

AC Lab System

Usage Tracker v1.0.28

User Guide



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SOFTWARE DESCRIPTION

ACLS Usage Tracker is a cross-platform software client written in Java to record user's usage of the instruments, to restrict instrument access, to alert any OHS related issues in lab to the lab staff through the email and the coming iPhone app, and to show the next booking or the current day booking calendar (coming soon).

Description

The tracker is able to run on Windows XP/7/8, Windows Server 2003/2008/2012, MacOS, Ubuntu, Debian, CentOS, Redhat by installing the latest version of Java Runtime (JRE) providing multiple functions.

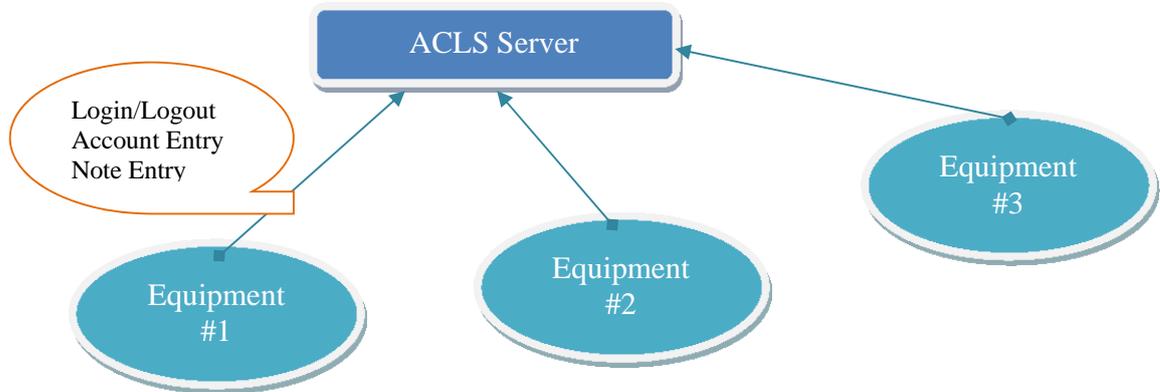
Platform Requirement

Java Runtime (JRE) 1.8.0_45+

Windows XP (SP3), Windows 7, Windows 8

Linux/Unix/MacOS with GUI installed

1. Working Mechanism of Tracker with ACLS Server



Through the tracker, you can implement a secured access to instrument or equipment by “No Login, No Operation” policy.

Before user can operate the facility (instrument or equipment), he needs to login through the tracker. The tracker checks if user has a valid account, if user has the valid certificate to operate the equipment by himself or require the supervision of the staff member before permitting. During the period of operation or experiment, user can record the experimental notes, see the next booking to better manager his time of operation, and receive the notification sent by staff.

2. Tracker Operation

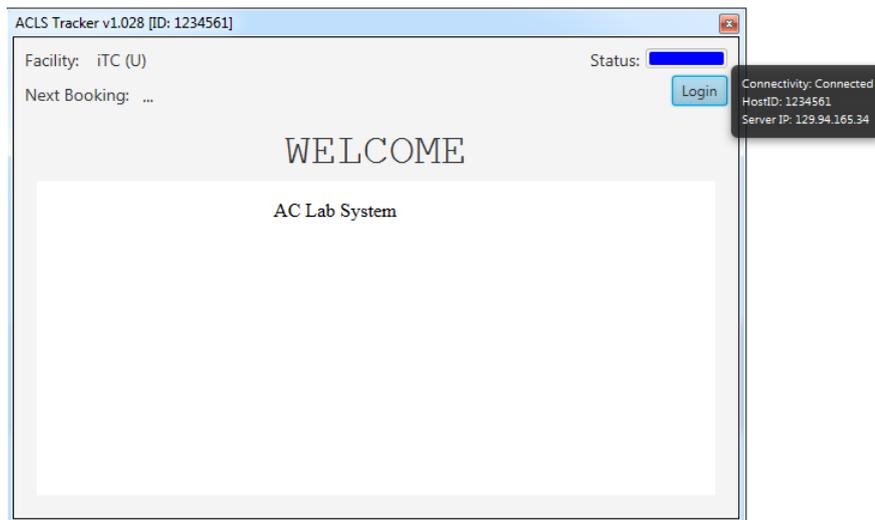
- Login process

Upon executing the tracker program, home page shows up as illustrated below. Home page indicates the following information:

- Version
- HostID
- Facility Name

- Next Booking Information
- Connectivity Status
- Login Button
- Information Page

Moving the mouse over the Status bar for two seconds, it shows up additional tips.



