

**CLEO Network Edge Service** 

Network Edge device User Guide



# CLEO Network Edge Services CLEO Network Edge device User Guide v1.0



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# 1. Introduction

The Cumbria and Lancashire Education Online (CLEO) Regional Broadband Consortium (RBC) is made up of the two local authorities Cumbria County Council and Lancashire County Council and provides broadband connectivity to schools across the region. Through its network providers Lancaster University Network Services (LUNS), the RBC aims to provide an efficient and secure IP network for all the schools connected to it. In addition CLEO is also interconnected with all the other 9 English RBCs via the Universities JANET Network.

The National Digital Infrastructure is BECTA's model for the provision of broadband networks into schools. The model is in 4 parts;

- **Data services** includes data warehousing, management information systems (MIS) and a range of data mining tools.
- Learning services includes the management, provision and availability of learning content.
- **Infrastructure services** includes support of the system and the seamless integration of services.
- Connectivity services links all elements of the model together,

connecting institutions to the wider educational community and to the internet.

As part of the infrastructure services DfES and Becta research and guidance indicates that schools should install a cache box/Network Edge device as part of their ICT infrastructure in order to provide more effective use of bandwidth, access to online media-rich content and to provide a resource on which to install e-Learning content.

**"3.2.10. All institutions and local authorities should use a caching system** Institutions using a caching system optimise the use of available bandwidth by allowing users to access a single locally stored copy of the content many times rather than repeatedly requesting the same content from the original source."

CLEO is providing the Network Edge device to schools in order to ensure that all schools have the same specification of equipment therefore making the setup,

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training and support of the device more effective. The new Network Edge device can be managed centrally, making support more efficient. As a regional Broadband Consortium (RBC), CLEO has been able to negotiate a more cost effective deal for schools through bulk purchasing and ensuring that the equipment is compatible with that already installed by the RBC and LEA's.

The new Network Edge device is a small dedicated computer (without a mouse monitor or keyboard) that will allow you to locally store information/content from the web. After initially downloading/accessing the required content it is stored on the box. When required in the future, this stored content is accessed more quickly by computers in school, as there is no need to go onto the Internet. The Network Edge device can also be used to hold e-Learning materials and will allow filtering by the school.

In Autumn 2004 / Spring 2005, schools were provided with a Cache box/Network Edge device by the CLEO Regional Broadband Consortia (RBC). As part of our on-going support to schools, we have reviewed the current Network Edge devices and decided that an upgrade is required. As technology has moved on the new boxes will be able to carry out a range of functions, not just caching and filtering but pre-caching, mirroring, DNS and DHCP functionality.

We have therefore renamed the project 'Network Edge Services' and the new box supplied is a Network Edge device. All Cumbria and Lancashire Primary schools, Special schools, Nurseries, Short Stay schools in Lancashire and PRU's in Cumbria (who are receiving a CLEO broadband connection), will be receiving an upgraded Network Edge device. The cost of the Network Edge device and the installation of the box will be met through the CLEO RBC.

CLEO is providing the Network Edge device to schools in order to ensure that all schools have the same specification of equipment therefore making the setup, training and support of the Cache pilots more effective.

As a Regional Broadband Consortia (RBC), CLEO has been able to negotiate a more cost effective deal for schools through bulk purchasing and ensuring that the equipment is compatible with that already installed by the RBC and LEA's.

DfES and Becta research and guidance indicates that schools should install a Network Edge device as part of their ICT infrastructure in order to provide more effective use of bandwidth, access to online media-rich content and to provide a resource on which to install e-Learning content.

In addition to any LEA central filtering, a Network Edge device will allow individual schools to block access to any websites that they feel to be unsuitable.

# 2. Network Edge Device Delivery and Installation

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All Cumbria and Lancashire Primary schools, Special schools, Nurseries, Short Stay schools in Lancashire and PRU's in Cumbria (who are receiving a CLEO broadband connection), will be receiving an upgraded Network Edge device. Secondary schools who are receiving a CLEO broadband connection will also be offered a new CLEO Network Edge Device. The cost of the Network Edge device and the installation of the box will be met through the CLEO RBC.

