



CAC-GUI and CAC-Manager User Manual

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Acronyms and Terms

Acronym/Term	Description
CA	Common Access
CAC	Common Access Card
CAC-GUI	CA-Cabinet Network Graphical Users Interface application running on an administrator's workstation
CACmanager	Software application running only on each cabinet computer which handles the tasks of the cabinet, including the network communications.
Mac Address	A unique identifier assigned to a network interface controller (NIC).
Microsoft SQL Server	A relational database management system developed by Microsoft; it is a software product with the primary function of storing and retrieving data as requested by other software applications
USBC	Formally called USB type-c. It is a 24-pin USB connector system, which is distinguished by its two-fold rotationally symmetrical connector. Normally it has the features of higher transfer rate and higher charging speed.
Network Switch	Networking hardware that connects devices on a computer network by using packet switching to receive, and forward data to the destination device
Master Database	Or Pool Database. It is the database in the cabinet network to cooperate the activities of the individual cabinet and distribute data to the cabinets

1 Overall Introduction

CAC -GUI is the interface to setup, manage and monitor the cabinet system; CACmanager is the software to implement the functions to fulfill the related tasks. This document introduces the functions of the program and the related software and device setup.

Generally, the document provides the usage guide for the following functions:

- Display the status of the cabinet in real time
- Cabinet configuration
- User information management
- Device management such as serial number reading and information updating
- Aircraft information management include aircraft line and aircraft number
- Report function setup with filter, content and time
- Email configuration for event alert and report sending
- System diagnostics to check the performance of major components of the cabinet
- Temporary PIN setup for visitors or employees without badge to access the cabinet
- Remote control of the cabinet with commands
- Management portals for broken device, broken port, broken light, and missing equipment
- Records of irregular activities, such as forgetting to close door, taking locked device, not connecting cables, place unknown device, second checkout, wrong check-in, etc.
- Database setup, clean up and live-sync setup
- Statistics report with chart for various cabinet activities
- Detailed log for each action and status change of the cabinet
- Receipt generation
- Maintenance of SQL Server database
- Configuration of Cisco switch
- Network configuration

The executable file of CAC-GUI is CAC-GUI.exe, normally it locates at C:\Program Files (x86)\PlugInStorage\CAC-GUI; it also has a shortcut link on the Desktop.

CAC-GUI has the following modules: System Login, Cabinet Configuration, Equipment Management, User Management, Cabinet Management, Database Management, Report Function, Email Function, Statistics, Activity Log, Cabinet Monitoring, Cabinet Command, Receipt

The following is a brief summary to each module; and we will have detailed explanation to them in the following chapters.

a. System Login

Login function is the step to connect to the cabinet computer and its SQL database. CAC-GUI can run locally or on another computer in the same network.

b. Cabinet Configuration

Cabinet Configuration locates in the tab of “System Config”; it includes the parameters about how the cabinet works.

c. Equipment Management

This module is about the setup and the information of the tablet device. It includes the tab of “Equipment List” and some items of the “Asset Management” section of tab “System Config”.

d. User Management

User management is about the information management of the users, including the RFID badge information, aircraft info, privilege setup, contact information, etc.

e. Cabinet Management

This section is about the management of some cabinet components. It locates in the “Assents Management” part of “System Config” tab. It includes “System Diagnostics”, “Broken Port Management” and “Broken Light Management”.

f. Database Management

This part locates at the tab “System Config”. Basically, it includes live-sync setup, temporary information clean-up and database list management.

g. Report Function

The report is based on the log information from the database. Report filter, content and time need to be setup for the report generation. This can be done on tab “Report Config”

When the cabinet event (such as cable connection issue) needs to be emailed to the administrator in real time, a special setup needs to be done.

h. Email Function

Email setup can be done in tab “Email Config”. Email server, email account and the related report needs to be setup.

i. Statistics

The usage statistics is available in tab “Statistics”. It gives a summary about the usage based on user, device, port, etc.; it also shows the statistics result of some irregular activities. A chart can come with the result table for the illustration, and the time range can also be setup.

j. Activity Log

The complete usage log is saved in table CacActivityLog of the database, and a html version file is located at C:\Users\PlugInStorage\Log; the file name is CacActivityLog.htm.

k. Cabinet Monitoring

CAC-GUI can display the status of cabinet in real time. Tab “Snapshot/Cabinet Commands” shows the check-in/checkout information, tab “Port Config” shows more detailed information about the port and the related devices.

l. System Control

System control locates at tab “Snapshot/Cabinet Commands”; it has functions such as cabinet reboot, shutdown, and CacManager restart.

m. Receipt

A receipt can be generated when a device is checked out. The format can be setup in tab “Receipt Layout”

2 System Login

System login is the first step after CAC-GUI starts. The software needs to connect with the cabinet and the related database.

The following is the screenshot of the login section, which locates at the top section of the page:

It includes the following parameters:

IP Address of CA Cabinet: the IP address of the cabinet computer

Server Name: The server name of the database. The default value is “SOLEXPRESS”.

Database Name: Default value is “CabinetServer”

Username: Default value is “pssisql”

Port number: Default value is “1433”

When login, a window will show up for the input of the password for the first time, and then it will be encrypted and saved in the computer. When the password changed and the login failed, the window will pop up again for the password input.

The default password is “abcd1234”.

By default, Sever Name, Database Name, Username and Port Number is read only in the page for the protection of inadvertent modification. The choice of “Change Database Setup” needs to be selected to change the login information.

The “IP address of CA Cabinet” is automatically filled with the value last used, and a history of the value is also available in the drop-down list.

After all the parameters are filled, click “Connect” button, if the login succeeds, the whole page will be filled with content; otherwise a small window will appear with “Database Connection Failed” and the user will be prompted to input the password.

If the login succeeds, the database parameter and the password will be automatically saved. The file path for the parameter is C:\Users\PlugInStorage\AppData\DatabaseParameter.txt, and the file path for the encrypted password is C:\Users\PlugInStorage\AppData\mssql_bytes.bin.

***** ATTENTION:** the parameter of database needs to be consistent with SQL server setup, and the port number also needs firewall setup. Please refer to Appendix A for the configuration of SQL Server parameters.

3 Cabinet Configuration

Cabinet configuration is used to setup the state, parameters and thresholds of the cabinet. It locates at tab “System Config”; the following is a screenshot:

System Config

— Cabinet Config —

Cabinet IP:

192.168.0.151

CABINET NAME:

LMCO CAB 9

Switch Address:

192.168.3.2

Enrollment:

☐ AUTO-ENROLLMENT: Automatically add users without administrator.

Connection:

☐ AUTO-CONNECTION: Automatically connect to database on Startup within 2:00 min.

Check-in Option:

☒ Custodian check-in: Administrator can check-in device for the user.

Debug Window:

☒ Debug Window: Debug Window is available when choosen.

LCD COM Port:

COM1

Door Open time Alert (seconds):

120

Help Contact:

Contact System Admin

Help Call:

203-xxx-xxx

Tracking Option:

Tracking Choices

☐ No Tracking
☐ Logic Tracking
☒ Real Tracking

ACCESS CONFIGURATION:

☒ HID Card: allow access using the HID ProxCard II

CARD ID #Bits: 16
FAC ID #Bits: 0

☒ CAC-Card: allow access using a DoD CAC/PIV card
☒ Barcode: allow access using supported barcode reader
☒ Keypad-PIN: allow access using the front panel Keypad with a PIN code
☒ Memory Card: allow access using a SLE4442 or SLE4428 memory card

The configuration includes the following items:

Cabinet IP: The IP address of the cabinet computer

Cabinet Name: This is the name of the cabinet; it will be shown on the LCD screen of cabinet

Switch Address: The IP address of the Cisco switch coming with the cabinet.

Auto-Enrollment: If checked, it will enable auto-enrollment, and a new user can register him/herself into the database by scanning the badge

Auto-Connection: If checked, CAC-GUI will login itself after 2 minutes

Check-in Option: If checked, the administrator can check-in devices for other users

Debug Window: When checked, the debug portal for CACmanager will be available.

LCD Com Port: The COM port connecting the LCD screen on cabinet. The default choice is COM1

Door Open Time Alert: When the cabinet door is open for a certain time, it will start beeping and an record of log is written for the event. The default value is 120 seconds.

Help Contact: The name of person for help. The content will be shown when user press “Help” button on cabinet

Help Call: The phone number of people for help. It will be shown when user press “Help” button on cabinet

Tracking Option: It includes “No Tracking”, “Logic Tracking” and “Real Tracking”. For “No Tracking”, the user can check-in and check-out device, but it does not track the device; for “Logic Tracking”, the device is configured in a fixed port, the cabinet determines the device by the port; “Real Tracking” is the complete function of the cabinet, it will scan the mac address and determine the device. The default choice is “Real Tracking”.

Access Configuration: The access methods include HID card, CAC-Card, Barcode, Keypad-pin, and Memory Card. The default setup is to include them all. The default value for Card ID Bit is 16, and FAC ID bit is 0.

***** ATTENTION:** IP address and other network setup is related to the switch and live-sync function, please refer to Appendix B for the setup of Cisco switch and refer to Appendix C for Cabinet network setup.

4 Equipment Management

4.1 Equipment List

The equipment details are shown in tab “Equipment List (Storage)”. It includes Equipment ID number, Description, Manufacture, Serial Number, Vendor ID, Product ID. The most important parameters are Equipment ID and Serial Number. Equipment ID should be unique locally in the cabinet; and it is a local parameter in the cabinet; Serial Number need to be unique globally, usually it is obtained by scanning the devices on the cabinet, it is the identification we use across the cabinet network. Currently we use the mac address of the network card of the tablet as its serial number.

There is a column in the table called “Port Number”, it is the fixed port number for the device when the cabinet is in “Logic Tracking” mode; when the cabinet is in “Real Tracking” mode or “No Tracking” mode, this parameter can be ignored.

A screenshot of Equipment List is as following:

http://www.pluginstorage.com									
System Config Receipt Layout Report Config Email Config Equipment List (Storage) Port Config User Accounts Snapshot / Cabinet Command									
	DELETE	BLOCKED	EQUIPMENT IDENTIFYING #	DESCRIPTION of ITEM	MANUFACTURE	SERIAL NUMBER	VENDOR ID	PRODUCT ID	PORT NUMBER
1	<input type="checkbox"/>	<input type="checkbox"/>	No.1	HP Elite G2 Tablet	-	80:ce:62:25:9c:16	-	-	2
2	<input type="checkbox"/>	<input type="checkbox"/>	No.2	HP Elite G2 Tablet	-	80:ce:62:2b:53:96	-	-	3
3	<input type="checkbox"/>	<input type="checkbox"/>	No.3	HP Elite G2 Tablet	-	80:ce:62:25:8c:4e	-	-	4
4	<input type="checkbox"/>	<input type="checkbox"/>	No.4	HP Elite G2 Tablet	-	80:ce:62:2b:62:b4	-	-	6
5	<input type="checkbox"/>	<input type="checkbox"/>	No.5	HP Elite G2 Tablet	-	80:ce:62:25:8c:2f	-	-	7
6	<input type="checkbox"/>	<input type="checkbox"/>	No.6	HP Elite G2 Tablet	-	80:ce:62:25:ac:52	-	-	11
7	<input type="checkbox"/>	<input type="checkbox"/>	No.7	HP Elite G2 Tablet	-	80:ce:62:22:57:00	-	-	15
8	<input type="checkbox"/>	<input type="checkbox"/>	No.8	HP Elite G2 Tablet	-	80:ce:62:2b:23:bc	-	-	16
9	<input type="checkbox"/>	<input type="checkbox"/>							

The parameters in the table can be manually changed; port number can only be changed when the cabinet in “Logic Tracking” mode, while in “Real Tracking” mode, the column is read only. When one device needs to be deleted from the cabinet, you can check the “DELETE” column of the related line. If a device needs to be blocked from the cabinet, you can select the “BLOCKED” column of the line, then the LED light of the port where the device is placed is off. After the change of the information, click the “Save Changes” button in the upper right corner, and the information will be saved to the database.

4.2 Read Serial Number of the Equipment

The Serial Number of the device can be obtained with “Device Serial Number Setup” function in “System Config” tab. A screenshot is as following:

Asset Management

System Diagnostics:

System Diagnostics

Device Serial Number Setup:

Select Port

GO

MISSING EQUIPMENT WARNING (hours):

11

15

16

MISSING EQUIPMENT ALARM (hours):

2

3

4

6

7

All

Select Port

Manage Device Overdue:

Load Port List

Broken Device Management:

Load Light List

Broken Port Management:

Broken Light Management:

Click “Select Port” component of the page, it will list all the port numbers currently having device in the cabinet, choose the one you want to scan and click “GO” button, the serial number and the default value of other parameters will fill the line for this port in tab “Equipment List”, if the port already has a set of device information, the information will be overwritten with the newly scanned serial number and the default parameter for other values.

If choosing “All” in the port number list, all the values in the equipment list will be overwritten. Currently we have maximum 16 equipment available that matches the 16 ports of the cabinet.

4.3 Equipment Overdue

When a device has not been returned after a certain time, a warning record will be generated and saved in the database; and after some time, if it is still not returned, the program will generate an alarming record in the database, at the same time an email will be sent out to the administrator (see Email section for more details). The following is a screenshot for the related GUI:

Asset Management

System Diagnostics:

System Diagnostics

Device Serial Number Setup:

Select Port

GO

MISSING EQUIPMENT WARNING (hours):

12

MISSING EQUIPMENT ALARM (hours):

24

Manage Device Overdue:

Device Overdue

Broken Device Management:

Load Device List

Broken Port Management:

Load Port List

Broken Light Management:

Load Light List

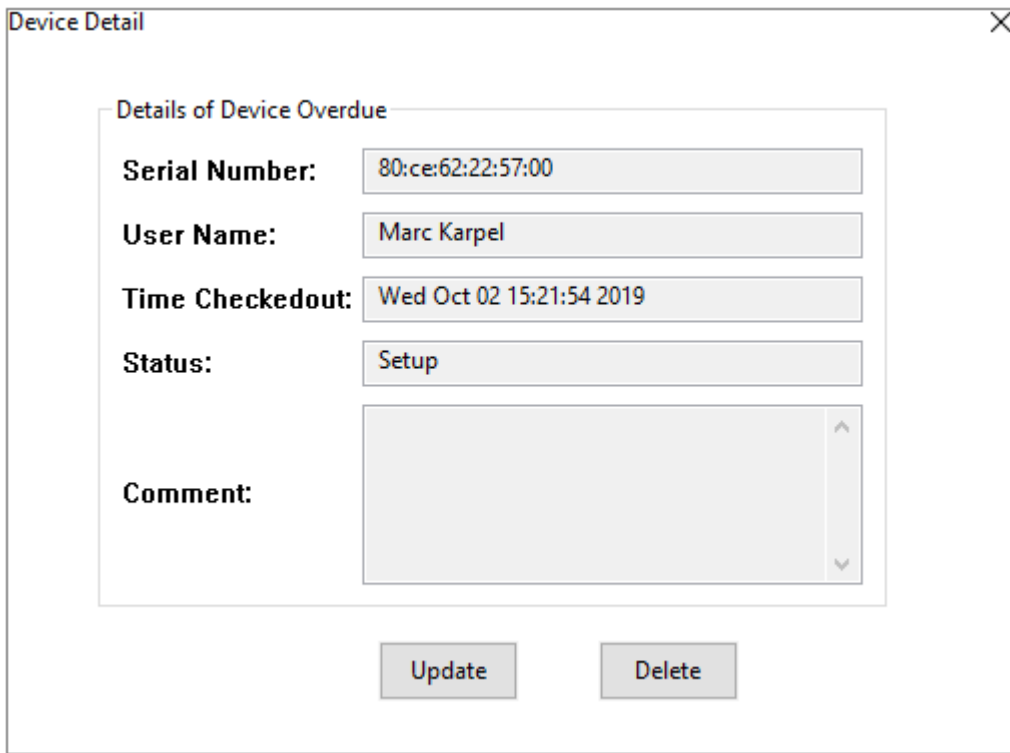
The time for the warning and the alarm can be set in fields of “Missing Equipment Warning” and “Missing Equipment Alarm” from the picture shown above.

When clicking “Device Overdue” button, a window will pop up for the list of all the overdue records. The window is as following:

List of Devices Overdue					
	Serial Number	User GUID	Time Checked Out	Status	Comment
1	80:ce:62:25:8c:2f	Patrick Spada	Mon Sep 30 13:58:55 2019	Checkin	
2	00:e0:4c:68:04:02	Patrick Spada	Thu Oct 10 22:22:32 2019	Checked out 14 hours 57 minutes	-
3	80:ce:62:25:9c:16	Patrick Spada	Wed Oct 02 15:28:19 2019	Checkin	
4	80:ce:62:25:8c:4e	Patrick Spada	Fri Sep 27 10:01:52 2019	Checkin	
5	80:ce:62:22:57:00	Marc Karpel	Wed Oct 02 15:21:54 2019	Checked out 213 hours 57 minutes	
6	00:e0:4c:68:07:05	Patrick Spada	Tue Sep 17 09:09:23 2019	Checked out 580 hours 10 minutes	
7	80:ce:62:25:8c:4e	Patrick Spada	Fri Sep 27 10:01:52 2019	Checkin	
8	80:ce:62:22:57:00	Marc Karpel	Wed Oct 02 15:21:54 2019	Checked out 213 hours 57 minutes	
9					

The window lists the items with serial number, username, time of checking out, status and the comment. The yellow items represent the warning record, and the red items represents the alarming records.

If we want to update the items, click on the related record and a window will pop up as following:



The image shows a 'Device Detail' window with a close button (X) in the top right corner. Inside the window, there is a section titled 'Details of Device Overdue'. This section contains five fields: 'Serial Number:' with the value '80:ce:62:22:57:00', 'User Name:' with the value 'Marc Karpel', 'Time Checkedout:' with the value 'Wed Oct 02 15:21:54 2019', 'Status:' with the value 'Setup', and 'Comment:' with a large text area. Below the 'Details of Device Overdue' section, there are two buttons: 'Update' and 'Delete'.

The comment section is available to edit; other values are generated when recording the information, so they are set to be read-only. When the device is returned, the “Status” value will be automatically set to “Check-in”.

If we want to delete the item, just click “Delete” button.

4.4 Management of Broken Device

The management of broken device includes the reporting of broken device and the its status updating.

4.4.1 Report of Broken Device

Both the employee and administrator can report the broken device. For employee reporting, the user press HELP button of the keypad on the cabinet, the LCD screen will show a list for him/her to choose. The following is the picture of the keypad:



The following is a picture for the LCD after pressing HELP button:



Use up and down arrow on the keypad to choose the options, until see “Report Broken Device”, press return button to choose, and then follow the standard procedure to check in. It does not matter the device is plugged in or not.

The following is a picture of the LCD screen:



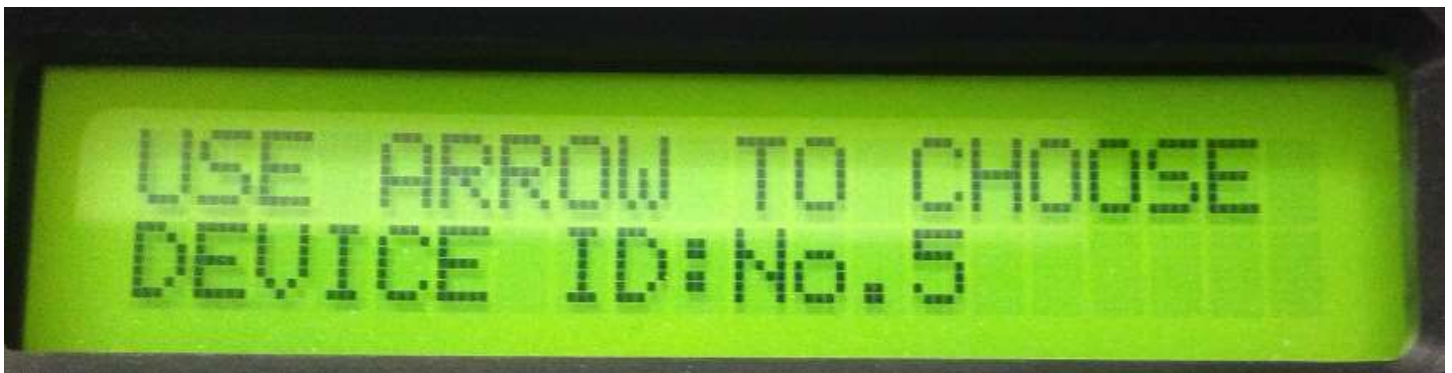
When the administrator reports the broken device, he/she can follow a different route. After badge in or input the keypad number, the LCD screen is as following:



Use the arrow on the keypad to browse the list and choose the one with "Broken Device". The picture is as following:



The screen will display the devices that have been checked out, use arrow key to choose the one you want to report, a screen is as following:



After pressing "Enter" key, the door of the cabinet will open, and the admin can place the device into the cabinet.

After a broken device is reported, a record will be generated in the database, and an email will be sent out to the administrator (See Email section for the email format)

4.4.2 Browse and Update Broken Device

The records of the broken device can be browsed and managed with an interface. Click button “Load Device List” in “System Config” tab and a window will show up with the list of broken device records. The following is a screen shot:

— Asset Management —

System Diagnostics:

System Diagnostics

Device Serial Number Setup:

Select Port

GO

MISSING EQUIPMENT WARNING (hours):

12

MISSING EQUIPMENT ALARM (hours):

24

Manage Device Overdue:

Device Overdue

Broken Device Management:

Load Device List

Broken Port Management:

Load Port List

Broken Light Management:

Load Light List

The following is a screenshot for the list of records in the broken-device window:

List of Broken Devices										
	Serial Number	Port Number	Username	Time Reported	Time Solved	User Solved	Status	Problem Description	Solution	Co
1	80:ce:62:25:8c:2f	2	John Doe 0	Wed Aug 14 13:27:57 2019	-	-	Reported	-	-	
2	80:ce:62:25:ac:52	14	John Doe 0	Wed Aug 14 16:41:31 2019	-	-	Reported	-	-	
3	80:ce:62:25:ac:52	3	John Doe 0	Thu Aug 15 08:39:04 2019	-	-	Reported	-	-	
4	80:ce:62:2b:62:b4	4	John Doe 0	Thu Aug 15 08:51:32 2019	-	-	Reported	-	-	
5	80:ce:62:25:ac:52	9	John Doe 0	Thu Aug 15 08:55:54 2019	-	-	Reported	-	-	
6	Unknown	12	John Doe 0	Tue Aug 20 15:22:18 2019	-	-	Reported	-	-	
7	80:ce:62:25:8c:4e	17	Patrick Spada	Tue Aug 27 14:23:02 2019	-	-	Reported	-	-	
8	80:ce:62:25:8c:2f	-1	Marc Karpel	Wed Aug 28 10:02:12 2019	-	-	Reported	-	-	

When clicking a record item, a window will appear with the detail of the records. The following is the window:

Device Detail

Details of Broken Device

Serial Number:

80:ce:62:25:ac:52

Port Number:

3

User Name:

John Doe 0

Time Reported:

Thu Aug 15 08:39:04 2019

Time Solved:

Fri Oct 18 09:18:08 2019

User Solved:

Zong

Status:

Reported

Reproduced

Removed

Fixed

Problem Description:

The device cannot start

Solution:

Do a full charge to the device and hold the "turn off" button for 10 seconds to reset

Comment:

The device has been placed back to cabinet

Update

Delete


The record has several statuses: *reported*, *reproduced*, *removed* and *fixed*. The user can input the detail of the problem and the solution of fixing it. The record can also be deleted if required.