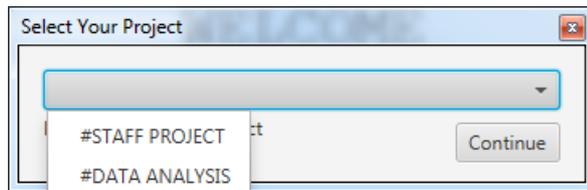
- Click the 'Login' button to access login page.
- Enter your login name and password and click 'Continue'.



- Depending on the lab requirements, staff login may be required for onsite supervision. Staff enters login name and password and click 'Continue'.

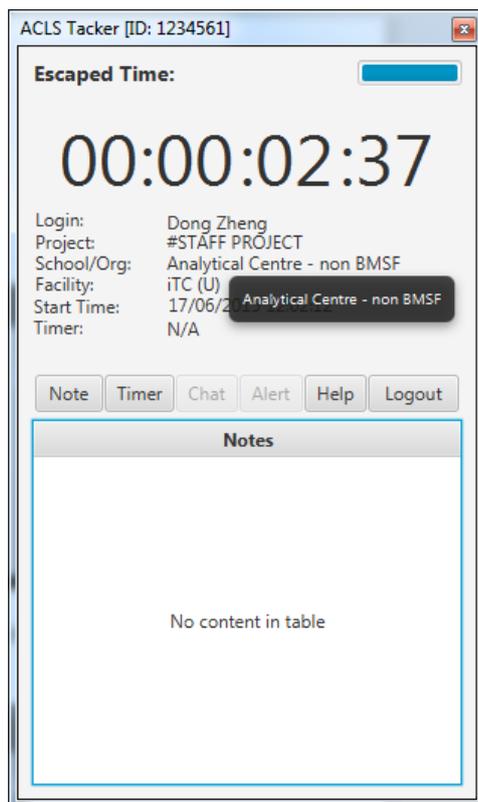


- Select your account/project from the drop-down menu, and click 'Continue'.



- Upon accepting the login, Tracker stays at the top corner of the right-hand side of the screen.

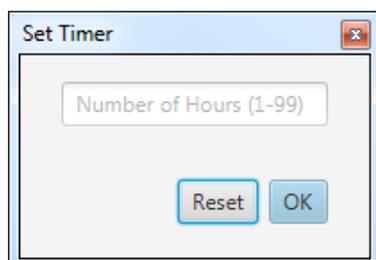
Tracker shows the escaped time at the tracking page. Moving mouse over to each field can bring up the full length of the field information.



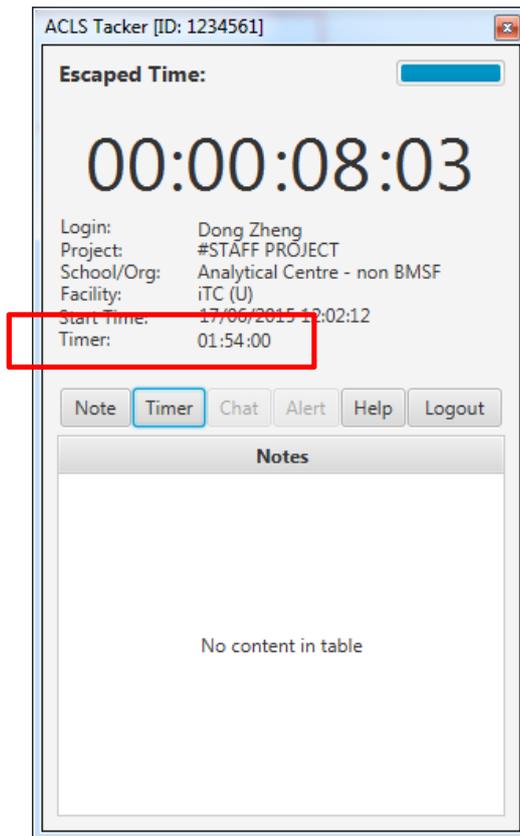
- **Logout Timer (Optional)**

A logout timer can be activated to logout the tracker automatically when timer runs out of the pre-set time by users. It is designed to give the option control to the labs where facility (instrument or equipment) operation may need to end at midnight without the human interference.

- You can enable the countdown timer by clicking the 'Timer' button.



- Enter the desired duration (1-99 hours), and click 'OK' to begin the countdown. Tracker logs out user automatically when countdown ends.

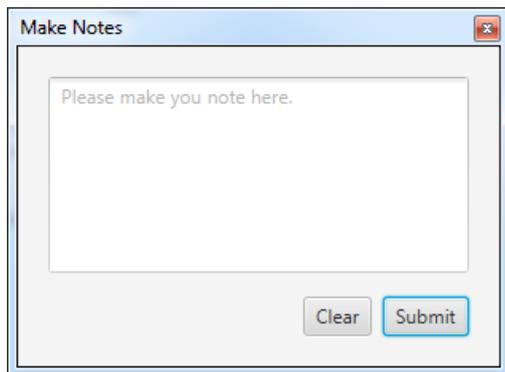


To stop timer, simply click on 'Reset' on 'Set Timer' page.

