READ ME BEFORE INSTALLATION!

Quick Start Manual

Rev 4.0

25 YEARS OF SPACE SHUTTLE MISSIONS

'…the space conquest continues…'

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Introduction

Thank you for purchasing **Space Shuttle Mission 2007™** (**SSM2007™)** – the newest, most exciting and affordable Space Shuttle Simulator. We hope that we are opening for you a door to an exciting opportunity for studying, experiencing and enjoying the world of space exploration through the (simulated) eyes of a Space Shuttle Astronaut.

The real Space Shuttle has been developed by the National Aeronautics and Space Administration (for short – NASA), for the purpose of managing and implementing the Space Transportation System program (for short - STS) which covers both American and international joint space projects.

Since its maiden flight in April 12th, 1981 (STS-1), the STS program has launched over one hundred missions covering government, commercial and civilian applications, the latest mission to date being STS-117.

This manual is a quick introduction to the Exciting Simulations ™ SSM2007™ simulator concept and interface. For more in-depth information about the Space Shuttle vehicle, its operation and the specific missions, you should read the enclosed Captain's Reference Manual and of course each Mission Briefing and Checklist. Another excellent reference source is the extensive NASA website at www.nasa.gov

The Space Shuttle Mission 2007™

SSM2007™ simulator has been developed by a group of space exploration enthusiasts with the purpose of bringing the Space Shuttle program within the reach of those who have dreamt of flying the Shuttle, watching the Earth from above and performing the various tasks real Space Shuttle Astronauts have been performing in space for the last 25 years.

SSM2007™ covers the full range of operations in a successful STS mission: Lift-off, Orbital Operations, Mission, Re-entry and Landing.

During these phases, the Astronaut (you) performs various tasks as dictated by the technical and operational aspects of the mission. The tasks require an active involvement by interacting with the Shuttle interface – buttons, knobs, joystick, computers and communications.

Some of the more demanding missions require the Astronaut to exit the Space Shuttle and perform Extravehicular Activities (EVA). That means that you have to don your (virtual) Astronaut Helmet and Spacesuit and use the Manned Maneuvering Unit (MMU) to spacewalk in and around the Space Shuttle, the Hubble and the ISS.

Yes, being an Astronaut is a tough job. Real Space Shuttle Astronauts perform scientific experiments (not covered in this simulator of course) and also act as construction and maintenance workers fixing and improving satellites and building the biggest man-made structure in Space to date – the International Space Station (ISS).

SSM2007™ comes with a basic set of some of the most exciting Space Shuttle historical missions. Exciting Simulations™ plans to release additional free missions with the intention of eventually covering all historical Space Shuttle missions.

Some SSM2007™ missions may take several hours to complete and that, while skipping to the "next step" and without waiting for hours or even days as in the real mission, although this too is perfectly possible. Of course, keeping that in mind we offer a comprehensive Save/Load system so that you can rest, think and continue the missions at your own leisure or re-try a complicated mission stage that previously failed.

SSM2007™ does not simulate emergency procedures or faults but it does offer the opportunity to press buttons, turn knobs, maneuver the Shuttle and spacewalk, generally performing the entire range of operations a full Space Shuttle crew would perform during a successful mission from, and including lift-off to landing.

That is still a lot of work! We hope you are up to it Commander!

SSM2007™ is dedicated to the crews and families of the STS program and to the NASA staff and their partners, for bringing Space Exploration and knowledge within the reach of all mankind.

SSM2007™ is also dedicated to the memory of the crews of the un-fateful STS-51L and STS-107 missions.
May they rest in peace.

'…the Space Conquest Continues…'

Hardware Requirements

Minimal Windows XP Configuration:

CPU – Intel Pentium or AMD class, 2.2GHz
RAM – 1GB
HD – 500MB free space
Graphics Card – 256MB NVIDIA 68XX class or ATI 16XX class and up.
Sound –available.