Because of the large geographical area covered by Cumbria and Lancashire and the large number of schools, the roll-out of the new Network Edge device will be from Summer Term 2008 – Spring Term 2009.

The installation of the new Network Edge Device will be completed by the Local Authority ICT Support Services. The Services will liaise with schools and the hardware manufacturer to coordinate delivery and installation times.

Please refer to the CLEO Network Edge Installation Guide for Schools for more information.

# 3. The CLEO Dashboard

## 3.1. Introduction

The CLEO Dashboard provides a central access point for a range of user options to services from Cumbria and Lancashire Education Online including;

- Management of your CLEO Network Edge Device
- Management of CLEO Remote Desktop Services for your school

## 3.2. Using the CLEO Dashboard for Network Edge Services

From the CLEO Dashboard users can carry out a variety of tasks for Network Edge Services including;

- Caching a website
- Banning a URL
- Setting up DHCP
- Change your NED network settings
- Active Directory integration
- Review logs of internet activity
- Adding/editing user accounts for Dashboard

Desiboard Desiboard 157 Usernam: Pessword: Interference: Int

CLEO

The dashboard url is the same for all users – <u>https://dashboard.cleo.net.uk</u>





Enter your username and password and click 'login'

#### Depending on your access level, you will then see the following screen;

| CLEO<br>Cumbria and Lancashire E            | ducation Online  | Logged in as midgleym@cleo.net.uk( <u>Logout</u> )<br><u>No site currently selected</u> |
|---|--|---|
| Dashboard                                   |  |   |
| Home<br>About<br>Log Out<br>Dashboard Admin | Welcome to the CLEO Dashboard for CLEO.<br>You can:<br>• Log Out |   |
| Users                                       | <ul> <li><u>Block an undesirable web site</u></li> </ul>         |   |
| CLEO NED                                    |  |   |
| Web Filter                                  |  |   |
| DHCP  |  |   |
| Network Settings                            |  |   |
| Active Directory                            |  |   |
| Logs  |  |   |
| Status                                      |  |   |
| You have recently viewed:                   |  |   |
| Dashboard v.1.0-7, @ 2007 Lancast           | ar University Network Services Limited.                          | CGft. CGft. CGft.   |

Figure 2 - Dashboard front screen

## 3.2.1. Dashboard Accounts

If you are a dashboard administrator within your school you will be able to create, edit and delete users.



Figure 3 - Dashboard Menu options



From the Dashboard menu select 'Users'. You will then see the following screen;

| User administration<br>From this interface you can <u>create</u> , edit and delete users who have access to your site.<br>Here are a list of users within your site. You can view or delete these users below |  |                             |              |     |  |  |  |
|---|--|-----------------------------|--------------|-----|--|--|--|
| Site Code User Name   |  | User Name                   | Description  |     |  |  |  |
| <u>CLEO</u>   |  | <u>midgleγm@cleo.net.uk</u> | lain Midgley | VED |  |  |  |

Figure 4 - User Administration option

For each user, the Dashboard gives the site code, username, description.

| CLEO NED         |  |
|------------------|--|
| Web Filter       |  |
| DHCP             |  |
| Network Settings |  |
| Active Directory |  |
| Logs             |  |
| Status           |  |

## 3.2.2. Web Filter

Figure 5 - Web Filtering Menu

| Home   | Block a web site  |  |  |
|--|---|--|--|
| About<br>Log Out<br>Dashboard Admin<br>Users | Your CLEO Network Edge Device lets you filter your school Internet access by blocking<br>undesirable web sites.<br>Please select the site you want to edit. |  |  |
| CLEO NED                                     |   |  |  |
| Web Filter                                   | Site: CLEO-CLEO   |  |  |
| DHCP   |   |  |  |
| Network Settings                             |   |  |  |

