



Feature Guide
ECOS Key Management
V2.17.01.2



Workforce Management Solutions
Securing your time and resources

Contents














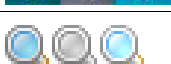
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1 REVISION

VERSION	DATE	AUTHOR	COMMENTS
1 (V1.0)	Sept 2014	Cindy-Lee van der Walt	Initial Version
2 (V2.0)	Feb 2015	Cindy-Lee van der Walt	Updates
3 (V3.0)	June 2015	Cindy-Lee van der Walt	Updates
4 (V4.0)	November 2015	Cindy-Lee van der Walt	Updates
5(V5.0)	December 2015	Cindy-Lee van der Walt	Added wiring diagram
6(V6.0)	2016-05	Kaibe Mafatle	Update wiring diagram
2.17.01.2	2017-04	Cindy-Lee van der Walt	

2 BUTTON DEFINITIONS

There are three states of the new buttons: browse, inactive and hover

	Insert	Add a new item to a selected category
	Edit	Enter into edit mode to allow you to make changes to a selected entry.
	Delete	Delete the entry you currently have selected. You will receive a warning box before the deletion becomes final.
	Save	Save the information you have entered / edited.
	Exit or Cancel	Exit without saving changes.
	Print Preview	Displays on screen a preview of that pages that will be printed.
	Print	Sends the information to the default printer.
	Print to Excel	Prints the Report to an Excel Workbook
	Save to csv	From the print preview the report can be saved as a csv file
	Down Arrow	Move selected data down
	Left Arrow	Move selected data left go back
	Right Arrow	Move selected data right go forward
	Up Arrow	Move selected data up
	Browse	Enables you to search the directories on the computer for a file / picture.

3 PREAMBLE

ECOS Key Management System will serve as the main system controlling returns and removals of Keys allocated to authorised employees. XTime will ensure employees don't not gain access to an Area without a key and also prevent an employee from exiting without the Key being returned. This will be done by means of certificates in XTime and the equipment feature.