5. User Management

5.1 Update of User Information

The management of user information is mostly located in “User Accounts” tab; the aircraft line/aircraft number and the temporary user management are in “User Management” section of “System Config” tab. The following is a screenshot of the *User Accounts* tab:

http://www.pluginstorage.com System Config Receipt Layout Report Config Email Config Equipment List (Storage) Port Config User Accounts Snapshot / Cabinet Commands Usage Statistics

 ☐ Delete All Users ☐ Lockout All Users

Default Entries when clicking 'New User'

Rank PHONE #

Squadron MISC INFO

	DELETE USER	USER LOCKOUT	SYSTEM ADMIN	USER NAME	USER ID	GROUP NAME	DRAWER #	ACCESS METHOD	RANK	PHONE #	SQUADRON	MISC INFO	SIGNATURE ID
1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	System Administrator	FACTORY-DEFAULT	All	1	Keyboard PIN		800-237-3852	Factory	www.pluginstorage.com	41123b8e7f12b44e1a1b5a41e1b35a1d4422ae508f22113
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Patrick Spade	50397	All	1	HID RFID	Unknown	Unknown	Unknown	Flightline Group 1	f130872d12bd9ed6db327690f52579e815b126d65cbb7e06
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	John Doe 1	13158	All	1	HID RFID	Unknown	Unknown	Unknown	Flightline Group 1	8d34731a9d0fe2bfb41c7c85e95f544c606a23db237eb044
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	John Doe 2	103	All	1	HID RFID	Unknown	Unknown	Unknown	Maintenance Group 5	668b69675680b79e29d0deed9f2415f0d77deebc9192424

The table lists all the information about the user. Most of them can be changed and updated. *Signature ID* needs to be automatically generated as the encrypted information of the badge card.

“System Admin” column of the user line can be selected to set the user to be administrator; a user can also be locked out by selecting on “User Lockout” column; “Delete User” column is for deleting a certain user.

5.2 Management of Aircraft Info

The employee has a corresponding aircraft line and aircraft number assigned to him/her for a certain task. When the task changes, the related aircraft information (A/C info) could be changed too.

The aircraft information is maintained in “User Config” section of “System Config” tab. The following is the button for loading A/C info:

— User Config —

Aircraft LN/Num Setup:

Load AC LN/NUM

Temporary Pin Setup:

User Name

GO

OR

NEW USER

Temporary Pin Overview:

Load Temporary Pin

When click “Load AC LN/NUM” button, the following window will show up:

Aircraft Line/Number

Aircraft Line/Number

Save

Cancel

	Delete	Aircraft Line	Aircraft Number	List Order	
1	<input type="checkbox"/>	UH60M	0001	1	
2	<input type="checkbox"/>	UH60M	0002	2	
3	<input type="checkbox"/>	UH60M	0003	3	
4	<input type="checkbox"/>	HH60M	0023	4	
5	<input type="checkbox"/>	HH60M	0024	5	
6	<input type="checkbox"/>	HH60M	0025	6	
7	<input type="checkbox"/>	HH60M	0026	7	
8	<input type="checkbox"/>	HH60W	0019	8	
9	<input type="checkbox"/>	HH60W	0020	9	
10	<input type="checkbox"/>	MH60R	0001	10	
11	<input type="checkbox"/>	CH53K	0005	11	
12	<input type="checkbox"/>	CH53K	0006	12	
13	<input type="checkbox"/>	CH53K	0007	13	
14	<input type="checkbox"/>	CH53K	0008	14	
15	<input type="checkbox"/>				

In the above table, column “List Order” is the order to be shown in the LCD menu of the cabinet. For example, A/C line of UH60M with A/C number of 0002 will be the second position in the selection order.

When changing a certain value, we can click on the cell, and type in the new value. If we want to add a new record, just click the last line of the table and fill the content; selecting “[Delete](#)” column will make the related line removed. After the modification of the data, click “[Save](#)” button, the changes will be saved to database.

5.3 Temporary User Management

Some temporary users are not formal employee of the company, they could be visitors, staff from other company for project cooperation, or other temporary workers. This function could also be used for employees who temporarily does not have a badge. They could be assigned a temporary PIN number to access the cabinet.

The function of temporary user is managed in “[User Config](#)” section of “[System Config](#)” tab as following diagram:

— User Config —

Aircraft LN/Num Setup:

Temporary User/Pin Setup: OR [NEW USER](#)

Temporary User Overview:

5.3.1 Setup of New User

New Users include the employee without badge and the visitors. Employees without badge already have their profiles setup in the database; while visitors are people from outside of the organization who has no profiles available.

5.3.1.1 For Employee without Badge

For the employees whose badges are not available and need a temporary pin, you can type in their username (or part of their username) as keyword, and click “[GO](#)” button to search for their profile, a window will appear with all the record including the keyword.

— User Config —

Aircraft LN/Num Setup:

Load AC LN/NUM

Temporary User/Pin Setup:

John Doe

GO

OR

[NEW USER](#)

Temporary User Overview:

Load Temporary User

The following is the records with username containing keyword “John Doe”.

User List					
List of Users					
	User Name	User ID	Phone	Other Info	
1	John Doe 1	13159	Unknown	Flightline Group 1	
2	John Doe 2	103	Unknown	Maintenance Group 5	
3					

When clicking a record, a window will appear for the detailed setup:

User Details

×

User Details

User Name:

John Doe 1

User ID:

13159

Phone:

Unknown

Email:

Temporary Pin:

61835

Availability Length:

☒ one hour
 ☐ one day
 ☐ one week
 ☐ custom

NA

NA

Status:

Setup

Send

Re-generate

Close

Some information such as User ID, Phone, Email has already been transferred from the User Account database. Temporary Pin is automatically generated and filled, if you do not like the Pin value, you could click “Re-generate” button and get another Pin. The Pin is a 5-digit random number.

Availability Length is the time length that the Pin is valid. It is set to “one hour” by default. Other options include “one day”, “one week”, and “custom”. When choosing “custom”, the start time and end time needs to be setup.

User Details

User Name:

John Doe 1

User ID:

13159

Phone:

Unknown

Email:

Temporary Pin:

558920

Availability Length:

☐ one hour
☐ one day
☐ one week
☒ custom

Start Time

End Time

Status:

Setup

Send

Re-generate

Close

Status of the user is “Setup” by default when created; it means the user has just been setup. The status also includes “Queued”, “Sent”, “Expired”, which will be described in later section of this chapter.

5.3.1.2 For Visitors

For visitors applying a temporary PIN, we need to create a new profile. Clicking “New User” link and a window will show up:

— User Config —

Aircraft LN/Num Setup:

Load AC LN/NUM

Temporary User/Pin Setup:

John Doe

GO

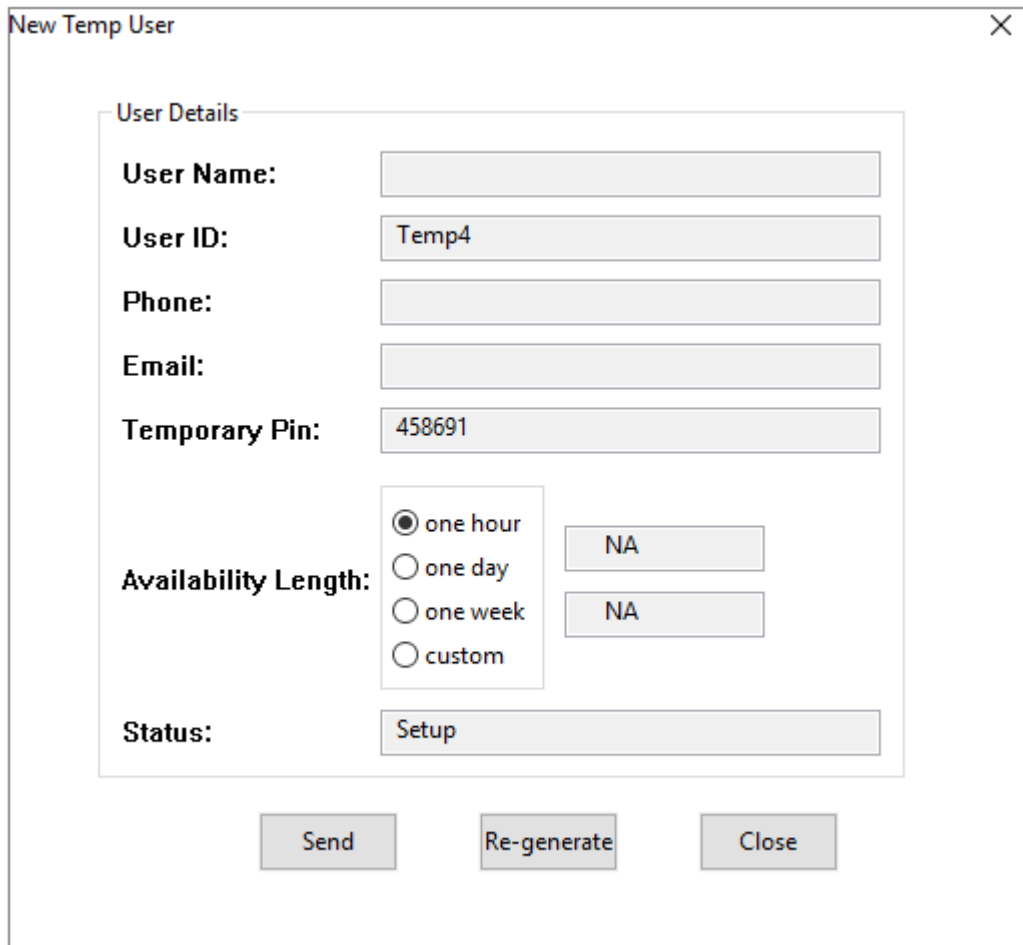
OR

NEW USER

Temporary User Overview:

Load Temporary User

The following windows will appear:



The screenshot shows a window titled "New Temp User" with a close button (X) in the top right corner. Inside the window, there is a section titled "User Details" containing several input fields and a group box for "Availability Length".

- User Name:** An empty text input field.
- User ID:** A text input field containing the value "Temp4".
- Phone:** An empty text input field.
- Email:** An empty text input field.
- Temporary Pin:** A text input field containing the value "458691".
- Availability Length:** A group box containing four radio buttons:
 - ☒ one hour
 - ☐ one day
 - ☐ one week
 - ☐ custom
- Status:** A text input field containing the value "Setup".

Below the "User Details" section, there are three buttons: "Send", "Re-generate", and "Close".

Some columns have been filled with default value. “User ID” is the unique identification of the user, it is automatically created with serial information included. “Temporary Pin” is a random number automatically generated; click “Re-generate” button can change the temporary Pin. Click “Send” button and the temporary pin will be sent to the user’s email address.

5.3.2 Update of Temporary User

Once the temporary users are created, they can be accessed by press “Load Temporary User” button.

— User Config —

Aircraft LN/Num Setup:

Load AC LN/NUM

Temporary User/Pin Setup:

John Doe

GO

OR
[NEW USER](#)

Temporary User Overview:

Load Temporary User

A window will show up after pressing the button:

Temporary User List										
Temporary User List										
	User Name	User ID	Temporary Pin	Email	Phone Number	Means	Created Time	Term	Status	
1	John Doe 100	Temp1	582680	xxx@xxx.com	203-xxx-xxxx	Email	Fri Oct 11 16:46:18 2019	hour	Sent	
2	John Doe 101	Temp2	448893	xxx@xxx.com	203-xxx-xxxx	Email	Mon Oct 14 09:06:08 2019	day	Sent	
3	John Doe102	Temp3	822373	xxx@xxx.com	203-xxx-xxxx	Email	Mon Oct 14 09:07:51 2019	week	Sent	
4	John Doe 1	13159	299088	xxx@xxx.com	Unknown	Email	Mon Oct 14 09:40:19 2019	hour	Sent	

When clicking a record, a window will appear with the details of the user:

Temporary User Detail

User Details

User Name:

John Doe 101

User ID:

Temp2

Phone:

203-xxx-xxxx

Email:

xxx@xxx.com

Temporary Pin:

448893

Created Time:

Mon Oct 14 09:06:08 2019

Term:

☐ one hour
☒ one day
☐ one week
☐ custom

NA

NA

Created By Computer IP:

192.168.0.18

Created By Computer Name:

ZONG-COMPUTER

Status:

☐ Setup
☐ Queued
☒ Sent
☐ Expired

Means:

☒ Email
☐ Text
☐ Both

Comment:

-

Update

Renew

Re-Generate

Delete

Close

Besides the information introduced in the earlier section, there are several new columns in the window, including “Created Time”, “Created by Computer IP”, “Created by Computer Name”, “Status”, “Means” and “Comment”.

“Created Time”, “Created by Computer IP”, “Created by Computer Name” are automatically generated when the record is created to write down the time, computer IP and computer Name.

“Status” is the current status of the pin, including “Setup”, “Queued”, “Sent” and “Expired”. “Setup” is the stage when the user is created; once it is created, it is placed into a queue for sending out by email; after the PIN has been sent by email, the status is changed to “Sent”; and the status becomes “Expired” when the it is beyond the time range of availability.

“Means” is the method to send the temporary PIN out to the user. The default method is email, another option is by texting; it can also be sent by both email and text. A station is required for the function of texting.

Among all the buttons on the bottom of the page, “Renew” is a new one. When the user has an expired PIN, we could just renew it without changing other values of the profile. When “Renew” button is pressed, the background of the changed columns will become yellow. A screenshot is as following to show the screen appearance of pressing “Renew” button:

Temporary User Detail
X

User Details

User Name:
John Doe 101

User ID:
Temp2

Phone:
203-xxx-xxxx

Email:
xxx@xxx.com

Temporary Pin:
636269

Created Time:
Mon Oct 14 11:38:57 2019

Term:

☒ one hour
☐ one day
☐ one week
☐ custom

NA
NA

Created By Computer IP:
192.168.0.18

Created By Computer Name:
ZONG-COMPUTER

Status:

☒ Setup
☐ Queued
☐ Sent
☐ Expired

Means:

☒ Email
☐ Text
☐ Both

Comment:
-

Update
Renew
Re-Generate
Delete
Close

After press “Update” button, the changed information will be saved into the database.

6. Cabinet Management

Cabinet management includes “System Diagnostics”, “Broken Port Management” and “Broken Light Management”. It can be accessed in “Assets Management” of “System Config” tab.

— Asset Management —

System Diagnostics:

System Diagnostics

Device Serial Number Setup:

Select Port

GO

MISSING EQUIPMENT WARNING (hours):

12

MISSING EQUIPMENT ALARM (hours):

24

Manage Device Overdue:

Device Overdue

Broken Device Management:

Load Device List

Broken Port Management:

Load Port List

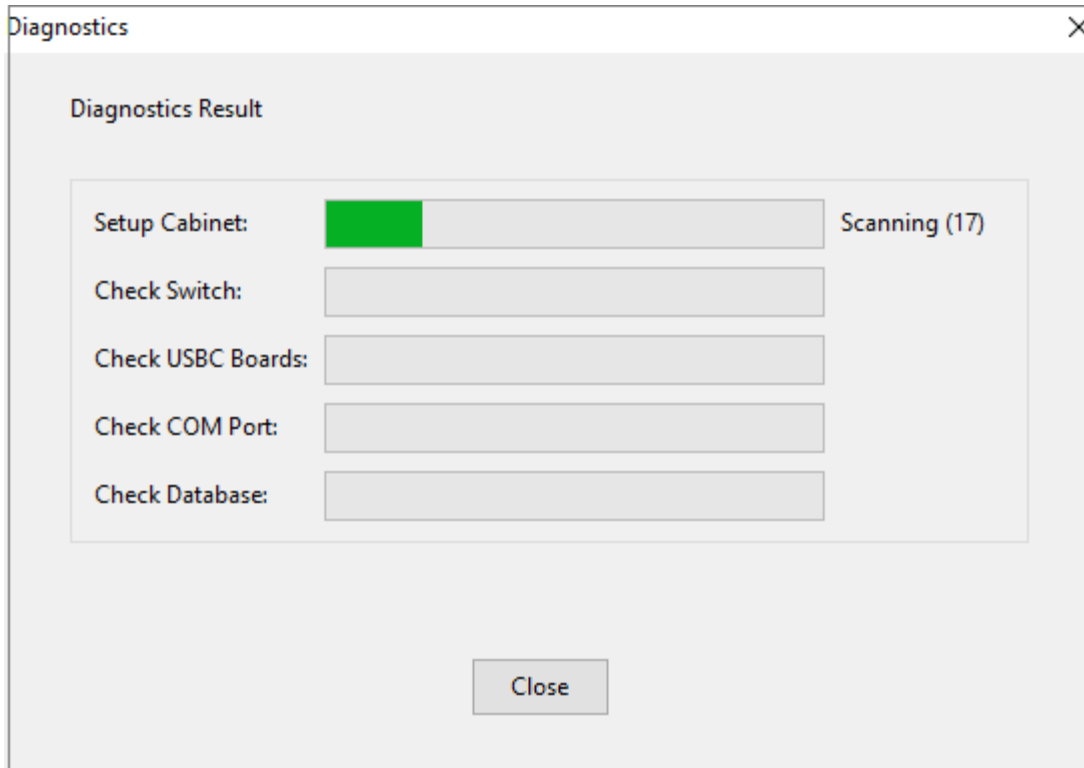
Broken Light Management:

Load Light List

6.1 System Diagnostics

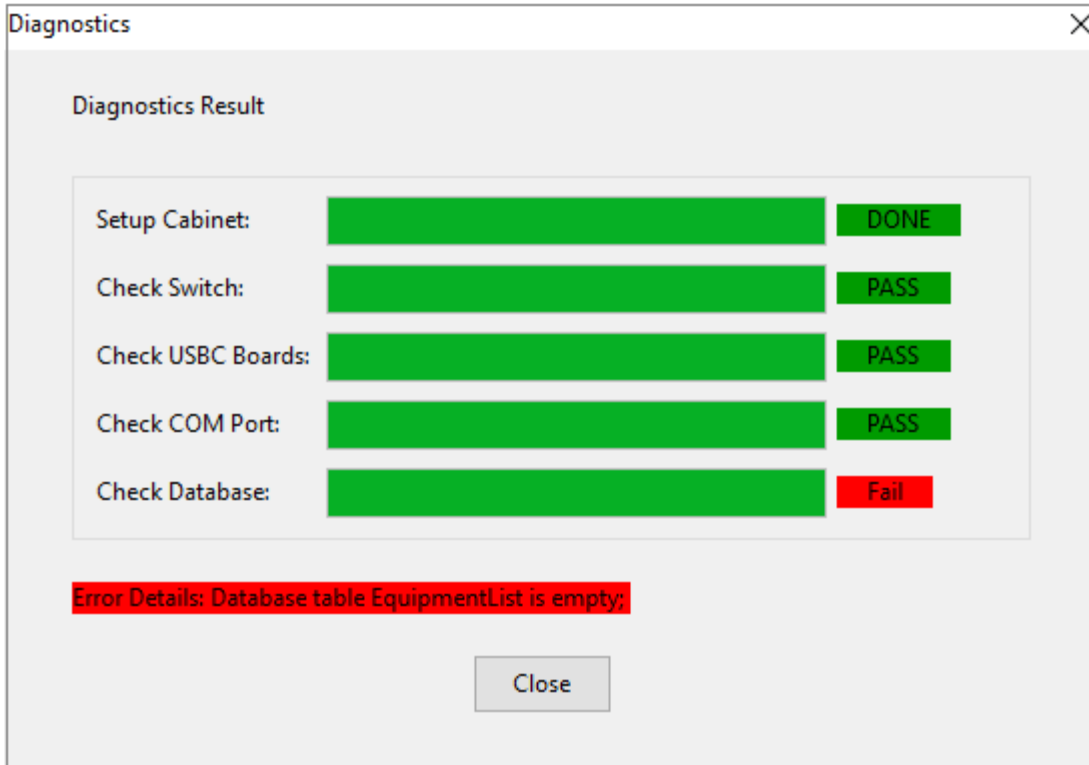
System diagnostics is a process to check a list of resources of the cabinet to see if it is working well. Normally this feature is used when there is a system setup change or there is something abnormal happened.

