameter.At each check, a warning message is written to the log file.

The default value is 360 seconds.

dad.timer.monitor.nss.conf

This configuration parameter controls how frequently the dad process checks the /etc/nsswitch.conf file for changes. Set this parameter to the number of seconds between checks.

The default value is 60 seconds.

dash.allinvoked

This configuration parameter was previously required to support auditing of shells invoked in scripts and command-level auditing. The parameter is no longer required and can be removed if you upgrade the agent to the latest version and enable command-level auditing through NSS. If you do not update the agent, you can use this parameter to specify whether to audit all shell invocations. If set to **true**, all login and non-login shells are audited. If set to **false**, only login shells and login sub-shells are audited. If set to false, invoked shells are not audited.

The default value is **false**.

dash.auditstdin

This configuration parameter specifies whether the agent captures standard input (stdin). If set to true, the auditing service records all session input and output, including stdin data. If set to false, the auditing service records all session activity to standard output, but does not capture stdin data.

The default value is true.

dash.auditstdin.except

This configuration parameter specifies strings that cdash should ignore when capturing stdin data. For security, typed passwords are always ignored by default. Use regular expressions and do not include quotes. Leading and trailing spaces are ignored, spaces in the middle are not affected. For example:

dash.auditstdin.except: (prompt1|prompt2)

will match strings like these:

This is prompt1:
Prompt2 asks for password:

The default value is empty to only ignore the passwords that users enter. For more information about specifying exceptions, see the comments in the centrifyda.conf file.

dash.cmd.audit.blacklist

This configuration parameter specifies whether certain privileged command patterns are skipped while auditing is enabled.

To add a command pattern to skip, list the regular expression you wish to skip to this parameter. When enabled, an audit trail is still sent by the agent, but the specified command and arguments will not be captured. For example, the following list will skip auditing of the “date” command:

dash.cmd.audit.blacklist: date

By default, no command patters are skipped while auditing.

dash.cmd.audit.show.actual.user

This configuration parameter specifies whether command-based auditing records will display the actual user account used to run a privileged command that requires auditing, as well as the run-as account.

By default, the value of this parameter is set to false, and only the run-as account used to execute privileged commands is shown in auditing records. To enable this parameter, set the value to true. For example:

dash.cmd.audit.show.actual.user: true

dash.cont.without.dad

This configuration parameter specifies whether cdash prompts the user to restart auditing when it determines that dad is not running. If set to true, cdash does not prompt the user to restart auditing and continues without the dad process. If set to false, cdash prompts the user to restart auditing to continue.

The default value is false.

dash.force.audit

This configuration parameter specifies one or more session binary files to audit. This parameter was previously required to support command-level auditing on managed computers. The parameter is no longer required and can be removed if you upgrade the agent to the latest version.

Instead of setting this parameter, you must run the following command to enable auditing for specific command-line programs:

dacontrol --enable --command cmd_path

If you do not update the agent, you can use this parameter to specify commands to be audited by appending .daudit to the file name. For example, to audit secure shell (ssh) sessions:

dash.force.audit: /usr/share/centrifydc/bin/ssh.daudit

However, you still must run the dacontrol command to enable auditing for specific commands.

You can separate entries by typing a space or a comma. You can escape spaces or commas in file names using the backslash character (\). This parameter is not included in the configuration file by default.

dash.loginrecord

This configuration parameter specifies whether the auditing service should add utmp entries for the cdash pseudo terminals (pty). The setting of this parameter affects the results of whoami and who commands.

If set to **true**, the auditing service adds utmp entries for cdash pseudo terminals processes. With this setting, whoami in an audited shell works as expected, but who commands list logged-in users twice.

If set to false, the auditing service does not create additional utmp entries. With this setting, the whoami command in an audited shell cannot determine complete user information. Workaround: on some operating systems: who --lookup works, but the who command lists users only once.

The default value is false.

dash.obfuscate.pattern

This configuration parameter enables you to hide sensitive information in the standard output (stdout) in audit results by using patterns to define the hidden information.

