

ACE
AIRBUS COCKPIT EXPERIENCE
USER GUIDE



X03UG1501547

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RECORD OF REVISIONS

VERSION / Issue	DATE	SUBJECT
1	29/06/2015	Initial version
2	28/07/2015	EFB tips, lesson practice tips
3	21/02/2017	Screen shots : ACE Launcher and lesson control bar
4	15/03/2017	Screen shots : ACE Launcher and lesson control bar (logo change)
5	12/04/2017	Screen shots : ACE Launcher and lesson control bar (trainer loading)

1 CONTEXT

1.1 Description of the ACE SUITE

The “ACE Suite” provides all training material with the exception of EFB application, Training devices (APT+ & FFS) required to apply A350 XWB Airbus Flight Crew Licensing (FCL) courses.

The trainee is able to perform training modules referred to as lessons, through individual learning that can be supported but not led by instructors. It shall be self-paced and thus no distance control for starting the lessons is requested.

Two ACE Suite packages are delivered:

- **Trainee package** that is a fully integrated package containing:
 - ACE Trainer
 - SKM Modules
 - Walkaround tool
 - Stand-alone Learning Management System (LMS)
 - An ACE installation guide
 - Integrated Training Tutorial
 - Software interface for EFB
 - FCTP level 1
 - FCTD (FCTP level 2) for APT & FFS sessions preparation
- **Instructor package:**
 - ACE Trainer
 - SKM Modules
 - Walkaround tool
 - Stand-alone Learning Management System (LMS)
 - An ACE installation guide
 - Integrated Training Tutorial
 - Software interface for EFB
 - FCTP level 1
 - FCTD (FCTP level 2) for APT & FFS sessions preparation
 - FCID (FCTP level 3) notes for Instructors for APT & FFS sessions.

1.1.1 ACE TRAINER

The ACE trainer is a new mobile training device which simulates the A350 XWB cockpit and its associated systems in an interactive and realistic environment.

This virtual and interactive simulator allows the trainee to acquire knowledge on **systems and procedures** (including SOPs) (on normal/ abnormal/ emergency procedures) thanks to the following elements:

- Guided hands-on lessons.

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- Assisted Procedure Lessons for both Ground Standard Operating Procedures and installation of ECAM management.
- Limited Free Play area for session preparation or briefing, and/or re-enforcement

1.1.2 SKM: SYSTEM KNOWLEDGE MODULES

The SKM are theoretical elements used to teach the academic part of the flight crew training courses, with a focus on aircraft systems.

The SKM is the training media allowing system study at the beginning of Flight Crew Licensing (FCL) courses. Most of the “Need to know” system knowledge is studied during this initial SKM phase.

1.1.3 WALKAROUND TOOL

The Airbus Walk Around Visualization Tool is a 3D representation of the aircraft exterior. It enables visualization of components for the walk around on a computer.

1.1.4 Stand-alone Learning Management System (LMS)

A light LMS that is locally installed, it enables a rapid local installation with a means to add additional Airbus courses (aicc / scorm compliant) or modify the ACE Suite sequencing such as daily order.

1.1.5 EFB Interface

FlySmart with Airbus (Airbus EFB) application is not provided within the Airbus Training Media Package.

However, an interface is provided to enable the use of this application in CLASS 2 mode (i.e. EFB linked to the avionics) as follows:

- In conjunction with the ACE Trainer to ensure related scenarios are covered in the training: Abnormal situations and SOP.
- In a stand-alone manner with an events panel to initialize the EFB (FMS parameters) and insert artificially failure cases.

NOTE: This is essentially used for instructors performing the OIS and performance course or for session preparation.

This interface is used both for the trainee package and the instructor one and only support the Airbus EFB.

FlySmart with Airbus could be provided separately from Airbus.

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1.1.6 Training tutorial

Training tutorials and briefing guides are included both in the trainee package and the instructor package.

It's a tutorial mode displaying the Airbus Standard Operating Procedures - allowing the Trainee to learn the normal and abnormal operations using task sharing and crew coordination which save precious FFS time.

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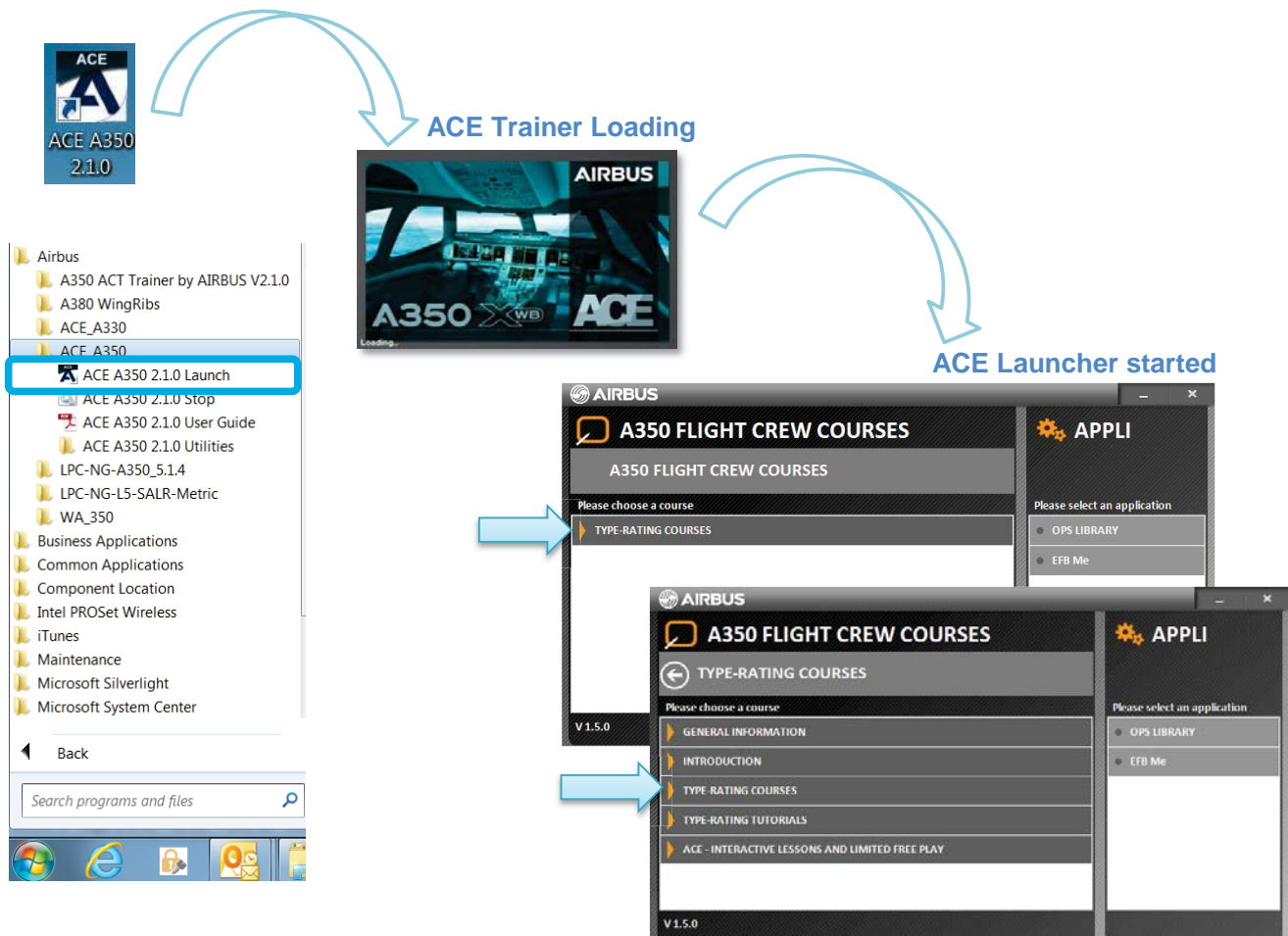
2 Getting Started

2.1 How to Launch in Stand-alone Mode

The following description is related to ACE Trainer in stand-alone mode, the launching interface may change depending on the client integration choice.