When press “System Diagnostics” button, a window will appear showing the progress of the process:

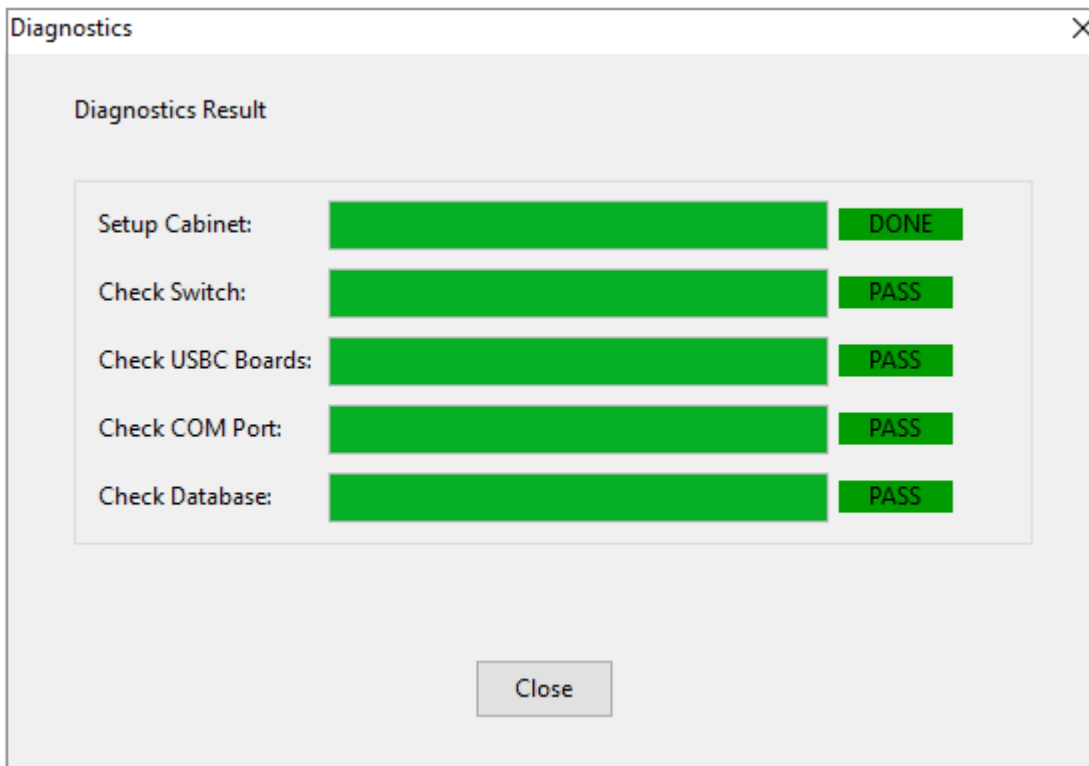


Basically, the diagnostics process checks four major components of the cabinet: *Switch*, *USBC Boards*, *COM port*, and *database*. *Switch* is the Cisco switch that connects the cabinet computer and the tablets, *USBC board* is the set of electronic boards charging the devices, *COM port* is the COM port interface function with the USB conversion, and *database checking* is to make sure the integrity of some key tables in the database.

If the diagnostics has found a problem, the related item will show “Fail” with red color and there will be a paragraph of description about the failure. An example is shown as following:



If the diagnostics has not found any issue. The interface is as following:



6.2 Broken Port Management

When clicking “Load Port List” button in “Assets Management” section of “System Config” tab, a window will show up with the list of broken port records.

List of Broken Ports									
	Port Number	Username	Time Reported	Time Solved	User Solved	Status	Problem Description	Solution	Comment
1	2	zong	Thu Aug 15 09:57:27 2019	Thu Aug 15 09:57:52 2019	Zong	Fixed	able cannot connect some a usbc ca	-	-
2	7	zli	Thu Sep 12 11:11:33 2019	Thu Sep 12 11:15:09 2019	zli	Fixed	usb is broken	-	na
3	Add Line								

Click on the last line of the table to report a new item of broken light:

Add Port

Add Broken Port

Port Number:

Select Port

User Name:

Problem Description:

Comment:

Add

Cancel

Click “Select Port” to choose the port, type in the user and the problem description, press “Add” and the record will be added into the database.

Once the record is created, we can click on the item and update the status in a new window:

Port Detail

Details of Broken Port

Port Number:
2

User Name:
zong

Time Reported:
Thu Aug 15 09:57:27 2019

Time Solved:
Thu Aug 15 09:57:52 2019

User Solved:
Zong

Status:

☐ Reported
☐ Reproduced
☒ Fixed

Problem Description:

usbc cable cannot connect sometimes

Solution:

change a usbc cable

Comment:

-

Update
Delete

When the record is created, “Time Reported” is automatically added, and when the Status is changed to “Fixed”, “Time Solved” is updated automatically with the current time. “User Solved” field is required when the status is changed to “Fixed”.

6.3 Broken Light

When a LED light is broken, it can be reported to the database, and the issue can be updated and followed up.

6.3.1 Report of Broken Light

There are several ways to report a broken light: report on cabinet by administrator, report on cabinet by employee and report on CAC-GUI by administrator. The following is the detailed steps for them.

6.3.1.1 Report by Admin on Cabinet

After administrator has logged in, the following display will be shown on LCD screen:



Scroll the screen with the arrow buttons on keypad, until found the following display:



Press the enter button, then enter the port number, and the issue is reported.

6.3.1.2 Report by Employee on Cabinet

After the employee has badged in and confirmed the aircraft information, press “HELP” button on the keypad, and the following screen will be shown:



Scroll the display with the arrow buttons on keypad, until the following screen is shown:



Press “Enter” button on the keypad, type in the port number and the broken light is added into the database.

6.3.1.3 Report by Admin on CAC-GUI

Click on “Load Light List” button, a window will appear with the list of record for the broken light. Click the last line of the table, a window will show up for new record input as following:

Add Broken Light Detail

Add Broken Light

Port Number:
Select Port

User Name:

Problem Description:

Comment:

Add
Cancel

Fill the related information to the table and click “Add” button, a new record will be added to the database.

6.3.2 Update the Record

Click “Load Light List” button on CAC-GUI, the following window will appear with the records of broken light:

List of Broken Lights									
	Port Number	Username	Time Reported	Time Solved	User Solved	Status	Problem Description	Solution	Com
1	15	Patrick Spada	Mon Sep 30 13:47:03 2019	-	-	Reported	Green Light is always off	-	None
2	1	Patrick Spada	Mon Sep 30 13:57:19 2019	-	-	Reproduce	Red light is not working	-	None
3	13	Patrick Spada	Mon Sep 30 15:01:26 2019	-	-	Reported	Light and green light are not	-	None
4	12	Patrick Spada	Mon Sep 30 15:47:38 2019	-	-	Reported	ht turned on and then remain	-	None
5	14	Patrick Spada	Mon Sep 30 16:21:46 2019	Wed Oct 02 10:56:34 2019	Zli	Fixed	Green light is not working	pose, so re-co	None
6	5	System Admin	Wed Oct 02 09:29:46 2019	-	-	Reproduce	Red light is not working	-	None
7	Add Line								

When the problem is reproduced and verified, the related records will become yellow; when the problem is fixed, it is shown as green.

Click the item in the list, and a window will appear with the details:

Problem Detail

Details of Broken Light

Port Number:

5

User Name:

System Admin

Time Reported:

Wed Oct 02 09:29:46 2019

Time Solved:

None

User Solved:

None

Status:

☐ Reported

☒ Reproduced

☐ Fixed

Problem Description:

Red light is not working

Solution:

None

Comment:

None

Update

Delete

Change the contents and click “Update” button, the information will be saved into the database; press “Delete” button and the related record will be removed.

7 Database Management

Database management includes the following functions: Database List management, Remove Temporary Data, Clear Master Checkout, Remove Checkout, and Live-sync setup. Most functions locate at “Database Management” section of “System Config”; “Remove Checkout” function is located at admin menu of cabinet.

The following is a screenshot of “Database Management” section:

Database Management

Database List:

Load Database List

Remove Temp Data in Database:

Remove Temp Tables

Clear Master Checkout:

Clear Master Checkout

Database Live Sync:

Choices

☐ No
☒ Yes

Database Name:

Select

IP address:

Username:

Server Name:

Port Number:

Password:

••••••••

Log in

7.1 Database List Management

Database list is the list of the database in the network. Its main purpose is to provide a list of databases to choose when the cabinet is set to live-sync. Therefore, the master database or pool database should be included in the list.

When click “Load Database List” button, a window will appear as following:

Database List

List of SQL Server Database

Save

Cancel

	Delete	CabinetName	CabinetIP	ServerName	DatabaseName	Username	PortNum
1	<input type="checkbox"/>	CabinetPool	192.168.0.151	SQLEXPRESS	CabinetInfoPool	pssipool	1433
2	<input type="checkbox"/>	LMCO NUM1	192.158.0.152	SQLEXPRESS	CabinetServer1	admin	1433
3	<input type="checkbox"/>	LMCO NUM2	192.168.0.153	SQLEXPRESS	CabinetServer2	admin	1433
4	<input type="checkbox"/>						

Click on the field you want to modify and type in the change; click the last line of the table to add a new record; choose on the “Delete” column if you want to remove that record. Press “Save” button and the change will be saved in the database.

7.2 Remove Temporary Contents

The program has some tables to save the medium result of the operation. When re-install or re-setup the cabinet, these temporary contents could cause some problem because the data might become irrelevant in the new setup. Therefore, we need to clear these tables when necessary.

Press “Remove Temp Tables” button and the temporary contents will be deleted.

7.3 Clear Master Checkout

Master database has all the records of the checked-out devices to the cabinets which are syncing to it. Normally the records of the checkouts are automatically managed, but occasionally the we need to organize the inventory of some cabinets, and the records might become falsified. On this situation we need to clear these checkout records.

Press “Clear Master Checkout” button, and the table for checkout devices in master database is cleared. Live-sync option (will be discussed later) needs to be enabled when doing the clearance.

7.4 Remove Checkout

This option is for removing the local check-out device, this is used for un-do a false checkout action when required. It needs privilege of administrator. From the menu of administrator on cabinet, scroll to the “REMOVE CHECKOUT” item, press “ENTER” on the keypad.



In the following menu, it will display the devices that have been checked out, use arrow buttons to change the device. The following is a picture:



When having found the device you want to remove, press “ENTER” button, and the item will be removed from the checkout list of the database.

7.5 Database Live Sync

The cabinets can work individually, or work as a group in the network. When the cabinet works as a node in the network, it will share the user list, equipment list, and checkout list with the master database. For this situation, we need to turn on the live-sync function. The setup is as following:

— Database Management —

Database List:

Remove Temp Data in Database:

Clear Master Checkout:

Database Live Sync:

Choices

☐ No

☒ Yes

Database Name:

IP address:

Username:

Server Name:

Port Number:

Password:

From the “Choice” option, choose “Yes”; from “Database Name”, choose the name of the master database, and other fields will be filled automatically except password; the information is from the database list. At the first time we need to input password, then it will be encrypted and saved to C:\Users\PlugInStorage\AppData\poolmssql bytes.bin; and it will be decrypted and be filled in “Password” field in the following logins. When the password is changed, the login will fail, and we need to input the new password again.

8. Report Function

Report is built on the log generated during the operation. It includes .pdf format, .csv format and .htm format. The setup of reporting function is located on “Report Config” tab of CAC-GUI.

The generation of report needs the setup of report filter, report content and report timing. A screenshot is as following:

Item	Delete or Report	Report Name	Report Filter	Report Content	Report Time
1	<input type="checkbox"/>	Daily Report	Access Method,Drawer Number	User Name,Drawer Number,Date-Range,Equipment-Item ID #	Monday,Tuesday,Wednesday,Thursday,Friday,8:30PM
2	<input type="checkbox"/>	Weekly Report	Access Method	User Name,Drawer Number,Date-Range,Equipment-Item ID #	Friday,10:30PM
3	<input type="checkbox"/>	Admin Activity	Administrator Activities	User Name,Access Method,Drawer Number,Date-Range	Monday,Tuesday,Wednesday,Thursday,Friday,Saturday,Sunday,10:30PM
4	<input type="checkbox"/>	Broken Device Alert	Broken Device	User Name,Drawer Number	OnEvent
5	<input type="checkbox"/>	Power Outage Alert	Power Outage	User Name,Date-Range	OnEvent
6	<input type="checkbox"/>				

8.1 Report Filter

Report filter is the condition for what we want from the log. When click “Report Filter” column of the report item, a window will appear with the details of filter setup. All those conditions are with logic “and” relationship.

A screenshot is as following:

Report Filter
×

REPORT FILTER SELECTION. (Filters selected are used as AND conditionals)

User Name ☐

UserName

User ID ☐

UserID

Signature ID ☐

MatchingID

Access Method ☒

Access Method

☐ Keypad PIN
☐ CAC Card
☒ HID RFID
☐ Memory Card
☐ Barcode

Drawer Number ☒

1-16

Date-Range ☐

Type of Activity

☒ All-Activities
☐ Check-IN
☐ Check-OUT

START Time

END Time

Equipment ID ☐

EquipmentID

Missing Equipment ☐

Administrator Activities ☐

Cabinet Alerts ☐

Broken Device ☐

Broken Port ☐

Cable Unconnected ☐

Second Checkout ☐

Power Outage ☐

Wrong Checkin ☐

OK

Filters include two type: one type is used for general reports; the other is for special events that can be used for email alert.

Type One filter includes the following setup:

User Name: the username for the employee; only record with this employee is available in the report

User ID: the user ID of the employee

Signature ID: the signature ID of the user

Access Method: it includes “Keypad PIN”, “CAC Card”, “HID RFID”, “Memory Card”, and “Barcode”

Drawer Number: only drawers related to this setup are selected. The number start from 1, and it could be a range, such as “1-16”.

Data Range: it only chooses the record between the “Start Time” and “End Time”.

Equipment ID: only records with this equipment ID are available.

Administrator Activity: only records of person with administrator privilege is available

Type two filter includes the following setup:

Missing Equipment: if a device is not returned after certain time, it is considered as missing equipment and an alarming email will be sent. The time threshold can be setup in “System Config” tab.

Cabinet Alerts: when the cabinet has a reconfiguration, it sends out an email.

Broken Device: when a broken device is reported, an email is sent for the event

Broken Port: When a broken port is reported, an email will be sent

Cable Unconnected: When a USB cable or USBC cable is not connected to the device, an email will be sent

Second Checkout: When the user has checked out another device without checking in the first one, an email will be sent

Power Outage: When there is a power outage, the UPS will start to provide power to the computer, and an email will be sent

Wrong Check-in: If a user check in a device that was not checked out by him, the action is not valid, and an email will be sent.

8.2 Report Content

Report content is the data that are included in the report. As there is a limitation for the width of PDF file, the content cannot go beyond its ability.

When clicking the “Report Content” section of the related record, a window will appear with the details of the content to setup. The following is a screenshot:

Report Content
✕

REPORT CONTENT SELECTION. (Data included in report)

☒ User Name
☐ User ID

☐ Signature ID
☐ Access Method

☒ Drawer Number
☒ Date-Range

☒ Equipment-Item ID #
☐ Missing Equipment

☐ Equipment-Item Descr
☐ Rank

☐ Phone #
☐ Squadron

☐ User Misc. Info
☐ Equipment-Item Misc. Info

☐ Quantity
☐ U/I

☐ Admin. / Other Details

OK

8.3 Report Timing

Report timing is basically for email function. It sets up the time/day of when the email will be sent. When choosing “On Event”, it means the email will be sent in real-time; when choosing “At This Time”, we need to choose a day and a time for when the email is sent.

When clicking on the “Report Time” section of the related item, a window will appear with the setup of report timing.

Report Time

×

Report Day Selection

☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☐ Saturday
☐ Sunday

☐ On Event
☒ At This Time:

Report Time Selection

0 8:30 ☐ A.M. ☒ P.M.

1 Select an Option ☒ A.M. ☐ P.M.

2 Select an Option ☒ A.M. ☐ P.M.

3 Select an Option ☒ A.M. ☐ P.M.

4 Select an Option ☒ A.M. ☐ P.M.

5 Select an Option ☒ A.M. ☐ P.M.

OK

8.4 Report Generation

From the GUI, choose “Item Delete or Report” column of the report item, and press “Generate Report” button, the related pdf file will be generated. If press “Export as .CSV” button, the report will be saved a .csv file.

tp://www.pluginstorage.com · System Config · Receipt Layout · Report Config · Email Config · Equipment List (Storage) · Port Config · User Accounts · Snapshot / Cabinet Commands · Usage Statistics

[Generate Report](#) [Export as CSV](#)

Item	Delete or Report	Report Name	Report Filter	Report Content	Report Time
1	<input type="checkbox"/>	Daily Report	Access Method,Drawer Number	User Name,Drawer Number,Date-Range,Equipment-Item ID #	Monday,Tuesday,Wednesday,Thursday,Friday,8:30PM
2	<input checked="" type="checkbox"/>	Weekly Report	Access Method	User Name,Drawer Number,Date-Range,Equipment-Item ID #	Friday,10:30PM
3	<input type="checkbox"/>	Admin Activity	Administrator Activities	User Name,Access Method,Drawer Number,Date-Range	Monday,Tuesday,Wednesday,Thursday,Friday,Saturday,Sunday,10:30PM
4	<input type="checkbox"/>	Broken Device Alert	Broken Device	User Name,Drawer Number	OnEvent
5	<input type="checkbox"/>	Power Outage Alert	Power Outage	User Name,Date-Range	OnEvent
6	<input type="checkbox"/>				

9 Email Function

Email function can be set up to receive report or the event alert about the cabinet. Some setup related to report has already been discussed in previous chapter (Report Function).

The email is sent out from the cabinet and it is only available when the cabinet is connected to Internet. The email server and email account are required for the setup. Email setup locates at “Email Config” tab of CAC-GUI.

9.1 Email Account Setup

We need to setup the email server and email account for the cabinet to send email out. The following is a screenshot of the configuration, it locates at the upper section of the page of “Email Config” tab. The following screenshot is an example of the setup.

☒ **SMTP Cabinet Configuration**

Domain:

smtp.gmail.com

Port(Empty for default):

465

Username:

cabinet1@pluginstorage.com

Password:

From:

cabinet1@pluginstorage.com

To:

JohnDoe1@testmail.com,JohnDoe2@

This section is read-only by default for the protection purpose. We need to enable “SMTP Cabinet Configuration” to change the setup.

Domain: This is the email domain, or smtp server name.

Port: The port number of smtp server

Username: The username to login to the smtp server, it could be just the name or the whole email address

Password: Password of the account

From: The email address of the sender

To: The people who receive the email, this field is read-only; It is filled automatically

9.2 Email Recipient Setup

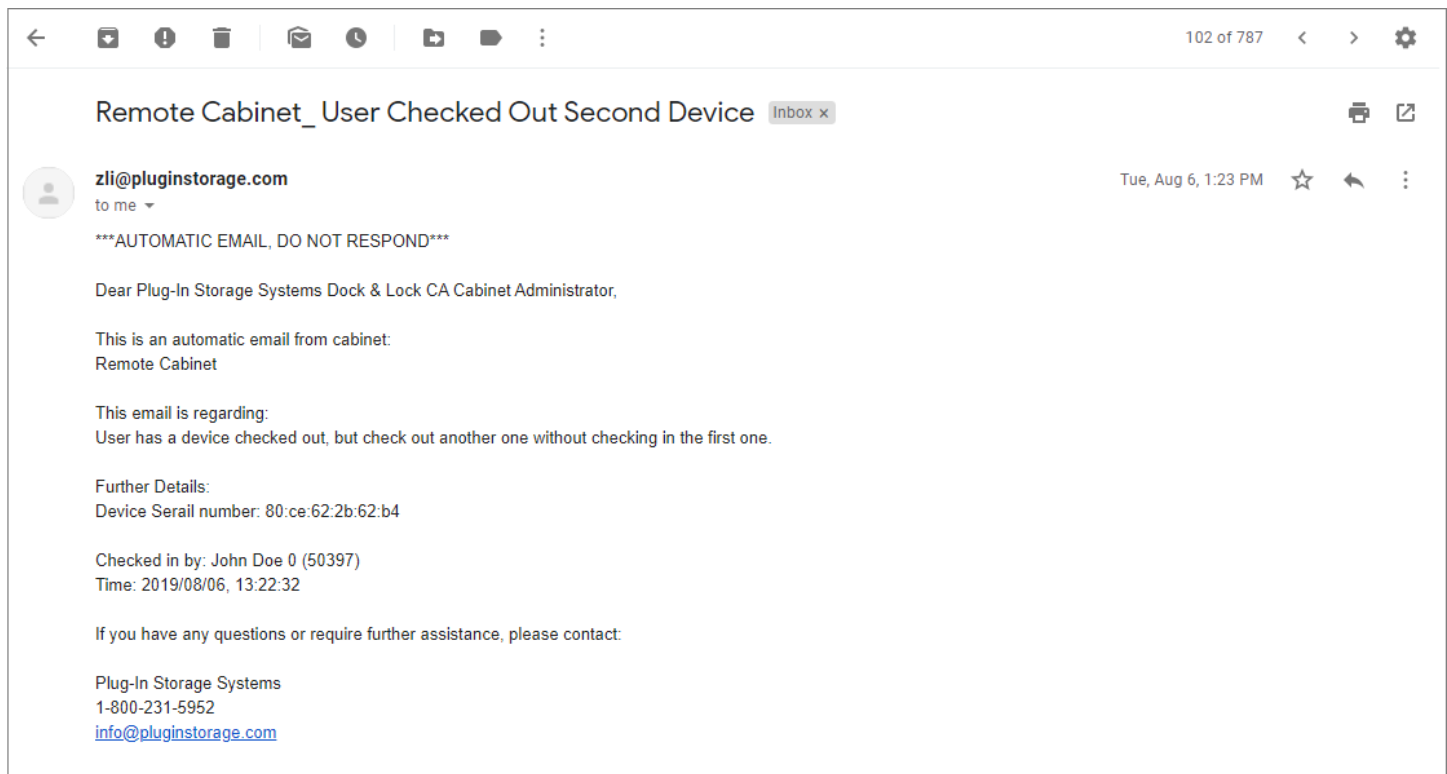
One person can receive up to 5 reports with one email address in one line; if we need to set up a user to receive more than 5 reports, just start another line. The reports are configured in previous chapter and they are available in the list when double-clicking the cell in the table, choose the report we need, and save the change. A screenshot is as following:

Email Recipients:						
ItemSelection	Email Address	Report 1	Report 2	Report 3	Report 4	Report 5
1	<input type="checkbox"/>	JohnDoe1@testmail.com	test_2nd_checkout	cable_error		
2	<input type="checkbox"/>	JohnDoe2@testmail.com	cable_error	cable_error		
3	<input type="checkbox"/>	JohnDoe3@testmail.com	PowerOutage	test_2nd_checkout		
4	<input type="checkbox"/>	JohnDoe4@pluginstorage.com	WrongCheckinTest	Broken device		
5	<input type="checkbox"/>			Usage		
				PowerOutage		
				WrongCheckinTest		

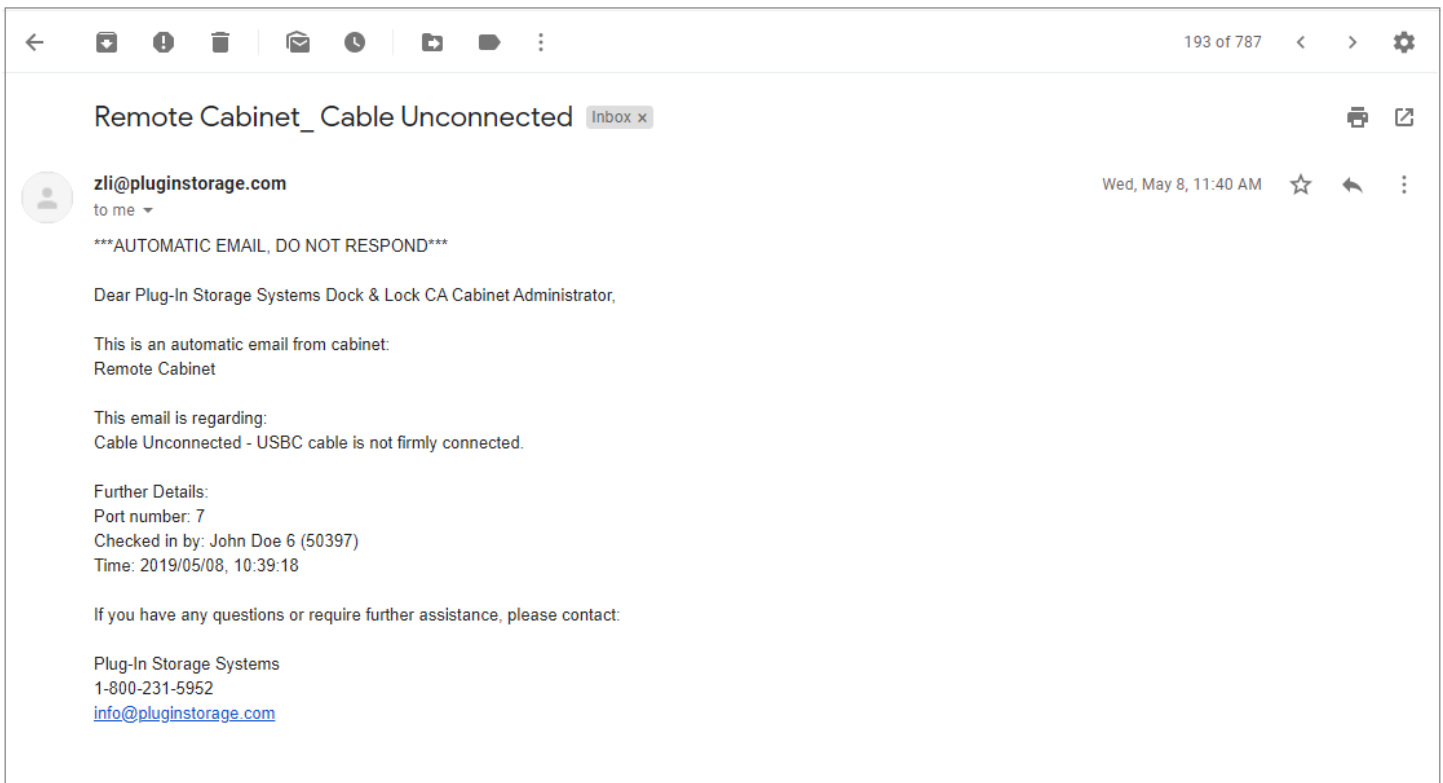
9.3 Email Examples

This section provides several examples about the emails received.