Figure 6 - Web filter screen





#### Figure 7 - Select your school

| Block a web site   |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| Your CLEO Network Edge Device lets you filter your school Internet access by blocking undesirable web sites. |  |  |  |  |  |  |  |
| To block a web site for (  | CLEO, enter its address below, and pick a category.                |  |  |  |  |  |  |
| You can also <u>list sites t</u>   | hat are currently blocked, or unblock a blocked site.              |  |  |  |  |  |  |
| Web site address:  |  |  |  |  |  |  |  |
| Block:   | <ul> <li>Every page on the site</li> <li>This page only</li> </ul> |  |  |  |  |  |  |
| Category:  | adult [Explicit Content]   |  |  |  |  |  |  |
|  | Block Site   |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Figure 8 - Web Filtering Page

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|--------------------------------|---------------------------|------------------------|---------------------------|--------------|
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|                                |                           |                        |                           |              |

|   |  |   | 2.1 |
|---|--|---|-----|
|   | ads [Adverts]                            | ^ |     |
|   | aggressive [Aggresive Content]           |   |     |
|   | audio-video [Audio Visual Content]       |   |     |
| 4 | blogging [Blogging]                      |   | L   |
|   | drugs [Drugs & Drug Related Materials]   |   |     |
|   | adult [Explicit Content]                 |   |     |
| _ | fileshare [Filesharing Sites]            |   |     |
|   | forums [Forums]                          |   |     |
| g | gambling [Gambling]                      |   | È   |
|   | games [Games]                            |   |     |
|   | hacking [Hacking]                        |   |     |
| 2 | im [Instant messaging services]          |   | P   |
| L | mail [Mail, Chat etc]                    |   | 4   |
| - | malware [Malware]                        |   | F   |
| - | nudism [Non-Explicit Nudity]             |   | ŀ   |
|   | phishing [Phishing]                      |   |     |
|   | pro-ana [Pro-Anorexia]                   |   |     |
|   | proxy [Proxy/Proxy Bypass]               |   |     |
|   | shock [Shock]                            |   |     |
|   | socialnetworking [Social Networking Site | ¥ |     |

Figure 9 - Select the Appropriate Filter Category

Once you have filled in all the details - click on 'Block Site'

Block Site

At any time you can review the sites that are locally blocked or unblock a site

You can also list sites that are currently blocked, or unblock a blocked site.

### 3.2.3. DHCP

Using the Dashboard, you can control the Network Edge Device to operate as a DHCP server. Select DHCP from the Network Edge Device menu,

| CLEO NED         |  |
|------------------|--|
| Web Filter       |  |
| DHCP             |  |
| Network Settings |  |
| Active Directory |  |
| Logs             |  |
| Status           |  |
|                  |  |

Figure 10 - Select DHCP from the menu

You will see the following page. To use the Network Edge device as a DHCP server select 'enable'.

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|--------------------------------|-------------------|----------------------|------------|-----------------|----------------|
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Then choose the range of IP addresses you would like to allocate. For example 10.98.8.1 - 10.98.8.250  $\,$ 

| <b>DHCP Settings</b>   |  |
|--|--|
| Your CLEO Network<br>If you would like your<br>If you don't know wha | Edge Device can be used as a DHCP server for your curriculum network.<br>Network Edge Device to act as a DHCP server, you may configure it below.<br>It DHCP is, you should probably leave it disabled |
| DHCP:<br>Curriculum IP:  | Disabled O Enabled No current settings were found so these defaults have   |
|  | been entered as a guide  |
| Start Address:   |  |
| End Address:   |  |
|  | Update   |
|  |  |

Figure 11 - DHCP page

## 3.2.4. Network Settings

You can also change the IP address of your Network Edge Device within your curriculum network. Select 'Network Settings' from the menu



You will then see the following screen;

