

Agenda Item	7.
Report No	CCC/17/23

The Highland Council

Committee: Climate Change

Date: 5 October 2023

Report Title: Heating Policy for Non-Domestic Estate

Report By: Interim Depute Chief Executive

1. Purpose/Executive Summary

1.1 This report provides an update on the development and adoption of a Heat Policy for the Council's non-domestic estate and the ongoing work by the Built Estate Thematic Group in embedding the proposed policy into the Net Zero Action Plan.

2. Recommendations

2.1 Members are asked to:

- i. **Note** the development of the Heating Control Guidance; and
- ii. **Note** the work carried out to date in shaping the proposed policy.

3. Implications

3.1 **Resource** – The work is progressing as part of the Built Estate Net Zero Thematic Group – there are no ongoing resource implications, delivery of work will be met from existing resources. The application of a heating policy has the potential to generate significant financial savings.

3.2 **Legal** - There are no identified legal implications arising from this report. As staff working environments may be impacted, consultation with Union representation will be undertaken.

3.3 **Community (Equality, Poverty, Rural and Island)** – There are no direct implications arising from this report.

- 3.4 **Climate Change / Carbon Clever** – The application of, and adherence to, a Heating Policy will reduce energy consumption associated with the provision of heating to non-domestic buildings, and accordingly improve overall Energy/Net Zero performance.
- 3.5 **Risk** – There is no risk directly relating to this paper.
- 3.6 **Health and Safety (risks arising from changes to plant, equipment, process, or people)** - The application of a heating policy will ensure a consistent approach to providing a healthy work environment, compliant with H&S requirements.
- 3.7 **Gaelic** – There are no Gaelic implications arising from this project.

4. Background

- 4.1 The Highland Council does not presently have a defined policy or guidance for the provision of heating within schools, offices, leisure facilities and other types of non-domestic buildings. Although many buildings already operate within normal parameters, there are known instances where temperature setpoints and operational hours have been found to be outwith expected parameters, to the detriment of good energy performance, budget management and comfort.
- 4.2 It is estimated that overheating a space by one degree in temperature can result in up to an 8% increase in energy use and cost. With increasing costs of heating our buildings, application of this policy has the potential to generate significant financial savings and reductions in carbon emissions.
- 4.3 The application of a heating policy is also known to typically improve comfort conditions for building users through consistent and reliable delivery of heating to occupied spaces.

5. Progress to Date

- 5.1 The Built Estate and Energy Thematic Group have continued development of the policy. Proposals considered to date are highlighted in the scope of Heat Policy (Appendix 1).
- 5.2 Property Management have developed the 'Non-Domestic Heating Adjustment Guidance (Appendix 2).
- 5.3 Where appropriate the Thematic Group will undertake the appropriate consultation and the stakeholders identified for engagement include but are not limited to:
- Union representatives
 - Property Management
 - FM Staff

- Service representatives
- High Life Highland
- Building occupiers
- Service users

6. Proposed Timeline

- 6.1 The development of the Heat Policy forms an integral part of the development of the Net Zero Action Plan. Any future proposal will be presented as part of the work being developed by the Built Estate & Energy Thematic Group.
- 6.2 Under current timelines it is proposed the adoption of any future policy would commence after school Easter holidays 2024, implemented in a phased manner.

Designation: Interim Depute Chief Executive

Date: 15 September 2023

Authors: Neil Osborne, Climate Change and Energy Manager
Ronnie Macdonald, Energy Manager

Background Papers:

Appendix 1: Draft Heat Policy

Appendix 2: Non-Domestic Heating Adjustment Guidance

Appendix 1 - Proposed Scope of Heating Policy

1 Introduction

- 1.1 This policy sets out Highland Council's management approach to the provision of heating to our non-domestic property estate. It aims to comply with Health and Safety requirements, provide appropriate standards of thermal comfort conditions for staff, whilst minimising both carbon emissions and utility-related expenditure.

2 Space Temperature Limits

- 2.1 For most internal working environments, e.g. office type spaces, the Workplace (Health, Safety and Welfare) Regulations 1992 lay down particular requirements for most aspects of the working environment. Regulation 7 deals specifically with the temperature in indoor workplaces and states that:

'During working hours, the temperature in all workplaces inside buildings shall be reasonable.'

The application of the regulation is dependent on the nature of the workplace, e.g. school, office or warehouse. For schools, minimum temperatures are set out in the School Premises (General Requirements and Standards) (Scotland) Regulations 1967.

- 2.2 Table 1 defines the proposed heating levels for various building types found throughout the Council's non-domestic estate. These temperatures are in accordance with legislation and are based on guidance from the Carbon Trust, the Chartered Institute of Building Service Engineers (CIBSE) and the Health and Safety Executive (HSE).

Table 1 – Heating Levels by Site Type

Building Type	Temperature (°C)
Office Space	16 - 21
School Classroom/Office/Dining	18 - 21
School Corridor/Gymnasium	16 - 18
Nursery School	20 - 23
Additional Support for Learning School	20 - 23
Toilets/Cloakrooms	18 - 20
Enclosed Industrial Depot/Workshop	16
Store	16
Library	20 - 22
Sports Centre – Changing Room	21 - 25
Sports Centre – Sports Hall	16 - 18
Sports Centre – Pool Area	28 - 30
Museum	20 - 22
Care Home	21 - 23
Historic Building	18 - 22
Community Centre	18 - 22

Appendix 1 - Proposed Scope of Heating Policy

- 2.3** Heating shall not normally be provided to the temperature levels stated in Table 1 where the building is solely in use by cleaners, tradespeople and caretaking staff working outside of core hours (HSE guidance states that if work involves rigorous physical effort, the temperature should be at least 13°C.)
- 2.4** It is recognised that there may at times be a requirement for some buildings, or particular zones within buildings, where specific heating or cooling requirements means temperatures are set outwith agreed ranges. When such a requirement is identified, prior engagement and approval is required with the Head of Property Services and the Energy Manager, prior to altering setpoints or time schedules. Any applied variation requires definition of new settings, areas in scope and justification, and for this detail to be recorded for future reference.
- 2.5** Table 1 indicates the range of operational temperatures during the heating season for specific categories of building. These will be applied unless subject to contractual or operational necessity. The lower temperatures defined are likely to be experienced only occasionally, particularly around opening and closing hours of buildings. Normal temperatures should be maintained around the average of the upper and lower figures.
- 2.6** These temperature levels should not be regarded as the maximum temperatures which will be maintained in buildings. There will be occasions, e.g. warm, sunny days, when the internal temperatures may exceed these figures. However, they do represent a comfortable temperature that we should heat our buildings to in cool weather. (*Note - there is no legal maximum temperature for buildings*).