Beginning with release 2015.1, each pattern that you create must be embedded inside double quote characters (“). For example:

“nnnn-nnnn-nnnn-nnnn”

> If there is a delay in the display of standard output information that you have designated to be hidden by defining a pattern, the agent may not recognize the pattern, and the information may be shown. To avoid delays, your obfuscation string should not exceed the size of the Cdash standard output buffer, which is 4KB.

> In releases earlier than 2015.1, patterns could be embedded inside double quote characters (“) or slash characters (/). If slash characters were used, they are converted automatically to double quote characters when you upgrade from 2015 to 2015.1.

Each single character in a pattern corresponds to one character in actual session data.

Supported characters in a pattern are as follows:

a	Any lower case letter.
A	Any upper case letter.
d	Any character.
D	Any letter.
n	Any decimal digit character.
s	Symbols, such as the following: ~ ` ! @ # $ % ^ & * (- _ = + [{] } | \ : ; ' < , > . ? /
-	Separator for exact matching in session data.
_	Separator for exact matching in session data.
(	Separator for exact matching in session data.
)	Separator for exact matching in session data.
,	Separator for exact matching in session data.
.	Separator for exact matching in session data.

If you define more than one pattern, separate the patterns with spaces. For example:

“nnnn-nnnn” “A-nnnn”

By default, this parameter does not contain any patterns.

dash.obfuscate.regex

This configuration parameter enables you to hide sensitive information in the standard output (stdout) in audit results by using regular expressions to define the hidden information patterns.

Beginning with release 2015.1, each regular expression that you create must be embedded inside double quote characters (“). For example:

“[A-Z][0-9]{6}\\([0-9A-Z]\\)”

If you define more than one regular expression, separate the regular expressions with spaces. For example:

“[0-9]-[0-9]” “[a-z]-[0-9]”

> If there is a delay in the display of standard output information that you have designated to be hidden by defining a pattern, the agent may not recognize the pattern, and the information may be shown. To avoid delays, your obfuscation string should not exceed the size of the Cdash standard output buffer, which is 4KB.

> In releases earlier than 2015.1, patterns could be embedded inside double quote characters (“) or slash characters (/). If slash characters were used, they are converted automatically to double quote characters when you upgrade from 2015 to 2015.1.

By default, this parameter does not contain any regular expressions.

dash.obfuscate.stdin

This configuration parameter specifies whether cdash hides (obfuscates) the STDIN. Setting this parameter to true is useful in situations where users enter sensitive data such as login credentials and so forth. The service hides the STDIN data according to the patterns specified in the dash.obfuscate.pattern and dash.obfuscate.regex parameters.

> If the user uses line-editing keys such as left arrow, right-arrow, and so forth on the command line, the obfuscation will fail. The exception is that if a user uses the backspace key, the obfuscation will still occur.

By default, this parameter is set to false.

dash.parent.skiplist

This configuration parameter lists the names of parent processes that should not be audited. If the name of a process’s parent is in this list, cdash will drop out without auditing.

You can add parent processes to the list or remove the default parent processes if you do not want to skip auditing for these processes. List entries must be separated by spaces.

For example, to skip auditing for the sapstartsrv, gdm-binary, gdm-session-wor, kdm, and sdt_shell parent processes:

dash.parent.skiplist: sapstartsrv gdm-binary gdm-session-wor kdm sdt_shell

You can also set this parameter using group policy.

dash.prompt.message.file

This parameter specifies a file that contains auditing messages that display to the user in various situations. The default location of the file is /etc/centrifda/dash.prompt.message. In that file are some key-value pairs that you can customize to your preferred wording or language.

The following situations apply if the user is set as "Audit required" but also doesn't have the "Always permit logon" right:

- `dad.stopped.purposely` - If an administrator intentionally stops the auditing service (also referred to as the DirectAudit daemon, or dad), the following message displays:

  ```
  The terminal session requires auditing and cannot continue because the administrator has stopped the auditing service on this computer. You can type 'q' to log out or 'r' to try to resume this session after restarting the auditing service. If resuming the session fails, contact the administrator to restart the auditing service, then log back on.
  ```