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|--------------------------------|----------------------------------|--|----------------|
| office@cleo.net.uk             | www.cleo.net.uk                  | <b>11111 11111 1111111111111111111111111</b> | ⊜ 01524 593515 |
|                                | County Council                   |  |                |

| CLEO NED Network settings  |
|--|
| This setting will change the IP address of your CLEO Network Edge Device within your Curriculum<br>Network.<br>The IP address you give is the external IP address of your Network Edge Device and so it must be<br>within the range of the Curriculum Network. |
| Curriculum IP Range:   |
| IP Address:  |
| Update   |
|  |

Figure 12 - Network Address Screen

## 3.2.5. Active Directory

You can also use your Network Edge Device to authenticate users against Windows Active Directory before allowing them to go onto the internet. Choose 'Active Directory' from the menu.

| С | LEO NED          |  |
|---|------------------|--|
| 1 | Neb Filter       |  |
| ۵ | ОНСР             |  |
| ٩ | Network Settings |  |
| A | Active Directory |  |
| L | Logs             |  |
| 9 | Status           |  |

You will then see the following screen;

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|---------------------------|--------------------|-----------------------|---------------------------|------------------|
| office@cleo.net.u         | k ww               | w.cleo.net.uk         | <b>2</b> 01524 592800     | 0 🖴 01524 593515 |
|                           | County Council     | Lancashire            |                           |                  |

| Squid Active Direc                                     | tory Settings   |
|--|---|
| Your CLEO Network Edge<br>before allowing them to brow | Device can authenticate users against a Windows Active Directory<br>wse the Internet. |
| vith its IP address.                                   | I need to know the name and domain of your Windows server, along                      |
| You'll also need a user with                           | the ability to create a machine account on your domain.                               |
| Curriculum IP Range:                                   |   |
| Status   | <ul> <li>Enabled</li> <li>Disabled</li> </ul>   |
| NETBIOS Domain<br>Name:                                |   |
| Windows Domain:  |   |
| PDC NETBIOS<br>Name:                                   |   |
| IP Address of Server:                                  |   |
| AD Username:   |   |

Figure 13 - Dashboard page for Active Directory Integration

To allow Active Directory authentication, you will need the name, IP address and domain of the server. You will also need the ability to create a machine account on your domain.

## 3.2.6. Logs

All Network Edge devices keep a record of times and sites visited for all users when they connect to the internet. To review any of the logs choose 'logs' from the menu

| CLEO NED         |  |
|------------------|--|
| Web Filter       |  |
| DHCP             |  |
| Network Settings |  |
| Active Directory |  |
| Logs             |  |
| Status           |  |

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#### You will see the following screen;

| View Log Files                     |                             |              |
|------------------------------------|-----------------------------|--------------|
| The following logs are currently a | vailable for the CLEO Netwo | rk Edge Devi |
| Date                               | Log File                    |              |
| Friday, October 12, 2007           | Web Server                  | Download     |
| Friday, October 12, 2007           | Web Server                  | Download     |
| Friday, October 12, 2007           | Web Server                  | Download     |
| Friday, October 12, 2007           | Web Server                  | Download     |
| Saturday, October 13, 2007         | Web Server                  | Download     |
| Saturday, October 13, 2007         | Web Access Log              | Download     |
| Saturday, October 13, 2007         | Web Server                  | Download     |
| Saturday, October 13, 2007         | Web Access Log              | Download     |
| Saturday, October 13, 2007         | Web Server                  | Download     |
| Sunday, October 14, 2007           | Web Server                  | Download     |

#### Figure 14 - Web logs screen

There are 3 different types of log that the user can see;

Web Server -

Web Access Log -

Web Access Denied Log -

## 3.2.7. Status

| CLEO NED         |
|------------------|
| Web Filter       |
| DHCP             |
| Network Settings |
| Active Directory |
| Logs             |
| Status           |

# 4. Network Edge Device – troubleshooting

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|                        | County Council         | Lancashire              |                           |                |

# 4.1. Power down Procedure

**Under normal circumstances the box <u>should not be powered down</u> but should be left on <u>at all times.</u> The performance of your Network Edge device will monitored and managed remotely If the school is aware that there is going to be a power failure in school they should contact the CLEO Office and make them aware of this. They should also power down the Network Edge Device following the correct procedure. To power down the device, press the front power switch one, a short 'beep' will confirm the power down sequence. The Device will then go through its power down sequence and give a final short 'beep' before shutting down.** 

#### DO NOT JUST UNPLUG THE LEAD FROM THE UNIT

Please inform the CLEO Office before powering off the cache box.