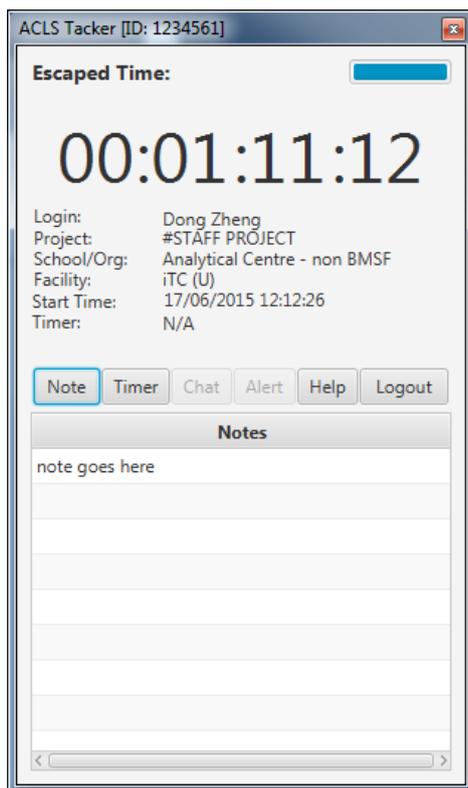
- **Record Notes**

You can record and submit notes during an experiment by clicking the 'Note' button.

- Enter your experiment notes in the textbox provided, and click 'Submit' to save the notes.

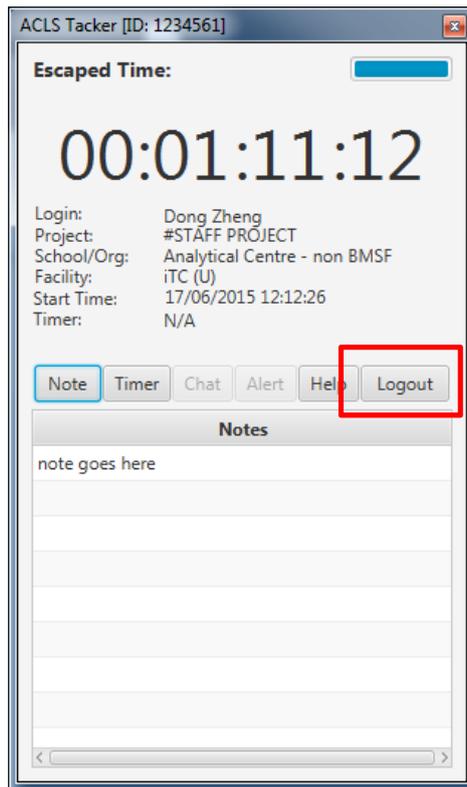


The user can make simple notes by clicking the note button. Once the submit button is clicked the note will be submitted to the server and displayed in tracker notes display list. If the field is empty, nothing will be submitted to the server nor displayed in the list.



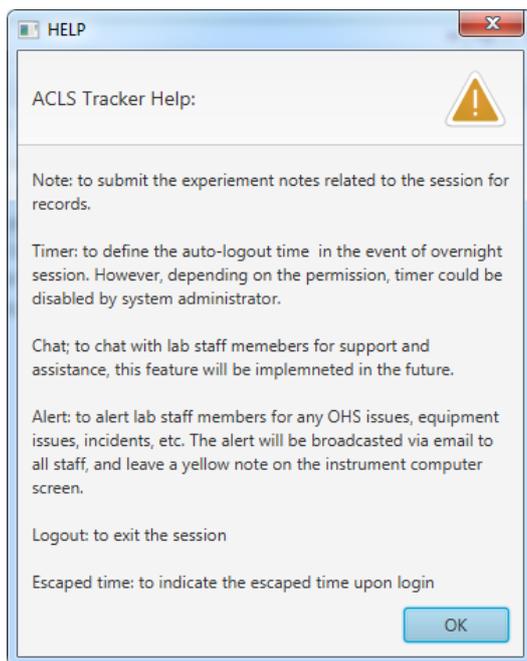
- **Logging Out**

- Once you are finished using the instrument, click the 'Logout' button to terminate the session.



- **Help**

By clicking 'Help', a quick help is available to the users as shown below.