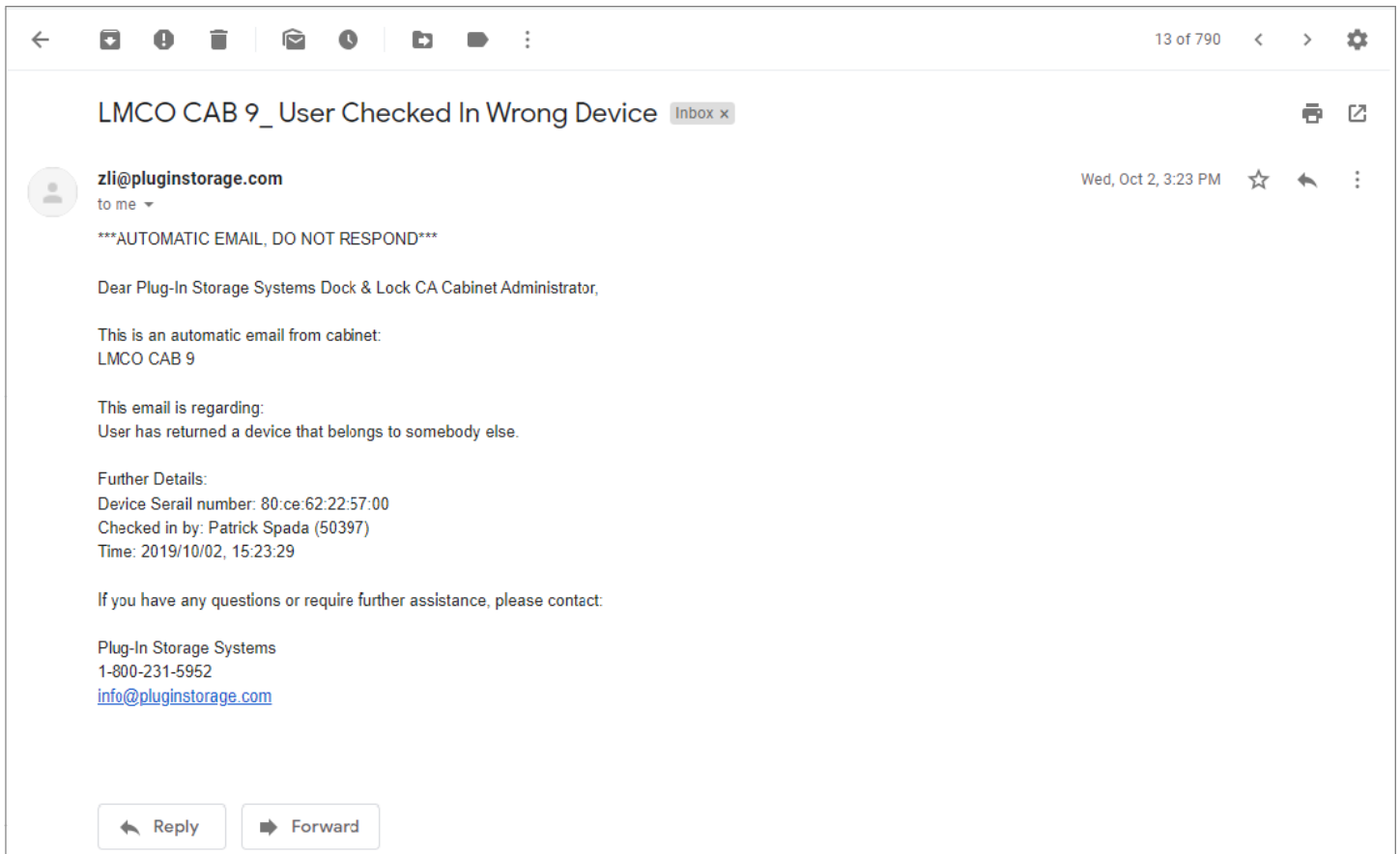
The following is an alert email about a user checking out a second device



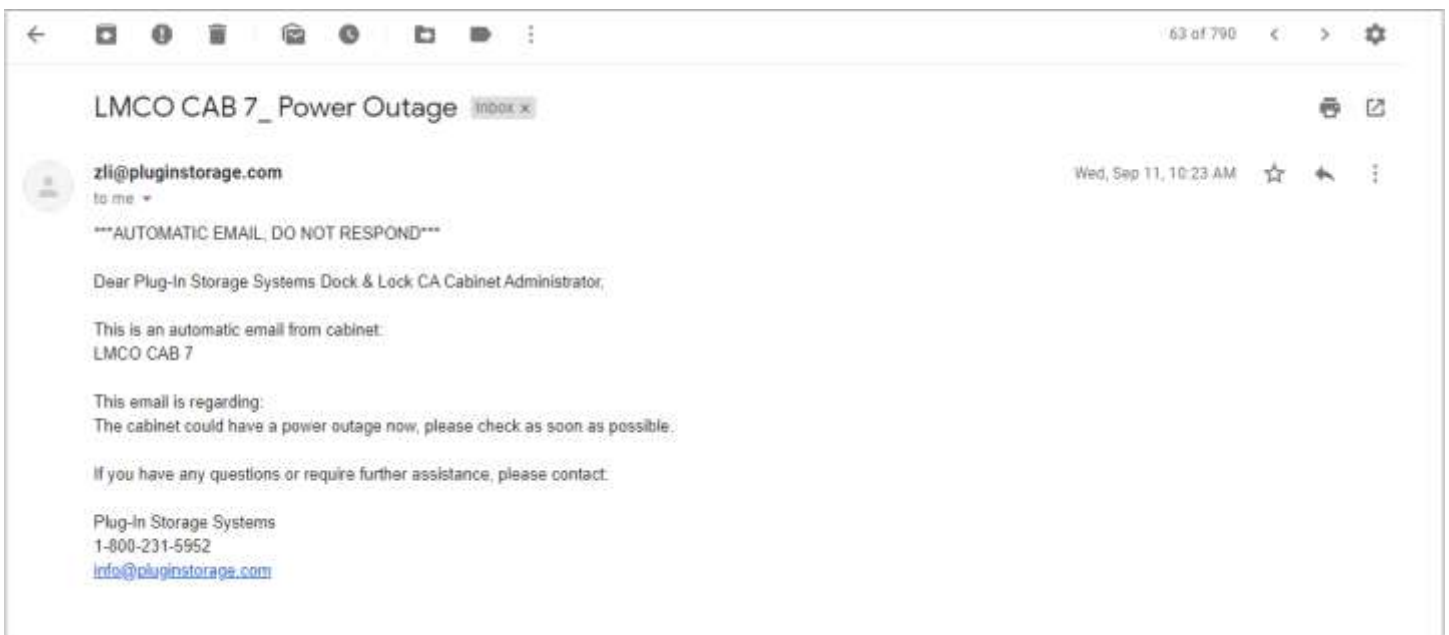
The following screenshot is an alert email of cable unconnected:



The following is an example of wrong check-in:



The following is an example for power outage:



The following is about temporary PIN:

2 of 790

LMCO CAB 9_Temporary_PIN

Inbox x

zli@pluginstorage.com

to xxx

Mon, Oct 14, 9:06 AM (4 days ago)

AUTOMATIC EMAIL, DO NOT RESPOND

Dear Plug-In Storage Systems Dock & Lock CA Cabinet Administrator,

This is an automatic email from cabinet:
LMCO CAB 9

This email is regarding:
The following PIN is available to open the cabinet.

PIN Number: 448893

The PIN will expire in one day
If you have any questions or require further assistance, please contact:

Plug-In Storage Systems
1-800-231-5952
info@pluginstorage.com

10 Statistics

10.1 General Usage

Statistics provides an overview to the activities of the cabinet. It locates at “Usage Statistics” tab of the GUI. The following is a screenshot:

Statistic Type

☐ Usage Times by User ☐ Usage Times by Device ☐ Usage Times by Port
☒ Usage by Aircraft Info ☐ Usage Length by User ☐ Usage Length by Device
☐ Unknown Device by User ☐ Unknown Device by Port ☐ Forgetting Door by User
☐ Cable Unconnection by User ☐ Cable Unconnection by Port ☐ Taking Locked Device by User
☐ Taking Locked Device by Port ☐ Broken Device by Device ☐ Broken Port by Port
☐ Detail of Unknown Device ☐ Detail of Forgetting Door ☐ Detail of Taking Locked Device
☐ Detail of Cable Unconnection ☐ Detail of Power Outage

Start Date

End Date

☒ Show Graph

OK

When clicking a statistics type, the bottom part of the screen will display a table for the details, the following is a screenshot of the action:

Statistic Type

☐ Usage Times by User ☐ Usage Times by Device ☐ Usage Times by Port
☐ Usage by Aircraft Info ☒ Usage Length by User ☐ Usage Length by Device
☐ Unknown Device by User ☐ Unknown Device by Port ☐ Forgetting Door by User
☐ Cable Unconnection by User ☐ Cable Unconnection by Port ☐ Taking Locked Device by User
☐ Taking Locked Device by Port ☐ Broken Device by Device ☐ Broken Port by Port
☐ Detail of Unknown Device ☐ Detail of Forgetting Door ☐ Detail of Taking Locked Device
☐ Detail of Cable Unconnection ☐ Detail of Power Outage

Start Date

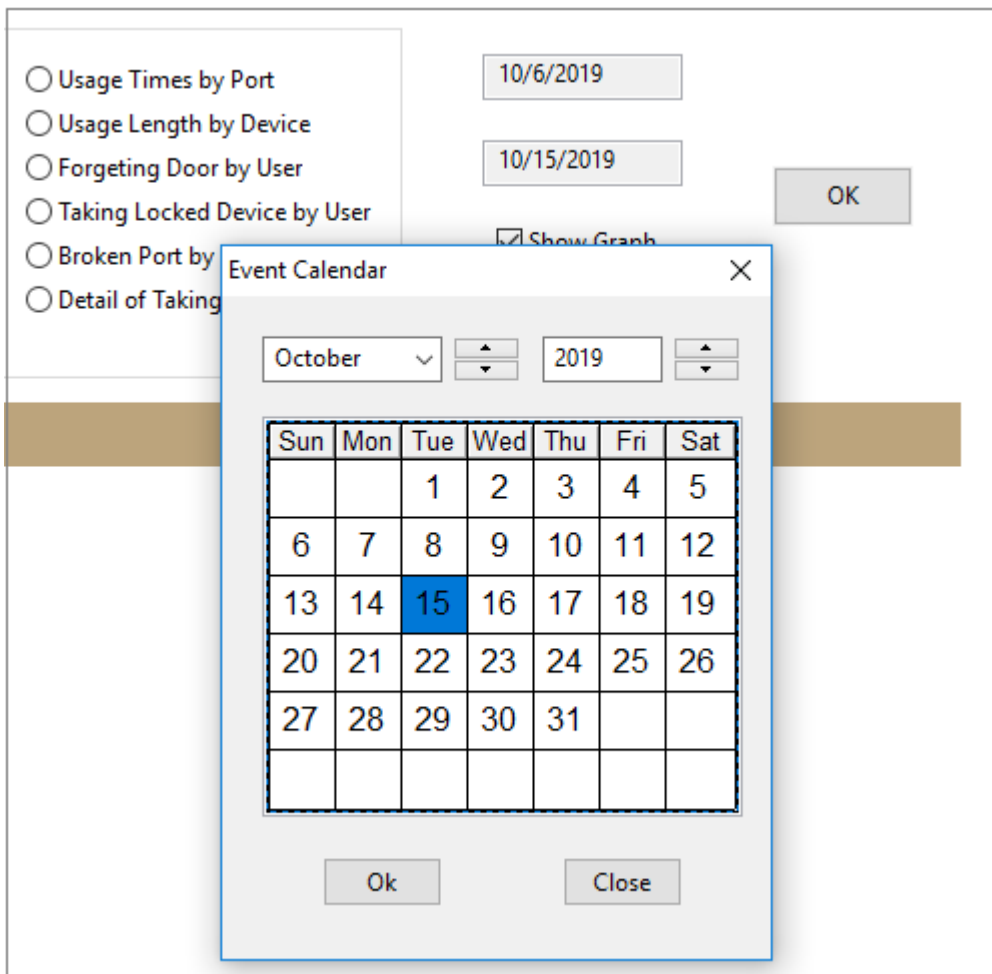
End Date

☒ Show Graph

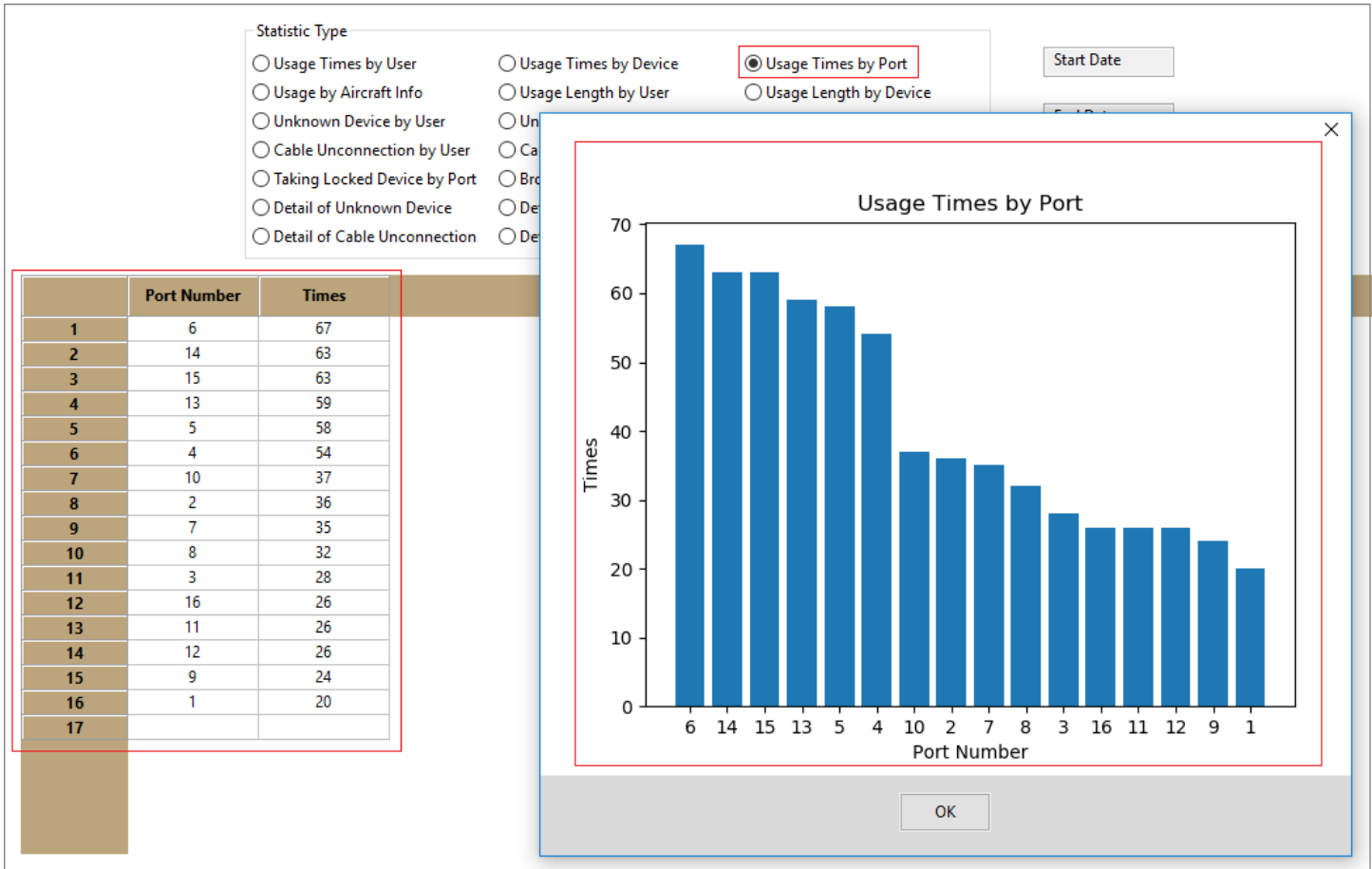
OK

	User Name	Length (seconds)
1	John Doe 1	736 (12 minutes 16 seconds)
2	John Doe 0	11962 (3 hours 19 minutes 22 seconds)
3	John Doe 3	1194793 (13 days 19 hours 53 minutes 13 seconds)
4	John Doe 2	281 (4 minutes 41 seconds)
5	Patrick Spada1	545 (9 minutes 5 seconds)
6	Smith10	141 (2 minutes 21 seconds)
7	John Doe 9	83 (1 minutes 23 seconds)
8	IAmKeypad	96 (1 minutes 36 seconds)
9	Smith9	230 (3 minutes 50 seconds)
10	Marc Karpel	709912 (8 days 5 hours 11 minutes 52 seconds)
11	System Administrator	0 (0 second)
12	Patrick Spada2	2442 (40 minutes 42 seconds)
13	Patrick Spada	22057 (6 hours 7 minutes 37 seconds)
14	user3	196 (3 minutes 16 seconds)
15		

If we click field “Start Date” or “End Date”, a window will appear for choosing a start date or ending date. For this setup, only the records within the time range are available. The following is a screenshot:



If “Show Graph” is selected, a chart will be available along with the table result when clicking a statistics item. Most statistics has a graph chart except some “detail” items. The following is a screenshot for the setup:



10.2 Details for Individual Reports

The statistic report includes following types:

10.2.1 Usage Times by User

This report gives the summary of how many times an individual user checks out a device from the cabinet. A screenshot is as following:

	User Name	Times
1	Patrick Spada	440
2	John Doe 0	111
3	Marc Karpel	27
4	Patrick Spada2	26
5	John Doe 1	11
6	John Doe 2	6
7	John Doe 3	6
8	Patrick Spada1	5
9	Smith10	4
10	Smith9	3
11	user3	3
12	John Doe 9	2
13	IAmKeypad	1
14		

The first column is the name of user, and the second column is the times the user has checkout. For example, in above table John Doe 0 has checked out 111 times altogether.

10.2.2 Usage Times by Device

This report gives summary of how many times it is checked out based on device. The following is a screenshot:

	Equipment ID	Times
25	No.5 (-)	5
26	1 (description 1)	5
27	No.6 (-)	4
28	No.7 (-)	4
29	1 (HP Elite G2 Tab	3
30	HP Elite Tab 3 (-)	3
31	HP Elite Tab 4 (-)	2
32	HP Elite Tab 2 (-)	2
33	3 (description 3)	2
34	item 8 (-)	2
35	No.3 (-)	2
36	item 2 (-)	2
37	PID (test)	1
38	8 (HP Elete G2 Tab	1
39	No.2 (-)	1
40	No.1 (-)	1
41	item 1 (-)	1
42	2 (HP Elite G2 Tab	1
43		

The first column is equipment ID and the equipment description, the equipment description is the information in the bracket; the second column is how many times the device is checked out. In the above example, Equipment No.6 has been checked out for 4 times.

10.2.3 Usage Times by Port

This report provides the summary of how many times a port is used. The following is a screenshot:

	Port Number	Times
1	6	67
2	14	63
3	15	63
4	13	59
5	5	58
6	4	54
7	10	37
8	2	36
9	7	35
10	8	32
11	3	28
12	16	26
13	11	26
14	12	26
15	9	24
16	1	20
17		

The first column is the port number; and the second column is how many times the port has been used. In the above table, port 6 has been used 67 times.