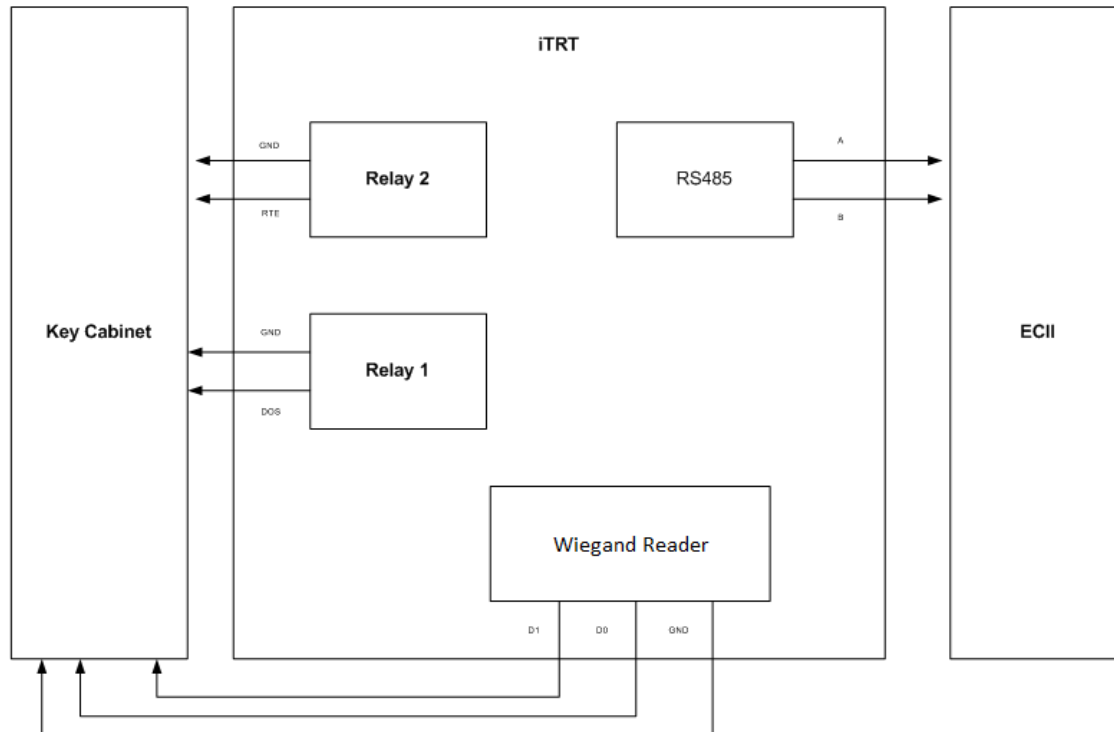
4 SOFTWARE AND FIRMWARE VERSIONS

Please take note of the Minimum Requirements for the Key Management System to function correctly:

- ✓ Montre Server App version 1.2014.6.2 or newer
- ✓ ECII firmware version 2.70 or newer
- ✓ XTEcos Key Control Add-in V1.2014.9.0
- ✓ XTEcos Sync Service V1.2015.6.0

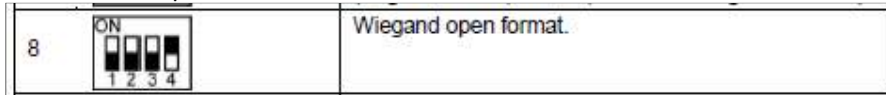
NOTE: It is always advisable to use the latest release software and firmware available on the Skycom website.

5 WIRING DIAGRAM



The iTRT must be set to Open format:

- DIP-switch position:



6 PROPERTIES FILE ENTRIES

6.1.1 ECOS DATABASE CONNECTION

Firstly, the connection string to the ECOS database needs to be entered in the properties file:

```
Database.ECOS.Type = MSSQL
DataBase.ECOS.Name = \\Obama\SQL2012\ecosSQL
Database.ECOS.User = sa
Database.ECOS.Password = ABCD
```

Each additional database must be entered separately:

```
Database.ECOS.Type = MSSQL
Database.ECOS.Name = \\OBAMA\SQL2012\ecosSQL
Database.ECOS.User = sa
Database.ECOS.Password = SA

Database.ECOS2.Type = MSSQL
Database.ECOS2.Name = \\192.168.104.112\SQL2012\ecosSQL2
Database.ECOS2.User = sa
Database.ECOS2.Password = SA

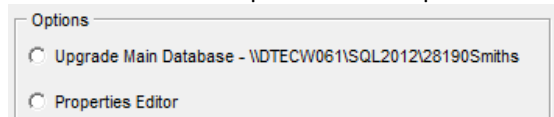
Database.ECOS3.Type = MSSQL
Database.ECOS3.Name = \\DTECW061\SQL2012\ecosSQL3
Database.ECOS3.User = sa
Database.ECOS3.Password = SA
```

PLEASE NOTE:

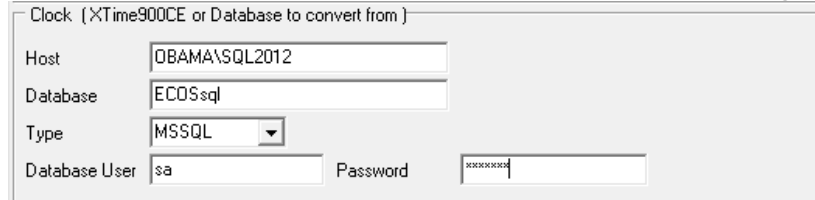
There must be no gaps in the numbering.

- Example if there are 3 databases
- ECOS , ECOS2,ECOS3
- Not ECOS,ECOS4,ECOS5

To setup an encrypted login as with the XTime details, run the Get Upgrade Queries application found in the XTime folder. Select the Properties Editor option:



Use the Clock section to enter in the connection details and click the green tick when done:



Open the XTIME.PROPERTIES file in the XTime folder and scroll to the bottom of the file. This is where the entries will have been added. Remove the Database.Clock.User and Database.Clock.Password entries:

```

DataBase.Clock.Name = \\OBAMA\SQL2012\ECOSsql
DataBase.Clock.Type = MSSQL
Database.Clock.Login = XGXFY-GXDYK-TCJKK-HXCTC-LTNCJ-KLCKX-JATLX-HNDTK
Database.Clock.User = sa
Database.Clock.Password =
  