Recommended Windows XP Configuration:

CPU – Intel Core 2 Duo or AMD Dual Core class, 2.4GHz
RAM – 1GB
HD – 500MB free space
Graphics Card – 256MB NVIDIA 76XX or ATI 16XX class and up.

Recommended Windows Vista Configuration:

CPU – Intel Core 2 Duo or AMD Dual Core class, 2.4GHz
RAM – 2GB
HD – 500MB free space
Graphics Card – 512 MB NVIDIA 86XX class or ATI 2XXX compatible
products and up.

Recommended for SSM2007 with iWear 920:

CPU – Intel Core 2 Duo or AMD Dual Core class, 3.0 GHz
RAM – 2GB
HD – 500MB free space
Graphics Card – 512 MB NVIDIA 8800GT or similar ATI compatible
products and up.
OS: Windows XP or Vista

① *Optional:* a joystick is highly recommended for all the configurations
above. You'll find that it is much easier to land the Space Shuttle with a
joystick than with the keyboard or mouse.

① *Optional:* NaturalPoint TrackIR™ and TrackIR Pro™ head tracking
devices are supported. The simulator also supports Nvidia™ nView™ Dual
Monitors in Horizontal Span mode, and Matrox™ TripleHead2Go™ Triple

Monitor setups. We recommend all these products for a more immersive experience.

ⓘ ***Important note for Windows Vista**:* please note the Windows Vista hardware requirements. If you do not follow Microsoft's Windows Vista hardware recommendations, then you cannot expect SSM2007 to run "as advertised".

ⓘ ***Important notes for laptop users**:* please note that SSM2007™ is expected to run acceptably well on a wide range of laptops however you must be aware of several realities regarding the 'laptop world'. With some exceptions, laptops usually target the business environment and as such they do not usually offer Graphics Acceleration or great CPU speeds. These are not needed by regular business applications like word processing. It is possible however to find suitable laptops with Graphic Accelerators and suitable CPUs. At this time we can recommend those based on ATI and NVIDIA chipsets and Mobile Dual Core CPUs, but unfortunately these laptops also tend to be more expensive. Our simulator has been successfully tested on a wide range of IBM/Lenovo and HP laptops which provide Graphic Acceleration and suitable single or dual core CPUs .Please note that as a rule of thumb the single core CPUs require much higher speeds to offer the same performance level as the dual core ones. In addition, laptops CPU speed usually depends whether the laptop is connected to mains or runs on battery. Standard factory configurations reduce the CPU speed to almost half the full speed, when running on batteries. The reason for this is saving battery life. Evidently SSM2007™ will not run as well at half the recommended CPU speed as at full speed. To fix this you just need to connect the laptop to mains and/or check the laptop power management settings.

ⓘ ***TrackIR Activation**:* if you have installed TrackIR or TrackIR Pro, please make sure that you have the latest drivers/software by clicking "Update/Check for Software Updates" in the TrackIR control panel. Also please make sure you have the newest game profiles by clicking "Update/ Check for Game Updates". Please check that the Space Shuttle Profile appears in the Profiles list.
Once this is done, go into the game and activate TrackIR support, as described in the Commander's Reference Manual.
You can verify that SSM is linked to TrackIR by checking the TrackIR operation LEDs. When all is OK, the Green light is on (indicating that it detects the hat, reflective point or LEDs) and the Blue light is on, indicating

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that the Game has detected and recognized the TrackIR system and is operating correctly.

① *iWear VR920™ Stereoscopic Goggles Activation***:** First, you must install and calibrate the goggles following the installation instructions from Vuzix manual. Once this is done, go into the game and activate TrackIR support, as described in the Commander's Reference Manual. The iWear VR920 goggles provide for 3DoF head tracking. SSM implements Pitch and Roll motion detection. Head tracking is available in 3D Virtual Cockpit and during space walks (EVA). After activating iWear, all the 3D views inside the simulator will be stereoscopic, providing an amazing Virtual Reality environment. Please note that due to the computational overhead necessary for stereoscopic applications, you need a fairly powerful hardware, especially CPU and Graphics Acceleration cards in order to expect perfect results with iWear VR920. We cannot guarantee nominal performance when using hardware below the recommended specs.