3. Local Logs

A local log can be generated if system admin enables the local log records. The benefit for the local log is to validate the possible loss of logout log due to the computer reboot.

```
1 Dong Zheng: logged in at 12/06/2015 11:54:26
2 Dong Zheng: logged out at 12/06/2015 11:55:05
3 Frank Li: logged in at 12/06/2015 12:05:10
4 Frank Li: logged out at 12/06/2015 12:09:27
5 Frank Li: logged in at 12/06/2015 12:09:08
6 Frank Li: logged out at 12/06/2015 12:17:25
7 Frank Li: logged in at 12/06/2015 14:04:31
8 Frank Li: logged in at 12/06/2015 15:58:08
9 Frank Li: logged in at 12/06/2015 16:00:05
10 Frank Li: logged in at 12/06/2015 17:01:09
11 Frank Li: logged out at 12/06/2015 17:06:32
12 Frank Li: logged in at 12/06/2015 17:07:24
13 Dong Zheng: logged in at 12/06/2015 17:11:11
14 dwqd: Authentication failed at 12/06/2015 17:38:20
15 dwqd: Authentication failed at 12/06/2015 17:38:23
16 dwdwdwdqdw: Authentication failed at 12/06/2015 17:38:28
17 Frank Li: logged in at 12/06/2015 17:38:08
18 Frank Li: logged in at 12/06/2015 18:07:46
19 Frank Li: logged out at 12/06/2015 18:08:37
20 Dong Zheng: logged in at 12/06/2015 18:11:21
21 Dong Zheng: logged in at 12/06/2015 18:12:13
22 Dong Zheng: logged out at 12/06/2015 18:12:59
23 Dong Zheng: logged in at 12/06/2015 18:12:40
```

4. Tracker Configuration File

- Default settings:

```
1 #Fri May 29 16:31:23 AEST 2015
2 Remote_Homepage=http://www.analytical.unsw.edu.au/
3 Local_Homepage=yes
4 Server_IP_Address=129.94.165.34
5 HostID=344bde0a2ae1
6 Local_Log=yes
7 DisableWinHotkey=no
8 DisableTaskMgr=no
```

The configuration file is named as “settings.conf” in the same directory as the executable jar file. The first line maintains the last edit date for the configuration file.

Parameters definitions:

- *Remote_Hompage*

The home page displays this URL HTTP page (Only when “Local_Homepage” is set to “NO”)

- *Local_Homepage*

If it is set to ON, home page of the tracker reads the local ‘tracker.html’ where it is located at the same directory where the executable jar file is.

- *Server_IP_Address*

This is the IP Address of ACLS Logon Server.

- *HostID*

This can be set manually by maximal 12 digits combined with letters and numbers. If leave this field null, when tracker starts to run, it automatically generates a random HostID and rewrite the conf file.

- *Local_Log*

When is set to “YES”, login logs are kept in “logs” directory with current date as the file name.

- *DisableWinHotkey*

When is set to YES, Tracker disables “Ctrl+ESC”, “Alt+ESC”, “Alt+Tab”, and “Windows Key”.

- *DisableTaskMgr*

When is set to “Yes”, the Tracker prevents users from accessing Windows Task Manager so they are not able to kill any processes. This operation take effect over the time till the tracker process is terminated.

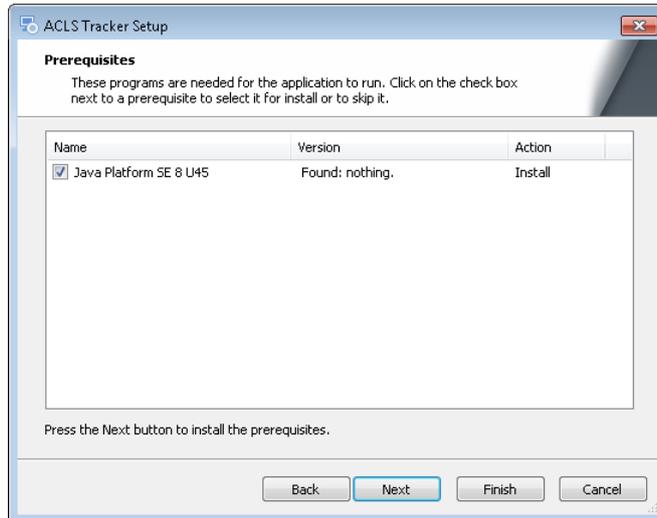
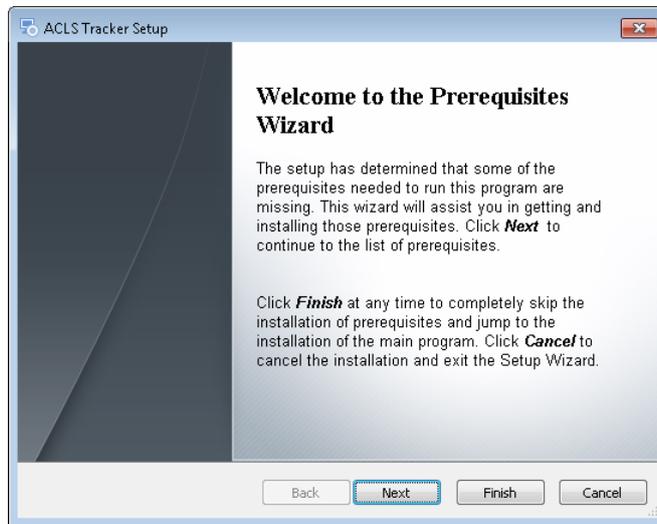
5. Tracker Installation