- `dad.stopped.unexpectedly` - If the auditing service stops unexpectedly, the following message displays:

  ```
  The terminal session requires auditing and cannot continue because the auditing service was stopped unexpectedly and could not be automatically started. You can type 'q' to log out or 'r' to try resume this session. If resuming the session fails, contact the administrator to check whether the auditing service can be started. Please contact Delinea Technical Support if the service cannot be restarted.
  ```

- `dad.diskspace.too.low`- If there isn't enough disk space on the audited system, the following message displays:

  ```
  The terminal session requires auditing and cannot continue because auditing has run out of disk space for spooling audit data. After you increase the available disk space, type 'q' to log out or 'r' to try to resume this session. If resuming the session fails, contact your administrator to increase the available disk space and then try again.
  ```

dash.reconnect.dad.retry.count

This configuration parameter specifies how many times cdash attempts to connect to dad after dad has started.

The default value is 3 retry attempts.

dash.reconnect.dad.wait.time

This configuration parameter specifies the number of seconds to wait after restarting dad before attempting to reconnect to dad.

The default value is 1 second.

dash.select.timeout

Use this parameter to specify the number of milliseconds that cdash waits while checking if the data is ready.

The default value is -1, which means that cdash determines the timeout dynamically.

> If there is no data ready to be obfuscated in the timeout period, cdash flushes the buffered data to the collector immediately. Because of this, it's recommended that you specify a timeout value that is larger than the delay between keystrokes: for example, 5000 (equal to 5 seconds). Otherwise, cdash might split the data into multiple segments which would not match the patterns specified in the dash.obfuscate.pattern and dash.obfuscate.regex parameters and therefore the data obfuscation fails.

dash.shell.env.var.set

This configuration parameter specifies whether cdash should set the SHELL environment variable to the user's actual shell or the audit shell.

If set to true, the SHELL environment variable is set to the user's actual shell. If set to false, the SHELL environment variable is set to the audited shell.

The default is true.

dash.ssh.command.skiplist

This configuration parameter specifies the commands that can be executed using a secure shell (ssh) connection without being audited. You can use this parameter to prevent the auditing service from capturing unwanted session information. For example, by setting this parameter, you can avoid recording all of the binary data sent to and from the server when you execute file transfer commands such as rsync, sftp, or scp through a secure shell connection. By default, the parameter is configured to skip auditing for the rsync, `sftp` and scp commands, which are the most commonly used file transfer programs.

You can add programs to the list or remove the default programs if you don't want to skip auditing for these sessions. If you remove file transfer programs from the list, however, long data streams might cause problems when transferred to collector service.

For example, to skip auditing for ftp, rsync, sftp, scp, and wget commands:

dash.ssh.command.skiplist: ftp rsync `sftp` scp wget

dash.user.alwaysallowed.list

This configuration parameter lists the names of UNIX users who are allowed to use a session even if the computer cannot be audited due to environment setup issues.

By default, root is the only user allowed to use an unaudited session.

To use this parameter, specify a space-separated list of UNIX user names.

You can also set this parameter using group policy.

dash.user.skiplist

This configuration parameter lists the names of UNIX users and Active Directory users with a UNIX login who should not be audited. You can separate user names by typing a space or a comma. For example:

dash.user.skiplist: MaeJones kelly,dmorris,BookerJames

The default value is empty.

When you list a user in the dash.user.skiplist, this overrides the user's audit level. For example, if the user is set as "Audit Required" and also in dash.user.skiplist, the user might log in successfully but without being audited.

event.execution.monitor

Use the event.execution.monitor parameter to monitor all programs that users run in an audited session.

To use this parameter, you must have enabled the agent to perform advanced monitoring with the command dacontrol -m.

The default value for the event.execution.monitor parameter is false.

In the audit.log file, you can find these events by looking for the cda_sys_execve messages. In the cdc.log file you can find them by looking for the Emit COMMAND_HISTORY.

event.execution.monitor.user.skiplist

Use the event.execution.monitor.user.skiplist parameter to specify a list of users to exclude from advanced monitoring for program execution. For these users, the auditing service does not record any programs that they run, even when the parameter event.execution.monitor is set to true.

For users specified in this list, the auditing service checks for the user account that the program is run by, also known as the “run as” user account.