① *Note: some of the options may not be available until you install the latest Service Pack that can be found at the official SSM207 website.*

Installing and activating SSM2007™

> ⓘ *Important note before activation*: please make sure that your hardware and Operating System meet the minimal system requirements described in the previous chapter.

1. Run the *SSM2007-setup.exe* file that you have downloaded from the online Purchase Page, and install the game. Download and install the latest service pack in the same folder as the main program.

2. Run the game for the first time. You will be presented with a registration window and a **PC ID Number.**
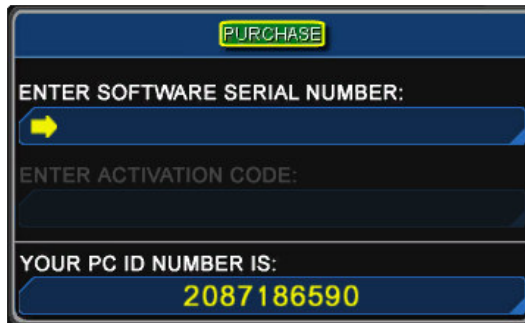
The Registration Window
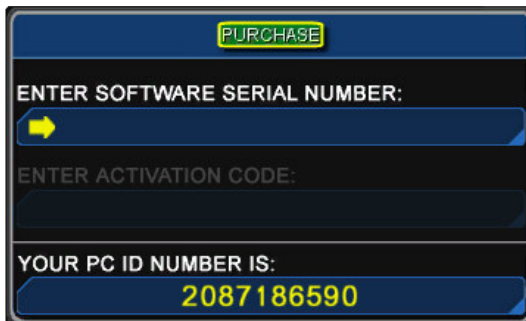
3. <u>Note down the PC ID Number</u> - you will need it to be able to purchase the license key.
4. ***The purchase button link is obsolete. Use this link to get to our online purchase page***.

5. Complete the checkout process at PayPal. Remember to save a copy of the receipt for future use.
6. After purchase you should be returned to the order completion page.If that doesnt happen, you can get to that page using this link:
https://www.space-shuttle-mission.com/purchased.html
7. Fill in the Your Transaction ID Number as seen on the PayPal receipt, followed by the PCID as seen on the activation screen.The key will be generated offline,so please allow for up to 24 hours for delivery.

Activation

Now type in the **Transaction ID Number** and the **Activation Key.** They should appear in the the email message you have received from us to the email you used during the purchase. Press **Enter** after each one. If you have made a misstake (typed "zero" instead of "o", or "one" instead of "i", etc.) or the codes do not correspond to the current hardware, you will be returned to the desktop. Try again.

The Registration Window – Registration Key

Off-Line Key Generation: in the rare case you have to reactivate the Space Shuttle by requesting an off-line Activation Code, email us at support@space-shuttle-mission.com

The email message must contain the following information:

1. The **Software Order Number** you have received via email after you have ordered the game.

2. The machine-specific **PC ID** as seen on the activation screen when you run SSM2007 for the first time.

3. Proof of purchase (either an electronic form you have been issued online by the vendor or a scan of the invoice in case you have purchased it at a store, **or** a valid Transaction ID number.)

Please make sure that this is the same information you used during the purchasing process. If you fail to supply the correct information, we will not be able to generate a key.

After receiving the new Activation Code, follow the normal activation process above.

Please note that the Activation Code is unique and valid for a specific hardware/Operating System configuration. Any major change in that configuration will invalidate the key and will require an Off-Line Activation Code Generation support.

Ⓘ **Hint:** *in order to avoid the need for re-activation in case of an OS hard disk failure, please install SSM2007 on a separate physical hard disk.*

Note: The Off-Line Activation Code Generation service is totally free and a new Activation Key will be issued within 24 hours.

Starting and Configuring the SSM2007™

If the installation and activation process has been completed successfully, the welcome screen and a top menu will be visible.

