

# CLEO NED Active Directory Integration

Version 1.2.0



CLEO NED Active Directory Integration Manual v1.2.0

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# 1 Introduction

This manual describes how to integrate a CLEO NED with Microsoft<sup>®</sup> Active Directory<sup>®</sup>.



## 2 Prerequisites

Before configuration Active Directory<sup>®</sup> integration in Dashboard you will need to ensure that the prerequisites described below are met.

### 2.1 Active Directory User Account

In order for the NED to communicate with your Active Directory<sup>®</sup> system it needs a user account with specific, highly-restricted privileges. These steps may be followed to create the correct, minimally privileged account:

1. Login to AD server as an administrator user
2. Create a normal new user. This user must not be in the administrators group. You may wish to consider not requiring password changes for this user; although you may require them if you wish to do. Note that there is no warning mechanism in the NED or Dashboard system for alerting you to expired passwords; your AD integration will simply begin denying all requests if you forget to rotate your NED user's password before it expires.
3. Open AD Users and Computer management console.
4. Ensure 'Advanced Features' is enabled in the 'View' menu
5. Right click the 'Computers' container, and select Properties. It is important that it is 'Computers' itself, and not a sub-container, that is chosen, as the NED will only attempt to join the AD domain within the Computers container.
6. In the Properties dialog, choose the Security Tab, and select Advanced.
7. When presented with the list of permission entries, click on 'Add...' to add your new user to the list.
8. In the dialog presented, enter the user name you previously created then click the 'Check Names' button, check the results, and then click the 'OK' button if the correct user was found.
9. Once the user has been added to the list, select it, then click 'Edit...'. This is to restrict the permissions to only those required.
10. Clear all the existing permissions for your user, and then choose to allow only 'Create Computer Objects'.
11. Confirm all the dialogs with 'OK' and close the MMC.

### 2.2 DNS Entries

Active Directory integration in CLEO NED release 1.2 requires forward (A) and reverse (PTR) DNS entries within the Active Directory system. These must currently be created by the AD administrator by hand.

The PTR record will require a reverse DNS zone for your curriculum network. This zone must exist before you follow the procedure below.

These steps may be followed to create the records:

1. Open the DNS management console
2. Select your DNS server, and then 'Forward Lookup Zones'.
3. You should see an container for your windows domain; right click it and choose 'New Host (A)...'
4. Under name, enter, in *lower case*, your site code, which can be obtained from Dashboard.
5. Under IP address, enter your NED's IP address, which can be obtained from Dashboard.
6. Ensure 'Create associated pointer (PTR) record' is selected.
7. Click 'Add Host'.



## 2.3 Clock Synchronization

Keberos is used for authentication with Active Directory starting in CLEO NED 1.2. This requires that clocks to be synchronized to within five minutes. The recommended way of doing this is to configure the Active Directory server to synchronize with the CLEO time service via NTP. The NTP server is `ntp.cleo.net.uk`.

Alternatively, the AD clock may be set to the same time as the NED's clock by hand. The time on the NED can be determined by viewing the NED status page, either the one on the NED directly, or the one provided via Dashboard. The NED automatically synchronizes its clock with `ntp.cleo.net.uk`, and should generally be very accurate.

## 2.4 Proxy Configuration

It is recommended that sites using AD integration do so via the proxy auto-configuration script provided by CLEO.

If, for some reason, you are not using the CLEO PAC script you should ensure that the client computers on your network are configured to use the CLEO NED via the DNS name you setup under [Section 2.2 \[DNS Entries\], page 2](#).

Attempting to use the NED as a proxy via IP address or an alternative DNS address while integrated with AD will cause user authentication to fail.



### 3 Dashboard Configuration

Once the prerequisites for Active Directory® integration have been met you can configure the integration in [Dashboard](#).

The fields in the Active Directory® configuration page should be filled out as follows:

#### NETBIOS Domain Name

The domain name for pre-Windows 2000 compatibility. This may be found under 'Active Directory Users and Computers' by clicking on the root node of the domain and selecting 'Properties'.

#### Windows Domain

The full windows domain name, listed in 'Active Directory Users and Computers' and the DNS settings you have modified above.

#### PDC NETBIOS Name

The name of the main domain controller, as shown in the System Properties.

#### IP Address of Server

This is usually the IP address of the domain controller as above, however if you have separate DNS servers, it should be one of those addresses.

#### AD Username

The user name of the user created in [Section 2.1 \[Active Directory User Account\]](#), [page 2](#).

#### AD Password

The password of the user created in [Section 2.1 \[Active Directory User Account\]](#), [page 2](#).



## Appendix A Active Directory Integration Changes

This section briefly describes the changes to Active Directory<sup>®</sup> integration by NED version number.

Note that this section does not describe changes to this document, only changes to AD integration itself.

### A.1 Version 1.2.0

Support for Windows 7 with Internet Explorer introduced the following requirements:

- forward and reverse DNS records within the domain for the NED;
- use of the domain DNS records when contacting the proxy; and
- clock synchronization to within five minutes.

### A.2 Version 1.0.0

Initial release.





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