Please take the following steps to install the tracker:

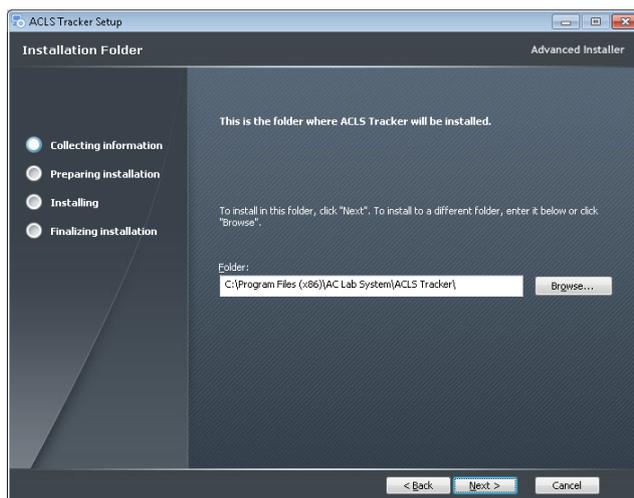
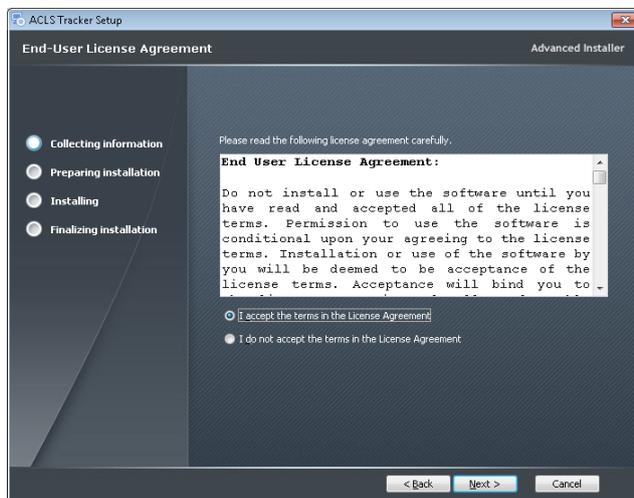
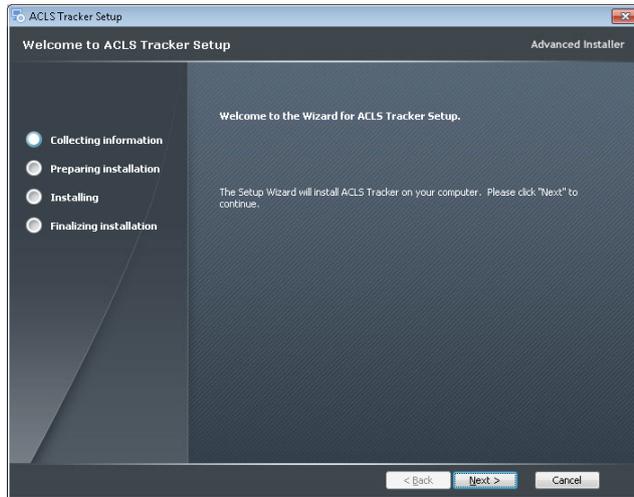
- Double-click the installer file ‘aclstracker.exe’ to initiate the installation