```

Replace the word Clock with the word ECOS and delete the User and Password lines. Your login details are now encrypted.

```

DataBase.ECOS.Name = \\OBAMA\SQL2012\ECOSsql
DataBase.ECOS.Type = MSSQL
Database.ECOS.Login = XGXFY-GXDYK-TCJKK-HXCTC-LTNCJ-KLCKX-JATLX-HNDTK
  
```

7 FUNCTION TO BE ADDED TO THE ECOS DB

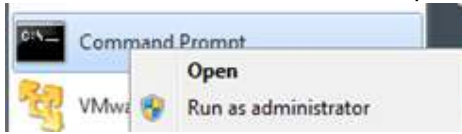
The following function must be run on each ECOS database:

```

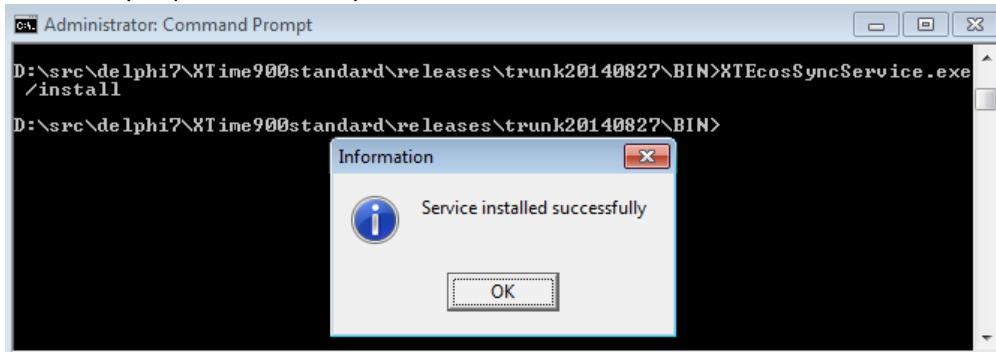
create function [dbo].[hex2int](@s varchar(16)) --Convert hex to
returns bigint -- e.g. select dbo.hex2int('7ff2a5')
as begin
    select @s=upper(@s)
    declare @i int, @len int, @c char(1), @result bigint
    select @len=len(@s), @i=@len, @result=case when @len>0 then 0 end
    while (@i>0)
        begin
            select @c=substring(@s,@i,1), @result=@result
            +(ASCII(@c)
            -(case when @c between 'A' and 'F' then 55
            else case when @c between '0' and '9' then 48 end
            end))
            *power(16, @len-@i)
            ,@i=@i-1
        end
    return @result
end -- while
return @result
end -- function
  
```

8 XTECOS SYNC SERVICE

This service sends the tags to the ECOS database to allow the validation as ECOS is the master system. Place the XTECOSSyncService.exe in the XTime folder. Open the command prompt as an administrator. This is very important as the service will not install correctly if not run as administrator:



Navigate to the XTime folder where the XTECOSSyncService.exe is located. Then type in XTEcosSyncService.exe followed by a space followed by /install:



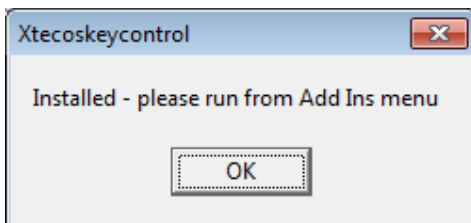
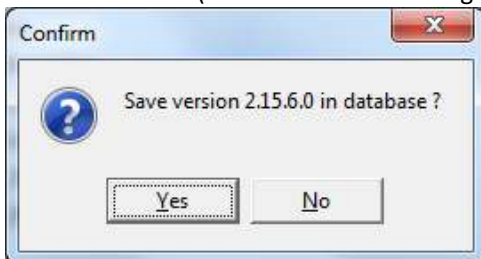
An Information pop-up should alert you that the service has installed successfully.