To use this parameter, you must have enabled the agent to perform advanced monitoring with the command dacontrol -m.

event.file.monitor

Use the event.file.monitor parameter to enable advanced monitoring for configuration files. To use this parameter, you must have enabled the agent to perform advanced monitoring with the command dacontrol -m.

If advanced monitoring is enabled for files, the auditing service monitors any activity in the following folders:

- /etc/
- /var/centrify/
- /var/centrifydc/
- /var/centrifyda/

The default value for the event.file.monitor parameter is true.

In the audit.log file, you can find these events by looking for the cda_file_monitor_write messages. In the cdc.log file you can find them by looking for the Emit AUDIT_TRAIL.

event.file.monitor.process.skiplist

Use the event.file.monitor.process.skiplist parameter to specify which processes to not monitor that are in an area that you've already configured to provide detailed file monitoring. To use this parameter, you must have enabled the agent to perform advanced monitoring with the command dacontrol -m.

When either adclient or dad processes or one of their sub-processes access or alter one of the files specified in the event.file.monitor list, this activity is automatically excluded from advanced monitoring.

The default value for this parameter is daspool.

event.file.monitor.user.skiplist

Use the event.file.monitor.user.skiplist parameter to specify a list of users to exclude from advanced monitoring for files. For these users, the auditing service does not record any write access to directories specified in event.file.monitor.

For users specified in this list, the auditing service checks this list against the original login user.

For example:

The event.file.monitor.user.skiplist parameter does not include the user dwirth. Dwirth uses the following command:

dzdo cp /tmp/badfile /etc/badfile

This activity generates the following audit event:

user dwirth run as root opened the file /etc/badfile using the /bin/cp command.

To use this parameter, you must have enabled the agent to perform advanced monitoring with the command dacontrol -m.

The default value for this parameter is root.

event.monitor.commands

Use the event.monitor.commands parameter to specify a list of commands to monitor. Be sure to list each command with the full path. The auditing service generates an audit trail event when a user runs any of these monitored commands, and ignores any commands listed in the event.monitor.commands.user.skiplist.

To use this parameter, you must have enabled the agent to perform advanced monitoring with the command dacontrol -m. Otherwise, you will not get any report or audit trail event results.

In the audit.log file, you can find these events by looking for the cda_cmd_exec messages. In the cdc.log file you can find them by looking for the Emit AUDIT_TRAIL and Emit COMMAND_HISTORY messages.

event.monitor.commands.user.skiplist

Use the event.monitor.commands.user.skiplist parameter to specify any users for whom you do not want to monitor the commands that they run. Any user that you specify in this parameter will not generate an audit trail event when they run any command, even if the command is listed in event.monitor.commands.

lang_setting

This configuration parameter specifies the code page that is used by DirectAudit for character encoding.

You can set this parameter to one of the following valid values:

- utf8
- iso8859-1

The default value is utf8.

You can also set this configuration parameter using group policy.

lrpc2.message.signing

Use the lrpc2.message.signing to manage message singing behavior.

You can set this parameter to one of the following values:

- Disabled (default) to not ever sign LRPC2 messages.
- Allowed does not require LRPC2 message signing but may be chosen if required.
- Required must sign LRPC2 messages.

lrpc2.timeout

This configuration parameter specifies the number of seconds cdash and dainfo waits while trying to contact the dad service before timing out.

The default value is 30 seconds.

You can also set this configuration parameter using group policy.

lrpc2.rebind.timeout

This configuration parameter specifies the number of seconds that dareload (-b) waits while trying to connect to the dad service before timing out.

The default value is 300 seconds.

You can also set this configuration parameter using **for rebinding** group policy.

nss.alt.zone.auditlevel

This configuration parameter enables you to specify a default audit level for all users who do not have an audit level explicitly defined using the nss.user.override.userlist parameter. Note that this parameter is only applicable in classic zones. You should not set this parameter if you are using hierarchical zones.

You can set this parameter to one of the following valid values:

- use_sysrights
- audit_if_possible
- no_audit
- audit_required

The default value is use_sysrights. This setting determines the audit level by communicating with the adclient process.