3 Implementation

- 3.1** Changes to Building Management Systems (BMS) shall be made in line with guidance issued by Property Services.
- 3.2** Responsible Person/s, Facilities Management and Caretaking staff shall refer to the issued documentation, "Non-domestic Heating Adjustment Guidance". If there are any queries with adjusting BMS settings, please contact automaticcontrols@highland.gov.uk in the first instance.
- 3.3** Property Services will provide support where required to help identify issues that can be addressed by building occupants as well as those issues requiring specialist support.

4 Heating Times and Seasons

- 4.1** Core heating hours are typically Monday to Thursday 08:00 to 16:00, (Friday 08:00 to 15:00) for educational buildings and Monday to Friday 08:00 to 17:00 hours for offices. Heating systems shall operate to attain temperature values as stated in Table 1 during these core heating hours.
- 4.2** Other facilities with non-standard operating patterns, e.g. Depots and Community Centres, shall advise the Head of Property Services and the Energy Manager of exceptions to core hours by emailing a completed Change Request form (*format to be agreed*). Where required, heating times shall reflect operational requirements.
- 4.3** In severe adverse weather conditions, heating systems may not be able to attain the temperature levels set out in Table 1. In this event Responsible Persons shall seek guidance from their Head of Service on actions required, in accordance with the Council's Emergency Response Procedures.

Appendix 1 - Proposed Scope of Heating Policy

- 4.4** The Heating Season shall be defined as 1st September to 31st May (proposed) during which heating systems within occupied buildings will be operational and temperatures maintained as per agreed parameters.
- 4.5** During the start and end of the heating season (up to 4 weeks), heating shall be provided during morning periods only, with the expectation that sufficient heat shall remain in the building to provide an appropriate level of comfort until end of normal occupancy. These periods shall remain under review and be subject to external weather conditions.
- 4.6** Where possible during the off season (1st June to 30th August) systems will be switched off. Settings shall only be over-ridden by staff or contractors with prior agreement of the Head of Property Services and/or the Energy Manager.
- 4.7** Hot water arrangements will not be affected by this guidance.

5 Portable Heaters/Air Conditioning Units

- 5.1** The use of portable heaters and air conditioning units is to be discouraged in all buildings unless their need is justified and approval received from the Responsible Person.
- 5.2** Responsible Persons are able to approve the use of portable heaters, but only where there is evidence that the temperatures set out in Section 2.2 have not been achieved. Use of localised space heating shall be reported to Property Services and the Energy Team (prior to method of reporting to be agreed).
- 5.3** In the event of a heating failure, relevant business continuity plans should be implemented and where possible alternative sources of heat will be provided.

6 Swimming Pools and Pool Halls

- 6.1** Swimming pools and pool hall areas are significant users of energy for both ventilation and water heating. Additionally, humidity levels require to be controlled to minimise condensation and dampness. In order to reduce the amount of energy being consumed by swimming pools, pool covers **must** be used at the end of each day and at weekends or holiday periods where the pool is not in use.
- 6.2** In line with Carbon Trust recommendations, pool temperatures will be maintained at 28 - 29°C (proposed) with an air temperature in the pool area 1°C higher to limit evaporation from the pool surface.

7 Response to severe weather

- 7.1** Severely cold weather presents a significant risk to buildings' operational abilities and frozen water pipes can lead to bursts, forcing sites to be closed for expensive repairs. Buildings' heating management systems should not be manually overridden unless specifically requested by Property Services.
- 7.2** In sites where frost protection exists, it must be set no higher than 8°C unless a specific building assessment identifies a different set level. Where a site does not have frost protection, this needs to be identified and it may be deemed necessary to turn the heating on to manual control to override the timeclock and ensure the heating is running. If the situation demands switching to manual this must be done in tandem with resetting the thermostats to maintain the minimum temperature required to prevent freezing.

Appendix 1 - Proposed Scope of Heating Policy

8 Heat Setting Reporting and Logging

- 8.1** Heating setpoints and times as detailed in Table 1 will be agreed and recorded for each property. An estate-wide database of settings will be created and maintained as a reference point in future reviews and assessments. Any authorised deviations will be updated to ensure an auditable record of heating times and settings exists demonstrating the appropriate level of authorisation.
- 8.2** When deviations from agreed settings are identified, resetting will be undertaken automatically by Property Services, Energy Team and/or Contractors.

9 Roles & Responsibilities

- 10.2** In order to embed the proposed heat policy across the Council it is important that Roles and Responsibilities are clearly defined. Table 2 sets out the responsibilities identified to date, along with the suggested responsible parties for each action.
- 10.3** Table 2 Proposed Roles and Responsibilities (subject to ongoing consultation)

Title	Roles & Responsibilities
Property Services & Energy Team	<ul style="list-style-type: none"> • Overall responsibility for implementation and oversight of the Heating Policy
Property Services	<ul style="list-style-type: none"> • Approving changes to core hours or temperatures • Provision of support for FMAs & Caretaking staff • Implementation of projects to improve energy efficiency
Energy Team	<ul style="list-style-type: none"> • Approving changes to core hours or temperatures • Monitoring compliance with Heating Policy with associated reporting • Conducting energy audits as required with identification and development of projects to improve energy efficiency
Heads of Service (All Directorates)	<ul style="list-style-type: none"> • Ensuring that Heating Policy is being followed
Responsible Persons	<ul style="list-style-type: none"> • Local monitoring to ensure guidance being followed • Verifying that pool covers are being used overnight and at weekends/holidays • Assisting in identifying energy efficiency opportunities • Approving use of portable heaters if required
FMA/Caretakers	<ul style="list-style-type: none"> • Recording heating set points and times • Ensuring pool covers are in place • Assisting in identifying energy efficiency opportunities
All staff	<ul style="list-style-type: none"> • Following the Heating Policy and only requesting changes where absolutely necessary • Closing doors and windows at the end of the day • Not adjusting locally set thermostats unnecessarily

Heating Adjustments

Building Users Guide for Non-Domestic Properties

August 2023

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Introduction

The Highland Council operates and maintains a large non-domestic property portfolio, throughout which a variety of heating systems are installed.