The first step is to click on the ACTIONS menu and select OPTIONS. This opens the options window which gives you control over various SSM2007™ parameters:

If your hardware is powerful enough, you may of course select higher settings in the graphics section to improve the visuals. The first graphic option we recommend you to try is Earth and clouds resolutions, then shadows and so on. If later on you notice some performance issues, or you feel that your hardware is capable of providing you with a better experience, you may want to return and play with the screen resolution, the visual options etc.

The next recommended step would be to READ the Commander's Reference Manual but we know that you just want to jump in and hit the throttles, so we'll help you do just that, with the first mission.

Please note that in order to reach more advanced missions and/or increase the difficulty level you cannot avoid reading the Commander's Reference Manual. This is a Space Shuttle, not a point-and-shoot arcade game, Commander!

My First Mission

Please refer to the Commander's Reference Manual for a full user interface description. Here we will teach you only the bare minimum to get you started playing with SSM2007™.

Mission Selection:

Select MISSIONS from the main menu. When selecting this entry, you will be presented with a list of missions, each one marked with one to three stars. One star means that the mission is relatively easy – normally not requiring anything beyond flying the Shuttle and releasing a simple satellite. The three-star missions are the most demanding ones, usually requiring you to manually dock, capture, perform some level of Extravehicular Activity and follow precise instructions to complete the mission. You've been warned!

Let's select STS-1 for now. This is the Space Shuttle maiden flight and as such it is also one of the easiest.

STS-1 Briefing Screen

You are greeted with a Briefing Screen displaying the mission name, badge and various mission details. Please read the briefing carefully so that you know what to expect and what to do during the mission.

At the bottom right you have several options:
Launch T-01:50:00 (1hr and 50 minutes away from lift-off)
Launch T-00:00:12 (12 seconds to lift-off)
In Orbit (ready to perform the mission)
Landing (practice landing at the correct landing facility)
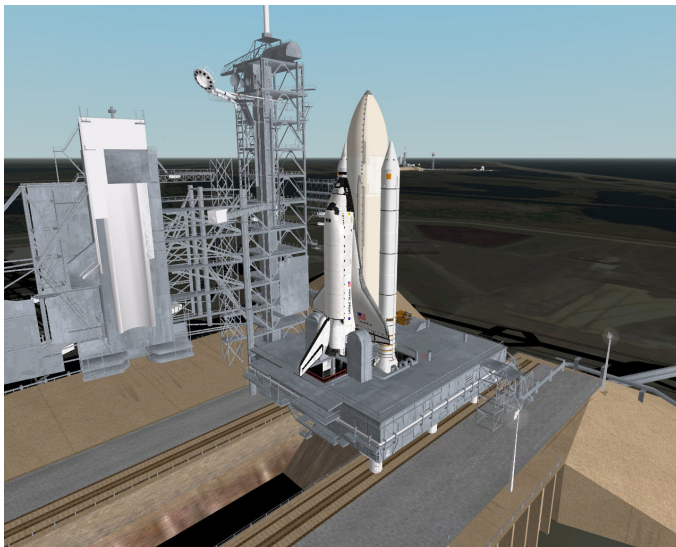*Load* (load a previously-save mission phase)
Previous (return to the main screen)

Starting the Mission

We know that you want to lift-off immediately so let's select the *Launch T-00:00:12* option for now.

After a short while you will be presented with an external view of the Space Shuttle Columbia on the Launch Pad, waiting for the count-down (which starts in 2 seconds).

Columbia on the Launch Pad

For now, hit the P key (pause) and let's examine the view. You can use the mouse to rotate around the Space Shuttle and the Numeric Keypad + and – keys to zoom-in or out for a better view. If your mouse also has a wheel, you may use it to zoom in/out instead of the keyboard controls.

If you want to access the menu again, Right-Click and you will notice that a cursor appears giving you full access to the menu. Right-Click again to return to the 'view control' mode.