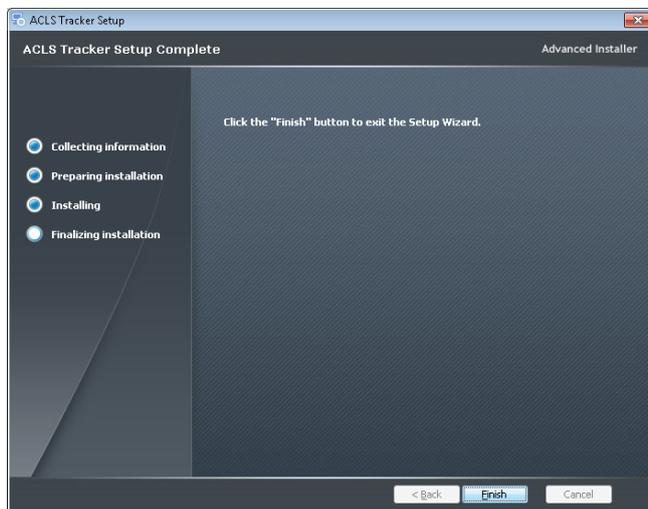
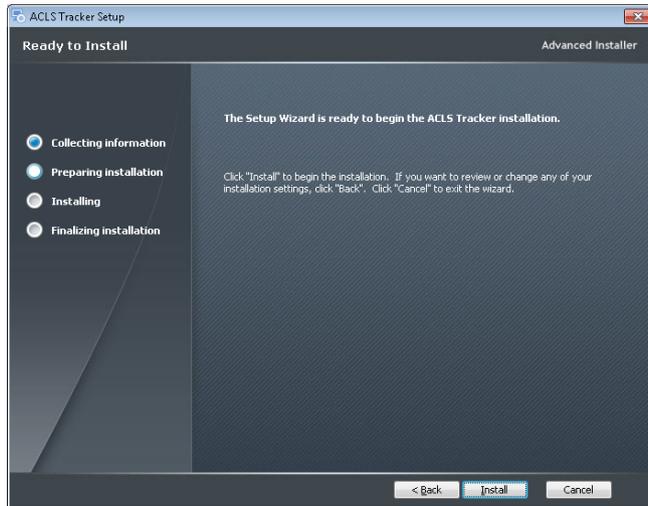


- Java is pre-bundled in the installer and you are prompted to install Java JRE



- Follow the prompts during the tracker installation, specifying installation location. Recommended that you should remain the default settings.

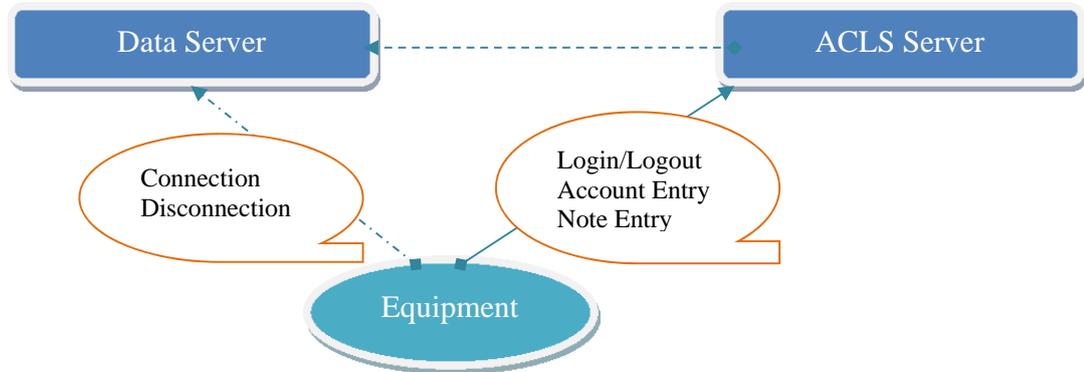




- Upon the completion of installation, ACLS Tracker shortcut is created on the desktop.



6. Working Mechanism of Data Drive Connection through Tracker



To establish dynamic network data drive connection, you need to set up a data server to store and share experiment data to users. A single Windows share folder set up is sufficient on data server. Upon tracker login by user, tracker communicates with ACLS server to obtain full authentication information to make network data connection, upon logout, disconnect the network drive.

By doing so, you are capable of resetting network drive connection password regularly for security measures.

- **Process of network drive connection:**

- Tracker login
- Tracker request for network drive settings
- Tracker connect to network work drive according to the settings in ACLS, for example, drive “M”, IP of the data server, etc.
- Upon the successful connection, tracker rename the map drive using the name defined in the settings in ACLS system
- Tracker logout
- Tracker disconnect the network drive

7. Network Drive Connection

To show how this works, case studies are presented as it is more than ACLS to make this work.

- **Case #1: Set up network shared folder in Data Server**

Assuming that you have a Windows data server or computer with IP address “10.1.1.1”, two local drives are available C and D. On D Drive, create a folder named “results”, and then set up sharing to this folder over network. You add password protection to this shared folder “results”, for example, abcdefg, and user name as “mydata”.