It is essential that the heating systems on Highland Council sites are responsibly controlled to ensure comfortable working environments for occupants, to prevent wastage of energy, to minimise carbon emissions, and avoid the premature depreciation of plant and equipment.

This document outlines the steps required for the adjustment of heating systems. It is intended as supplementary guidance to the Highland Council's forthcoming wider Heating Policy.

Heating Season

The Highland Council observes a heating season from 1st September to 31st May each year. During this time, heating systems should operate to settings appropriate for the operational need of each property.

Out with the heating season, the operation of heating systems is permitted to cater for particularly cold conditions, with notification of operation submitted to the Non-Domestic Heating mailbox (heating@highland.gov.uk). Reversion to standard operation should be made as soon as conditions permit.

During periods of warm weather during the heating season, heating systems can be switched off if not required.

Heating Controls

Controls to the heating systems across the estate vary from simple thermostats and/or timeclocks, to full building management systems (BMS). A BMS is computer-based system used to monitor and control building services such as heating, ventilation and hot water.

Building occupiers should familiarise themselves with the controls associated with their system and the operation of the same. Support with this can be provided by the Highland Council's Property Management Team if required.

Making Adjustments

Most heating systems on the Highland Council's non-domestic property estate can and should be adjusted by building occupiers. This may be the Responsible Premises Officer, their delegate or where coverage is in place, the Facilities Management team.

Figure 1 indicates the process that should be followed for heating adjustments over the summer period and all holidays/periods of non-occupancy.



To ensure frost protection to the building fabric and to prevent burst pipes over the cooler months, it is essential that the steps within this document are followed, and the power to the heat emitters and/or boiler plant is not switched off.

Step by step guides for the local adjustment of heating systems where BMS systems are installed can be found in Appendix 1 of this document.

Domestic Hot Water

Domestic hot water is the term used to describe hot water that comes out of taps and showers. Whilst energy can be saved by not heating this water during periods of non-occupation, it is important that this is managed correctly to ensure that the system is not susceptible to the proliferation of legionella bacteria.

The Highland Council use temperature for the primary control of legionella bacteria in hot and cold-water systems. Where temperature control is lost for a period of more than one week, the hot water system should be subject to pasteurisation prior to being brought back into service.¹

Pasteurisation requires the entire hot water system (storage cylinder/calorifiers and pipework) to be heated to a temperature higher than 70°C. Due to the complexity of domestic water services installations on Highland Council sites, it is unlikely that this will be achievable on every site and as such, disinfection will need to be carried out as the primary means of recommissioning.²

Recommissioning of domestic water services requires attendance by specialist contractors who are trained in the use of chemicals and associated treatments. As such, timeclocks for domestic hot water should not be adjusted unless a recommissioning plan is in place and agreed in writing with the Property Management Team in advance.

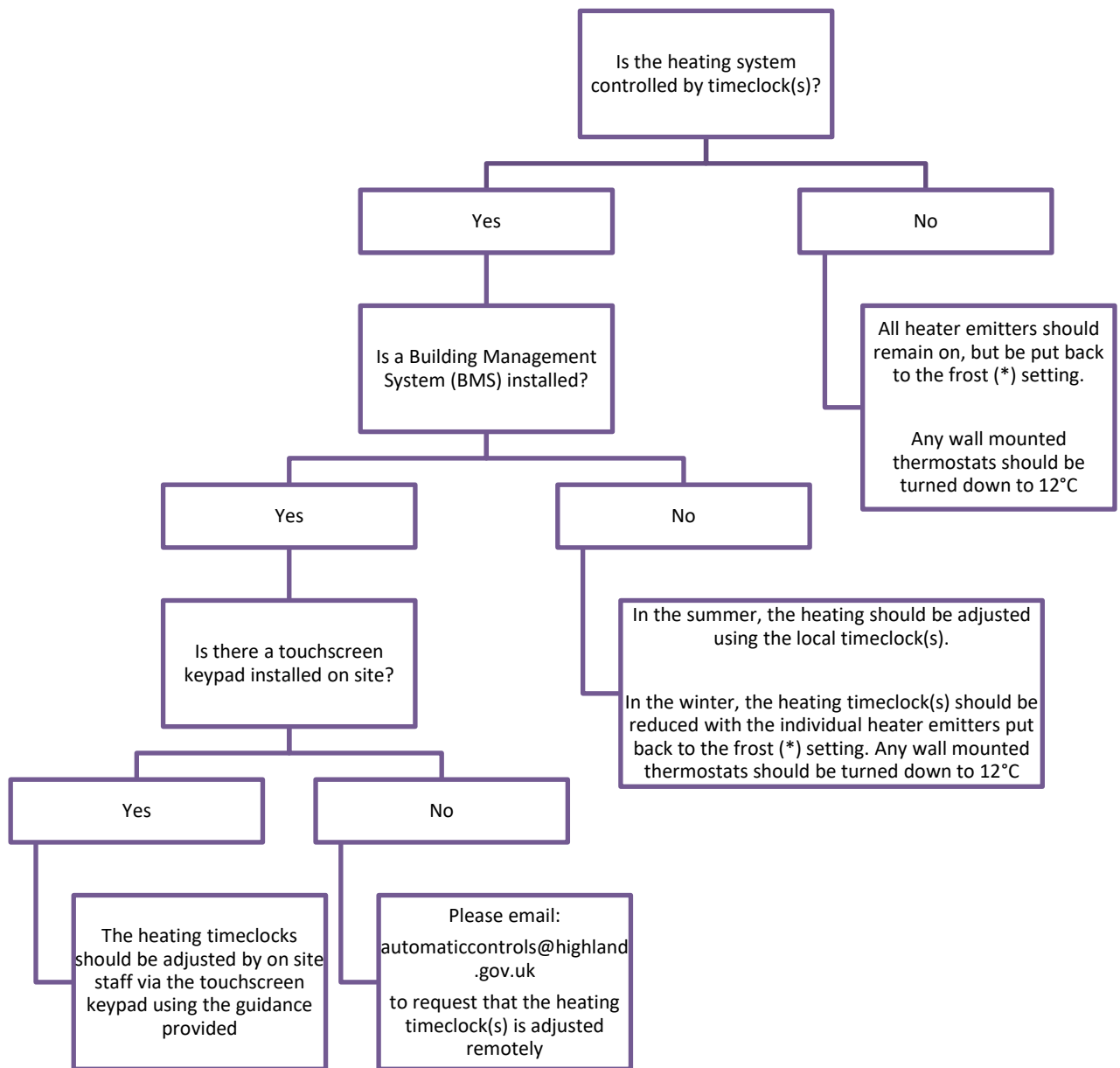
Regardless of timeclock operation, during periods of non-occupation, the RPO must ensure that infrequently used outlets are flushed on a weekly basis. All flushing activities must be recorded.