Navigate to **Control Panel | Administrative Tools | Services**
Search for the XTEcosSyncService in the list and start the service.



9 KEY CONTROL ADD-IN

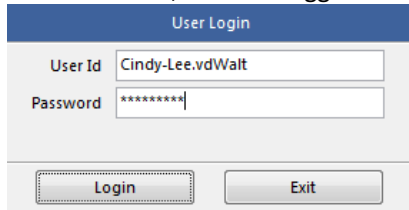
This is where the Key certificates are set that links employees to the key validation if they are issued with the certificate. Navigate to the XTime folder and search for the XTECOSKeyControl.exe. Double click on this and select "Yes" to install it (the version number might differ from the screenshot below):



10 XTIME EQUIPMENT SETUP

10.1.1 LOG IN TO XTIME

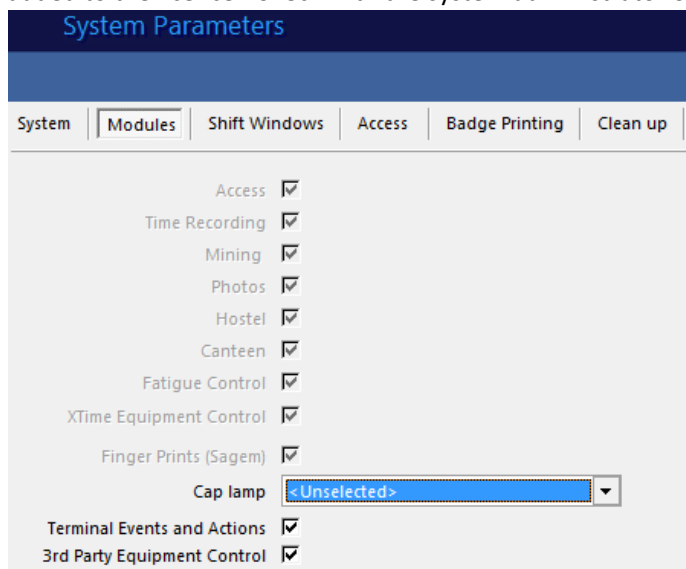
In order to setup the Key control you need to be an administrator on the XTime system. If you are using windows authentication, the user logged in must have local admin rights or certain functions will not be available:



The image shows a 'User Login' window with two input fields: 'User Id' containing 'Cindy-Lee.vdWalt' and 'Password' containing '*****'. Below the fields are two buttons: 'Login' and 'Exit'.

10.1.2 SYSTEM PARAMETERS

Navigate to **CODES | CONFIG | SYSTEM PARAMETERS**. On the “**MODULES**” tab, check that the “XTime Equipment Control” is checked. This is included in the licence and if there is no tick in the checkbox, then the feature must be added to the licence. Check with the system administrator or contact your nearest branch specialist.



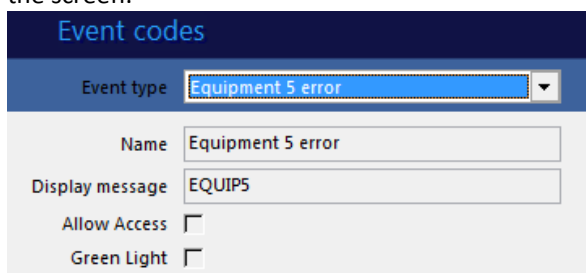
The image shows the 'System Parameters' window with the 'Modules' tab selected. A list of modules is shown with checkboxes: Access, Time Recording, Mining, Photos, Hostel, Canteen, Fatigue Control, XTime Equipment Control, Finger Prints (Sagem), Cap lamp (set to '<Unselected>'), Terminal Events and Actions, and 3rd Party Equipment Control. All checkboxes are checked.

10.1.3 EVENT TYPE

Navigate to **CODES | ACCESS | EVENT TYPE** on version 2.15.01.5nn or **CODES | ACCESS | CLOCK EVENT TYPE** on version 2.15.10.nn. Select an Equipment 1 Error from the drop down and click on the Yellow edit spanner at the bottom right of the screen to edit the name:

NOTE: The V2.15.01.5nn does not have the System Description label on the screen. This was added in a later version.