The effective audit level for a user is determined in the following order:

1. If the user is included in the list specified by the nss.user.override.userlist parameter and the audit level is specified for the user, the specified audit level is used.
2. If the user is included in the list specified by the nss.user.override.userlist parameter and the audit level is not specifiedfor the user, the value specified by the nss.user.override.auditlevel parameter is used.
3. If the user is not included in the list specified by the nss.user.override.userlist parameter, the audit level specified for the nss.alt.zone.auditlevel parameter is used.

nss.nologin.shell

This configuration parameter enables you to specify one or more non-login shells for audited users. In most cases, when audited users log on, they are placed in a wrapper shell so that their activity can be captured and sent to a collector. To use a real shell instead of the wrapper shell, you can specify shells to be non-login shells for audited users to access. After you set this parameter, you should restart the auditing service (dad).

For example, to define the shells /sbin/shell_test1 and /bin/shell_test2 as a non-login shells, you would type:

nss.nologin.shell: /sbin/shell_test1 /bin/shell_test2

If this parameter is not configured, the default no-login shells /sbin/nologin and /bin/false are used.

nss.user.conflict.auditlevel

This configuration parameter enables you to override a user's audit level when the user is listed in the user.ignore list and has the use_sysrights audit level. Valid parameter values are:

audit_if_possible
no_audit
audit_required

By default, this parameter is set to audit_if_possible.

nss.user.override.auditlevel

This configuration parameter specifies the default audit level for any users specified for the nss.user.override.userlist without an audit level defined. This parameter replaces the deprecated user.ignore.audit.level parameter.

You can set this parameter to one of the following valid values:

- use_sysrights
- audit_if_possible
- no_audit
- audit_required

The default value is use_sysrights. If there are classic zone users not included in nss.user.override.userlist parameter, the default audit level is the value specified for the nss.alt.zone.auditlevel parameter.

nss.user.override.userlist

This configuration parameter enables you to specify an audit level for a list of users that will bypass Active Directory. In most cases, the auditing service connects to Active Directory to get user profile and audit level information. You can use this parameter to bypass Active Directory, for example, to specify local user accounts that do not have a corresponding user account in Active Directory, but for which you want to audit session activity. This parameter replaces the deprecated user.ignore parameter.

You can specify the parameter value by typing individual entries using the format user_name[:audit_level], separated by spaces, or by using the file: keyword and a file location.

You can set the audit_level to one of the following valid values:

- use_sysrights
- audit_if_possible
- no_audit
- audit_required

The use_sysrights setting indicates that you want to use the audit level information associated with the user's role. If you don't specify an audit level for a user with this parameter, the default audit level is to the audit level you specify for the nss.user.override.auditlevel parameter. For example, you can set the value using individual user name entries like this:

nss.user.override.userlist: maya:use_sysrights tai:no_audit carlos

Alternatively, you can using the file: keyword and a file that has one user_name[:audit_level] per line. For example:

nss.user.override.userlist: file:/etc/centrifyda/user_auditing_classiczones

Be sure to run the dareload command after modifying the configuration file to have the changes take effect.

Note that this parameter is most commonly used to specify the audit level for local user accounts. However, you can use it to specify both local and Active Directory users, if needed. To include Active Directory users in the list of users specified with this parameter, you must specify the Active Directory user's UNIX login name as a parameter value in the user list you define with this parameter.

For computers that have only the Delinea Client for Linux installed, there is a sample file that you can use to specify users outside of Active Directory. The sample file is /etc/centrifyda/nss.user.override.userlist.sample. To point the client to this sample file, include the following line in your centrifyda.conf file:
nss.user.override.userlist: /etc/centrifyda/nss.user.override.userlist.sample

preferred.audit.store

If your UNIX or Linux computer has multiple IP addresses that match the criteria for multiple audit stores, use the preferred.audit.store parameter to specify the preferred audit store that the DirectAudit agent will use.

If you have this kind of installation and you don't specify the preferred audit store, the collector may or may not connect to the correct audit store.

prefer.site.over.subnet

When the audit and monitoring service is running on a system and it needs to connect to an audit store, you can use this prefer.site.over.subnet parameter to specify the search precedence.

