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 inter-connected 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,

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

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

The dashboard url is the same for all users –

https://dashboard.cleo.net.uk
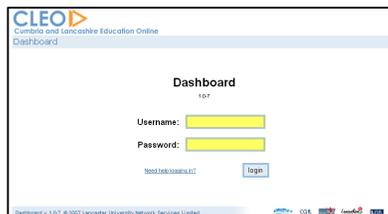
Figure 1 - Dashboard Log-in page

Enter your username and password and click 'login'

Depending on your access level, you will then see the following screen;
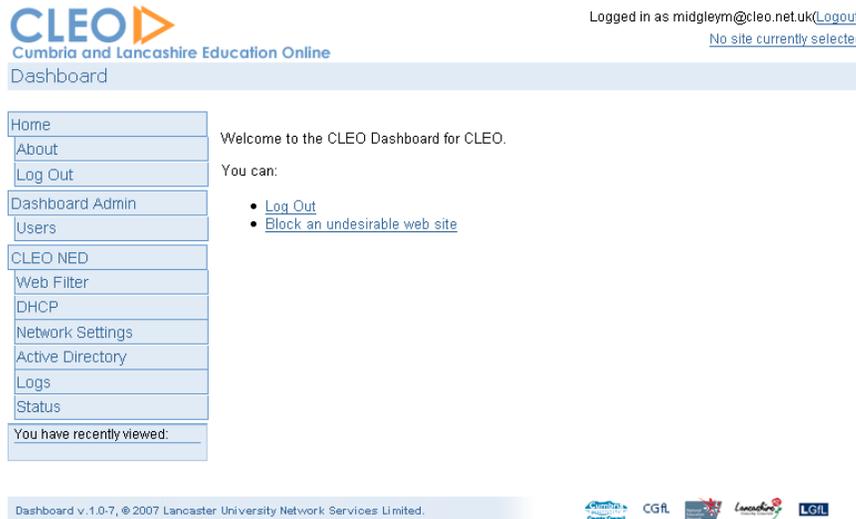
Figure 2 - Dashboard front screen

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

From this interface you can create, edit and delete users who have access to your site.

Here are a list of users within your site. You can view or delete these users below

Site Code	User Name	Description	
CLEO	midgleym@cleo.net.uk	Iain Midgley	V E D

Figure 4 - User Administration option

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

3.2.2. Web Filter

CLEO NED
Web Filter
DHCP
Network Settings
Active Directory
Logs
Status

Figure 5 - Web Filtering Menu

Home
About
Log Out
Dashboard Admin
Users
CLEO NED
Web Filter
DHCP
Network Settings

Block a web site

Your CLEO Network Edge Device lets you filter your school Internet access by blocking undesirable web sites.

Please select the site you want to edit.

Site: CLEO - CLEO

Continue →

Figure 6 - Web filter screen

office@cleo.net.uk   www.cleo.net.uk   ☎ 01524 592800 📠 01524 593515
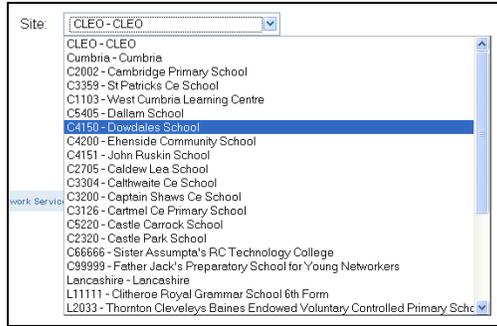
Figure 7 - Select your school

Figure 8 - Web Filtering Page
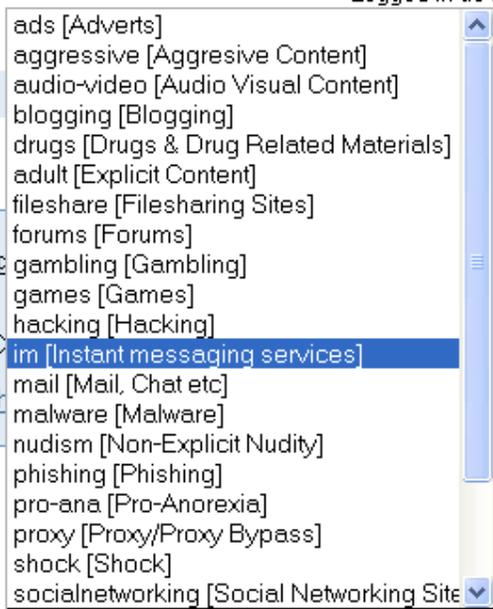
Figure 9 - Select the Appropriate Filter Category

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

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

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'.

Then choose the range of IP addresses you would like to allocate. For example 10.98.8.1 – 10.98.8.250

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
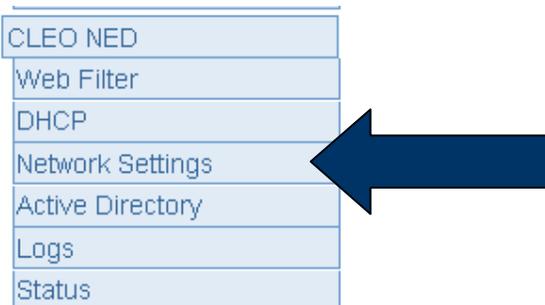
You will then see the following screen;

CLEO NED Network settings

This setting will change the IP address of your CLEO Network Edge Device within your Curriculum Network.

The IP address you give is the external IP address of your Network Edge Device and so it must be 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.

You will then see the following screen;

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
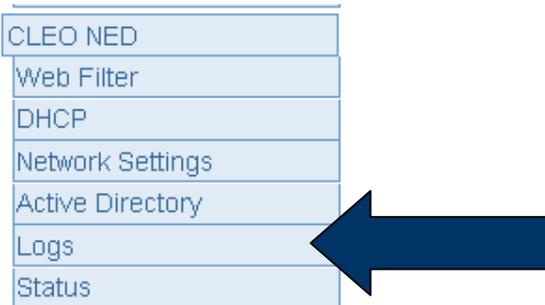
You will see the following screen;

View Log Files

The following logs are currently available for the CLEO Network Edge Device at CLEO

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

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4. Network Edge Device – troubleshooting

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: -

<u>Cumbria Schools</u>
Cumbria Schools Helpdesk
Tel:- 01228 601225
helpdesk@cict.org.uk

<u>Lancashire Schools</u>
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

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 joe.bloggs@cleo.net.uk – 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.

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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