10.2.4 Usage by Aircraft Info

This report provides a summary of how many times an aircraft line/number is used. The following is a screenshot:

	Aircraft Info	Times
1	HH60M- 0025	337
2	UH60M- 0001	144
3	AC1-NUM1	69
4	UH60M- 0003	19
5	AC2-NUM2	18
6	MH60R-0001	15
7	MH- 60R	10
8	HH60M- 0026	10
9	AC1-NUM2	9
10	HH60W- 0019	5
11	CH53K- 0008	4
12	HH60W- 0020	3
13	CH53K- 0005	3
14	CH53K- 0006	3
15	CH53K- 0007	3
16	AC2-NUM1	1
17	UH60M- 0002	1
18		

The first column is the aircraft information, and the second column is how many times the aircraft info has been used. In the above table, HH60M-0025 has been used 337 times altogether.

10.2.5 Usage Length by User

This report provides a summary of how long a user totally use the devices. The following is a screenshot for this situation:

	User Name	Length (seconds)
1	John Doe 1	736 (12 minutes 16 seconds)
2	John Doe 0	11962 (3 hours 19 minutes 22 seconds)
3	John Doe 3	1194793 (13 days 19 hours 53 minutes 13 seconds)
4	John Doe 2	281 (4 minutes 41 seconds)
5	Patrick Spada1	545 (9 minutes 5 seconds)
6	Smith10	141 (2 minutes 21 seconds)
7	John Doe 9	83 (1 minutes 23 seconds)
8	IAmKeypad	96 (1 minutes 36 seconds)
9	Smith9	230 (3 minutes 50 seconds)
10	Marc Karpel	709912 (8 days 5 hours 11 minutes 52 seconds)
11	System Administrator	0 (0 second)
12	Patrick Spada2	2442 (40 minutes 42 seconds)
13	Patrick Spada	22057 (6 hours 7 minutes 37 seconds)
14	user3	196 (3 minutes 16 seconds)
15		

The first column is the name of the user, and the second column is totally how long the user has used a device (it does not matter which device). In the above table, John Doe1 has used device altogether 736 seconds, which is 12 minutes 16 seconds.

10.2.6 Usage length by Device

This report provides a statistic about how long a device is checked out and used. The following is an example screenshot:

	Device ID	Length (seconds)
1	4 (description 4)	86 (1 minutes 26 seconds)
2	1 (description 1)	1383 (23 minutes 3 seconds)
3	2 (description 2)	127 (2 minutes 7 seconds)
4		

The first column is the device ID, the information in the bracket is the device description, and the second column is how long the device has been used altogether. In the table above, device ID 4 has been used 86 seconds, which is 1 minutes 26 seconds.

10.2.7 Unknown Device by User

This report provides a summary about how many times each user has placed an unknown device into the cabinet. The following is a screenshot:

	User Name	Times
1	John Smith	105
2	John Doe 1	1
3		

The first column is the username of the user, and the second column is how many times the user has placed an unknown device into the cabinet. In the table above, John Smith has placed unknown device into the cabinet for 105 time.

10.2.8 Unknown Device by Port

This report provides a summary about how many times each port is used for placing the unknown devices. The following is an example screenshot:

	Port	Times
1	15	18
2	3	16
3	7	16
4	14	13
5	2	11
6	1	8
7	10	8
8	13	8
9	6	7
10	4	7
11	16	6
12	5	5
13	11	5
14	12	5
15	8	4
16	9	3
17		

The first column is the port number, and the second column is how many times the port is used. In the above table, port 15 has been used 18 times to place an unknown device.

10.2.9 Forgetting Door by User

This report provides a summary about how many times a user has forgotten to close the cabinet door. The following is a screenshot:

	User Name	Times
1	John Smith	7
2		

The first column is the username of the user, and the second column is how many times the user has forgotten to close the door. In the above table, John Smith has forgotten to close the door for 7 times.

10.2.10 Cable Un-connection by User

This report is about how many times a user is related to cable un-connection. The following is a screenshot:

	User Name	Times
1	John Smith	119
2		

The first column is the username of the user, and the second column is how many times the user is likely to cause the un-connection of the cable. In the table above, John Smith has caused an un-connection for 119 times.

10.2.11 Cable Un-connection by Port

This report is a summary of how many times a cable has experience the connection issue. The following is a screenshot:

	Port	Times
1	13	13
2	3	12
3	2	11
4	1	9
5	14	9
6	5	9
7	12	9
8	15	7
9	8	7
10	16	5
11	6	5
12	7	4
13	3(USBC)	4
14	9	4
15	10	4
16	4	4
17	7(USBC)	4
18	14(USBC)	4
19	11(USBC)	3
20	13(USBC)	3
21	11	3

The first column is cable in the port, the default is USB cable; if there is a bracket saying USBC, then it is the USBC cable. For example, 7 is the USB cable of port 7 and 7(USBC) is the USBC cable of port 7. In the table above, the USB cable of port 13 has connection issue for 13 times.

10.2.12 Taking Locked Device by User

This report provides how many times a user has taken a locked device.

	User Name	Times
1	John Smith	4
2		

In the table above, John Smith has taken a locked device for 4 times altogether.

10.2.13 Taking Locked Device by Port

This report provides summary about how many times a port has a locked device and the device is taken by a user.

	Port	Times
1	8	2
2	14	2
3		

In the above table, the missing of locked device happens 2 times on port 8.

10.2.14 Broken Device by Device

This report provides a summary of how many times a device has been reported as broken.

	Device Serial	Times
1	Unknown	15
2	80:ce:62:2b:62:b4	10
3	80:ce:62:25:8c:4e	8
4	80:ce:62:25:ac:52	7
5	80:ce:62:2b:53:96	7
6	80:ce:62:25:8c:2f	6
7	80:ce:62:22:57:00	5
8	80:ce:62:25:9c:16	3
9	80:ce:62:2b:23:bc	2
10		

In the above table, device with serial number 80:ce:62:2b:62:b4 has been reported as broken for 10 times.

10.2.15 Broken Port by Port

This report provides a summary of how many times a port has been reported as broken.

	Port Number	Times
1	2	1
2	7	1
3		

In the above table, port 2 has been reported as broken for 1 time.

10.2.16 Detail of Unknown Device

This report provides more details about the unknown device. The following is a screenshot:

	Time	User Name	Port
1	2019-08-01 16:40:54	John Doe 1	8
2	2019-08-06 13:20:17	John Smith	5
3	2019-08-08 15:21:46	John Smith	16
4	2019-08-14 13:27:59	John Smith	2
5	2019-08-09 10:00:39	John Smith	3
6	2019-08-14 16:42:57	John Smith	14
7	2019-08-15 08:39:07	John Smith	3
8	2019-08-15 08:56:02	John Smith	9
9	2019-08-21 12:21:14	John Smith	15
10	2019-08-22 12:02:14	John Smith	3
11	2019-08-26 14:44:35	John Smith	3
12	2019-08-27 10:17:07	John Smith	13
13	2019-08-27 10:23:38	John Smith	14
14	2019-08-28 15:15:41	John Smith	8
15	2019-08-28 15:29:00	John Smith	4
16	2019-08-29 14:26:54	John Smith	1
17	2019-08-29 14:27:05	John Smith	1
18	2019-08-09 11:13:16	John Smith	5
19	2019-08-20 15:22:21	John Smith	12
20	2019-08-29 16:16:46	John Smith	15
21	2019-08-14 11:57:27	John Smith	2
22	2019-08-03 13:34:55	John Smith	14

The first column is the time when the issue is reported, the second column is the user related to the issue, and the third column is the port number where the unknown device is placed. In the above table, John Doe 1 returns an unknown device at 2019-08-01 16:40:54, and the device is place on port 8.

10.2.17 Detail of Forgetting Door

This report provides some details about the issue of forgetting door. The first column is the time of the issue, and the second column is the user who is likely related to the issue.

	Time	User Name	Port
1	2019-08-14 15:58:43	John Smith	NA
2	2019-08-01 15:11:20	John Smith	NA
3	2019-08-22 12:26:06	John Smith	NA
4	2019-08-29 11:05:58	John Smith	NA
5	2019-09-16 09:21:53	John Smith	NA
6	2019-09-26 15:16:55	John Smith	NA
7	2019-09-30 15:06:34	John Smith	NA
8			

10.2.18 Detail of Taking Locked Device

This report provides more details about the issue of missing locked device. The first column is the time when the issue happens, the second column is the user related to the issue, and the third column is the port number where the device is placed.

	Time	User Name	Port
1	2019-08-28 15:17:40	John Smith	8
2	2019-08-14 16:42:07	John Smith	14
3	2019-08-28 15:23:43	John Smith	8
4	2019-09-12 14:42:37	John Smith	14
5			

In the above table, John Smith takes a locked device from port 8 at 2019-08-28 15:17:40.

10.2.19 Detail of Cable Un-connection

This report provides more details about the issue of cable un-connection. The first column is the time of the issue, the second column is the user who might be related to the issue, and the third column is the port number and the type of the cable (default is USB cable).

	Time	User Name	Port
1	2019-10-14 16:48:08	John Smith	7
2	2019-09-26 16:16:33	John Smith	3
3	2019-09-26 16:11:39	John Smith	3(USBC)
4	2019-09-19 08:34:24	John Smith	15(USBC)
5	2019-09-16 14:30:58	John Smith	13
6	2019-09-16 14:15:13	John Smith	2(USBC)
7	2019-09-16 13:39:49	John Smith	3(USBC)
8	2019-09-16 10:52:00	John Smith	7(USBC)
9	2019-09-16 09:18:26	John Smith	7
10	2019-09-13 15:12:05	John Smith	12
11	2019-09-13 15:10:56	John Smith	14
12	2019-09-13 15:10:43	John Smith	16
13	2019-09-13 10:40:19	John Smith	14
14	2019-09-13 10:35:10	John Smith	1(USB) 9(USBC)
15	2019-09-12 16:30:31	John Smith	13(USBC)
16	2019-09-12 15:39:13	John Smith	14
17	2019-09-12 15:37:22	John Smith	16
18	2019-09-12 15:01:56	John Smith	11(USBC)
19	2019-09-12 14:13:51	John Smith	4(USBC)
20	2019-09-12 14:06:37	John Smith	8
21	2019-09-12 12:33:24	John Smith	12(USBC)

In the above table, John Smith has forgotten to connect USB cable on port 7 at 2019-10-14 16:48:08, and he also forgot to insert USBC cable on port 3 at 2019-09-26 16:11:39.

10.2.20 Detail of Power Outage

This report provides some detail about the issue of power outage.

	Time	User Name	Port
1	2019-09-16 15:59:52	NA	NA
2	2019-09-16 09:55:12	NA	NA
3			

In the above table, a power outage issue happens at 2019-09-16 15:59:52.

11 Activity Log

11.1 Structure of Log

All the activities of the cabinet are recorded in a table in the database. There is also a related version of .htm file for the convenience of browsing.

The log is saved in table CacActivityLog of the database. The structure of the table is as following:

TimeOfActivity: The timestamp of the activity; it is in UTC format

UserName: Normally the name of the user

PersonID: Identification of the user, might be the badge number

DrawerNum: The port number related to the activity. If the number is 0, normally it is about door opening. If it is -1, it is normally an administration activity

Activity: A brief summary of the activity

AccessMethod: The method to open the door and access the cabinet; normally it is RFID

CabinetNameMode: Cabinet name and the cabinet mode; the two are separated with a slash (/).

DatabaseID: This is the encrypted identification unique to the user; normally it is the encryption of the user's badge information

CheckInOut: The nature of the activity, it can be CHECK-IN, CHECK-OUT, OPEN_GATE, or No Action

EquipmentID: If the activity has a device related, this is the equipment ID; otherwise it is NA. The words in the bracket is the equipment description

AircraftInfo: The aircraft information (aircraft line and aircraft number) for the user

TimeReadable: The timestamp in a readable format

CabinetName: The name of the cabinet; this is useful when the master database is loading and reading the log.

The following is a screenshot of the CacActivityLog content:

TimeOfActivity	UserName	PersonID	DrawerNum	Activity	AccessMethod	CabinetNameMode	DatabaseID	CheckInOut	EquipmentID	AircraftInfo	TimeReadable
1567600990	John Doe 3	3	0	Open for no act...	RFID CARD	LMCO CAB 7 / MODE: ALL-ACCESS	d15cdfa4668a9f...	No Action	NA (NA)	NULL	9/4/2019 6:43
1564671876	John Doe 0	50997	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	f130872d12bd9...	OPEN-GATE	NA (NA)	AC2-MJM2	7/1/2019 11:4
1564671929	John Doe 0	50997	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	f130872d12bd9...	OPEN-GATE	NA (NA)	AC2-MJM2	7/1/2019 11:5
1564671946	John Doe 0	50997	2	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	f130872d12bd9...	CHECK-IN	1 (description 1)	AC2-MJM2	7/1/2019 11:5
1564673492	John Doe 0	50997	7	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	f130872d12bd9...	CHECK-IN	2 (description 2)	AC2-MJM2	7/1/2019 11:37
1564673702	John Doe 0	50997	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	f130872d12bd9...	OPEN-GATE	NA (NA)	AC2-MJM2	7/1/2019 11:35
1564673716	John Doe 0	50997	7	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	f130872d12bd9...	CHECK-OUT	2 (description 2)	AC2-MJM2	7/1/2019 11:35
1564673726	John Doe 0	50997	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	f130872d12bd9...	OPEN-GATE	NA (NA)	AC2-MJM2	7/1/2019 11:35
1564673748	John Doe 0	50997	7	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	f130872d12bd9...	CHECK-IN	2 (description 2)	AC2-MJM2	7/1/2019 11:35
1564676288	John Doe 0	50997	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	f130872d12bd9...	OPEN-GATE	NA (NA)	AC2-MJM2	7/1/2019 12:18
1564679104	John Doe 1	13159	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	8d34731a9d8fe...	OPEN-GATE	NA (NA)	AC1-MJM2	7/1/2019 12:49
1564679182	John Doe 1	13159	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	8d34731a9d8fe...	OPEN-GATE	NA (NA)	AC1-MJM2	7/1/2019 12:49
1564679199	John Doe 1	13159	8	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	8d34731a9d8fe...	CHECK-IN	4 (description 4)	AC1-MJM2	7/1/2019 12:49
1564679507	John Doe 2	103	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	668b69875680b...	OPEN-GATE	NA (NA)	AC1-MJM1	7/1/2019 13:11
1564679523	John Doe 2	103	8	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	668b69875680b...	CHECK-OUT	4 (description 4)	AC1-MJM1	7/1/2019 13:12
1564679552	John Doe 2	103	7	OPENED for CH...	RFID CARD	Remote Cabinet / MODE: ALL-ACCE...	668b69875680b...	CHECK-IN	4 (description 4)	AC1-MJM1	7/1/2019 13:12
1564679768	John Doe 2	103	0 / Lid	OPENED GATE	RFID CARD	Remote Cabinet / MODE: FIRST-AVAL...	668b69875680b...	OPEN-GATE	NA (NA)	AC1-MJM1	7/1/2019 13:16
1567771527	Smith9	9	0 / Lid	OPENED GATE	RFID CARD	LMCO CAB 7 / MODE: FIRST-AVAL...	c15dc950a5513...	OPEN-GATE	NA (NA)	UH-60M- 0001	9/6/2019 9:5
1567775461	John Doe 2	2	0	Open for no act...	RFID CARD	LMCO CAB 7 / MODE: ALL-ACCESS	36be013c5cfa00...	No Action	NA (NA)	HH60M- 0025	9/6/2019 9:11

For convenience, we use the .htm file for the log browsing. The .htm version has the major section of the log and also has some details about the user and the equipment. A screenshot is as following:



TIME OF ACTIVITY	USER NAME	PERSON'S ID #	DRAWER #	ACTIVITY	ACCESS METHOD	CABINET NAME & MODE	AIRCRAFT INFO	SERIAL NUMBER	DEVICE DESC	CLOCK NUMBER	SUPERVISOR
07/11/19 10:31:22	System Administrator	FACTORY-DEFAULT	Admin Maintenance	SYSTEM RECONFIGURED ALL DRAWERS OPENED	KEYPAD ONLY	Empty Cabinet / MODE FIRST-AVAILABLE		(n/a)	(n/a)	www.pluginstorage.com	Unknown
07/11/19 10:36:21	System Administrator	FACTORY-DEFAULT	Admin Maintenance	SYSTEM RESTART	KEYPAD ONLY	Empty Cabinet / MODE FIRST-AVAILABLE		(n/a)	(n/a)	www.pluginstorage.com	Unknown
07/11/19 10:49:56	John Doe #	10397	0 / Lock	OPENED-GATE	RFID CARD	Empty Cabinet / MODE FIRST-AVAILABLE	ABLDUE1-101	(n/a)	(n/a)	Unknown	HILL
07/11/19 10:49:58	John Doe #	10397	10	OPENED for CHECK-OUT	RFID CARD	Empty Cabinet / MODE FIRST-AVAILABLE	ABLDUE1-101	10101010	equipped TO	Unknown	HILL
07/11/19 10:50:20	John Doe #	10397	0 / Lock	OPENED-GATE	RFID CARD	Empty Cabinet / MODE FIRST-AVAILABLE	ABLDUE1-101	(n/a)	(n/a)	Unknown	HILL
07/11/19 10:51:02	John Doe #	10397	0 / Lock	OPENED-GATE	RFID CARD	Empty Cabinet / MODE FIRST-AVAILABLE	ABLDUE1-101	(n/a)	(n/a)	Unknown	HILL

The .htm file locates at C:\users\pluginstorage\log\CacActivityLog.htm. Sometimes there is a shortcut link on the desktop.

Some structure of the information in .htm file is the same as the meaning in CacActivityLog, and some of them are different. It has the following fields:

Time of Activity: the readable format of the timestamp

User Name: The name of the user

Person's ID #: The identification number of the person

Drawer #: The port number of the activity. 0 for gate opening and -1 for administrative action

Activity: The brief summary of the activity

Access Method: The method to access the cabinet

Cabinet Name & Mode: The cabinet name and the cabinet mode

Aircraft Info: aircraft information including aircraft line and aircraft number information

Serial Number: The serial number of the equipment

Device Desc: The description of the equipment

Clock Number: The clock number of the employee if it is available

Supervisor: The supervisor of the user

11.2 Type of Activity

There is a list of scenarios for the operations of the cabinet. Activity column in the log table has a summary for different type of operation.

The following is a table with more details. The first column is the keyword in the Activity column of log table, and the second column is the meaning and description of the action:

Activity Keyword	Action Description
OPEN GATE	open the door of the cabinet
OPEN FOR CHECK-OUT	checkout a device
OEPN FOR CHECK-IN	Check-in a device
ADMIN OPENED DOOR	administrator opens the door
Indicated as x CHECK-OUT	User checks out another (or 3 rd , 4 th , etc) device without returning the first one
Open for no action	User opens and closes the door of the cabinet, but has no check-in or checkout
Checked out by user: xxx	a device is check out by user xxx
ADMIN OPENED DRAWER. DRAWER 1 opened	Admin open the door
ADMIN OPENED DRAWER. FORCED CHECK-IN	Admin check-in a device
Return Item Checked out by User xxx	User returns a device that was checked out by another user; user is administrator, and the action is valid
Tried to Return Item Checked out by User xxx	User tried to return a device that was checked out by another employee; user is not administrator, and the action is invalid.
Report Broken Device	A user reports a broken device
Report Cable Connection	An issue happens for cable connection
Custodian check-in for user: xxx	User check-in a device for another person.
Import from Pool	Import the user information from master database as the user is not available locally
ADMIN REMOVE CHECKOUT	Administrator removes a checkout device from the list
SYSTEM RECONFIGURED, ALL DRAWERS OPEN	system reconfiguration
SYSTEM RESTART	Restart the computer. System administrator has the privilege to restart the computer
SYSTEM SHUTDOWN	Shutdown the computer. The administrator has the privilege to turn off the computer

12 Cabinet Monitoring

The status of the cabinet is available in real time on “Snapshot” tab and “Port Config” tab.

12.1 Snapshot Tab

“Snapshot” tab provides an overview of the current status of the cabinet. It shows the basic information of each port and the equipment on it, and the checkouts of the equipment.

The table includes the following columns:

Equipment ID: The ID of the equipment

Equipment Desc: The description of the equipment

Checked in or Out: The port has device check-in or checkout. For “real tracking” mode, it shows “-” when checked out

Port Number: The port number. When there is device checked in, it shows the port number; otherwise it is “-”

Port Status: When the port has a device plugged in, it shows “Attached”; otherwise it is “-”

Port Mode: The mode of the device on the port. It could be “Charged”, “Charging” or “Idle”.

Last Time Status Change: Show the time when last time the status of the equipment changes

User Name: If the equipment has been checked out, it shows the user who checked it out

User Mist info: If the equipment has been checked out, it shows other information of the user of check-out

The following is a screenshot:

	EQUIPMENT ID	EQUIPMENT DESCR.	CHECKED IN or OUT	PORT NUMBER	PORT STATUS	PORT MODE	LAST TIME STATUS CHANGE	USER NAME	USER MISC INFO
1	No.5	HP Elite G2 Tablet	OUT	-	-	-	-	John Smith	Flightline Group 1
2	-	-	OUT	-	-	-	-	-	-
3	No.2	HP Elite G2 Tablet	IN	3	Attached	Charged	2019-10-16 15:13:54	-	-
4	No.3	HP Elite G2 Tablet	IN	4	Attached	Charged	2019-10-16 15:14:01	-	-
5	No.4	HP Elite G2 Tablet	IN	5	Attached	Charged	2019-10-16 15:11:22	-	-
6	-	-	OUT	-	-	-	-	-	-
7	No.6	HP Elite G2 Tablet	IN	7	Attached	Charged	2019-10-16 15:14:37	-	-
8	-	-	OUT	-	-	-	-	-	-
9	-	-	OUT	-	-	-	-	-	-
10	-	-	OUT	-	-	-	-	-	-
11	-	-	OUT	-	-	-	-	-	-
12	-	-	OUT	-	-	-	-	-	-
13	-	-	OUT	-	-	-	-	-	-
14	-	-	OUT	-	-	-	-	-	-
15	No.7	HP Elite G2 Tablet	IN	15	Attached	Charged	2019-10-16 15:13:05	-	-
16	No.8	HP Elite G2 Tablet	IN	16	Attached	Charging	2019-10-16 12:37:15	-	-

In the above table, Equipment No.5 has been checked out by John Smith; Equipment No.2 is on port 3 and it is fully charged.