If you set this parameter to true, then the agent looks for an audit store based on the Active Directory sites. If the search fails, then the agent looks for an audit store based on the subnet.

By default, this parameter is false, which means that audit stores are chosen first based on their subnet addresses and then based on the Active Directory sites.

For example:

prefer.site.over.subnet: true

spool.diskspace.logstate.reset.threshold

This configuration parameter specifies a threshold percentage of disk space that is added to the minimum percentage of disk space (set in the spool.diskspace.min parameter) that determines when the information/warning/error log state is reset. Message logging resumes only after the log state is reset.

When disk space drops below the minimum percentage (for example, 10%), a warning is logged. Additional warnings are not logged until disk space has risen above the minimum percentage + threshold percentage (for example, 10% + 2% = 12%), and then drops again below the minimum percentage (10%).

Setting a threshold percentage is useful to prevent unnecessary log messages when disk space hovers near the minimum percentage and would otherwise trigger a log message every time the minimum percentage is crossed.

The default value is 2 percent of disk space.

You can also set this parameter using group policy.

spool.diskspace.min

This configuration parameter specifies the minimum volume of disk space required on the partition containing the offline spool file before spooling stops.

You can set this value as a percentage of the disk space, or you can set it as an exact size. To set the value as an exact size, specify the unit value after the number value. The unit values are not case-sensitive.

For example, to set the minimum volume of disk space to 28 gigabytes, you would enter the following:

spool.diskspace.min: 28GB

You can specify the following unit values:

- B (byte)
- KB (kilobytes)
- MB (megabytes)
- GB (gigabytes)
- TB (terabyrtes)

To specify the value as a percentage, you can either use the percent (%) symbol, or enter a number with no unit value. If you specify a number, make sure that there isn't a space between the number and the unit value; for

example, to specify 28 gigabytes enter "28GB" not "28 GB". Including a space, such as "28 GB", is interpreted as a percentage, such as "28%".

The default value is 10 percent of disk space.

You can also set this parameter using group policy.

spool.diskspace.softlimit

This configuration parameter specifies the volume of disk space required on the partition containing the offline spool file to avoid warnings in the log. If available disk falls below the level specified in this parameter, a warning is logged and auditing will continue until disk space falls below the level specified in spool.diskspace.min.

You can set this value as a percentage of the disk space, or you can set it as an exact size. To set the value as an exact size, specify the unit value after the number value. The unit values are not case-sensitive.

For example, to set the minimum volume of disk space to 5 kilobytes, you would enter the following:

spool.diskspace.min: 5 kb

You can specify the following unit values:

- B (byte)
- KB (kilobytes)
- MB (megabytes)
- GB (gigabytes)
- TB (terabyrtes)

To specify the value as a percentage, you can either use the percent (%) symbol, or enter a number with no unit value.

The value of this parameter must be greater than or equal to the value of spool.diskspace.min.

The default value is 12 percent of disk space.

You can also set this parameter using group policy.

spool.maxdbsize

This configuration parameter specifies maximum disk space in bytes to allocate to the offline storage database. Use 0 to designate no limit.

The default value is 0 (unlimited).

You can also set this parameter using group policy.

uid.ignore

This configuration parameter specifies one or more numeric user identifiers (UID) that you want to ignore for authentication and lookup requests in Active Directory. In most cases, you use this parameter to specify local user accounts that do not have a corresponding user account in Active Directory, but for which you want to audit session activity. You can specify the parameter value by typing individual user identifiers, separated by spaces, or by using the file: keyword and a file location. For example, you can set the value using individual UID values like this:

uid.ignore: 0 500 5861

Alternatively, you can using the file: keyword and the sample uid.ignore file that is installed with the Delinea Agent. The sample uid.ignore file ignores the most common default system accounts. For example:

uid.ignore: file:/etc/centrifydc/uid.ignore

If you edit the /etc/centrifydc/uid.ignore file, be sure to run the adreload command after modifying the file to have the changes take effect.