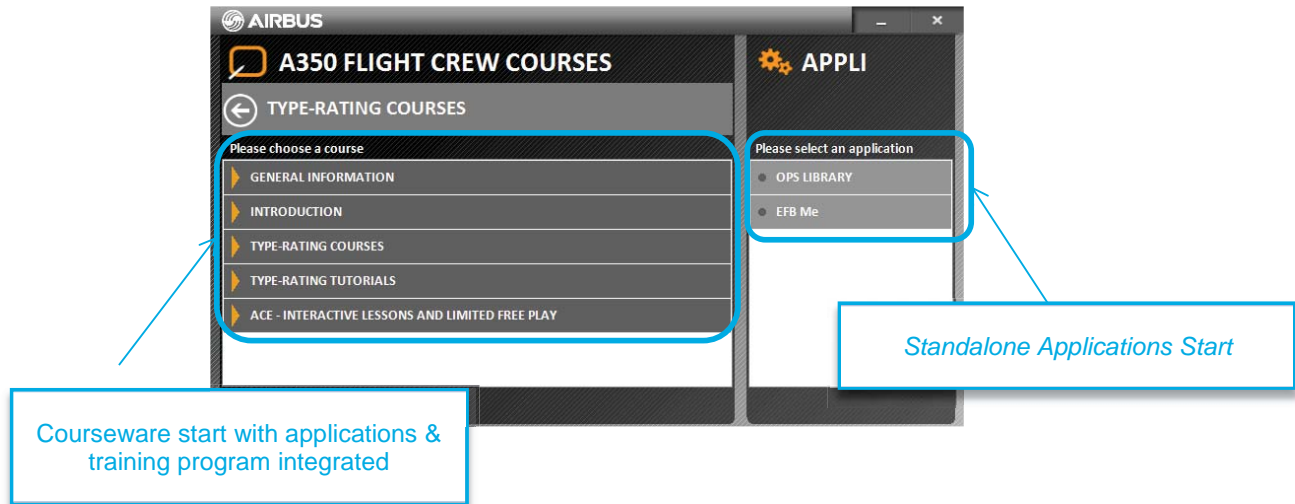
2.1.1 Start the Launcher

To start the launcher you can either: double mouse click on the desktop ICON or through the program file list:



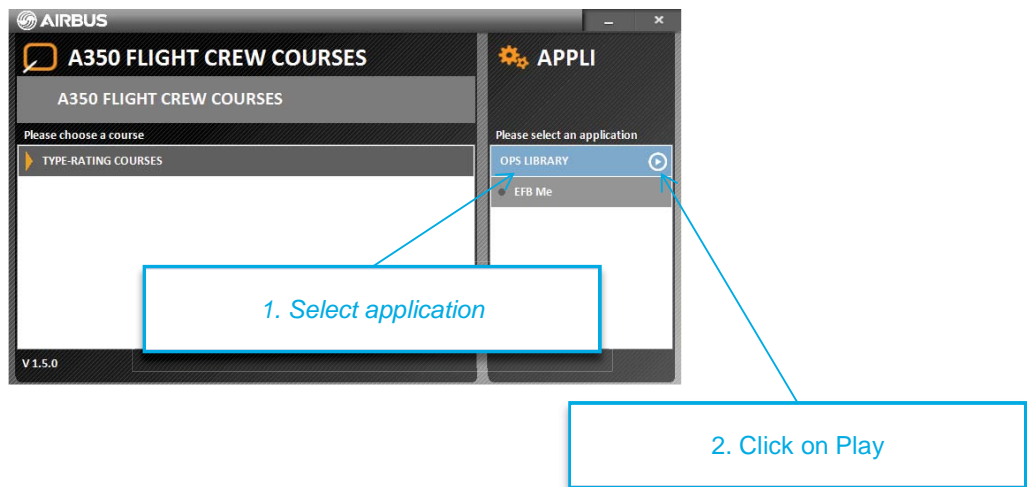
2.1.2 Use of Launcher

Depending on your settings, the launcher presents two options: Starting courseware with application and course program integrated or direct access to applications as follows:




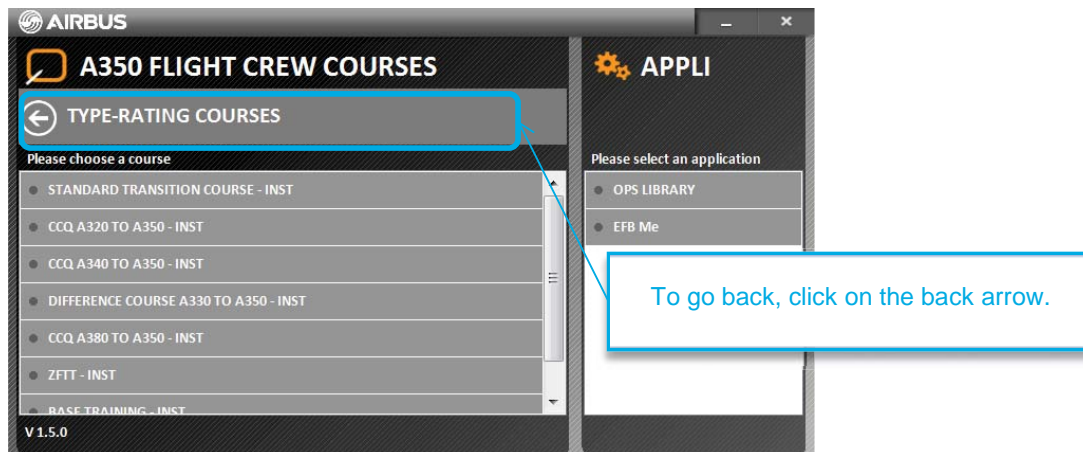
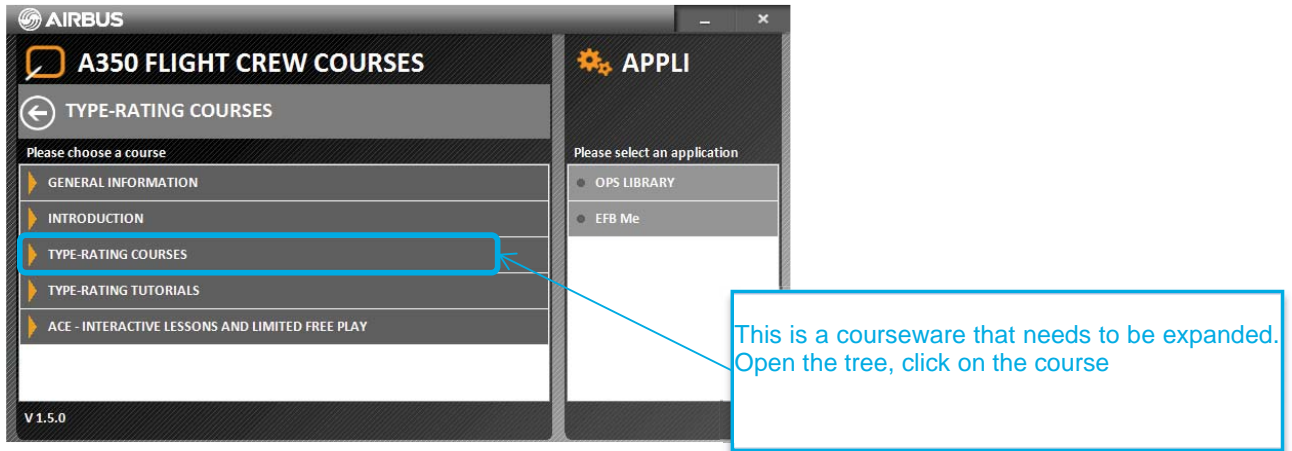
2.1.2.1 Starting Standalone applications


Select the application in the list (identified through a blue background), then select OK.