So when you connect or map to this shared folder on other computers, you need the following information:

- Folder destination: <\\10.1.1.1\results>
- User name: mydata
- Password: abcdefg

- **Case #2: Set up network shared folder**

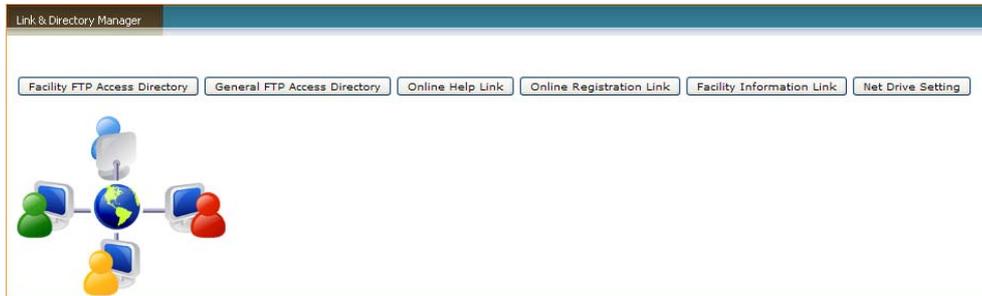
Continuing with Case #1, now you need to configure ACLS to network drive through the web interface.

The following checks and set up are required upon logon to ACLS web interface:

- “System Settings” -> “Configure System”: To turn on “DataStorageCtrl” parameter

DataStorageCtrl

- “System Settings” -> “Link & Directory Manager”:



- Net Drive Setting: You need to define the following parameters for tracker to connect the network drive as following:
 - Drive: telling tracker what drive label used for connection, don't use C to G as most of Windows computers may take them for local drives.
 - Folder: as protocol of network drive mapping, you should set out the full path as standard
 - User Name: authentication of connection
 - Password: authentication of connection
 - Per Facility: this is optional, you can set up individual folder connection to each individual equipment or facility listed in 'Facility FTP Access Directory'.

NET DRIVE SETTINGS	
Drive (example: M, N)	M
Folder (example: \\server\share)	\\129.94.150.15\emunit
User Name	afm
Password	XXXXXXXX
Per Facility	<input type="checkbox"/> (if checked, net drive is per facility; if unchecked, net drive is one for all facilities)

Accept

- **Case #3: Set up individual network shared folder to each facility**

Continuing with Case #2, go to ‘Facility FTP Access Directory’ to set up individual facility folder connection. The individual facility folder setup is optional depending on your choices. For example, instead of saving data to the root directory, such as \\129.94.150.15\emunit, you can further set up each individual facility folder to make future data sharing and archiving clear and easy, such as \\129.94.150.15\images\afm.

Here is an example of setup:

The screenshot shows a window titled 'Link & Directory Manager' with a table of 'FACILITY FTP ACCESS DIRECTORY SETTINGS'. The table has columns for 'Sel', 'Facility', 'Physical Directory', 'FTP Directory', 'Link Description', 'Last Archive Date', and 'Note'. Below the table are buttons for 'Edit', 'Delete', 'Add New', and 'Reset'.

Sel	Facility	Physical Directory	FTP Directory	Link Description	Last Archive Date	Note
<input type="radio"/>	ESEM Quanta 200	p:\emuimages\esem	emuimages/esem	ESEM Quanta 200	30/09/2004	
<input type="radio"/>	JEOL1400 TEM	p:\emuimages\jeol1400	emuimages/jeol1400	JEOL1400 TEM	30/09/2004	
<input type="radio"/>	SEM Hitachi S900	p:\emuimages\s900	emuimages/s900	SEM Hitachi S900	30/09/2004	
<input type="radio"/>	JEOL 8500F Hyperprobe	p:\emuimages\jeol8500f	emuimages/jeol8500f	JEOL 8500F Hyperprobe	10/06/2008	
<input type="radio"/>	SEM Hitachi S4500	p:\emuimages\s4500	emuimages/s4500	SEM Hitachi S4500	30/09/2004	
<input type="radio"/>	Atomic Force Microscope	p:\emuimages\afm	emuimages/afm	Atomic Force Microscope	30/09/2004	
<input type="radio"/>	Focused Ion Mill	p:\emuimages\fib	emuimages/fib	Focused Ion Mill	30/09/2004	
<input type="radio"/>	TEM Philips CM200	p:\emuimages\cm200	emuimages/cm200	TEM Philips CM200	30/09/2004	
<input type="radio"/>	Multimode AFM	p:\emuimages\mmafm	emuimages/mmafm	Multimode AFM	30/09/2004	
<input type="radio"/>	SEM Hitachi S3400-I	p:\emuimages\s3400-i	emuimages/s3400-I	SEM Hitachi S3400-I	29/10/2007	
<input type="radio"/>	Dual Beam FIB	p:\emuimages\dualbeamfib	emuimages/dualbeamfib	Dual Beam FIB	30/09/2004	
<input type="radio"/>	Lift-Out Microscope	p:\emuimages\liftoutscope	emuimages/liftoutscope	Lift-Out Microscope	08/10/2005	
<input type="radio"/>	SEM Hitachi S3400-X	p:\emuimages\s3400-x	emuimages/s3400-X	SEM Hitachi S3400-X	30/09/2004	
<input type="radio"/>	JEOL 7001F SEM	p:\emuimages\jeol7001f	emuimages/jeol7001f	JEOL 7001F SEM	21/07/2008	
<input type="radio"/>	JEOL 5400-II SPM	p:\emuimages\jeol5400	emuimages/jeol5400	JEOL 5400-II SPM	23/07/2010	
<input type="radio"/>	Fei Nova NanoSEM 230	p:\emuimages\sem230	emuimages/sem230	Fei Nova NanoSEM 230	24/08/2010	
<input type="radio"/>	Fei Tecnai G2 TEM	p:\emuimages\tecnai	emuimages/tecnai	Fei Tecnai G2 TEM	06/12/2010	