In the upper right corner you can notice the flashing NEW MESSAGE and PAUSE indicators. The upper right corner is the place to look for indications on how the mission is progressing. If the mission is waiting for you to do something, then you will see a NO GO flashing indicator. In that case you need to check the latest instructions and follow them to the letter until the NO GO indicator goes away. Sometimes you'll notice a RUNNING indicator. That means that a certain process is under way (like Payload Bay Doors opening, KU Antenna deploying etc.). Usually, you should wait for it to end and then perform a specific task.

Now press F5 (View Message) to see the current instructions and you will notice that the flashing NEW MESSAGE indicator disappears and a message appears at the bottom part of the screen. You may hide/display the message from the screen bottom as you please by pressing F5. The NEW MESSAGE indicator will flash again and a communications chime will be heard whenever there is a new message which still has not been read and if the bottom display is hidden.

Entering the cockpit

Now let's enter the Space Shuttle cockpit - press the F3 key (you may return to the external view at any time by pressing the F1 key).

After pressing F3 you will enter the 3D Space Shuttle Virtual Cockpit:

Virtual Cockpit View

Move the mouse over the screen and you will see that as you move the mouse, your view rotates and you can look around the cockpit. You can zoom in/out by using the mouse wheel. Those with TrackIR™ will notice that the view moves according to the head movement. TrackIR users will enjoy a significant immersion level by being able to look around the cockpit naturally by rotating or translating the head. When you want to select a panel, you Right Click the mouse and you enter the freeze/menu mode. In this mode you see that a menu appears at the top and as you move the cursor around the cockpit, the panels are highlighted. You will need to Left-Click in order to select and zoom-in on the panel that you want to operate.

Once you are in 2D panel view, you can operate the switches. Usually the panels are much larger than the screen can display. In this case, you can

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move the mouse towards the four screen edge and the panel will scroll. In this view you can also access the menu for more options. The PANELS menu entry offers shortcuts for some of the more useful panels and allows you to jump quickly to these panels without having to go through the Virtual Cockpit selection process.

Go ahead and select (Left-Click) any of the highlighted areas to get used to the view. You can return to the Main Cockpit View at any time by pressing F3 again. Resist the temptation and do NOT flip any switch at this time! You'll do plenty of this later.

By pressing F4 repeatedly, the VC view will cycle around 5 preset positions: Commander, Pilot, Mission Specialist 1, Mission Specialist 2 "Jumpseat" or Right Aft (facing the rear shuttle windows if on orbit). These views will allow you to get a better view of the panels before selecting them, and also enjoy special views available only in these locations. Now select the Front Center panel by clicking inside the relevant highlighted area. This will bring you closer to these panels and enable you to see various details on the Shuttle CRTs.

Hint: you can jump quickly to the last panel you've selected by pressing F2.
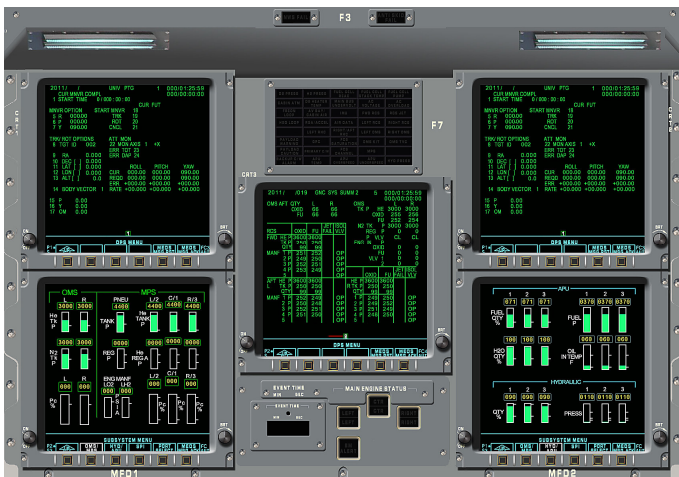
The Front Center Panel