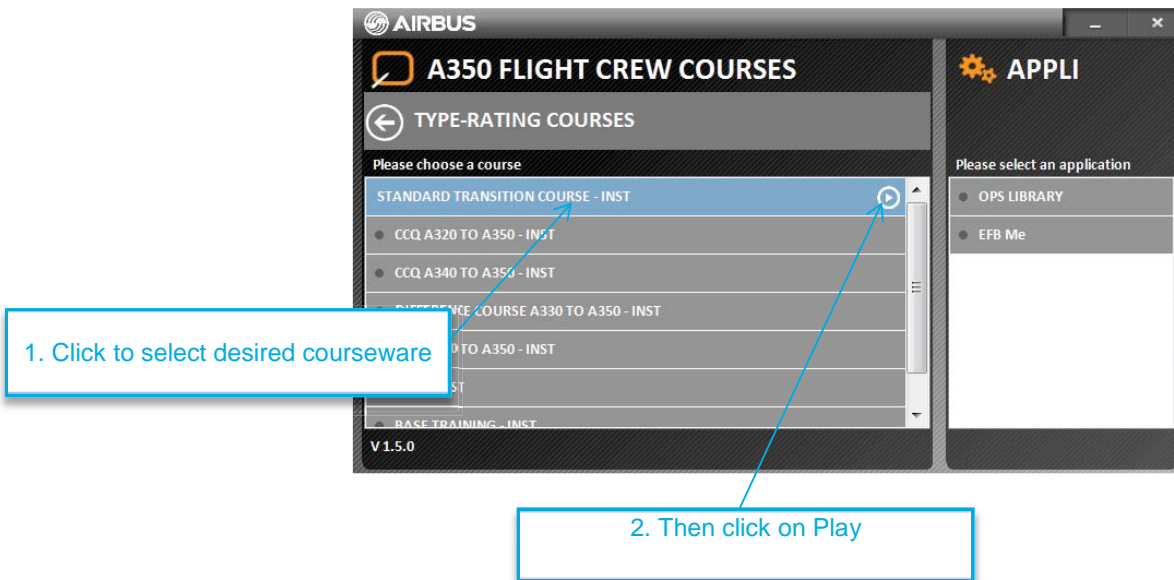


2.1.2.2 Starting Courseware

Select the course in the list. The arrow  on a dark grey background indicates that there is a tree structure behind where navigation can be controlled as follows:



When the arrow is replaced by  and the background is light grey, the selection can be directly started. A play icon will be displayed, click on it to start the course.

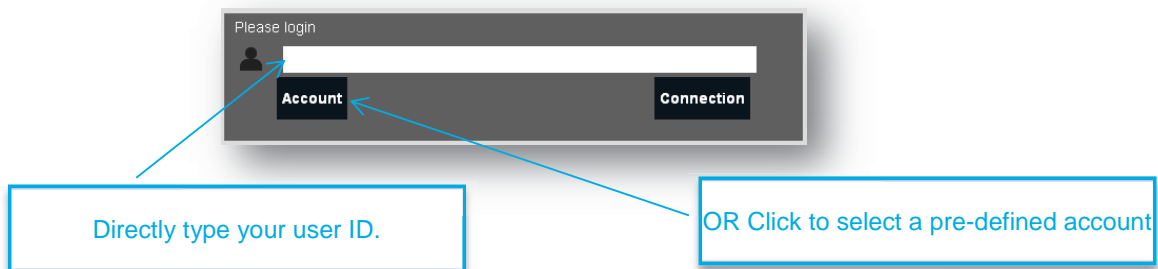


2.1.3 Login & Tracking

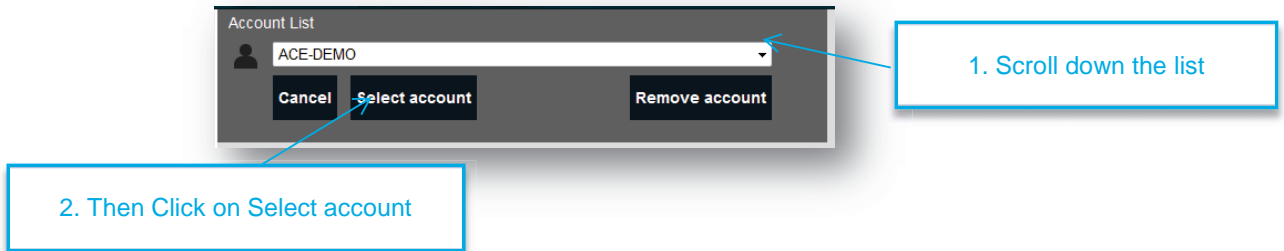
When either the courseware has been selected, if this is your first time using the ACE Trainer, a login window will be displayed. This window enables you to follow your own course progress tracking file.

You have two options:

- 1 - Any user id can be used.
- 2 - A user ID can be selected from a pre-configured account list as follows



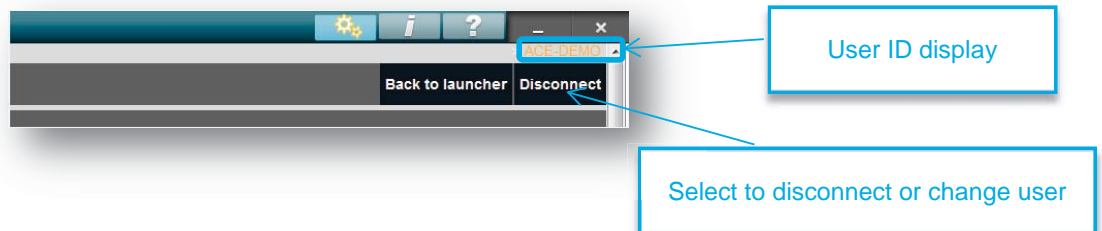
If <Account> has been selected you scroll down the list then press <Select Account>. (NOTE: You can also remove old accounts if required at this stage)



Then Select Connection to connect to the ACE Trainer or courseware:




Once logged on, your User ID will be displayed in the top right hand corner of the application. You can disconnect and login in as another user by selecting <Disconnect> as follows:

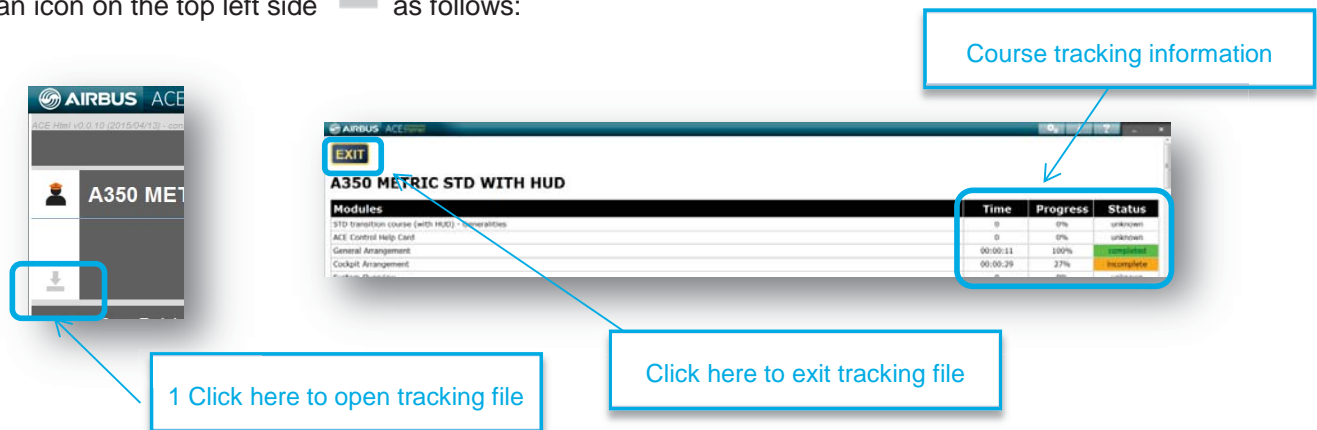


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Your general course global tracking is equally displayed in the top right corner of the application:

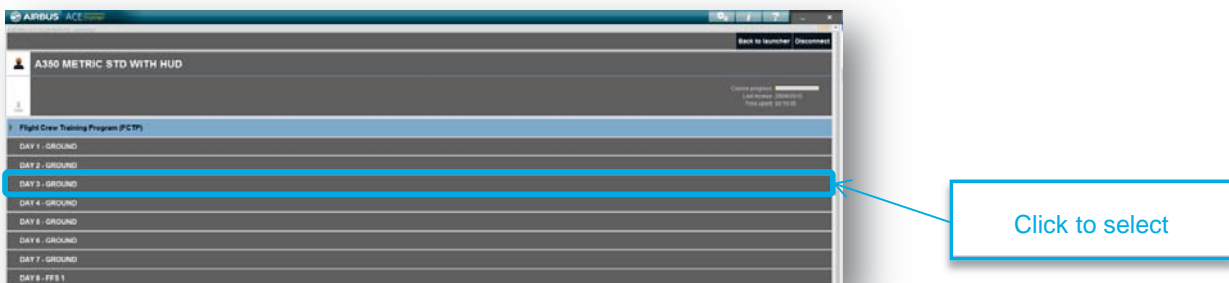




Detailed information on the course progress can be visualized through a tracking file accessible by an icon on the top left side  as follows:

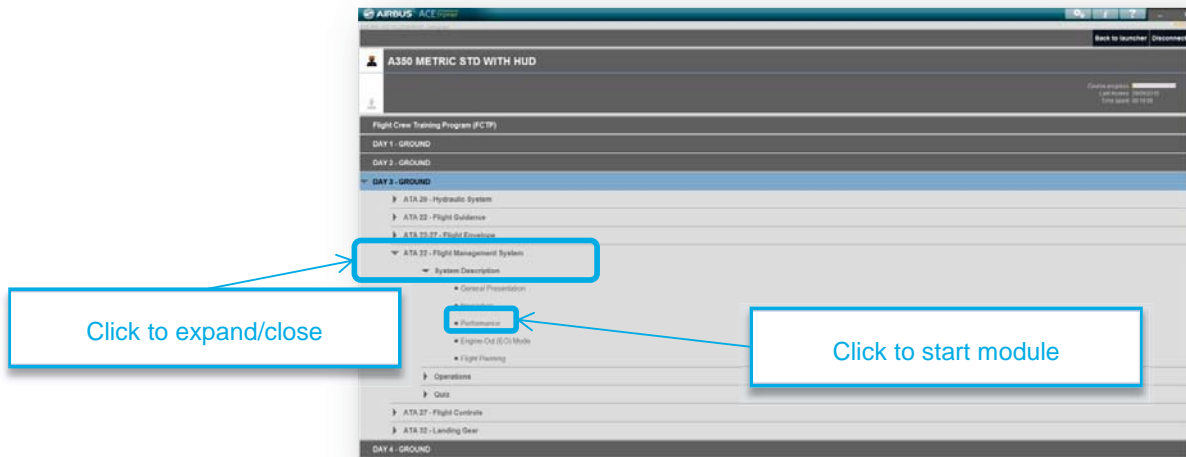


2.1.4 Courseware Navigation

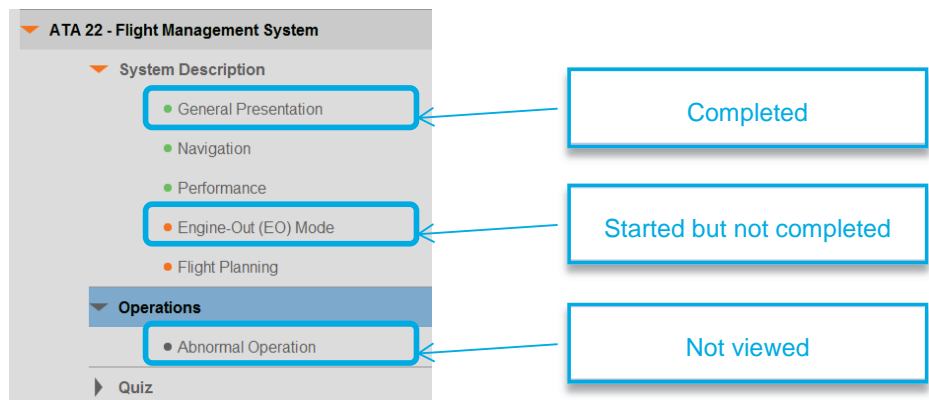
Once your course is selected, the entry points are presented on a dark grey background, when you click on them the tree is opened. Please see the example below:



In the same manner as the launcher interface you can then expand & close the tree when the following icon is displayed , and start the module when the icon  is shown:




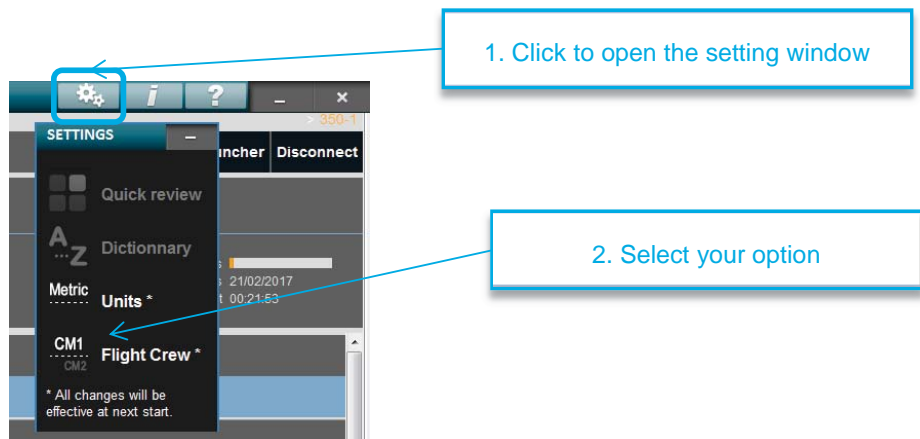
An indication of the modules seen & finished is displayed (green = completed, orange = started but not completed)



3 Settings

It is possible to change the standard settings on your ACE Trainer, by default CM1, metric units is set.