user.ignore

This configuration parameter specifies one or more user names that you want to ignore for authentication and lookup requests in Active Directory. In most cases, you use this parameter to specify local user accounts that do not have a corresponding user account in Active Directory, but for which you want to audit session activity. You can specify the parameter value by typing individual user names, separated by spaces, or by using the file: keyword and a file location. For example, you can set the value using individual user name values like this:

user.ignore: tai carlos games gopher

You can also specify the user's audit level by adding the value after the user names added to user.ignore. For example:

user.ignore: tai carlos:audit_if_possible

Alternatively, you can using the file: keyword and the sample user.ignore file that is installed with the Delinea Agent. The sample user.ignore file ignores the most common default system accounts. For example:

user.ignore: file:/etc/centrifydc/user.ignore

If you edit the /etc/centrifydc/user.ignore file, be sure to run the adreload command after modifying the file to have the changes take effect.

user.ignore.audit.level

This configuration parameter is no longer used except for backward compatibility. It has been replaced by the nss.user.override.auditlevel parameter. This configuration parameter specifies the audit level setting for the user that you want to ignore for authentication and lookup requests in Active Directory. In most cases, you use this parameter when you have specified local user accounts that do not have a corresponding user account in Active Directory, but for which you want to audit session activity. By default, the users you specify for the uid.ignore or user.ignore parameter are audited if auditing is enabled and the auditing service (dad) is running on the local computer (audit if possible). You can disable the auditing of user activity for the users specified by the uid.ignore or user.ignore parameter by setting this parameter value to one (1). For example, if you don't want to audit activity for the users specified in uid.ignore or user.ignore list, set the parameter as follows:

user.ignore.audit.level: 1

You cannot require auditing for the users specified in uid.ignore or user.ignore list because those users would be unable to log on if the auditing service stops running or is removed from a local computer. To prevent users from being locked out, you can only set this parameter to audit if possible (0) or no auditing (1).

Customizing LDAP Proxy Configuration Parameters

This section describes the configuration parameters that affect the use of Delinea direct access LDAP proxy handling on the local host computer.

ldapproxy.cache.credential.expire

This configuration parameter specifies how long ldapproxy holds the ldapproxy credential cache. The cache expires in the specified number of seconds. Default is 300 seconds:

ldapproxy.cache.credential.expires <seconds>

The ldapproxy credential cache retains the user login Active Directory verification.

- If a user logs in within the expiration window, ldapproxy does not require another adclient verification.
- If a user logs in and the ldapproxy credential cache is expired, ldapproxy sends a request for authentication to adclient. adclient can authenticate using its own cache or send to AD for authentication.

Restart centrify-ldapproxy to apply changes.

[root]$ /usr/share/centrifydc/bin/centrify-ldapproxy restart

ldapproxy.netgroup.use.rfc2307nisnetgroup

This configuration parameter specifies which type of netgroup object that the LDAP proxy searches. By default, this parameter is set to false and the LDAP proxy searches the NIS map netgroup objects.

ldapproxy.netgroup.use.rfc2307nisnetgroup false

If you set this ldapproxy.netgroup.use.rfc2307nisnetgroup parameter to true, then the LDAP proxy searches RFC2307 NIS netgroup objects.

Restart centrify-ldapproxy to apply changes.

[root]$ /usr/share/centrifydc/bin/centrify-ldapproxy restart

ldapproxy.performance.log.interval

This configuration parameter specifies the interval between each log dump of ldapproxy events. The interval is number of seconds. The default value, 0, disables the parameter.

ldapproxy.cache.enabled true

ldapproxy.performance.log.interval <seconds>

The ldapproxy statistics collected include:

- Search cache statistics, such as: cache hit, cache negative hit, cache miss, cache expires, cache overflow and object clone error.

  Search cache statistics require the ldapproxy.cache.enabled parameter is set to true and the ldapproxy.performance.log.interval is set to a non-zero value.

- Authentication statistics, such as: authentication requests, satisfied from cache, actual authentication to adclient, and average response time of actual authentication through adclient.

  Authentication statistics require the ldapproxy.performance.log.interval is set to a non-zero value.

Restart centrify-ldapproxy to apply changes.

[root]$ /usr/share/centrifydc/bin/centrify-ldapproxy restart