¹ Chartered Institute of Building Services Engineers TM13:2013 Minimising the risk of Legionnaires' disease. 5.3.3 Operation and Maintenance.

² BSRIA BG58/2015 Legionnaires' Disease – Operation and Maintenance Log Book. 6.7 Pasteurisation of Calorifiers.



Figure 1. Process for Heating Adjustments



Appendix 1 Building Management Systems

The Highland Council have an assortment of building management systems across their estate. These are largely divided into the following system types:

1. Priva HX
2. Priva Blue ID
3. Tridium

The following pages will describe how each of these systems can be adjusted on site, where touch screen keypads exist.

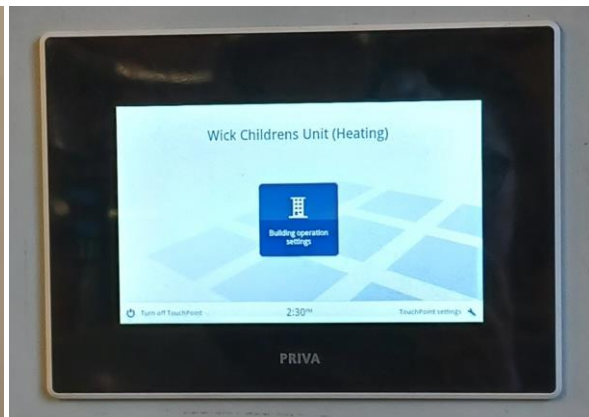
If you encounter difficulties or require further guidance for making timeclock adjustments via the BMS on your site, please email automaticcontrols@highland.gov.uk



Appendix 1a Priva HX and Priva Blue ID Instructions

Priva Building Management Systems

Priva Blue ID and Priva HX Systems will normally have controllers installed similar to the ones below:



The controller will normally be mounted on the front of plant room control panel and is touch screen operated.

If sites have two controllers, one in a biomass cabin and one in a plant room internal to the building, both may need to be checked for the heating timeclock – it is recommended to check the internal building one first.

Login

You will be asked to login:

Username: **facilities**

Pin number: **1107** or **4321**

Menus

Once you have logged in, there will be a menu which will relate to the functions available on that site. There are arrow options to scroll up and down, or to return to the previous screen.

As the control systems are bespoke to each installation, there will be different menus available for each site.

You will need to find the menu for heating timeclocks. For smaller sites, this may be on the front page once you have logged in.

For larger, more complex sites, you may have to go further into the menu and scroll between pages. You may have to try different combinations before finding the correct page.

Heating circuits also may be referred to as 'VT', 'LPHW' and/or 'LTHW' depending on the site. Alternatively, they may be referred to as different 'zones'. There may be more than one of each on larger sites, and all will need to be turned off.

Where circuits are referred to as 'CT' these should be left on over holiday periods as these are likely to be linked to ventilation and domestic hot water plant.

Once the heating timeclock page has been identified, select 'off' for each day. Where there is no 'off' option available, reset the time clocks so that they do not have any operational hours listed (i.e. 00:00 – 00:00).

Where there is an option to save the changes, select save.

Log out on completion.

Reinstatement

To reinstate the timeclocks, the above steps should be followed, with the heating being set to 'automatic' for each required day, instead of 'off'. This will revert the system to operate via the timeclock settings.

If 'on' is selected instead of 'automatic', the heating will run continuously regardless of the timeclock. This should not be done under any circumstances.

Where there is a requirement to enter or adjust operational hours, this should be done but only for the times that the building or zone requires heat during occupation (e.g. 08:00 – 12:00 Monday to Thursday and 08:00 – 11:00 on Friday).

Log out on completion.

Appendix 1b Tridium Instructions

Tridium Building Management Systems

Tridium Systems will have controllers like the one below:



The controller will normally be mounted on the front of plant room control panel and is touch screen operated.

If sites have two controllers, one in a biomass cabin and one in a plant room internal to the building, both may need to be checked for the heating timeclock – it is recommended to check the internal building one first.

Login

You will be asked to login:

Username: **Facilities**

Password: **Facilities4321**

Or

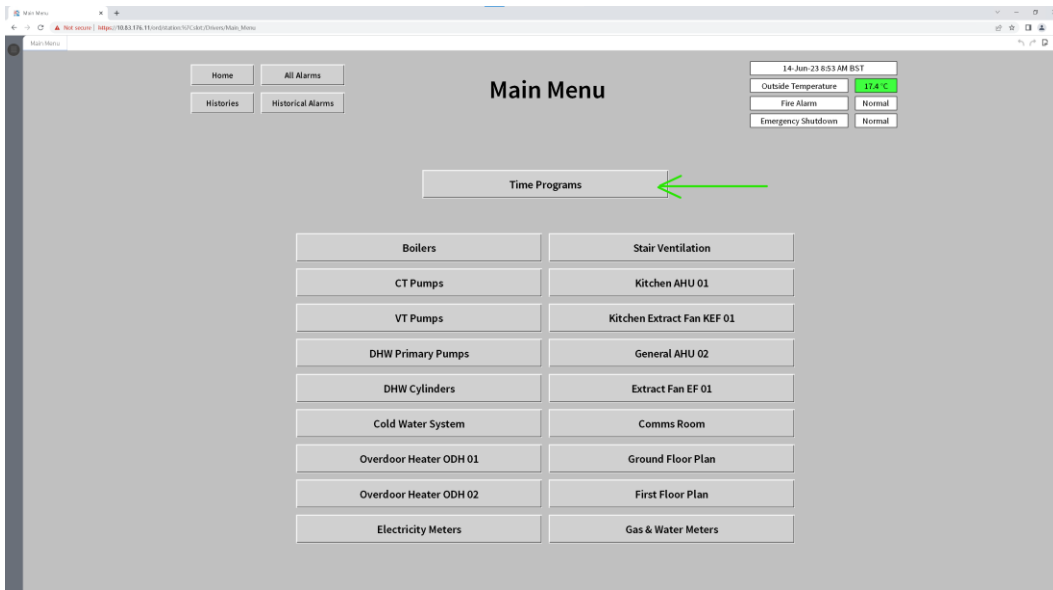
Username: **bms**
Password: **bms12345**

Menus

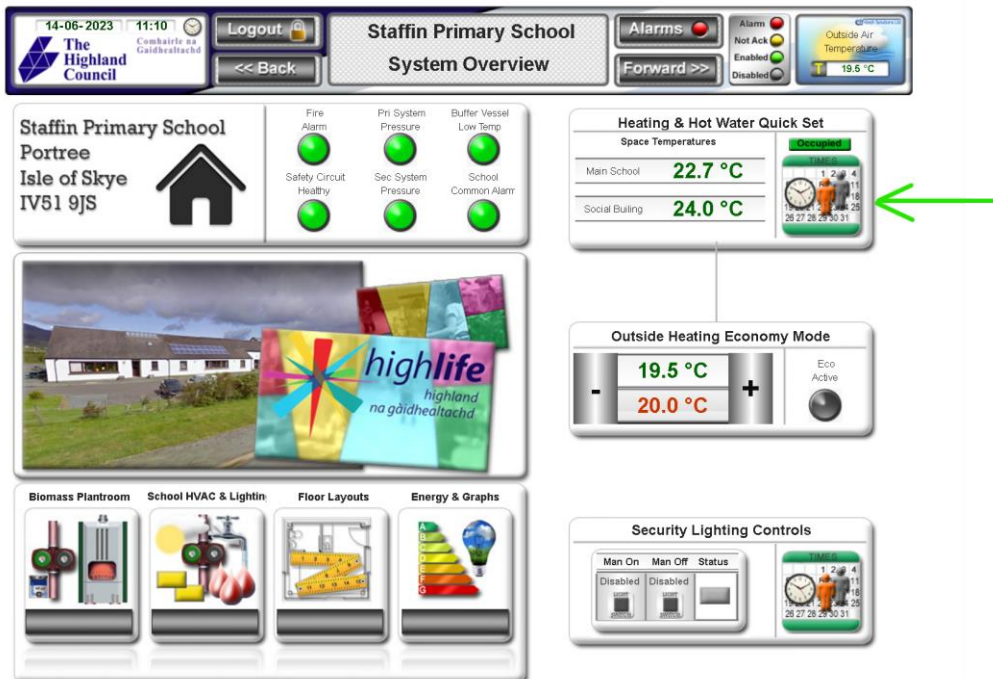
Once you have logged in, the site details will be displayed on a web browser page and there will be a menu which will relate to the functions available on that site.

As the control systems are bespoke to each installation, there will be different menus available for each site.

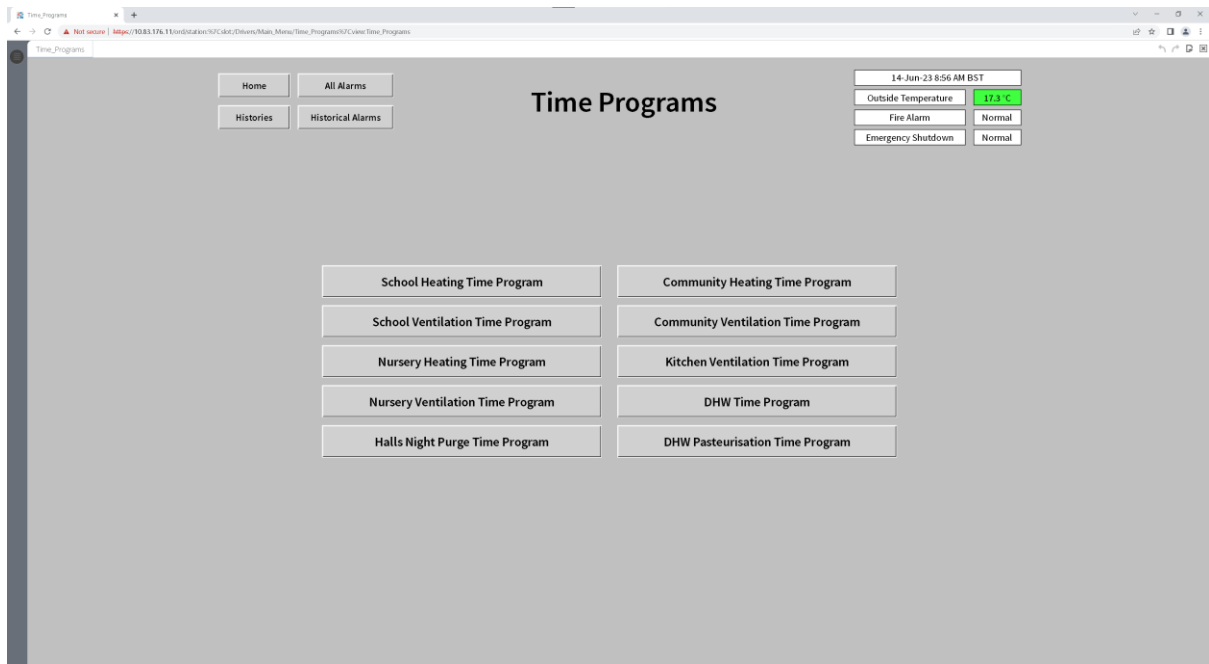
You will need to find the menu for heating timeclocks. The following are examples of where heating timeclocks can be found on various Tridium systems:



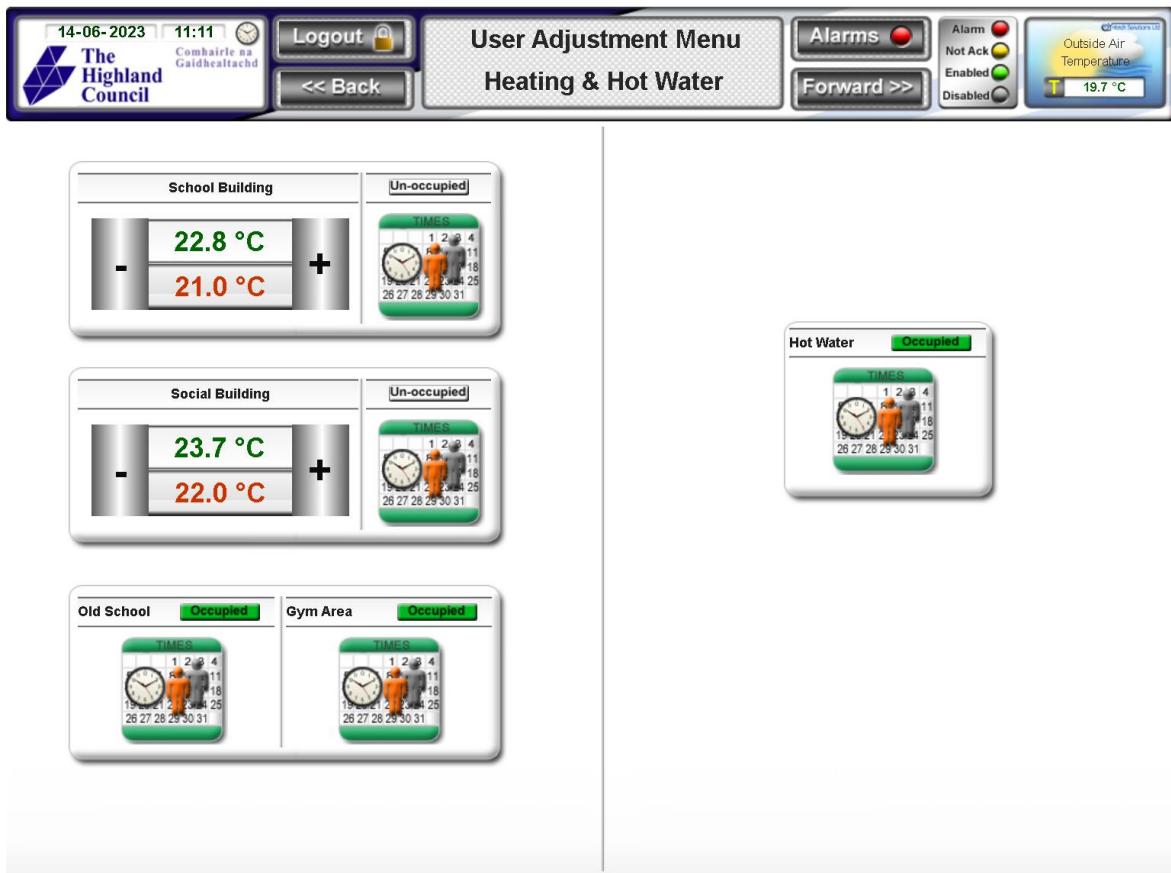
Or alternatively:



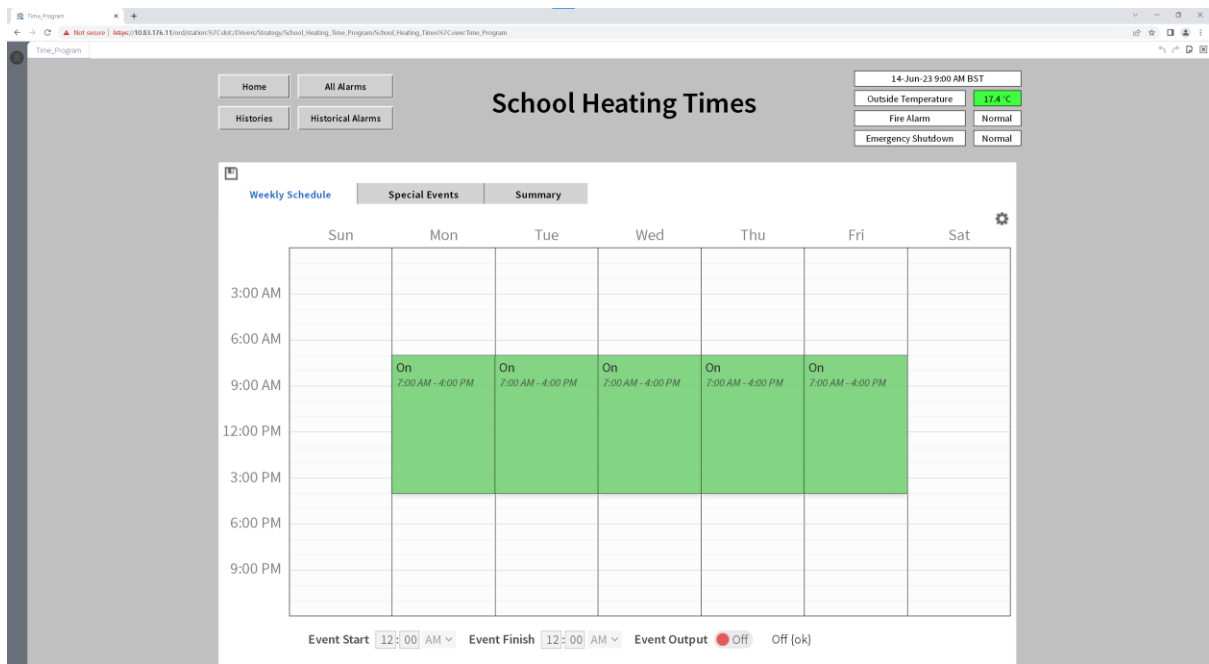
Once you have reached the time clock menu(s), you will then need to select the timeclock(s) that you wish to alter. This is done clicking on the corresponding button:



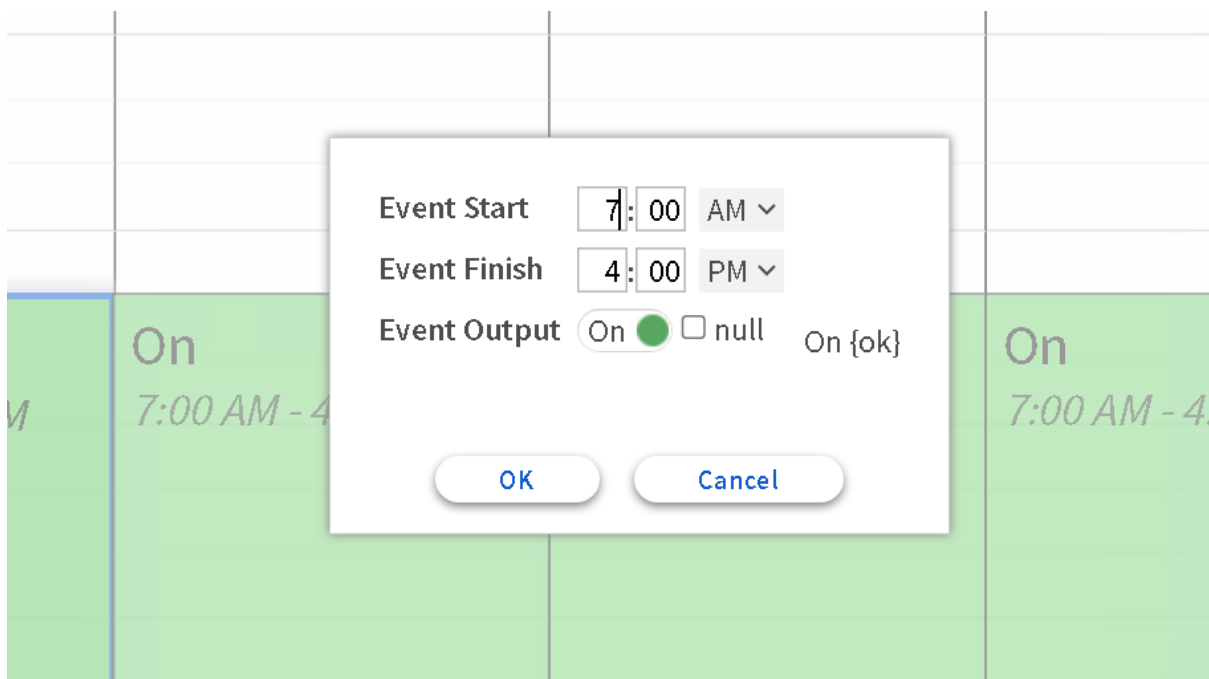
Or alternatively:



Once in the specific timeclock, the heating schedules will be displayed as follows:



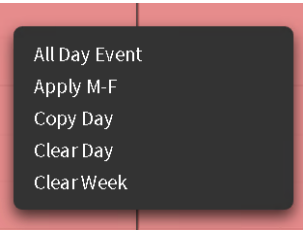
Select the day that you wish to edit by clicking on the column for the same. This will open up the following Event Menu:



If the heating requires to stay on, but the hours need to be amended, key in the new start and finish times, and select 'OK'.

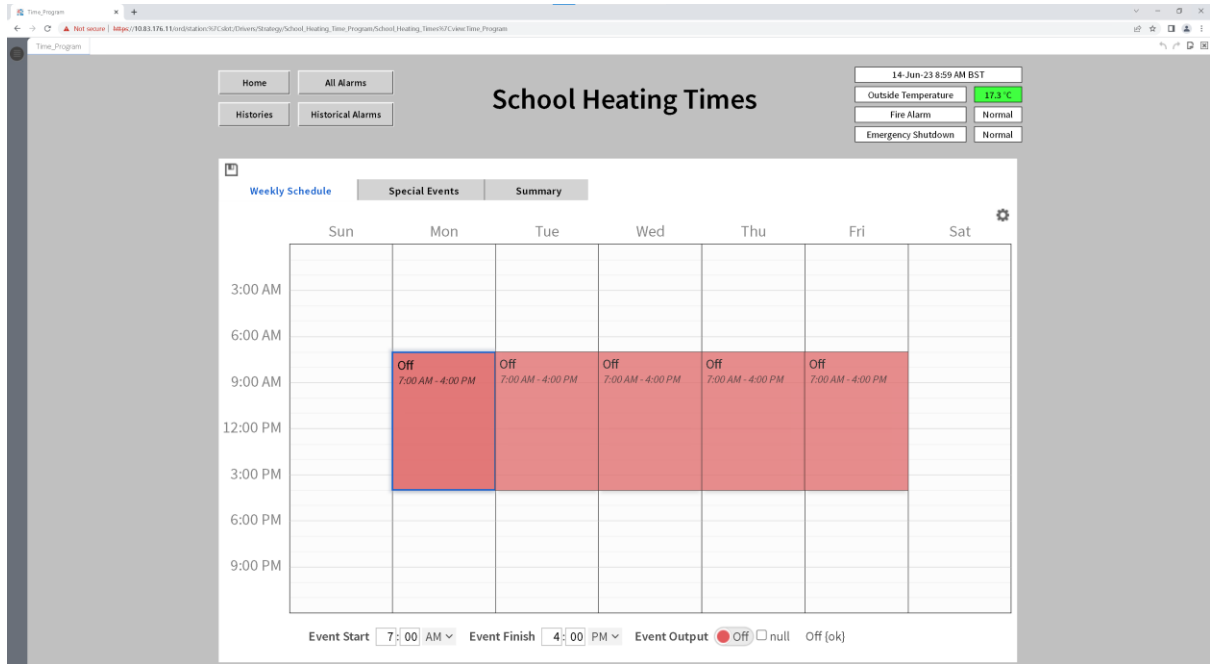
If the heating is not required to be on, press the Event Output toggle until 'Off' is displayed, and select 'OK'.