You can change these settings by selecting the icon  on the top right corner of the application. Then you need to re-launch the ACE trainer or restart a lesson for it to be taken into account.



TIPS: If you select this during a lesson, then you will need to re-start the lesson to take into account your new preference



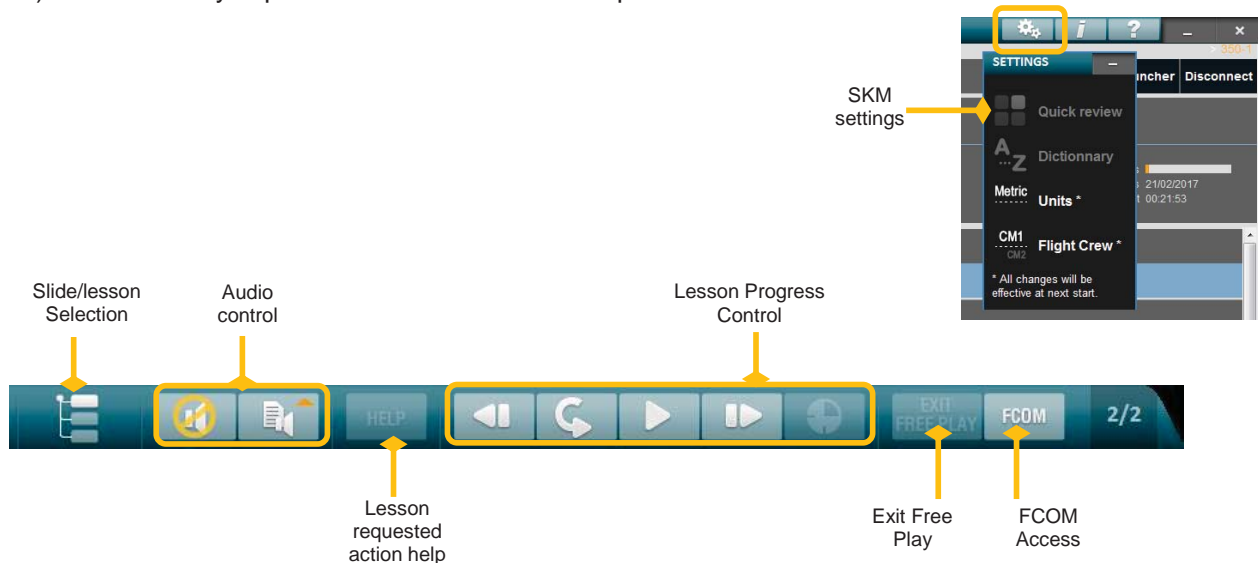
Restart lesson

4 How to Control Lessons

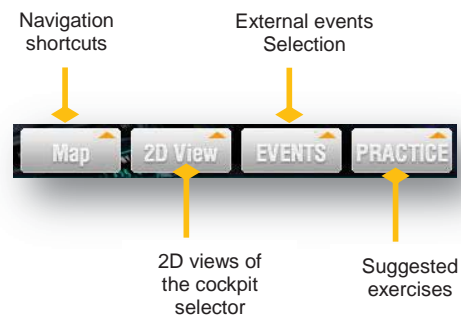
4.1 Introduction

The ACE trainer is comprised of animated slides (SKM), interactive lessons and limited free play practice.

All animated slides (SKM) & lesson related elements are located on the main bar (lesson control bar): The summary is provided here with the description detailed further:



All specific controls for the limited free-play practice are found on the bottom right side of the application (simulation control bar). As with the lesson control bar the summary is provided here with the description detailed further:




NOTE: All specific controls are automatically performed for you (including camera movement) during the lesson and as such these icons are not required..

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4.2 Lesson Progress controls

4.2.1 PLAY/PAUSE




All new modules and interactive lessons are automatically placed on PAUSE, the arrow will flash orange to indicate that you need to press it to start the module/lesson. 

4.2.2 BACK/NEXT/EXIT



This enables you to move to the next animated slide (SKM) or interactive lesson. NOTE: The next arrow will flash orange when the end of the animated slide (SKM) or interactive lesson is reached.

When the end of the lesson is a limited free-play practice area, the next arrow will change to  since it is up to you to decide when to exit your practice.

At the end of the module the next arrow will become red: 

4.2.3 REPLAY

You can restart the animated slide (SKM) or lesson using the replay icon:



TIPS: When using this for interactive lessons the entire lesson from the beginning will be started not the previous action requested.

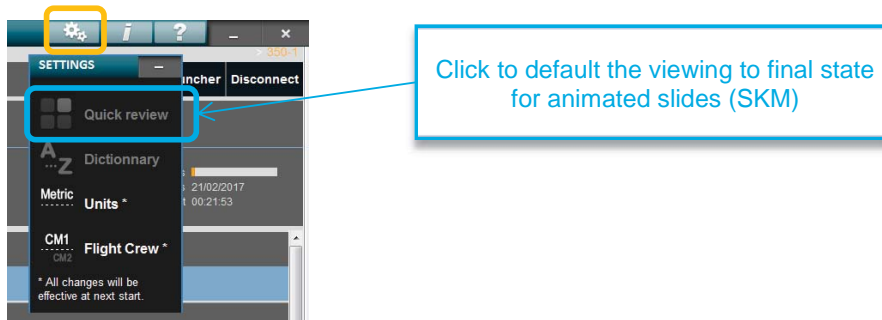
4.2.4 QUICK REVIEW

You can place the animated slide (SKM) to the final view (full slide without animation) through the quick view icon:



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You can set this reviewing mode as a default setting through the setting icon as follows:



NOTE: This option is only applicable to animated slides (SKM).

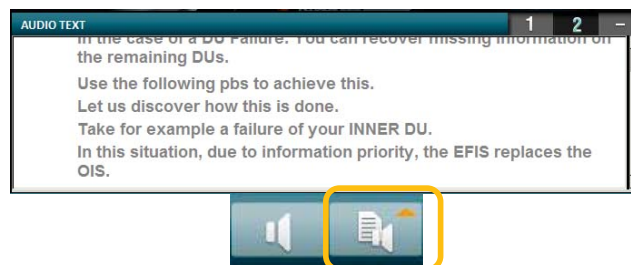
4.3 Audio control

You can control the volume



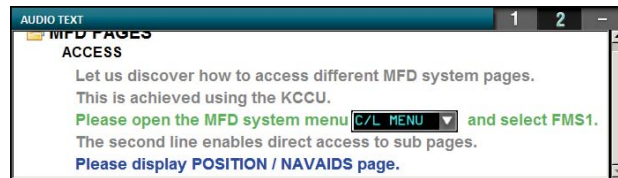
TIPS: Interactive lesson speed is accelerated when the sound is stopped.

Or display the Audio text. By default this text box is open for you.




The text is color coded: Black is when the audio is being heard. Grey text indicates that the audio has already been heard.