There are not many buttons to press here at this time as this is the main computer CRT views. Here you see various mission parameters presented by the General Purpose Computer (GPC). Also since the Space Shuttle is mainly "flown" automatically by its GPC, it is here where you will interact with the Space Shuttle at various critical mission stages. To bring up the GPC keyboards press <u>LEFT SHIFT</u> or <u>RIGHT SHIFT</u> keys and you will notice that keypads pop-up. Sometimes it is important to interact with a specific keypad, depending on the command purpose – you will be instructed which keypad to use during the course of the mission. Keep the relevant SHIFT key pressed for as long as you need to press the GPC keyboard buttons. GPC keypads and CRTs are located on the Center Panel and at the Shuttle Aft R11L/R11U panels but please notice that the keyboard Left/Right-Shift shortcuts are available only on the Front Center panel.

Now press the "P" key again to un-pause the simulator. The launch sequence re-starts. It is time to lay back and watch the lift-off either from outside view (F1), Virtual Flight Deck (F3) or the VIP Launch View at KSC (F8). The lift-off is entirely automatic and you have nothing to do at this stage except for watching either from the Shuttle's windows or from the external view. Also notice the gauge readings on various panels. They are very similar to what actually happens in the real Shuttle. We have added "shakes" in 3D Flight Deck View (F3) to simulate the shakes the Astronauts feel during liftoff. If you do not like that, you may disable them from the Options window.

From time to time watch the bottom part of the screen and read the messages. At about 3 minutes into the mission you will be asked to perform the first activity – "*Check that the Flash Evaporator is working properly*". Since this will not be a critical activity it is not important to execute it, but we recommend that you do, just as a small exercise in "locate the right panel" procedure. The next activity will require you to press the first buttons – don't worry.

At abut 00:08:49 into the mission you are required to prepare the Space Shuttle for the External Tank separation. Let's see:

"OVERHEAD RIGHT (O8) panel: set all FWD RCS He PRESS A/B, TANK ISOL 1-2/3-4-5 and MAINFOLD ISOL 1/2/3/4/5 to OPEN."

In plain English that means "go to the O8 panel by using the Main Cockpit View and move the required switches/knobs to the required position."

Now it is time to press the "P" button again and take the time to find the O8 panel. There is no rush. As we are in Novice mode, you will soon notice that there is a flashing yellow arrow near the buttons in question. This kind of help is not available in higher difficulty settings so enjoy the hand-holding for now.

Flipping switches, rotating knobs

When you found the panels and the right buttons, you move them by moving the mouse over the button and clicking the Left Mouse Button to flip the switch in the UP position and Right Mouse Button to flip the switch to the DOWN position. If the switch has three positions, then click on it as many times as needed to flip it into the correct position.

To rotate a knob, you click the Right Mouse Button to rotate the knob to the RIGHT and the Left Mouse Button to rotate the knob to the LEFT.

For buttons which need only to be pressed (like the GPC keyboard) you simply move the mouse cursor over the button and Left Click on it to toggle its position. Momentary switches that need to be flipped and held are operated with the Right Mouse Button.

The mission continues…

After performing the External Tank separation preparations press "P" to let the simulation run and just watch how the automatic External Tank separation occurs. We recommend the external view for this, but not for long, since your attention will soon be required for your first interaction with the General Purpose Computer as you must tell it to prepare the Space Shuttle for the next flight phase of insertion into orbit. Please note the NO GO flashing indicator which stays on for as long as you have not completed all the steps required in the message. As you notice you still have some more switches to flip. Do that and make the NO GO flashing indicator go away.

After performing the instructions, go again into external view and enjoy the view of the Earth from space, or engross yourself into reading the various

GPC graphs and other information displayed on the CRTs or various gauges.

Time Acceleration Mode

This is the moment to learn how to quickly move forward into the mission without waiting for long minutes, hours or even days. Press the "T" button once. You will notice that everything goes faster – time, animation, everything. Don't worry. If something requires your attention or a new message is received, the Acceleration Mode will stop and you will be returned to the normal speed and allowed to read the new message or perform the next step at your leisure.