ACLS takes “Physical Directory” setting and keeps “afm” for example to conjunct with \\129.94.150.15\emunit set out in ‘Net Drive Setting’.

- **Case #4: Set up individual user folder in the network shared folder**

Continuing with Case #2, through ACLS, you can set up auto-added user folder feature so that you can save results or datasets to their own data folder on the connected network drive.

To achieve this, you need to map the same drive to ACLS server, and establish the same settings to 'Physical Directory' as Case #3. When receiving the request from tracker, ACLS server adds user folder with his login name. Upon logout at tracker by user, server also checks if folder is empty. If so, then the folder is removed.

The obvious benefit is that you can easily run archive of data to those inactive user folders. So just keep those active user folders to reduce the storage space. Please contact us for further inquiry if you wish to.

8. Frequent Asked Questions

- **Question:**
When the user logs in to the tracker, the tracker always show 'certificate not valid!?'
However, the certificate is valid to the user.

Answer:

This is caused by the '&' character included in the account name. & is reserved keyword by the tracker. So no & shall be used in the account name or project name if you wish to use the tracker.

- **Question:**
What is the local html for in the configuration file?

Answer:

Tracker can load the html page either local one or through URL. However, due to the limit of the display, direct URL may not show up the web page properly. You can use the iframe tag in the local tracker.html to embed the external web page. This is useful to display instrument information web page or OHS related information.

- **Question:**
Can I change the default 'AC Lab System' to the lab name?

Answer:

Yes. Edit the tracker.html to make the changes as you wish.

- **Question:**

Tracker can't connect to the ACLS server, why?

Answer:

There are a number of causes for that as followings:

- Loss of network
- ACLS server down
- ACLS server reject tracker request due to the wrong server IP or Host ID setting in tracker configuration file
- Firewall of network

Tracker has a built-in feature to detect connection with ACLS server all the time. If connection fails, tracker activates program zone to allow users to continue the operation. And also turn on 'Control Panel' to allow staff access by using System Password.

- **Question:**

Why does tracker bring up 'Staff Login Page' upon user login?

Answer:

If you set the training certificate requiring onsite assistance, the staff login is needed to ensure the user is under supervision of the staff to access the operation of facility. This applies to those users under training certificates that won't be able or allowed to perform the experiment by them alone.

- **Question:**

Why does tracker popup "I/O 103" error message?

Answer:

Tracker needs to run on administrator account. So you need to set the operation Windows logon account as administrator account.

- **Question:**
Are there any local log files for the tracker so that we are able to track down the operation in case of network loss?
Answer:
Yes, you can go to c:\program files\acsl usage tracker\logs to retrieve the logs. The log is created each day and updated every 5 minutes. For example, user logs in, and fails to logout properly due to the network loss. Then log file provides the user login/logout information as backup.

- **Question:**
What is the next booking shown on Tracker?
Answer:
The tracker updates the next booking field every 10 minutes. With next booking information, the user is at a better position to know when he should end the operation to get the facility (instrument or equipment) available to next user.

- **Question:**
How ACLS server identifies the tracker on different facilities (instrument or equipment)?
Answer:
ACLS uses two types of ID as the facility ID:
 - IP address: network IP address of facility computer
 - Host ID: unique host ID generated by the tracker. The advantage of Host ID is obviously as it is not affected by IP address change due to the network settings, such as DHCP, proxy server, gateway, etc.

- Question:

How does next booking display work?

Answer:

Next booking refers to the booking made at the next hour. The tracker updates the next booking every 15 minutes.