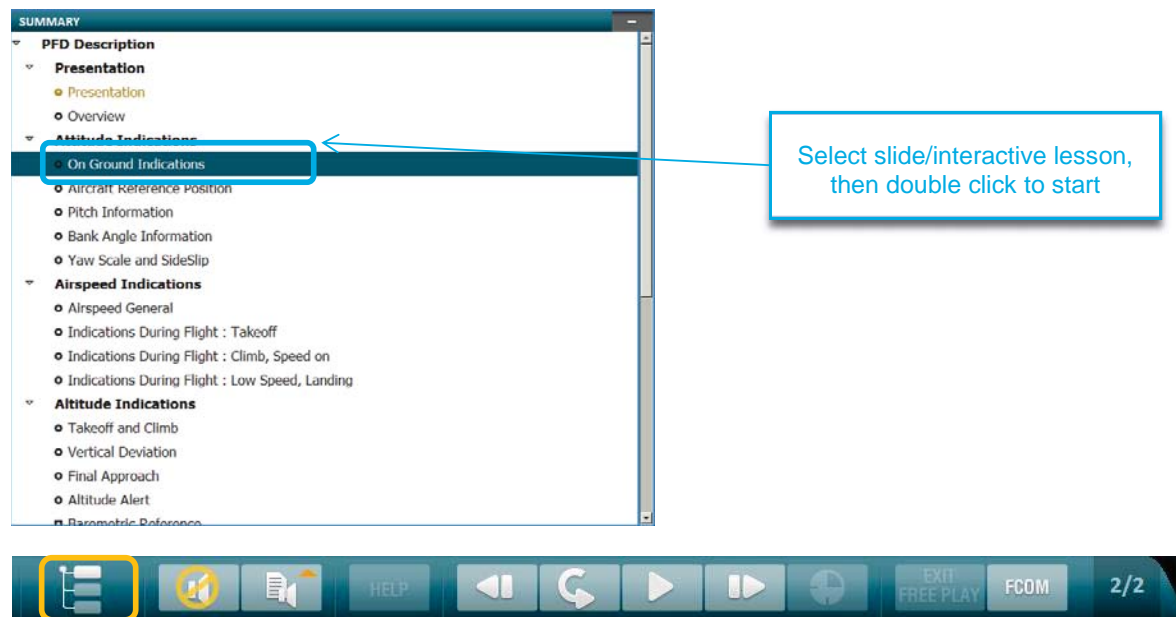
When an action is expected, it will be displayed in blue, when the action has been completed it will turn green. As follows:



TIPS: Please do not try to perform an action until the line turns blue.

4.4 Lesson Selection

You can select specific lessons or review specific animated slides through a double click in the lesson navigator that is displayed through the icon :

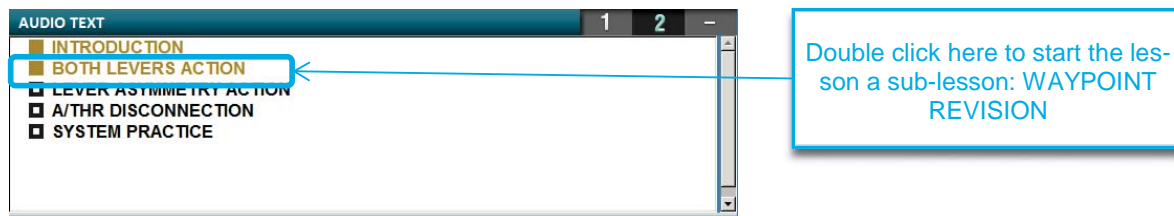


4.5 Specific interactive lesson controls

4.5.1 Navigation

Certain interactive lessons have been divided into sub-lessons. These sub-lessons can be directly started through a double click on the title in the audio text box:

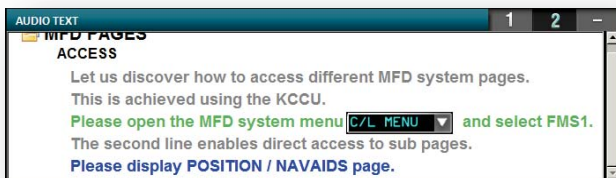
For example



TIPS: If the lesson has already been started, use the REPLAY icon to provide you with this menu. You can then re-position to the sub-lesson that you want.

4.5.2 Help

Remember that when the ACE Trainer virtual instructor requests you to perform a task the audio text will turn blue:



If you do not know what action to perform, you can use the help icon.



This will highlight the controls (in cyan) to be used in the cockpit and a guidance window that explains what is requested.

The guidance type will depend on the complexity of the actions to be performed. For example:

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Single action:



Text explanation.

Accompanied with highlight of control

Multiple controls to achieve the required state (interface redundancy not blocked):



Requested state shown through images.

All available controls shown

Series of actions to perform the task (no longer step by step guidance):



Required actions defined step by step



4.5.3 Practice within Lesson

Normally, as soon as you perform the requested action, the lesson will continue automatically, however in certain cases you may practice until you feel comfortable with the behavior. When you have finished this practice, you need to press on the EXIT FREE PLAY icon to continue the lesson.

NOTE: There may be a pre-defined exit condition required to continue the lesson, in this case a feedback message will be displayed to indicate the required exit condition.



TIPS: Careful, pressing EXIT FREE PLAY will automatically skip the practice, thus only use once practice finished

4.5.4Events Panel

In order to initiate events an interface is available that can be opened when available in the simulation control bar



For example, the following events panels:

To initiate incoming calls

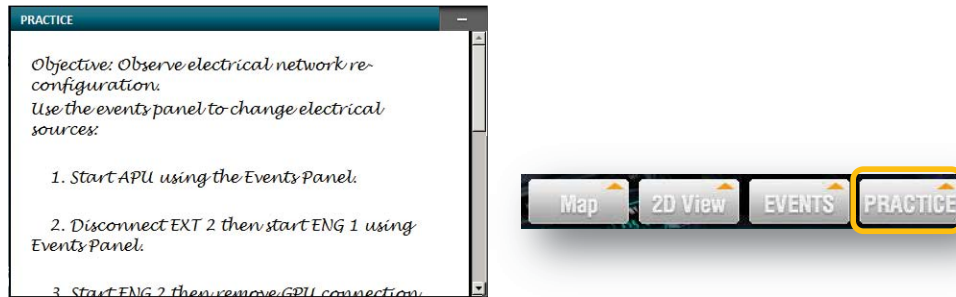
To initiate your reply audio calls

To bring the system directly to the final state.

To perform out of cockpit actions. e.g GPU connect.

4.5.5 Practice

When you are at the end of certain lessons, practice is proposed for re-enforcement. In this case suggested exercises are proposed by default, this window can be minimized and re-opened in the simulation control bar:



When you are in this practice, you have limited free-play possibilities, only the controls that are related to the training objectives are proposed in order to ensure that you remain within the objectives.

In this case you can navigate in the 3D environment freely with shortcut assistance keys here:



Please refer to chapter ACTIONS to learn more.

4.6 Specific SOP lesson controls

4.6.1 Action list

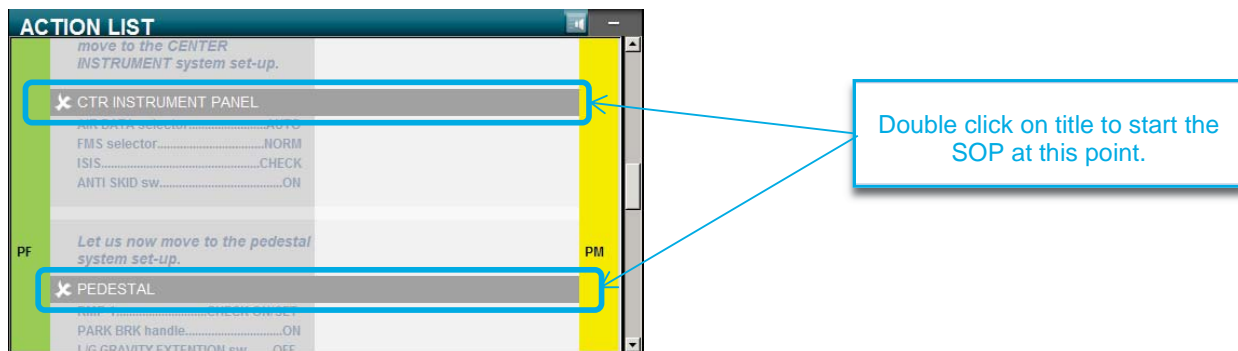
For standard operating procedure lessons, the audio text box is replaced with an ACTION LIST. Both your actions and the other crew member actions are identified with the same color coding as for the interactive lesson (green = action performed, blue = expected action) as follows:

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4.6.2 Reposition

You can reposition at certain points in the SOP through a double click on the title as follows:



4.6.3 Additional information

As with the SOP TUTORIALs additional information can be viewed through a click on the  symbol in the action list:



5 How to Perform Actions

Interactive lessons merge 3 types of interactions depending on your expected level of knowledge:

- Actions performed by the ACE Trainer
- Actions expected by the ACE Trainer in accordance with training objective
 - o Only one action possible
 - o Limited free-play for discovery

Actions performed by the ACE Trainer are performed by:

- An avatar that simulates the other crew member.
- Action performed = highlight green the control used.