The mission continues…

You will have another short activity to perform and then it will be a long wait until the next step so you better make good use of the "T" key. During this wait you can watch the Shuttle in External View and see the sunset from space, Earth at night and so on. Enjoy.

Perform the next activities as required by the communications.

Controlling the RCS

After some time you will reach a point that requires you to manually move the Space Shuttle into the correct attitude. The correct attitude is indicated on the Forward Left panel (the Commander's position) and can be read on the CDR2 display. In space, the Space Shuttle attitude is controlled by micro-rocket engines which constitute the Reaction Control System (or subsystem). You control the RCS through the Numeric Keypad.

When the Numeric Keypad NumLock key is NOT activated, the Numeric Keypad is in RCS ROTATION and the keys perform the following actions:

- Arrow UP – PITCH up
- Arrow DOWN – PITCH down
- Arrow Left – ROLL Left
- Arrow Right – ROLL Right
- PgDn – YAW Right
- Del – YAW Left

When the NumLock key is activated, the RCS moves into the RCS TRANSLATION mode with the following functionality:

- Arrow UP – Translate Forward
- Arrow DOWN – Translate Backward
- Arrow Left – Translate Left
- Arrow Right – Translate Right
- PgDn – Translate Down
- PgUp – Translate Up

For now you need the Numeric Keyboard to be in RCS ROTATION mode so make sure that the NumLock is NOT activated.

It is time to consult the Commander Manual for a more thorough explanation of the attitude indicators displayed on CDR2.

Now maneuver the Shuttle so that the two ADI vertical needles and the horizontal one form a cross in the center of the gauge. Press the relevant keys so that the Shuttle moves into the correct position. Usually that means that you have to "fly towards the needles" or "towards the correct value". As indicated by the activity message you need to move the Shuttle so that the R, P and Y values are 0, 0, and 90 degrees respectively. The R, P, Y values are in Degrees and cycle between 0 and 360 degrees.

The mission continues…

After another series of activities, you will be waiting for the bay doors to open. Don't forget that this operation takes 3 minutes. During this time the RUNNING indicator will be flashing.

You may watch how the bay doors open either though the External View or by looking through the AFT windows. Press F3 to enter the cockpit, select AFT FLIGHTDECK and click on either of the aft windows. Same goes for the Radiators Deployment stage.

Following, there will be additional stages ending with the Deployment of the KU Antenna. After finishing the KU Antenna deployment stage, you will get a message that Columbia is ready for its mission. Incidentally, this is the

stage you may enter directly by selecting the *'In Orbit'* option in the Briefing Screen at the beginning on the mission.

For now, let's save the game situation and take a well-deserved rest. You need it for the next stages of STS-1 – De-orbiting, Re-entry and Landing.

Saving and Loading Situations (Game Saving)

To save the game, select the Action/Save menu entry or press the F9 key. You will be presented with a set saving slots where you can enter the description of the saved position. The Save Window allows you to save up to 14 situations per mission. The correct procedure for saving is to click on a Save Slot, press the "SELECT" button, enter the situation name and then press the "OK" button. The next time you want to Load any of the saved situations select Action/Load from the main menu. Once in the Load window, click on the save slot that contains the situation you want to load, and then press the OK button. Each mission can have up to 14 save/load points per Astronaut/per mission so different people can play the game and have their own separate saved situations for each mission.

You can load a situation from both the Mission Briefing Screen and from the 3D Simulation Screen Menu.

For now, let's move on with the mission and retrieve the main Mission instructions. Select ACTION/ MISSION COMMS from the main menu. Since STS-1 was the maiden flight, its mission was to test and check its performance and return safely to Earth.

As the last Message hints, there is a new Time Acceleration function which allows you to move quickly to the next major mission highlight. Press ACTION/NEXT EVENT and you will find yourself in the correct position and ready to perform several in-orbit activities that will bring the Space Shuttle into the right attitude for De-Orbiting.