On most Tridium systems, pressing and holding on any day schedule will bring up a further menu:

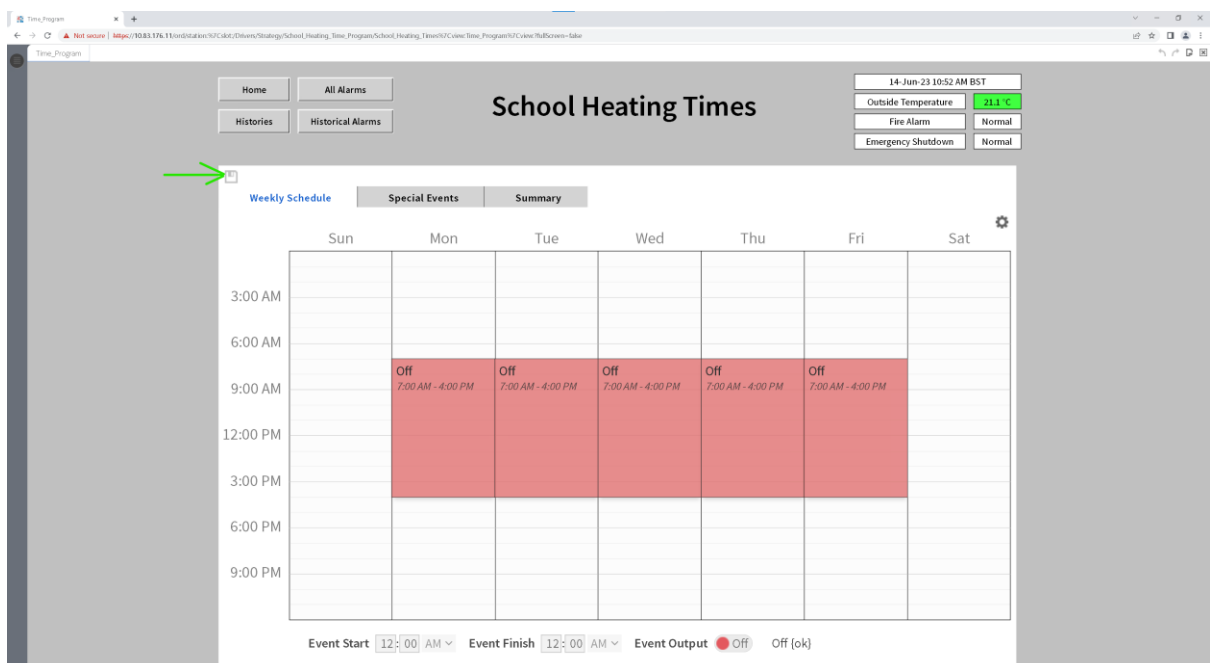


This shortcut can be used to apply changes to multiple days or working weeks.

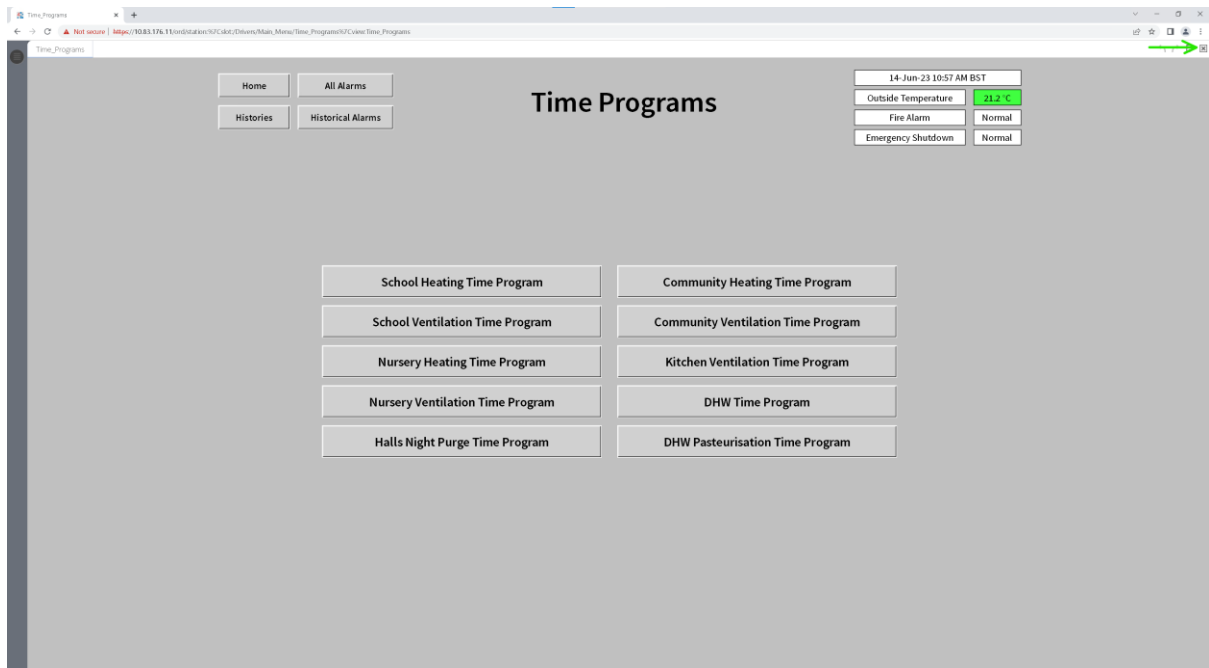
If any changes are made to turn the time clocks off, the time schedule will then change to red to indicate that it is off for the times selected:



Once the required changes have been made, they need to be saved. This is done prior to exiting the page, using the 'save' icon:



Log out on completion by clicking the small 'x' in the top right-hand corner of the screen:



Reinstatement

To reinstate the timeclocks, the above steps should be followed, with the heating being set to 'on' each day, instead of 'off', using the toggle within the Event Menu.

Where there is a requirement to adjust operational hours, this should be done but only for the times that the building or zone requires heat during occupation (e.g., 08:00 – 12:00 Monday to Thursday and 08:00 – 11:00 on Friday).

Log out on completion.