5.1 Standard Controls

Remember that when an action or task is expected the line in the SOP Action list or Lesson Audio text box will turn blue.

All interactive elements within the cockpit will change the mouse symbol state from arrow to an icon that indicates the type of action expected.





The gestures are reproduced through the ACE trainer, where a simple click will represent a push when you have the following icon:



All other actions are through click and drag action:



**MAINTAIN
and
DRAG**

Free movement in any direction e.g. side stick	
Rotation movement around the controller axis e.g. HDG knob	
Push / pull movement e.g. SPD knob	
Rotation movement around the controller axis limited to notches e.g. ALT knob ring	

When you are rotating around a controller axis (e.g. Rotary knobs), a laser will show you your movement:



If the movement is too sensitive/quick then simply extend the rotation circumference as follows:



TIPS: To be more precise in your selection for rotary knobs then simply extend the rotation arm.

NOTE:

Spring loaded guards are simulated; click to open, if you then move the PC mouse away from the push button switch, then the guard will automatically close.

When there is a mechanical locking condition on the aircraft this is equally re-produced in the ACE trainer e.g. Ground spoiler cannot be moved when they have been armed.

Reverse lever action shall not be possible when the thrust levers are not in IDLE.

The SLAT/FLAPS can only be moved from one position to the next with the exception of position 1 to 3.

5.2 Multiple Action Controls

When a control is complex, a white highlight will show you which element of the control you are moving.

For example for VIDEO control in this situation you will move the outer ring:



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For complex knobs e.g on the FCU, use both the highlight and mouse symbol change to indicate what action you will perform e.g.



Move the cursor to the top of the rotary knob until icon changes and highlight moves to the ring to change from 100 ft to 1000 ft



Move the cursor to the edge of the knob until the circle icon with a highlight on the rotary knob = to change altitude.

TIPS: if you find that the ring is being turned rather than the rotary knob. Try to move the mouse on the bottom of the rotary knob.



Move the cursor to the center of the knob until the arrow icon = push / pull.

**TIPS: If you are pushing and pulling rather than turning the rotary knob, then you are probably not in the correct interactive area or are not performing a click and drag action.
Try to use the 3D rather than the 2D views or change the camera position to reach a better angle, if already in the 3D environment see MOVEMENT Chapter**

5.3 KCCU

In lesson mode you must use the KCCU, to move the cursor you click and drag as with any other cockpit control:

TIPS: The active zone for the trackball is not limited, you can use any part of the PC screen (the symbol will indicate if you are still in grab mode).

In limited free-play mode, you can transfer the KCCU controls to the PC mouse and keyboard. This is done through the activation of the KCCU mode by a simple click on the screen. The interactive screen will be highlighted in MAGENTA. To exit the KCCU mode <click on the right mouse button>

Activate KCCU
cursor



Deactivate KCCU
cursor



NOTE: The screen can only become interactive if the KCCU cursor is already present in the screen:



TIPS: Click on the KCCU cursor symbol to have full control. If the cursor is blocked (i.e. you cannot move it to part of the screen), then exit the KCCU mouse (right click) and then click back on the KCCU cursor symbol.

5.4 Check Action.

For SOPs it is necessary to control that you have checked an item. For this you must switch the ACE trainer to <CHECK mode> by maintaining the Ctrl key on the PC keyboard. Then click on the item to be checked.

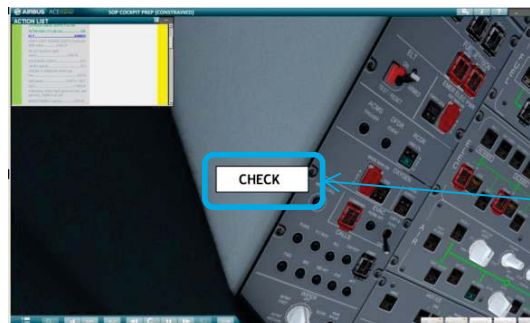


The mouse icon will change to an eye symbol: 

When the item/or group of items have been checked it/they will be highlighted in yellow:



When all check action to validate the SOP action line have been completed a CHECK window will be displayed e.g.



Displayed when all check actions have been completed

NOTE: This message is particularly important when several check actions need to be performed to validate the action line, e.g. AIR panel.....CHECK / SET, where 4 check items are required to pass to the next action line:

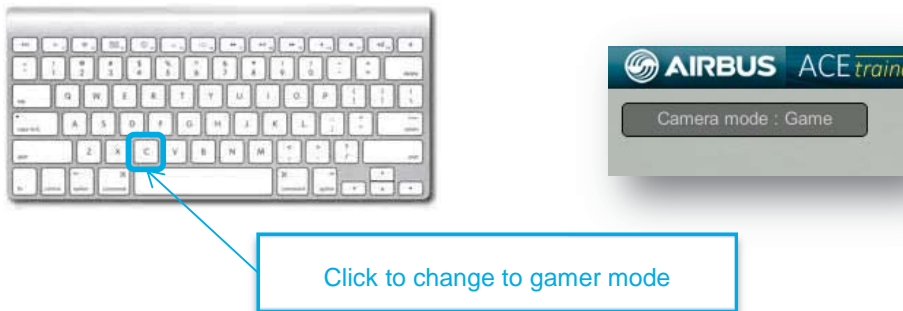


TIPS: ~Wait until the CHECK message window has been displayed before moving to the next action line.

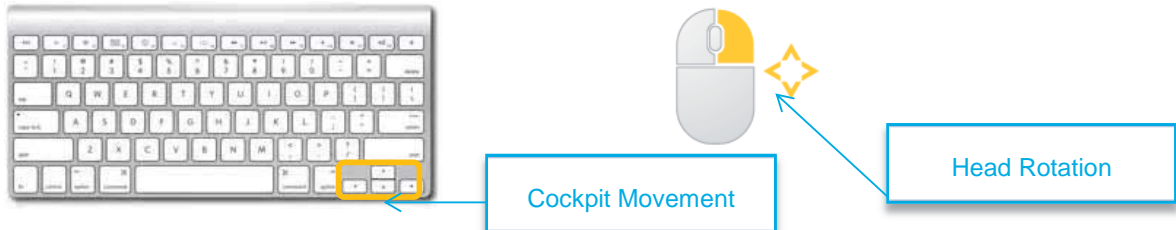
6 Moving & Viewing elements in 3D environment

6.1 If Familiar with 3D

Use the keyboard key <C>, then you will change to a GAMER mode as indicated in the top left hand corner. To exit this mode press <C> again.