Select any of the Equipment Error types from 1 to nine and click on the yellow edit spanner at the bottom right of the screen:



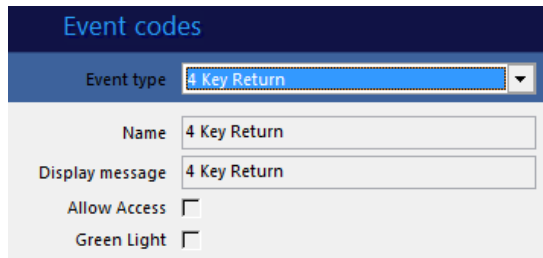
The image shows the 'Event codes' window. The 'Event type' dropdown is set to 'Equipment 5 error'. Below it are fields for 'Name' (Equipment 5 error) and 'Display message' (EQUIP5). There are also two checkboxes: 'Allow Access' and 'Green Light', both of which are unchecked.

The only 2 fields available for editing are the Name and the Display message:

Name: displayed on the clock history (30 characters long)

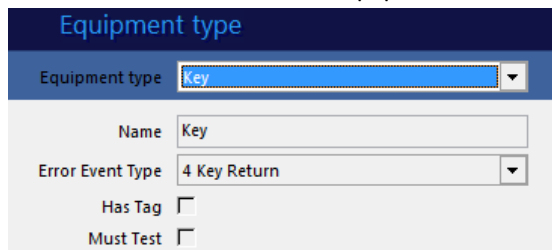
Display Message: displayed on the terminal (16 characters long)

This event is set-up for when an employee tries to clock out without returning the key. The names used are for the client's discretion and do not need to be the same as the example below:



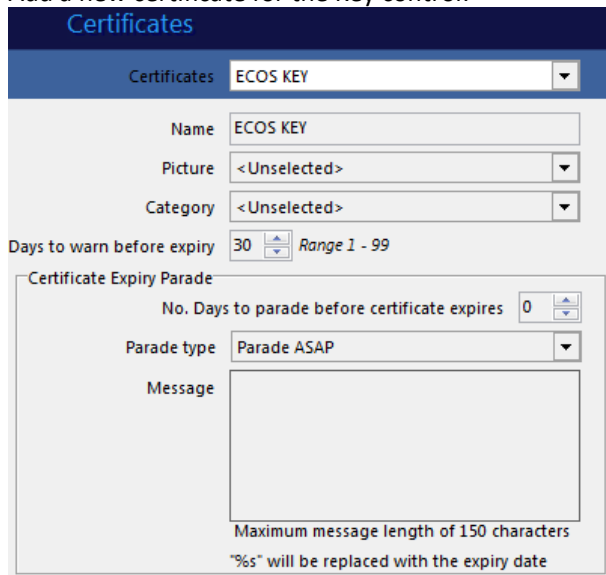
10.1.4 EQUIPMENT TYPE

Navigate to **CODES | CONFIG | EQUIPMENT TYPE**. Click on the blue plus button at the bottom right of the screen. Add an equipment type "Key" (it is up to the customer what this is called) and link it to the Error Event Type you altered in the step above. Make sure you leave the "Has tag" and "Must Test" unselected. If these parameters are not visible, it means that the equipment control is not activated. Contact your system administrator.



10.1.5 CREATE KEY CERTIFICATES

Navigate to **CODES | ACCESS | CERTIFICATES** from the main menu on the left: Add a new certificate for the Key control:



Days to warn before expiry:

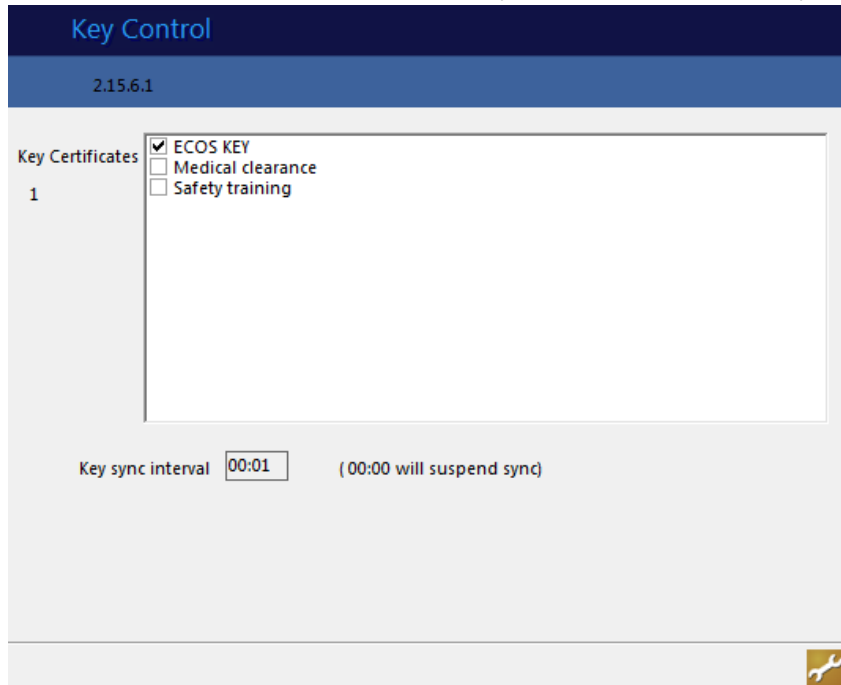
This will show a countdown on the reader from the parameter set. Example: if the parameter is set to 10, the reader will show a message with the name of the certificate followed by a number from 10 days and lower on each day that the parameter is valid.

Certificate Expiry Parade:

A parade can be setup when a certificate is due to expire. Set the “No. of days before certificate expires” parameter, the parade type and a message. The batch will create the parade and it will be visible under the post-date | parades screen of the employee record. The parade is only created on the day that it becomes valid according to the parameter set.

10.1.6 LINKING THE CERTIFICATE TO THE KEY CONTROL

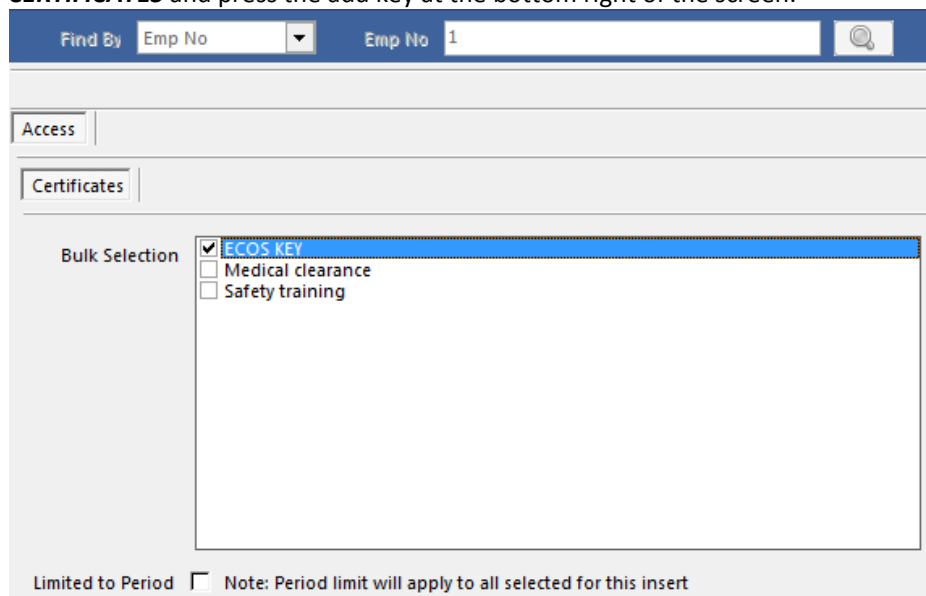
Navigate to **ADD INS | CONFIG | KEY CONTROL**. There will be a list of certificates to choose from. Click the edit button and tick the checkbox next to the Key certificate created in the previous step:



Enter a time value in the Key sync interval block. This is the amount of time that passes before new | changed data gets sent to the ECOS database. When you have selected the certificates and entered an interval time, please click on the green tick to save your changes.