12.2 Port Config Tab

“Port Config” tab has some information that already in “Snapshot” tab, but it provides more detailed information about the port and the equipment on it. It includes the following columns:

Blocked Port: Shows if the port has been blocked

Status: Shows if the port has equipment attached or not; if not it shows “Detached”

Mode: Shows the mode of the port. If the port has been turned off from USBC port, it shows “Off”; if there is no device plugged in, it is “Off” too. When a device is plugged in, it could be “Charging”, “Finished Charging” or “Idle”. When the mode is “Idle”, the line is yellow.

Duration: Shows how long the device has been plugged in the port

Battery (%): It shows how many percentages the device has been charged. When the percentage is less than 80%, the line is red; when it is more than 80%, the line becomes green.

Serial Number: The serial number of the device plugged in the port.

Manufacture: The manufacture of the device that is plugged in the port

Description: The description of the device on the port

Temperature(F): The temperature of USBC board



Temperature(F):

	Blocked Port	Status	Mode	Duration	Battery(%)	Serial Number	Manufacture	Description
1	<input type="checkbox"/>	Detached	Off	5:04:46	0			
2	<input type="checkbox"/>	Attached	Charging	0:47:46	100	80:ce:62:25:9c:16	-	HP Elite G2 Tablet
3	<input type="checkbox"/>	Attached	Finished Charging	2:25:30	100	80:ce:62:2b:53:96	-	HP Elite G2 Tablet
4	<input type="checkbox"/>	Attached	Finished Charging	2:25:23	100	80:ce:62:25:8c:4e	-	HP Elite G2 Tablet
5	<input type="checkbox"/>	Attached	Finished Charging	2:28:02	100	80:ce:62:25:ac:52	-	HP Elite G2 Tablet
6	<input type="checkbox"/>	Attached	Charging	0:50:02	100	80:ce:62:2b:62:b4	-	HP Elite G2 Tablet
7	<input type="checkbox"/>	Attached	Finished Charging	2:24:47	100	80:ce:62:25:8c:2f	-	HP Elite G2 Tablet
8	<input type="checkbox"/>	Detached	Off	5:03:35	0			
9	<input type="checkbox"/>	Detached	Off	5:03:15	0			
10	<input type="checkbox"/>	Detached	Off	5:03:07	0			
11	<input type="checkbox"/>	Detached	Off	5:02:59	0			
12	<input type="checkbox"/>	Detached	Off	5:02:52	0			
13	<input type="checkbox"/>	Detached	Off	5:02:32	0			
14	<input type="checkbox"/>	Detached	Off	5:02:24	0			
15	<input type="checkbox"/>	Attached	Finished Charging	2:26:19	100	80:ce:62:22:57:00	-	HP Elite G2 Tablet
16	<input type="checkbox"/>	Attached	Charging	5:02:09	100	80:ce:62:2b:23:bc	-	HP Elite G2 Tablet

When we want to block a port, we can select “Blocked Port” column of the related line, and press “Save Changes” button, the information will be saved to database.

13 Cabinet Commands

System control is a method to remotely control the cabinet and/or its computer. It includes “Cabinet Reboot”, “Shutdown”, and “Restart CACmanager”. The tool locates in “Snapshot/Cabinet Commands” tab. The screenshot is as following:



When we choose the command item, and press “Activate Settings” and the command will be executed on the computer of the cabinet.

14 Receipt

Receipt printing is the function to provide a receipt to the user when a device is checked out. The receipt is normally automatically printed and save to folder C:\Users\Pluginstorage\Log\Receipts\.

The setup locates at “Receipt Layout” tab. Its layout is as following:

ISSUED TO: SIGNATURE		DUTY PHONE	ISSUED BY:	
ISSUED TO: LAST, FIRST, RANK		SQUADRON	DATE ISSUED	
IDENTIFYING NUMBER	DESCRIPTION OF ITEM	U/I	QNTY	
<p style="text-align: center;">PREVIOUS EDITION WILL BE USED TEMPORARY ISSUE RECEIPT</p>				

The format of the receipt can be customized with the header, bottom and instruction. The setup is as following:

INSTR:	Legibly fill in all yellow areas and return to the 60 OSS/OSK HILL AFB DSN 777-7221/5775	<input type="checkbox"/> Enable Auto Receipt Printing
PRINTER:	No Default Printer Set	
HEADER:	I acknowledge receipt of and responsibility IAW AFI 23-111 for the items described below	
BOTTOM:	AF FORM 1297, JUL 87(EF-V2) (PerFORM Pro)	

The following is an example of the receipt:

Cabinet Name- Cabinet-Unknown

Wed Oct 16 12:48:31 2019

CA-CABINET RECEIPT

I acknowledge receipt of and responsibility IAW AFI 23-111 for the items described below and will return them upon mission completion.			
ISSUED TO: SIGNATURE Digital Signature: H130672d12bd9ed6db327660f52579e835b126d85cbb7e08bdcc450fba32790		DUTY PHONE Unknown	ISSUED BY: Cabinet: LMCO CAB 9
ISSUED TO: LAST, FIRST, RANK John Smith, Unknown		SQUADRON Unknown	DATE ISSUED 10/16/19 12:48:23
IDENTIFYING NUMBER	DESCRIPTION OF ITEM	U/I	QNTY
No Equip. Found	-	Ea	1
PLEASE Legibly fill in all yellow areas and return to the 60 OSS/OSK HILL AFB DSN 777-7221/5775			
AF FORM 1297 , JUL 87 (EF-V2) (PerFORM Pro)		PREVIOUS EDITION WILL BE USED	
		TEMPORARY ISSUE RECEIPT	

Appendix A: SQL Server Configuration

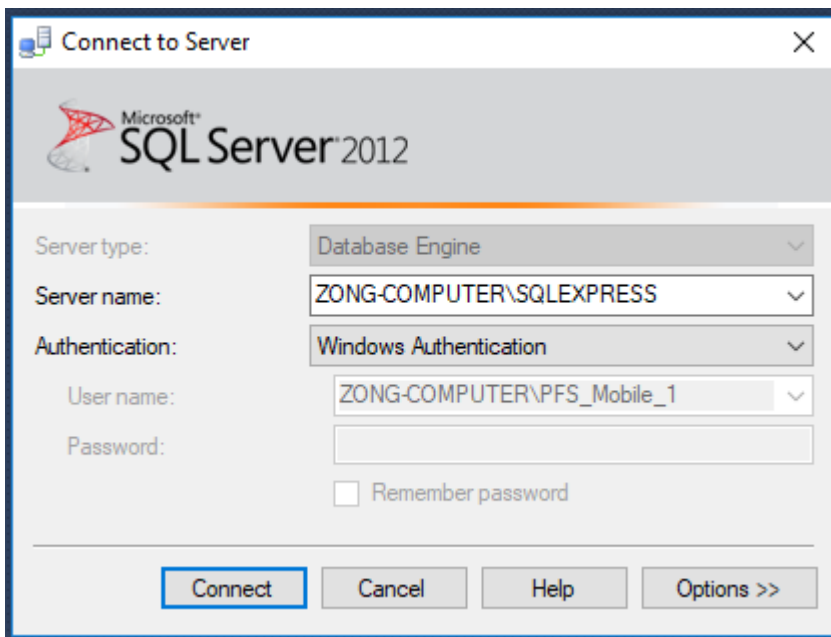
Database configuration includes the following components: reset password, change database name, setup a user/password, change port.

A1 Reset Password

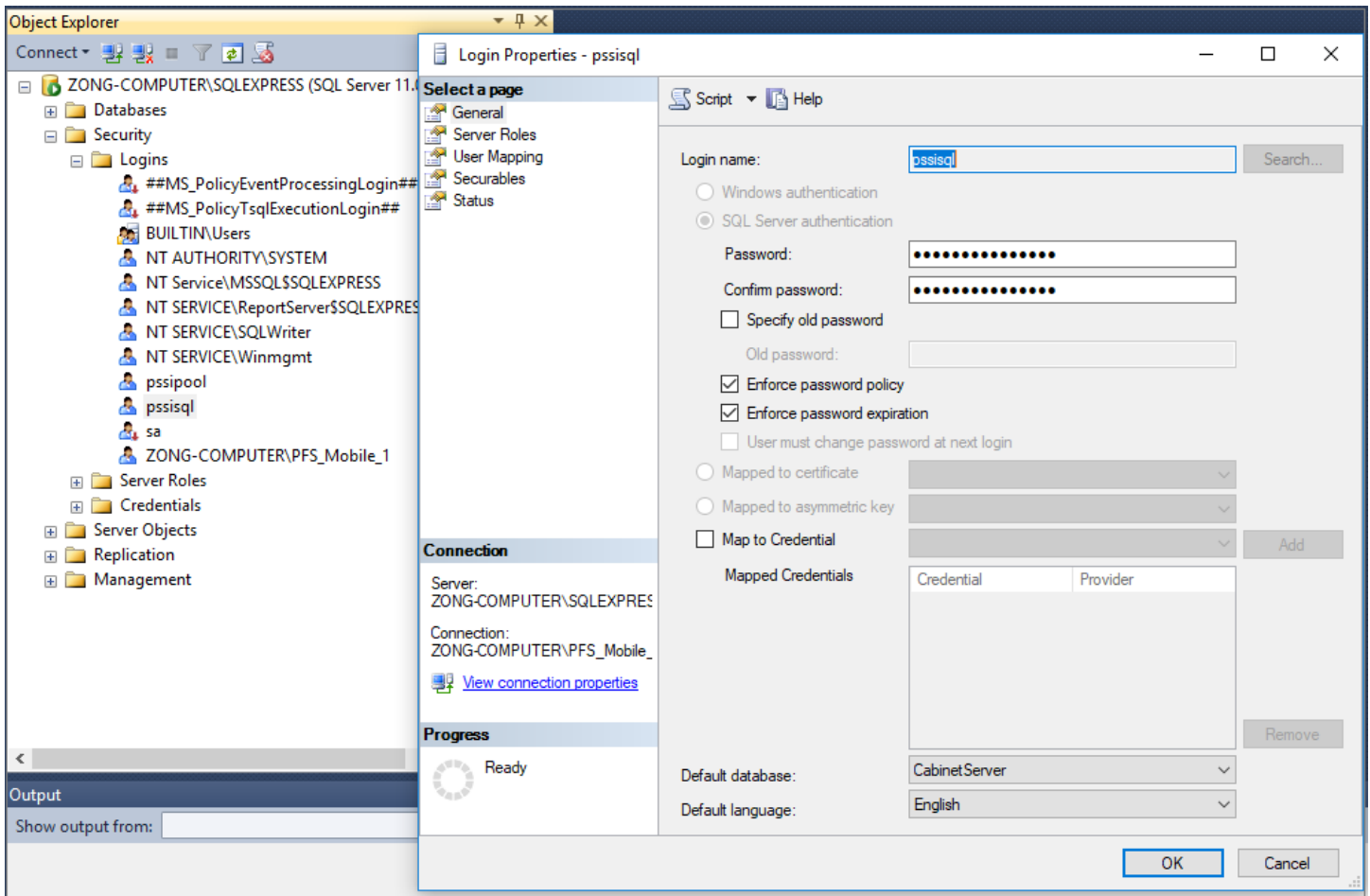
When there is an update to the Windows system or there is a system change, the password of SQL Server might become invalid, then we need to set the password again. After some time, we might want to change the password too for security reason.

The steps are as following:

Start SQL Server Management Studio, and login with Window Authentication.



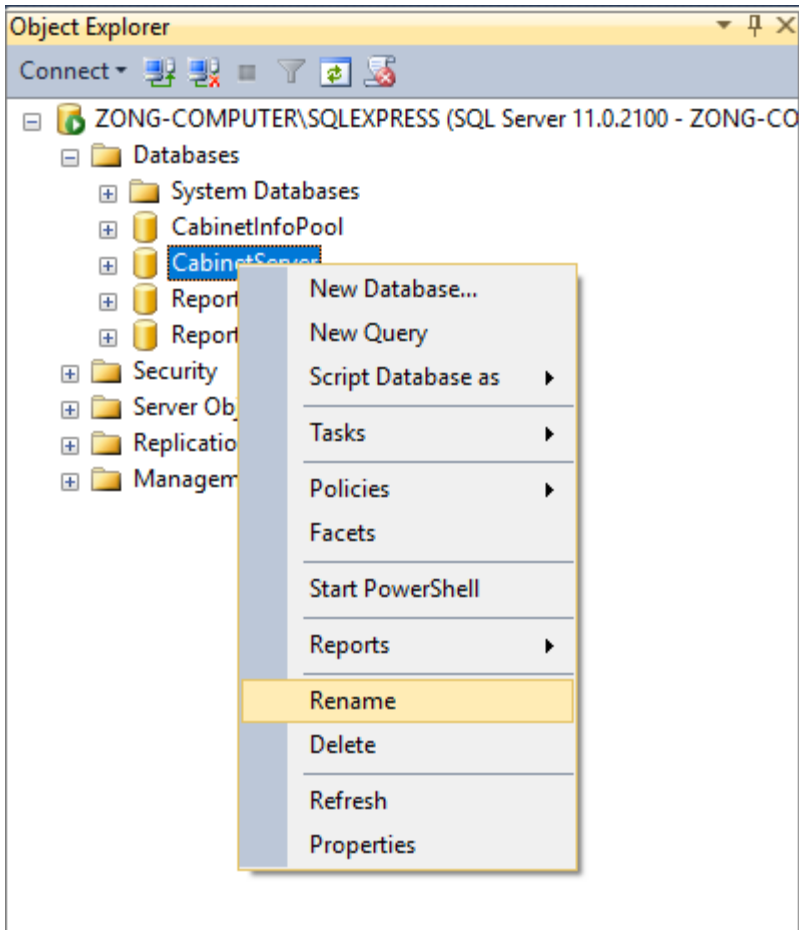
From the related username from Security -> Login -> username, right click the username and choose Property, a window will appear as following:



Type in the new password and confirm password, and press “OK” button.

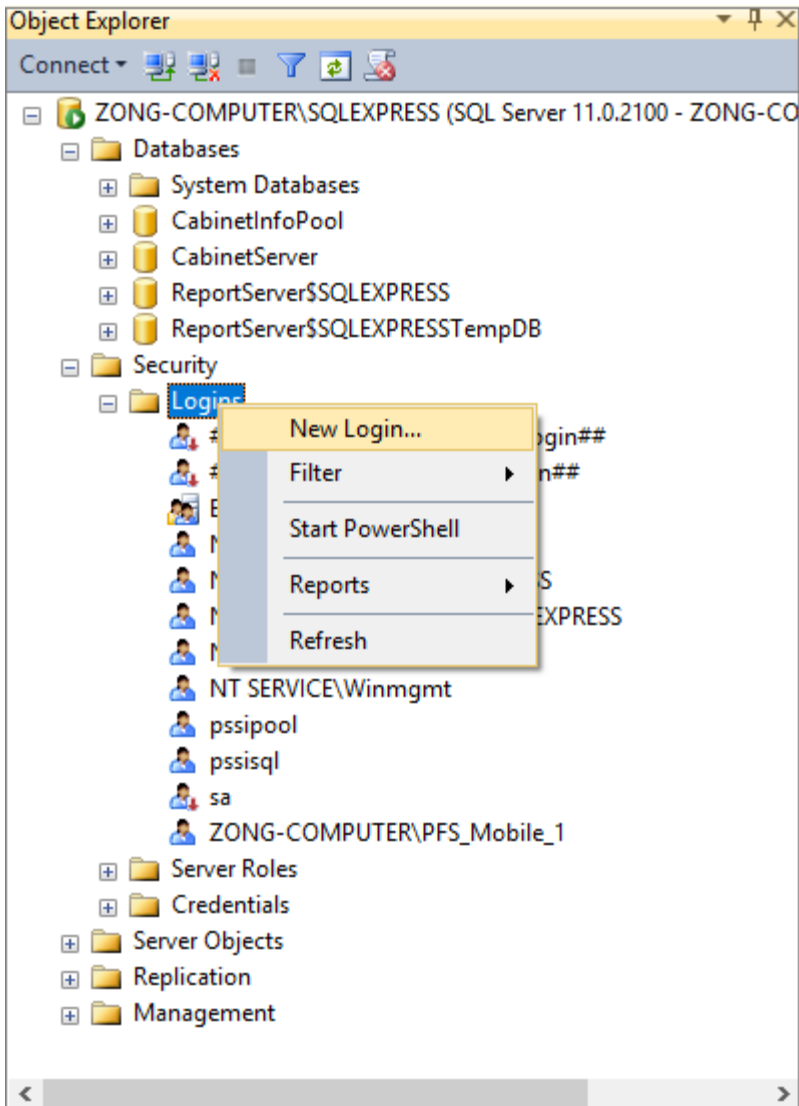
A2 Change Database Name

The steps to change a database name is as following: login the database on SQL Server Management Studio, right click the database name, from Property window click “Rename”, and the name of the database becomes writeable, type the new database name. A screenshot is as following:

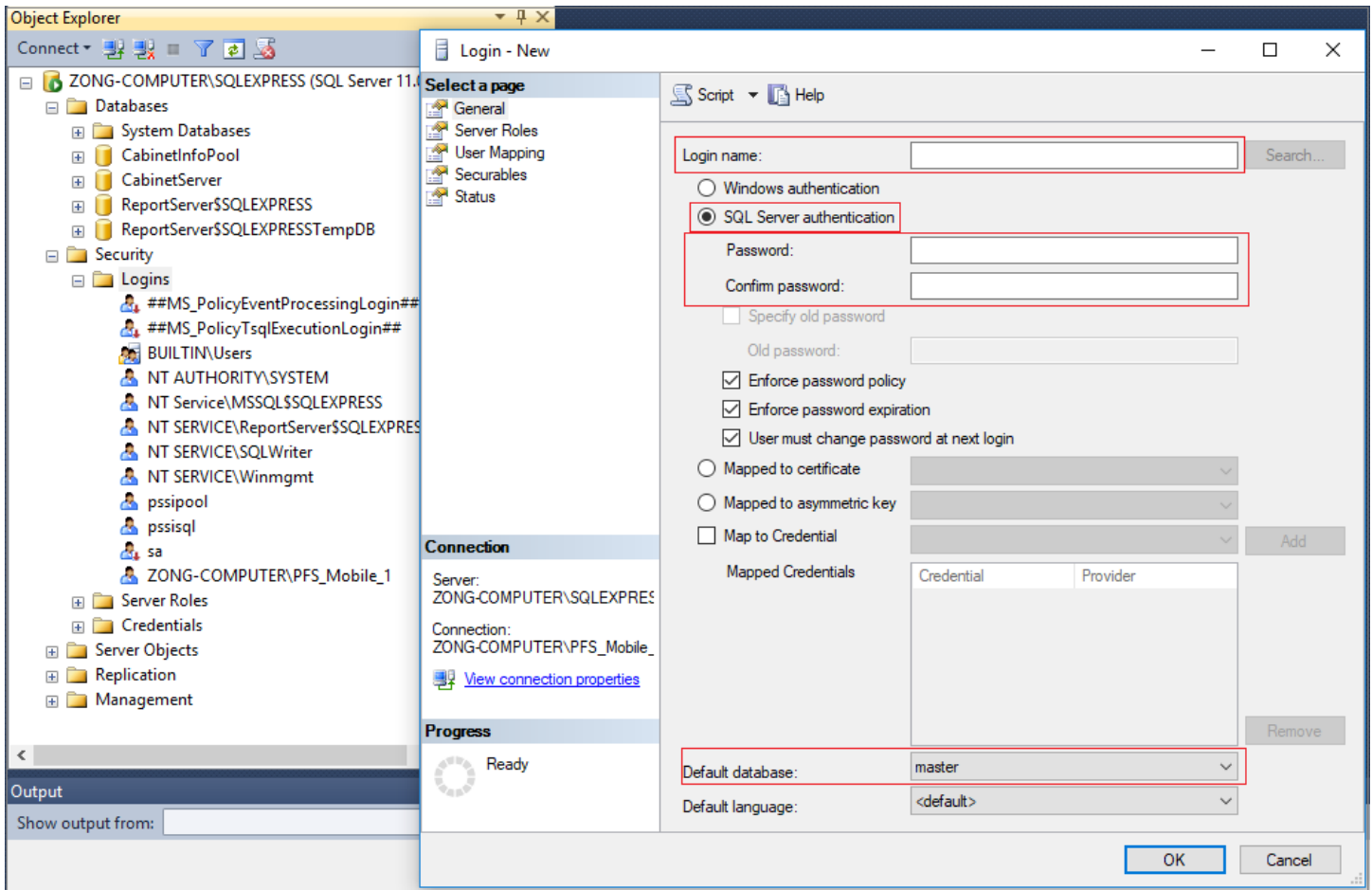


A3 Setup New User/password

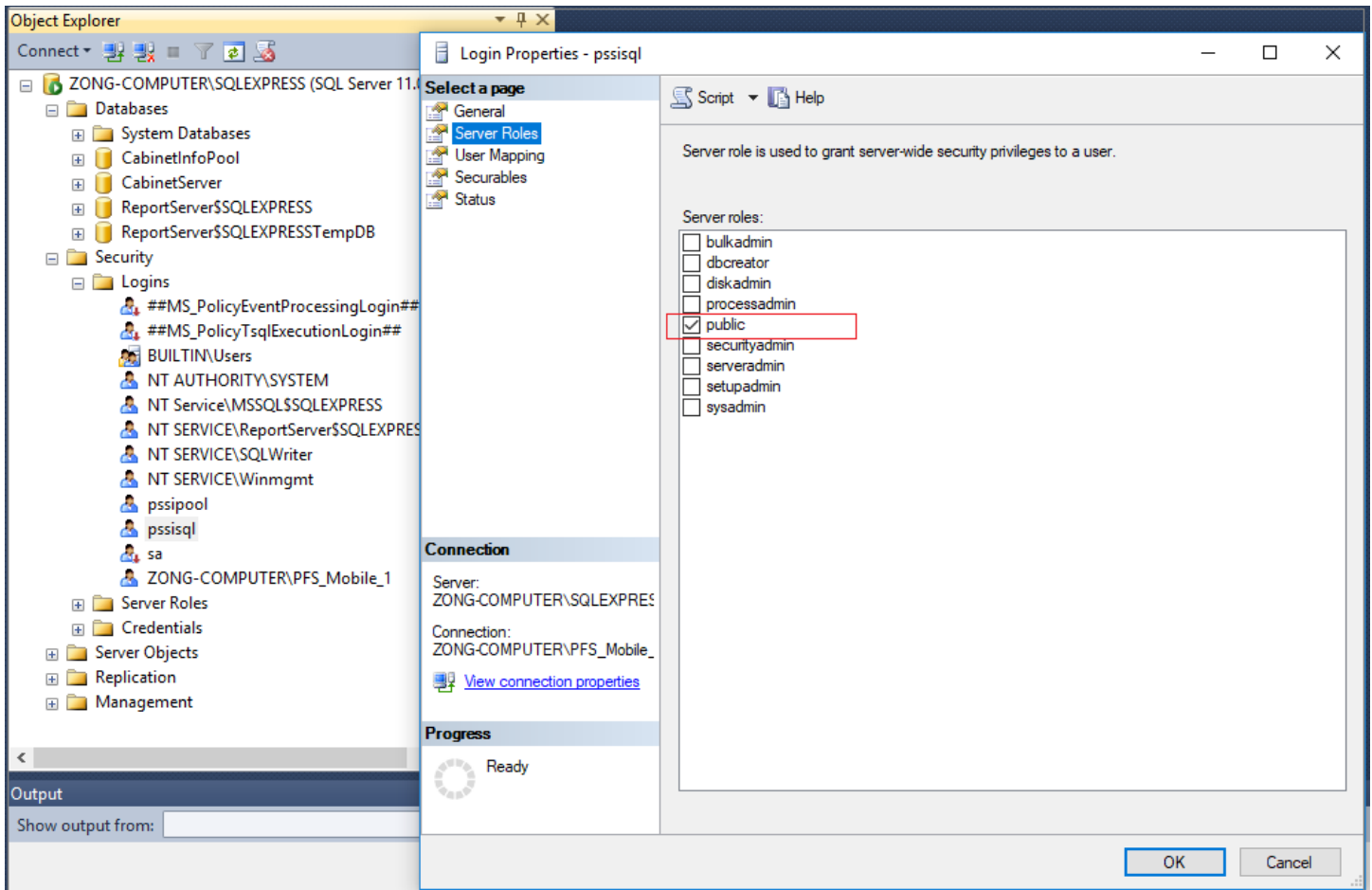
The steps for set up a new user/password is as following: login the database with SQL Server Management Studio, click “Security” to expand it, found “Logins” from below, right click “Logins”, From the popped up window, choose “New Login ...”. The following is a screenshot:



After choosing “New Login ...”, a new window appears, choose “SQL Server Authentication”, and type in login name/password/confirm password. Pay attention to “Default Database”, choose the one you want the user mostly related to. Click “OK” button and the new user is setup. The following is a screenshot:

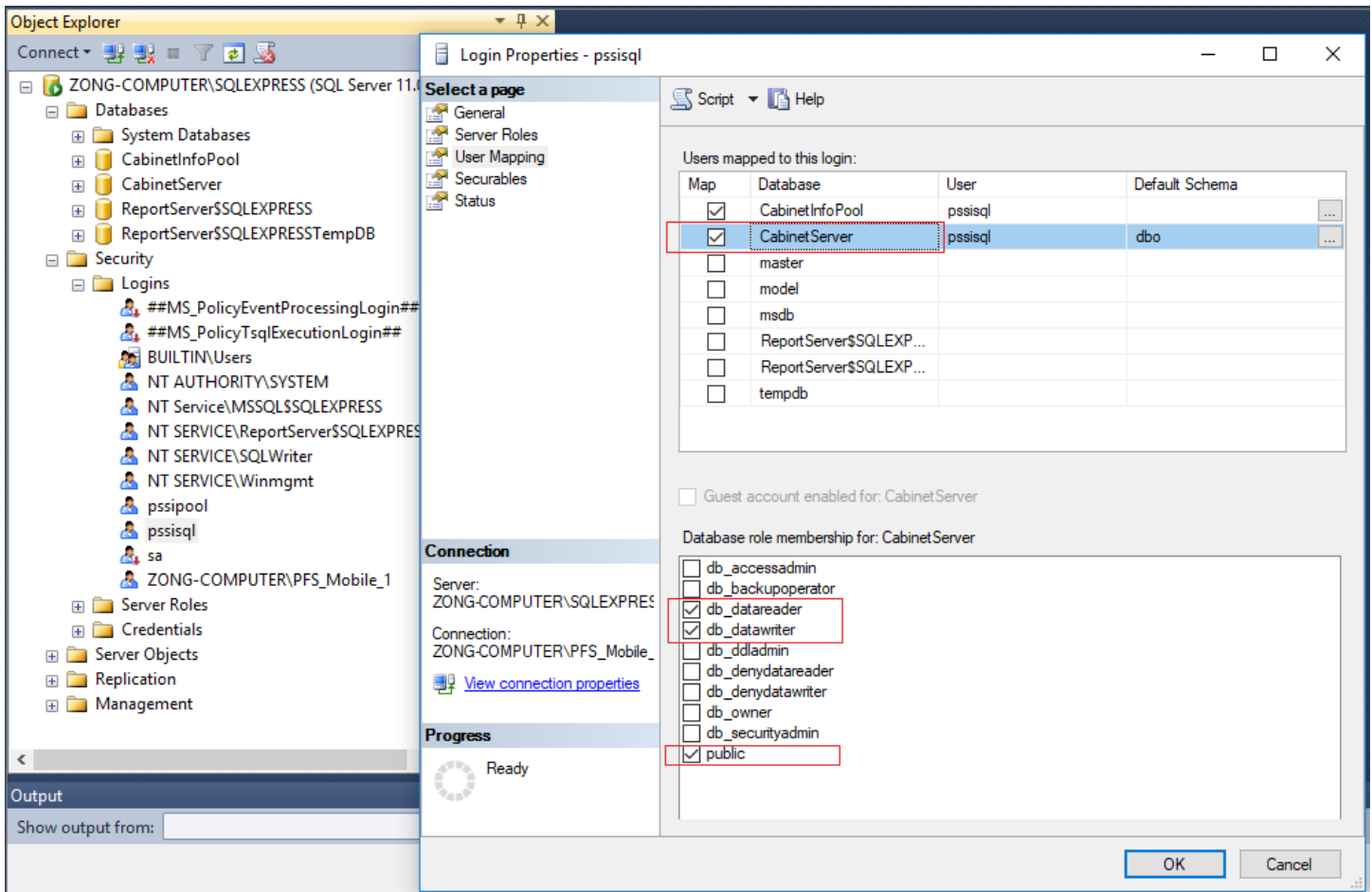


After the new user is created, we need to do the configuration to it. The steps are as following: login to the database, from “Security”-“Login”, find the name of new user, right click it and choose “Property” in the popped up window, choose “Server Role” from the list of upper left part of the window. From the list of server role, we choose “public”. A screenshot is as following:

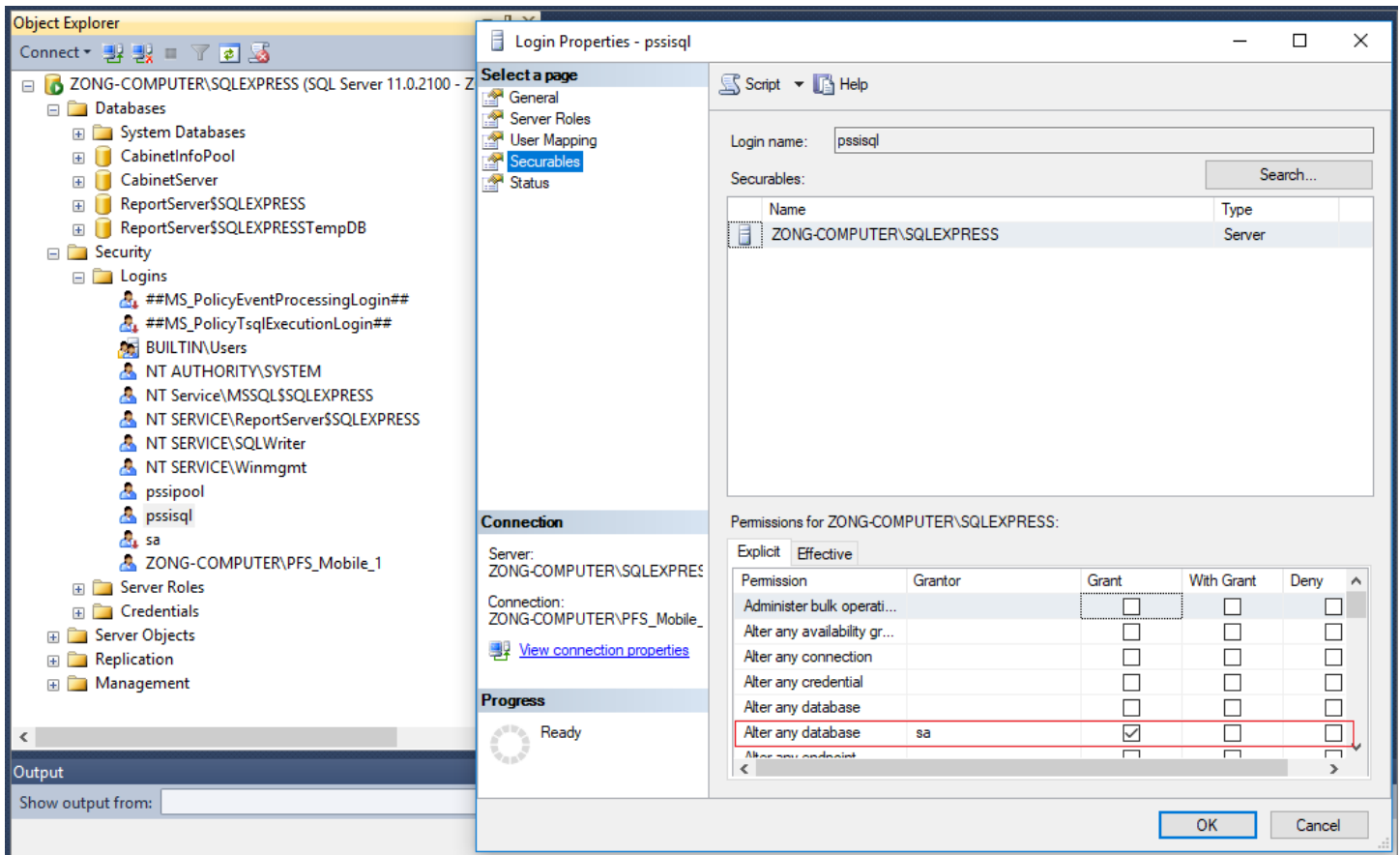


After set the “Server Roles”, we need to setup the “User Mapping” of the new user; it sets the role membership for each database. The steps are as following: click “User Mapping” from page selection, from the right section of the window, choose the database that the user is related, and from the window below, choose its role; normally it is “db_datareader”, “db_datawriter”, and “public”. After setting up one database, move on to the next one if necessary.

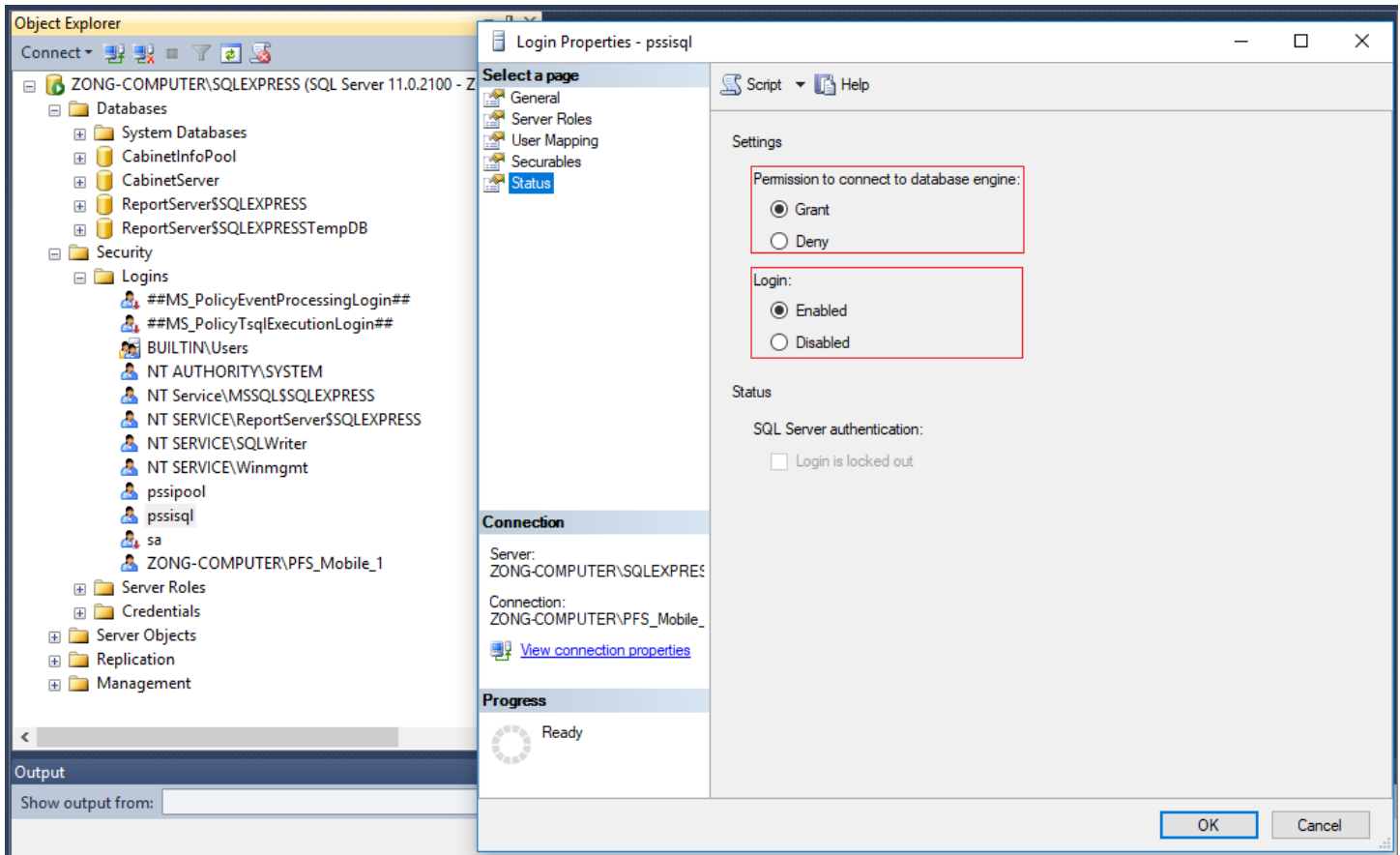
The following is a screenshot:



The “Securables” of the user can be set as following: choose “Securables” from page list, in the permission window on the right, choose “Alter any database”. A screenshot is as following:

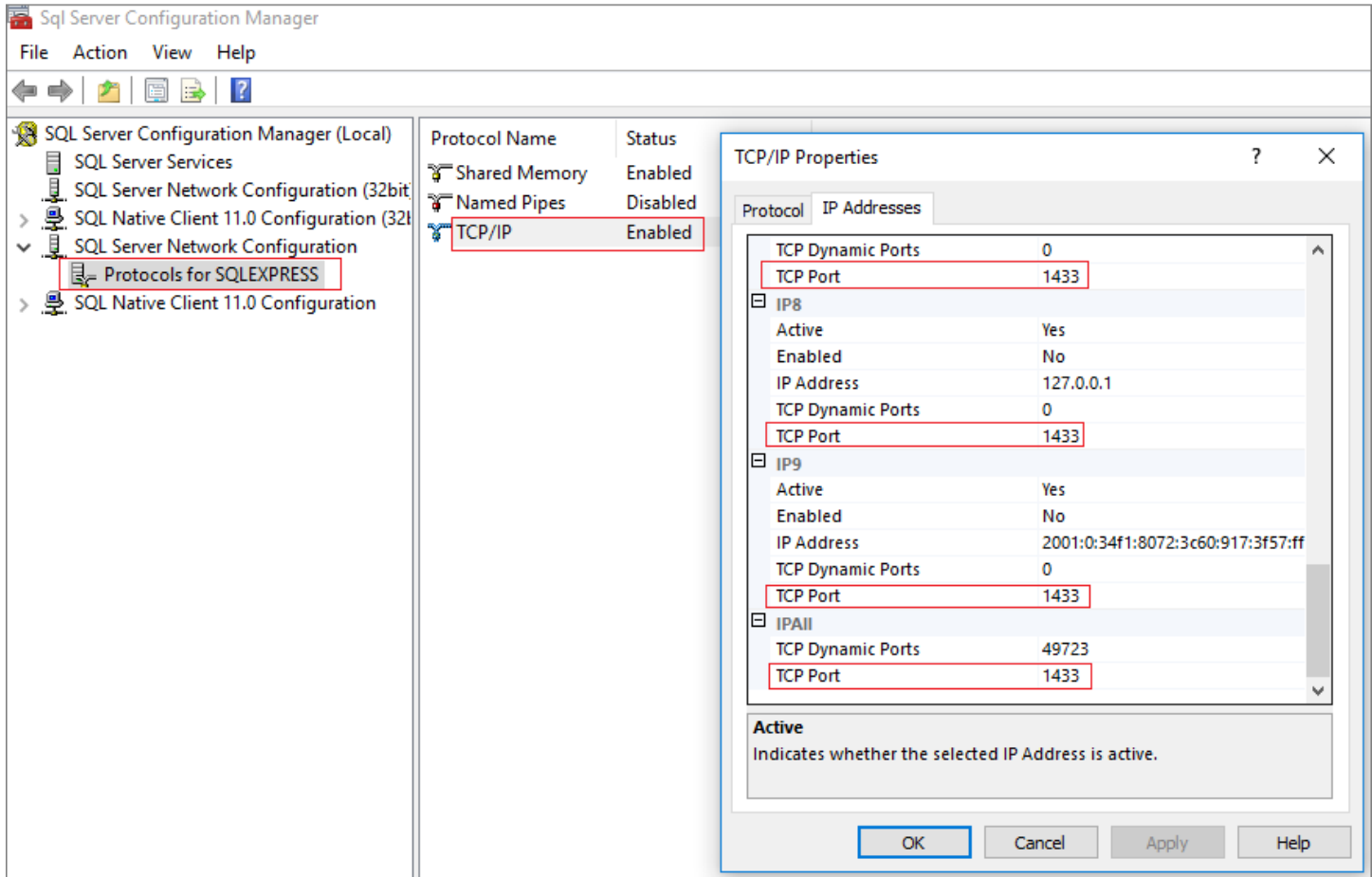


Setup of “Status” of the new user is as following: Choose “Status” from the page list, from the right side of the window, choose “Grant” for “Permission to connect to database engine”, and choose “Enabled” to “Login”. A screenshot is as following:

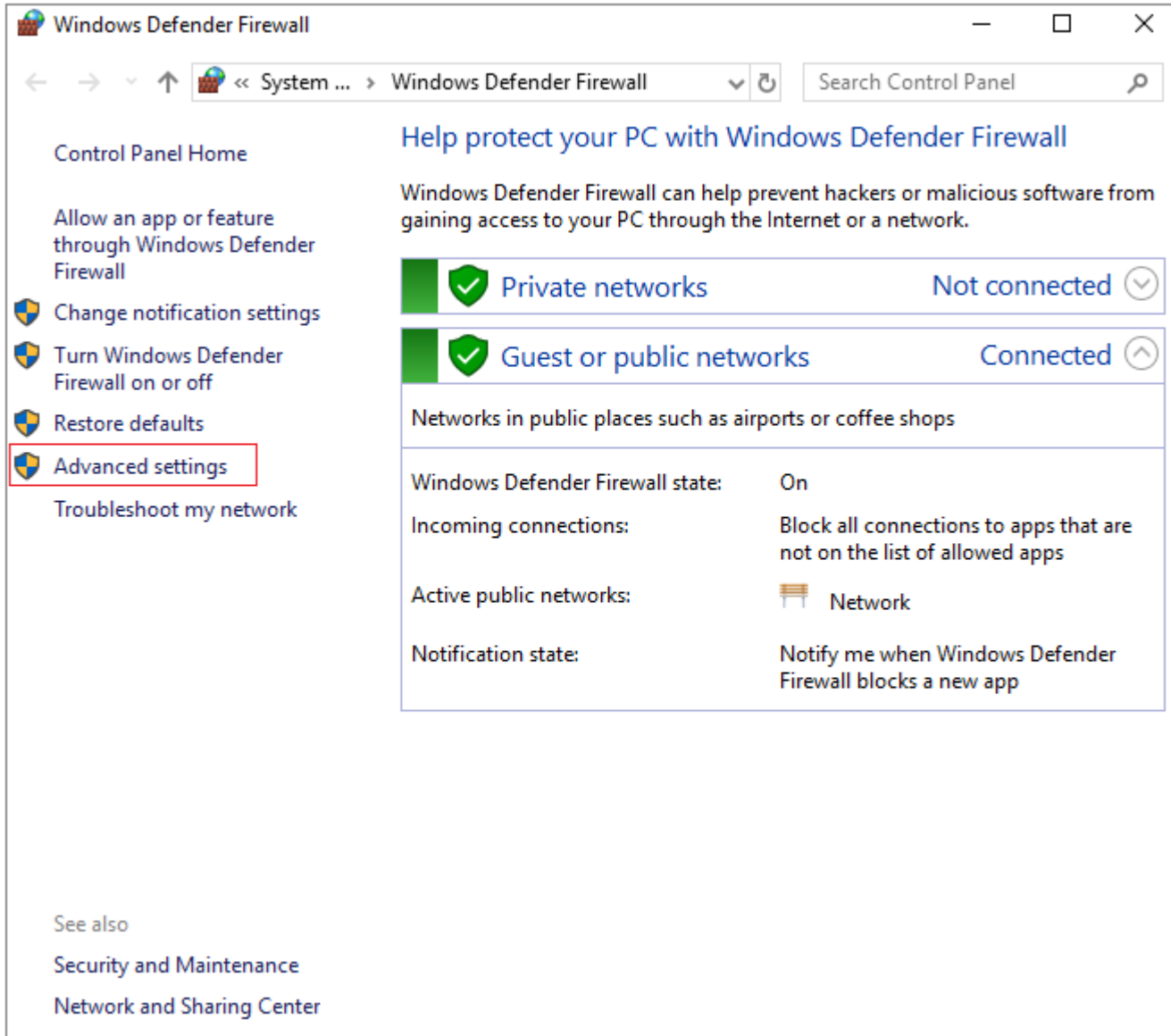


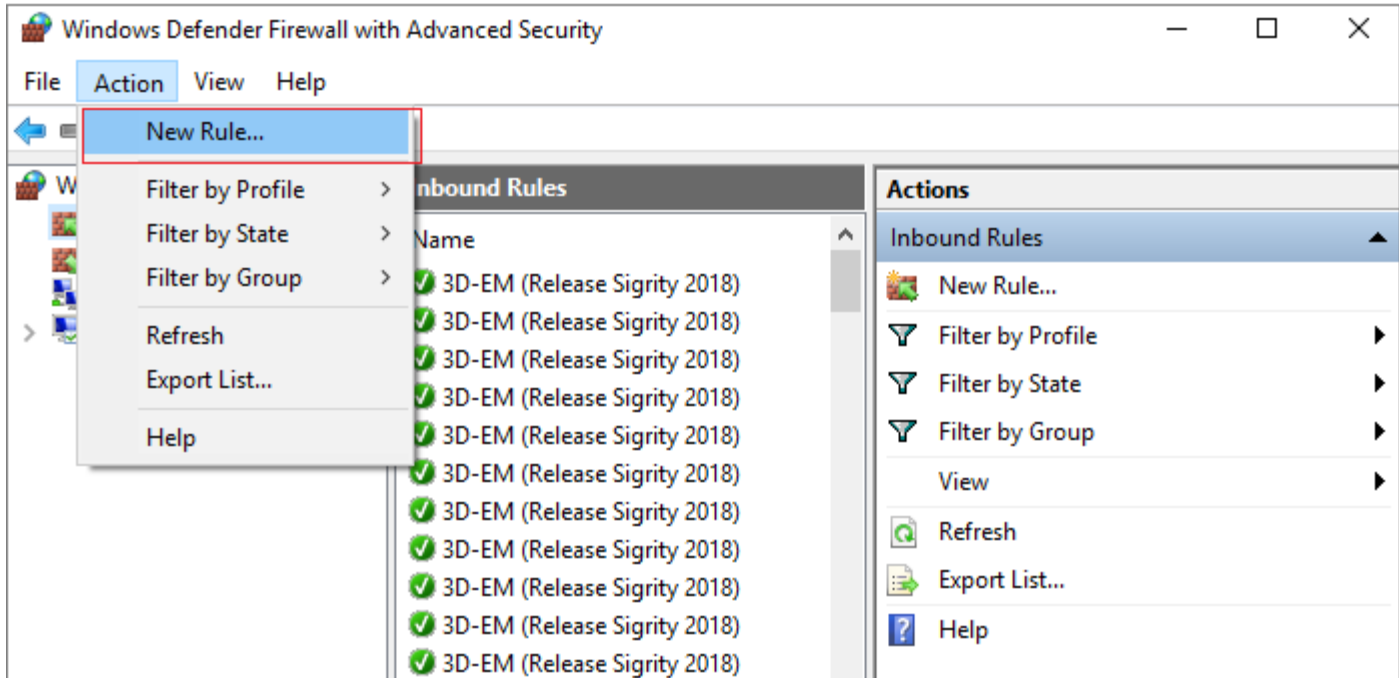
A4 Change Port

Normally it is the TCP port we want to change. The default port number is 1433. The steps to change TCP port is as following: start “SQL Server Configuration Manager”; click the server name, usually it is “Protocol for SQLEXPRESS” under “SQL Server Network Configuration”; double click “TCP/IP” from the protocol list on the right, and a window will appear; choose “IP Address” tab. Set “TCP Port” to the new port number for all the sections (including IPALL). The following is a screenshot:



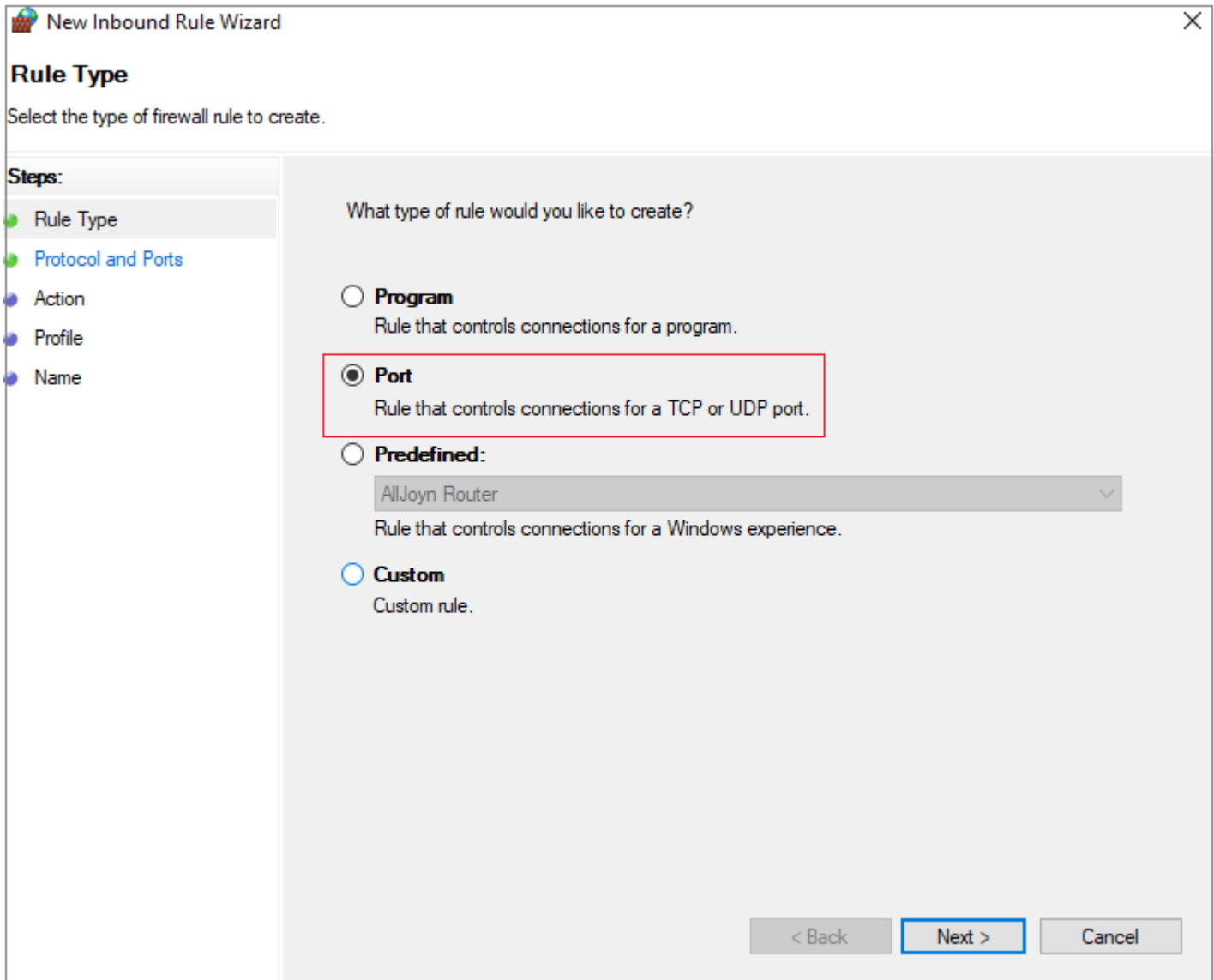
After changing the port number, we need to set new rule on Firewall to make access to the new port. The following is the steps: Open “Windows Defense Firewall”, choose “Advanced Settings” from the left, and a window will appear.





From the popped-up window, click “Inbound Rules”, then from the menu “Action”, choose “New Rule”.

In the window, choose “Port”, and then click “Next”. The following is a screenshot.



The image shows a Windows Firewall 'New Inbound Rule Wizard' window. The title bar reads 'New Inbound Rule Wizard' with a close button. The main heading is 'Rule Type' with the instruction 'Select the type of firewall rule to create.' On the left, a 'Steps:' pane lists 'Rule Type' (selected), 'Protocol and Ports', 'Action', 'Profile', and 'Name'. The main area asks 'What type of rule would you like to create?' and offers three options: 'Program' (Rule that controls connections for a program.), 'Port' (Rule that controls connections for a TCP or UDP port.), and 'Predefined:' (Rule that controls connections for a Windows experience.). The 'Predefined:' section has a dropdown menu currently showing 'AllJoyn Router'. The 'Port' option is selected and highlighted with a red rectangle. At the bottom right are '< Back', 'Next >', and 'Cancel' buttons.

New Inbound Rule Wizard

Rule Type

Select the type of firewall rule to create.

Steps:

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

What type of rule would you like to create?

☐ **Program**
Rule that controls connections for a program.

☒ **Port**
Rule that controls connections for a TCP or UDP port.

☐ **Predefined:**
AllJoyn Router
Rule that controls connections for a Windows experience.

☐ **Custom**
Custom rule.

< Back Next > Cancel

In the next screen, choose “TCP Port” and write the port number to “Special Local Port”.

New Inbound Rule Wizard [X]

Protocol and Ports

Specify the protocols and ports to which this rule applies.

Steps:

- Rule Type
- Protocol and Ports**
- Action
- Profile
- Name

Does this rule apply to TCP or UDP?

☒ **TCP**

☐ **UDP**

Does this rule apply to all local ports or specific local ports?

☐ **All local ports**

☒ **Specific local ports:**

Example: 80, 443, 5000-5010

< Back **Next >** Cancel

Press “Next”, and “Next” with the default setting on the page, until the last page, input “SQL Server TCP Port” for the name, and press “Finish” button. The rule for the new port has been created. You might want to remove the rule of the old port number from the Firewall setting.

Appendix B Configuration of Cisco Switch

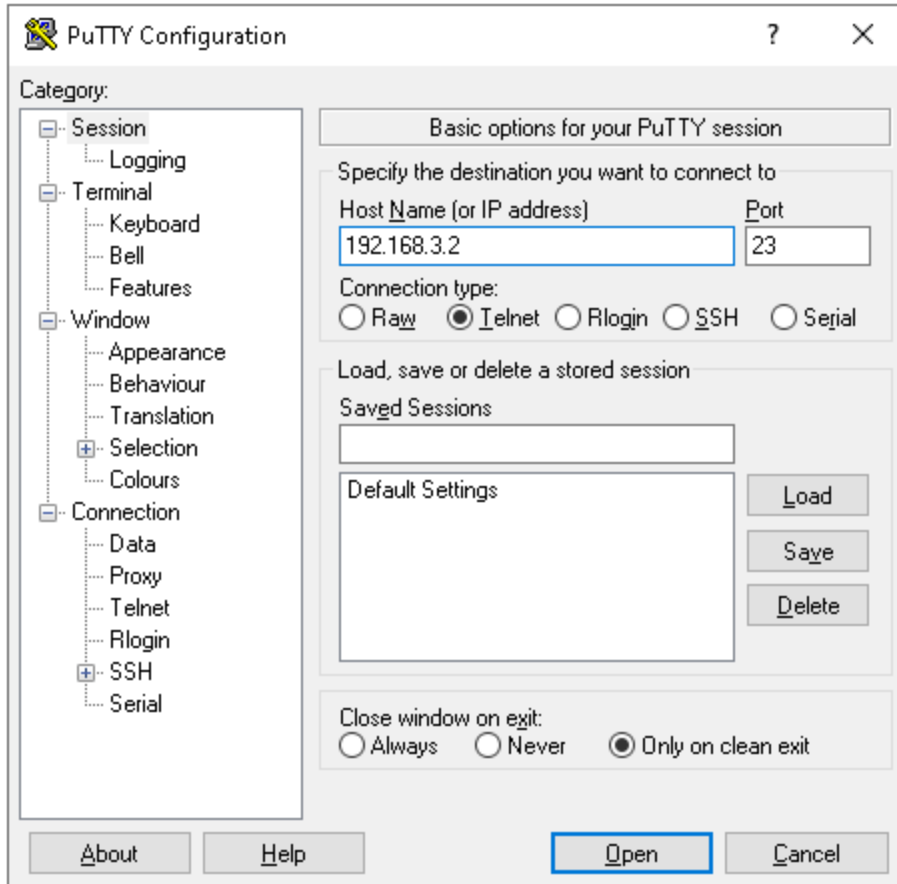
Occasionally the IP address of the switch needs to be changed to connect to the computer and the devices in the cabinet. The current IP address can be found in CAC-GUI.

The following screenshot shows the place to find the IP address.

The screenshot shows the CAC-GUI interface with the 'System Config' tab selected. The 'Cabinet Config' section is expanded, showing various configuration fields. The 'Switch Address' field is highlighted with a red rectangular box, indicating its importance for finding the IP address. The current value for 'Switch Address' is 192.168.3.2.

System Config	
— Cabinet Config —	
Cabinet IP:	192.168.0.151
CABINET NAME:	LMCO CAB 9
Switch Address:	192.168.3.2
Enrollment:	<input type="checkbox"/> AUTO-ENROLLMENT: Automatically add users without administrator.
Connection:	<input type="checkbox"/> AUTO-CONNECTION: Automatically connect to database on Startup within 2:00 min.
Check-in Option:	<input checked="" type="checkbox"/> Custodian check-in: Administrator can check-in device for the user.
Debug Window:	<input checked="" type="checkbox"/> Debug Window: Debug Window is available when choosen.
LCD COM Port:	COM1
Door Open time Alert (seconds):	120
Help Contact:	Contact System Admin
Help Call:	203-xxx-xxx

After having found the IP address, we can telnet into the switch with Putty, the following is the screenshot:

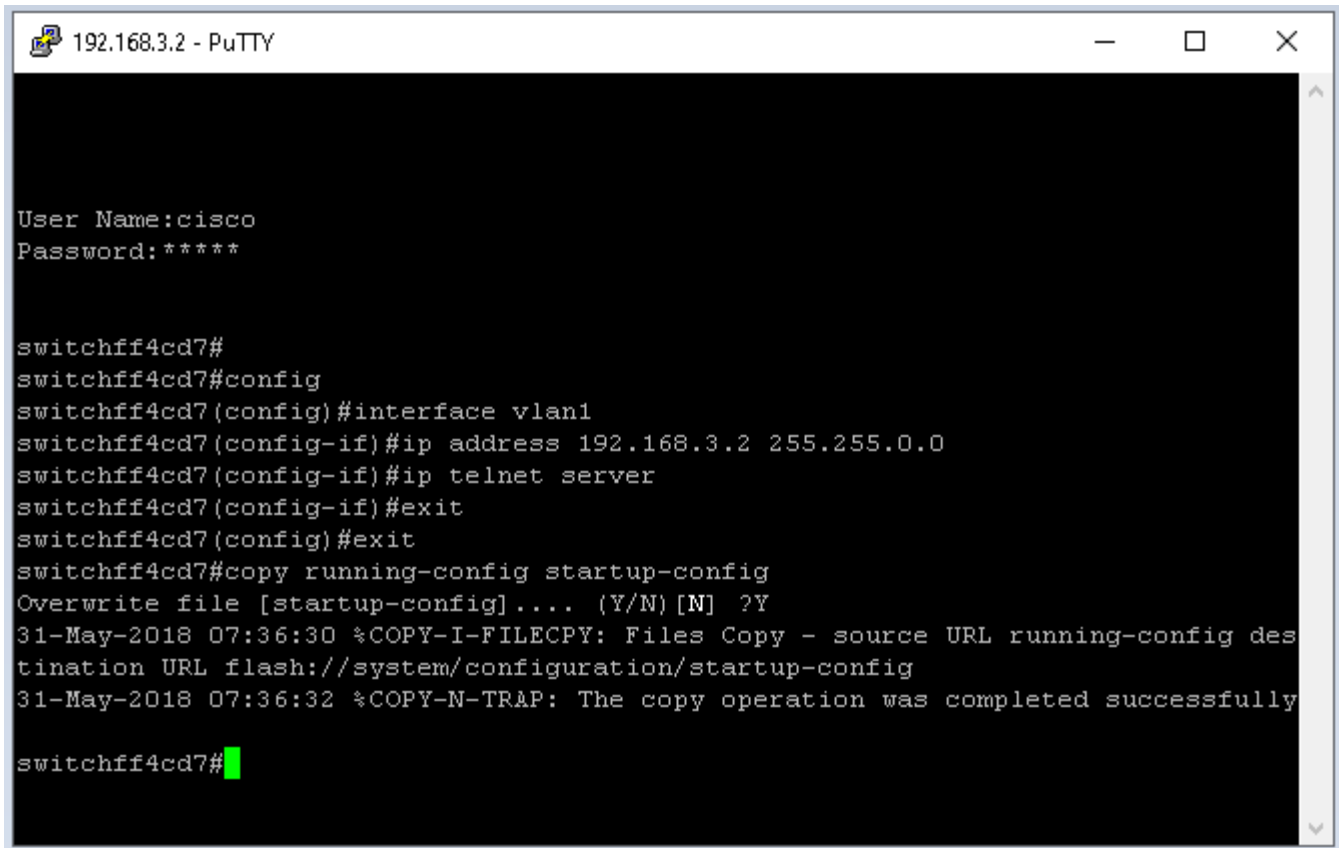


From the telnet portal, input the Username as “cisco”, and password as “cisco” (“cisco” is the default username and password). The following is the commands to change IP address:

- config
- interface vlan1
- ip address 192.168.x.x 255.255.0.0
- ip telnet server
- copy running-config startup-config

(192.168.x.x is the new IP)

The following is the screenshot for running the telnet:



A screenshot of a PuTTY terminal window titled "192.168.3.2 - PuTTY". The window has standard Windows-style window controls (minimize, maximize, close) in the top right corner. The terminal output shows a login sequence for a Cisco switch. The user enters "cisco" as the username and "*****" as the password. The prompt changes to "switchff4cd7#". The user enters "config" to enter configuration mode, then "interface vlan1" to configure the interface. The user sets the IP address to "192.168.3.2" and the subnet mask to "255.255.0.0". The user then enters "ip telnet server" and "exit" twice to return to the main prompt. Finally, the user enters "copy running-config startup-config" to save the configuration. The terminal shows a confirmation message: "Overwrite file [startup-config].... (Y/N) [N] ?Y". Two system messages follow: "31-May-2018 07:36:30 %COPY-I-FILECPY: Files Copy - source URL running-config destination URL flash://system/configuration/startup-config" and "31-May-2018 07:36:32 %COPY-N-TRAP: The copy operation was completed successfully". The terminal ends with the prompt "switchff4cd7#" and a green cursor.

```
192.168.3.2 - PuTTY

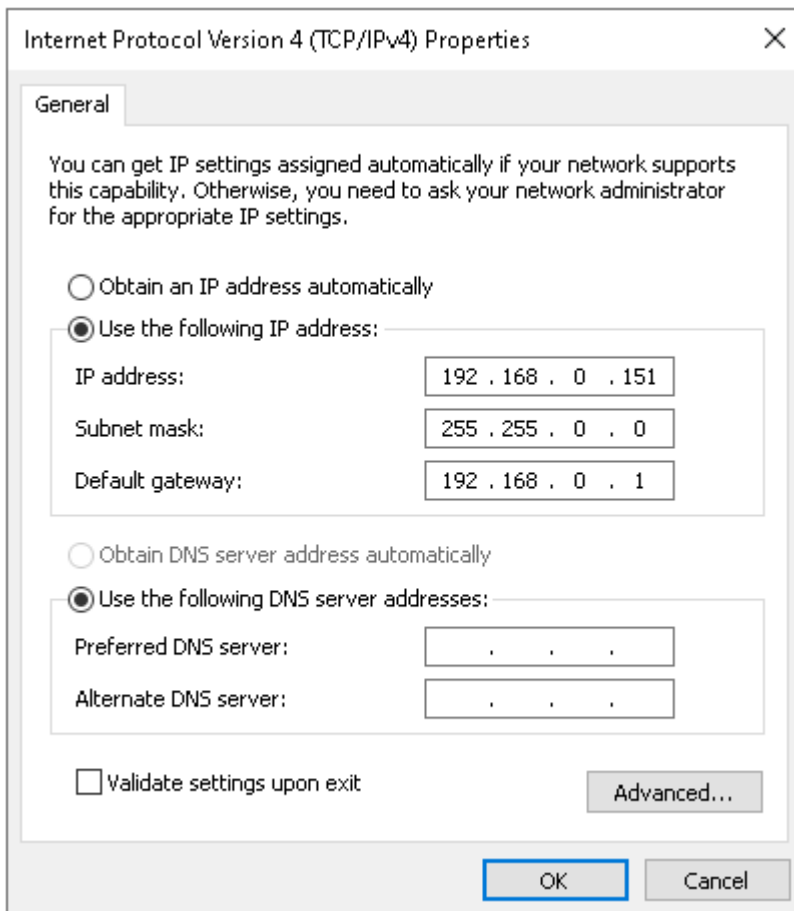
User Name:cisco
Password:*****

switchff4cd7#
switchff4cd7#config
switchff4cd7(config)#interface vlan1
switchff4cd7(config-if)#ip address 192.168.3.2 255.255.0.0
switchff4cd7(config-if)#ip telnet server
switchff4cd7(config-if)#exit
switchff4cd7(config)#exit
switchff4cd7#copy running-config startup-config
Overwrite file [startup-config].... (Y/N) [N] ?Y
31-May-2018 07:36:30 %COPY-I-FILECPY: Files Copy - source URL running-config destination URL flash://system/configuration/startup-config
31-May-2018 07:36:32 %COPY-N-TRAP: The copy operation was completed successfully
switchff4cd7#
```

Appendix C Configure Computer Network

The computer of a cabinet needs to have static IP address. This is for the convenience to manage the cabinet and the related database. Technically each device needs to have an IP address, so need to pay attention to the address space and make it big enough to hold all the devices in the network. Usually the subnet mask is set as 255.255.0.0.

If the cabinet group is an isolated local network without access to the internet, the DNS server address should be left empty. The following is a screenshot:



Basically, we need to pay attention to the following points:

- Static IP address is required
- Subnet mask needs to be 255.255.0.0
- The cabinet computer should be able to ping the switch successfully
- The gateway needs to match the IP address; if the computer connects to outside Internet, gateway address is the outside gateway address
- If there is no connection to outside Internet, “Preferred DNS server” address needs to be left empty