## 5. Technical Support

For first line support for your Network Edge device please contact: -

#### **Cumbria Schools**

Cumbria Schools Helpdesk Tel:- 01228 601225 helpdesk@cict.org.uk

#### **Lancashire Schools**

The Westfield Centre Tel:-01772 623222 call.centre@westfield.lancsngfl.ac.uk

For first line support for Espresso content please contact: -

Espresso Education LTD – Helpdesk support 0800 0345 200

CLEO Project Office Bailrigg House Lancaster University Lancaster LA1 4YE Email: office@cleo.net.uk Tel: 01524 592800 Fax: 01524 593515

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# 6. Glossary of terms

**Active Directory** – a way of storing information and settings in a database. Used by Windows Servers. It can hold user information such as username and passwords and control access making sure the network is kept secure and only permitted users can log in.

**Bandwidth** – the capacity of the CLEO connection to transfer data, usually measured in Megabits per second.

Cache / Caching - locally store information/content from the web

**CLEO** – Cumbria and Lancashire Education Online. One of the UK projects responsible for putting broadband connections in schools.

#### CLEO Dashboard -

**CLEO Network Edge Device** - a small dedicated computer (without a mouse monitor or keyboard) that will allow you to locally store information/content from the web. After initially downloading/accessing the required content it is stored on the box. When required in the future, this stored content is accessed more quickly by computers in school, as there is no need to go onto the Internet. The Network Edge device can also be used to hold e-Learning materials and will allow filtering by the school.

### **CLEO Network Edge Services** -

**Curriculum Network** – School networks are often divided into 2 sets of computers, those that are used by administration staff and contain files or records that are not suitable for widespread use. The other is the curriculum network which can often be accessed by staff and pupils and contains files and resources to support the delivery of the curriculum. The 2 networks are independent and if you access on type of network, you are unable to the other. This enhances network security

**DHCP** - Dynamic Host Configuration Protocol – the protocol or 'language' that allows the DNS to check all computers connecting to a network and makes sure they have a unique ip address

**Domain** – The naming convention that is used by the domain name server for example in an e-mail address <u>joe.bloggs@cleo.net.uk</u> – cleo.net.uk is the domain. The Top Level domain (TLD) refers to the .net.uk. Other Top Level domains include .sch.uk, .com, .co.uk. The second level domain is `cleo' and is often the company or organisations name.

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**DNS** Domain Name Server – like a network phone directory. A computer that keeps all names in one place for the computers connected to the network. This helps things like e-mail go to the right person.

**Espresso** – Espresso PLC is a company that produces interactive content for schools. Their content is accessed through a web browser on a computer

**Internet Filtering** – allows control over the internet websites that can be viewed within schools. Local Authorities maintain filters that block known sites that contain material that is illegal to view, but also material that is inappropriate such as gambling, racism. However schools can also exercise control over sites that deemed inappropriate by using the Network Edge device as a local filter as well as the Local Authority filtering.

**Internet Activity logs** - a file that is kept that contains information on times and sites visited when anyone on the network connects to the internet

**IP** – Internet Protocol, the protocol or 'language' that allows computers recognise and talk to each other on the internet. Each electronic device on the internet has a unique IP address.

**JANET** is a private computer network that has been funded by the UK Government dedicated to education and research. It provides the core infrastructure to which all schools connect.

**RBC** – Regional Broadband Consortium

**URL** – Uniform Resource locator – the unique name of a resource or webpage on the internet.

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|                        | County Council        | Lancashire               |                           |                |