10.1.7 ISSUE THE CERTIFICATE TO AN EMPLOYEE

Issue the Key certificate to all employees that are permitted to have keys. Navigate to **EMPLOYEES | ACCESS | CERTIFICATES** and press the add key at the bottom right of the screen:



Select the Key certificate and Limited to period if there is an expiry date for the employee to be able to access the Key boxes. Then click the save button.

The process is now as follows:

Any of the certificates that are issued to an employee | contractor (visitors are not included) that is listed in the Key Control list will be sent to the ECOS database. A record of the tagholder, his tag and the expiry date of the certificate is loaded in their database. If the tagholder is discharged, suspended or expired, this date becomes the end date in the ECOS database. If the tagholder has more than one certificate that is a Key control certificate, the earliest expiry date is used as the End date.

10.1.8 EQUIPMENT ISSUE | RETURN TERMINAL

The equipment feature in XTime 900 is used to issue | return and validate whether or not the key has been returned:

Navigate to **CODES | CONFIGURATION | TERMINALS** and click on the add button:

Company	Test Company 1	
Controller Server	Test Server 1	
Controller Engine	Test Engine 1	
Controller	Test ECII	
Name	ECII Bottom Out	Term Id : 8{08} 01010208
Unit type	Twin Reader Terminal	
Clock Point	ECII MDRs Bottom	
Function	Equip Issue / Return	
Direction	Switched	ECII MDRs Bottom
Relay Terminal		
Display Terminal	ECII PTTA Out	
Fixed address	0056D9A9	
Version	4.06	
Events and Actions	<input type="checkbox"/>	
Enabled	<input checked="" type="checkbox"/>	

The important settings are:

Function: This must be set to Equip Issue / Return

Direction: This must be set to Switched

Display Terminal: This must be set to the access terminal’s clockpoint where the employees will be checked if they have returned their key.

Enabled: Ensure that the terminal is enabled otherwise it will not function.

Click on the params tab:

Push Button Present: This must be ticked

Equipment Type: This must be set to **Key (or whatever name the client gave for this equipment)**

Terminal **ECII Bottom Out**

Main | **Params**

Relay Number

Relay Timeout

Display Timeout

Breathaliser TimeOut

Breathaliser

Visitor drop box

Contacts Enabled

Finger reader attached

Push Button Present

Pin validation

Relay Action

- Nothing Present.
- Red Light Present
- Green Light Present
- Buzzer Present

Equipment Type

Finger On Card

10.1.9 CLOCKPOINT OF THE ACCESS TERMINAL

Navigate to **CODES | CONFIGURATION | CLOCKPOINTS | CLOCKPOINTS:**

Select the clockpoint where the employee will be checked for keys or click the add button to create a new one: On the params tab, edit and tick the XTime Equipment Control checkbox and click save.

Clock Points **PTA Out**

Settings | Certificates | **Params** | Equipment | Restrict Clock Reasons

Visitor retrieve card on expire only

Multi Badge Sequencing

Emergency

Lockdown

Validate Leave

Tag Only if no fingers

Visitor expires on exit

Delete visitor tag on expiry

Alcohol testing

Validate Fatigue

Validate overtime

3rd Party Equipment Control

Third party system Disabled LMS

Third party equipment validation

Allow access when offline

XTime Equipment Control

Validation enabled

On the Equipment tab, this is now displayed because the XTime Equipment Control parameter has been activated:

Clock Points PTA Out				
Equipment Type	Required In	Required Out	Auto Issue	Auto Return
Lamp	No Check	Must be Returned	False	False
Loco Lamp	No Check	Must be Returned	False	False
Rescue Kit	No Check	Must be Returned	False	False
Key	No Check	Must be Returned	False	False

Click on the add button:

Equipment Type Key

Required In No Check

Required Out Must be Returned

Auto Issue

Auto Return

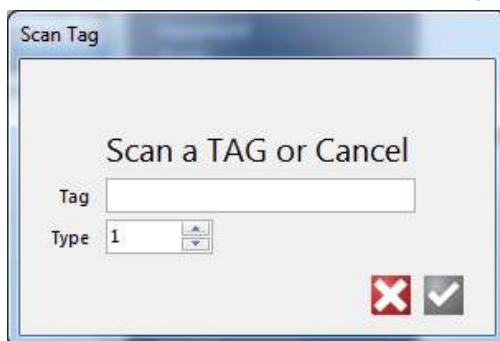
- Equipment Type:** Select the key type equipment
- Required In:** No Check as this is only checked on the out terminals
- Required Out:** Must be returned
- Auto Issue:** none
- Auto Return:** none

11 OVERRIDE FUNCTION BADGE

An override function badge can be loaded to override key validations in cases where a controller may be down and the return of a key is not sent to the controller. This would prevent the employee from exiting as he would constantly get a Return Key error.

Navigate to **TAGS | FUNCTION BADGES:**

Click on add to create a new function badge. Place the new tag on the IXP220 Registration reader:



- Select the Tag function as Override:
- Select the functions allowed by checking the box to the left of the function description:
- Then click the save button

If there is already an override tag that you just want to add the function to, scan the tag in and click the edit button. Select the Equipment function and click the save button.

PLEASE NOTE:

This function overrides ALL equipment validation and should be issued and used with caution. There should always be a Responsible Employee assigned to the tag for auditing purposes.

Tag Number: 208281617755
 Tag Type: 1
 Tag function: **Override**
 Responsible Emp.: 00081527
 Functions allowed:

- Anti-passback
- Zone
- Shift
- Certificate
- Parade
- Vehicle sequence
- Finger
- Lockdown
- Expiry
- Fatigue Rest
- Excessive Overtime
- Equipment

12 HOW THE INTERFACE WORKS

There are 2 tables that are populated by XTime. One holds an employee record and the other holds the tag number. The table names are `TblMitarbeiter` and `TblDefMitSecurity`.

MitarbeiterID	Name	Vomame	Strasse	PLZ	Ort	Telefon	Fax	Mobil	Mail	Position	PersonalNr	UserVisible	MitGroupName	SchrankSQLID	SentOriginal
1	230	2	J Scott	NULL	NULL	NULL	NULL	NULL	NULL	NULL	2	1	0	0	0
2	231	G4S01	AO EMPLOYEE	NULL	NULL	NULL	NULL	NULL	NULL	NULL	G4S01	1	0	0	0
3	232	G4S02	S GUARD	NULL	NULL	NULL	NULL	NULL	NULL	NULL	G4S02	1	0	0	0

MitarbeiterID	SchrankPIN	CardID	AktivDate	EndDate	SchrankPIN2	AllTimeKeyAccess	IsAdmin	FP	AlcMultiKey	
1	230	NULL	YYYYYYYY2005DB4714	2013-07-08 00:00:00.000	2014-09-01 00:00:00.000	NULL	0	0	NULL	0
2	231	NULL	YYYYYYYY4D0006649A	2013-07-19 00:00:00.000	2099-12-31 00:00:00.000	NULL	0	0	NULL	0
3	232	NULL	YYYYYYYY4C00AE10E6	2013-06-01 00:00:00.000	2099-12-31 00:00:00.000	NULL	0	0	NULL	0

The rules for updating the ECOS database via the Sync are as follows:

1. Any tagholder that has a valid active tag and any of the pre-selected certificates (in the Key Control add-in) will be synced to the ECOS database.
2. The following event dates are taken into account when determining the end date (expiry date) of a tagholder on the ECOS database:
 - a. The discharge date;
 - b. Tag expiry date;
 - c. Access expiry date;
 - d. Certificate expiry date;
 - e. Suspended status;
3. All these dates are considered when determining the End date. The date that is the earliest will be taken as the End date.
4. If a tag is removed from a tagholder, the tag record will be removed from the ECOS system.
5. If a temp tag of the same technology is given to a tagholder, the tag number and expiry date will be adjusted in ECOS (A temp tag is only valid for a period of 24 hours from the time of issue)
6. If a tagholder has more than 1 tag of different technologies on his record, all the tags will be sent to the ECOS database.

******* END OF DOCUMENT*******