In this mode, cockpit movement is controlled through the keyboard in the direction that you are looking. Your head orientation is controlled through a right mouse click and drag controls.



6.2 Shortcut Functions

6.2.1.1 Mini-map

To make it easier to navigate a mini-map can be presented by selecting the specific ACE Trainer icon <MAP> on the bottom left of the application:



At this point the mini-map will be opened; it can be moved to any corner of the screen but will open by default on the bottom side of your screen (left for CM1 & right for CM2).

When you fly over a zone in this map with your mouse, it will be highlighted. You then double click on the zone and the movement will be performed in the cockpit.



Fly-over zone, then double left mouse click.

6.2.1.2 Home

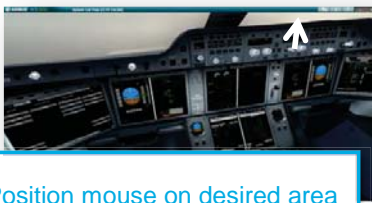
Press the SPACE BAR to re-position in your seat (RESET view).



SPACE BAR = HOME

6.2.1.3 Automatic Zoom

You can zoom to an area in the cockpit at a predefined distance through a double left mouse click on the desired area.



Position mouse on desired area



TIPS: You can only automatically zoom when the mouse icon is an arrow i.e. on a non-interactive area

6.3 Free-navigation

You can freely move around the cockpit using the following controls:

Head Rotation



Cockpit Movement



Or Keyboard
ARROWS

Zoom In / Out



Or Keyboard
PgUp / PgDn

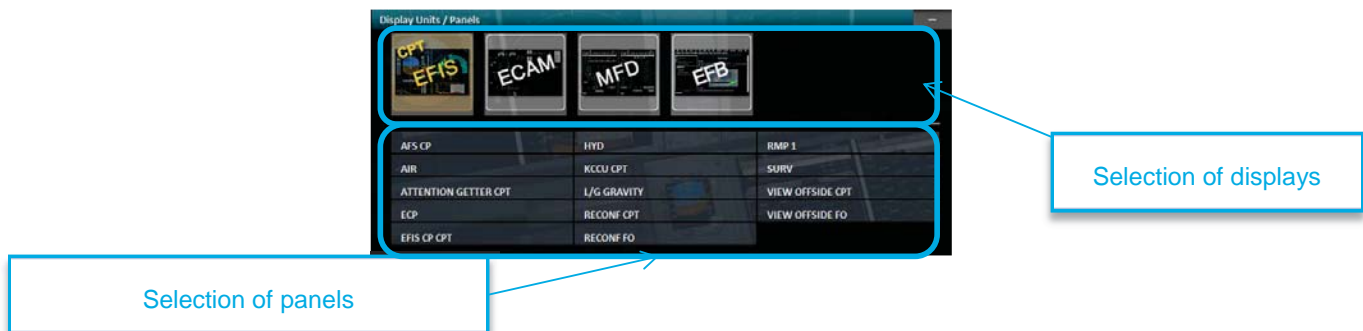
6.4 2D views

Instead of moving around the cockpit, it is possible to extract 2D views in the following manner:

Select the 2D view icon on the bottom right part of the application:



Select the extraction that you want. NOTE: the panel names are arranged in alphabetical order. This interface will remain open until you manually close it through the minimize icon.



TIPS: The 2D views can be moved to any screen and resized.

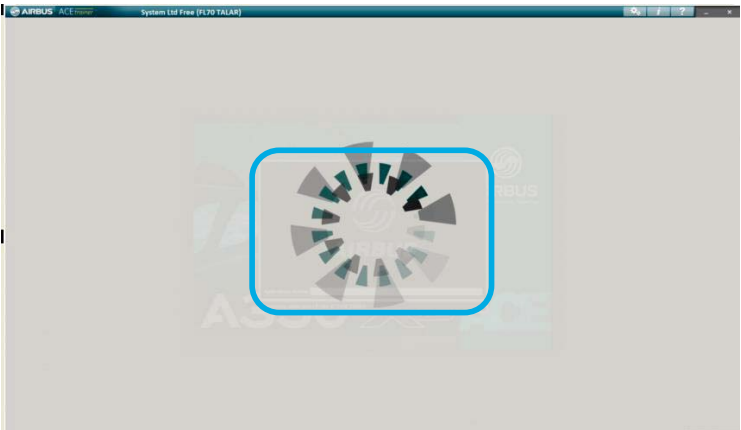
7 EFB

In the SKM phase, a virtual EFB has been used to enable practice moving the cursor with either the OIS keyboard or the KCCU:



However in abnormal task, SOP or limited free-play training the ACE trainer is linked to the aircraft EFB application.

It is automatically started by the EFB window (either masked or visible if icon or ALT TAB used:



The default EFB screen will be displayed until the EFB is ready in the 3D cockpit environment:

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TIPS: It is recommended not to close the EFB, let the ACE trainer close it for you to avoid losing initialisation time loss.

When it has finished initialization it will be displayed in a 2D window. Since this is the aircraft application please press on SYNCRO AVIONICS to re-initialize (it will keep the previous lesson state)



Click to re-initialize

TIPS: If you cannot SYNCRO AVIONICS then select any application and come back to FLT OPS STS page.

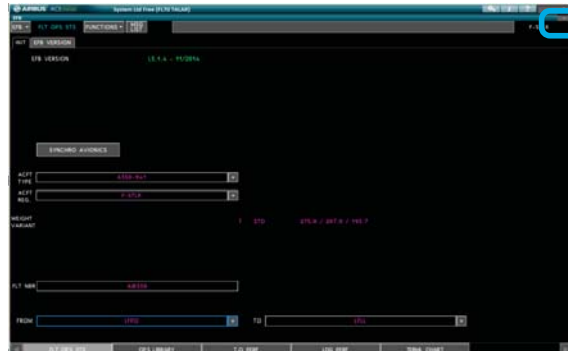
Due to the fact that this is the aircraft application it cannot be controlled by the 3D or 2D cockpit environment, you must use your PC mouse and keyboard. If you move the KCCU cursor to the OIS, then the window will be automatically displayed for you. This is equally the case when you click on the OIS screen.

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Equally during a guided lesson, a training window will be displayed to guide you through the EFB steps, however since the EFB needs a large part of the PC screen, unless you have 2 screens you will not be able to read the guidance at the same time as doing the action.

The following technique is recommended.

STEP 1:



Minimise the EFB window

TIPS: Careful use EFB minimize not the cross to minimize the window, else you will close the lesson.

STEP 2:



Read the training window

STEP 3:



Click on the OIS to re-open the EFB

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8 Assistance

8.1 GENERAL

Remember when you do not know what action is expected you can use the ICON <HELP>, please refer to chapter Specific interactive lesson controls for more information.



You can have access to the FCOM that is installed on your PC through the following:



TIPS: Press on this ICON once will open the FCOM full screen. Press on again it will minimise, pressing a third time will open the FCOM in a window.

8.2 SOP

8.2.1 FLOW

If an SOP FLOW is available, it will be drawn on the mini-map for you, for example:



Select the TAB <WITH FLOW>

In constrained mode the complete flow will be provided, however in guided and demo mode the flow will be constructed progressively as the SOP continues.

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8.2.2 TUTORIALS

When you are in Standard Operating Procedure training, an additional ICON <TUTO> is added to enable you access to Procedure Tutorials applicable to the lesson.



TIPS: Do not use the EXIT icon to close this window. Please use the X as with any other window..

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