During these activities don't forget the most important keys for Novices:

"P" – Pause
"T" – Time Acceleration Mode
"F5" – Message Show/Hide
"F9" – Save Situation
"F10" – Load Situation

And of course don't forget to follow the Dynamic Help System (the yellow flashing arrows indicating which switch to flip and which knob to rotate) and to observe the NEW MESSAGE and NO GO flashing indicators.

After successfully completing the in-orbit activities you will receive the 'Select LANDING COMMS to prepare for De-Orbit' message. Do so by accessing the ACTION/ LANDING COMMS menu. The next activities prepare the Space Shuttle for the Earth Atmosphere Re-Entry phase.

Landing the Space Shuttle

Watch the Re-entry phase both from the External and Cockpit views. You will see what very few people get to see: the heated plasma around the Space Shuttle body as it enters the Earth Atmosphere.

The friction between the Earth Atmosphere and the Space Shuttle body engulfs the Space Shuttle in a fiery plasma trail which disables communications until the Shuttle slows down and prepares to assume the correct attitude for landing. Don't worry – the Space Shuttle body is protected by heat-resistant tiles.

Now is the time to pause the simulator and go again and read the Commander's Reference Manual – the landing and HUD sections. Read them carefully to understand the various HUD symbols and MFD information and what landing the Shuttle means.

The HUD view is the view recommended during the landing process as it supplies critical information necessary for a successful landing.

You have access to any of the two HUDs – they perform identically. You can use the Virtual Cockpit HUD (more realistic) throughout the landing process, but at this early stage, we recommend that you rely on the 2D HUDs which provides a better, but unrealistic point of view.

2D HUD Configuration during landing

3D HUD Configuration during landing (zoomed in)

3D HUD Configuration during landing (normal view)

The STS-1 landing takes place at the Edwards Air Force Base. Wait for the flight computers to position the Space Shuttle on the desired path. Soon you will assume manual control and you will be expected to land it manually using the keyboard or joystick. Align the Space Shuttle using the HUD information and the communication and audio cues. Approach and maneuvering speed should be around 300 knots. Landing speed should not exceed 200 knots. The Space Shuttle does not have any operating engines during the re-entry and landing phases. The only way to control it is by converting its kinetic and potential energy and using its flight control surfaces - elevons, body flaps and rudder – just like a glider. While useless in Space, these control surfaces are priceless in Earth Atmosphere.

You can also use the air brakes (Numeric Key "/" and "*") in order to reduce the approach speed. Do not over-use the Speed Brake. If you reduce the speed below approximately 160 knots, the Shuttle may stall and simply fall to the ground. The Speed Brake is best used only in the final landing phase, if you cannot reduce the landing speed to below 180 knots.

Don't forget to hit and hold the "B" – brakes key - after the nose wheel touches the runway, and bring the Shuttle to a complete stop as soon as possible.

If the landing was successful, you will get a success message and you'll have the opportunity to access the main menu. To exit to the main menu, press the ESC key and answer "yes" to the "Quit to main menu?" window. To exit the simulator, access the ACTION in the main menu and select EXIT.

WELL DONE!

This completes the STS-1 mission. We recommend you try STS-1 several times until you feel comfortable with the interface and controls. Then you can move on to more demanding missions. After you complete them all, why not try them in Expert mode?

Learning how to land a Space Shuttle successfully takes time and practice. You can select the LANDING option from the Briefing Screen at any time and you will be moved at the correct attitude and location to make it on the runway safely.

Practice as many times as you need.

This is the time to mention that when you complete a mission from lift-off to landing you will receive a Mission Badge in the Astronaut Records section. If you start a mission directly from the In Orbit or Landing positions, this is not recorded as a successful mission and is regarded as routine training. You may save and load a fully performed mission as many times as you please. If you ran through it from the very beginning and through a successful landing you will get the mission badges.

Are we really ready?

Our advice before moving on to more demanding missions is to take the time and read the Commander's Reference Manual at least once.

You may not remember everything but at least you will know the kind of information you can find there and you will find it easier to browse through it and reach the desired subject. You usually don't have the time to do that if you "fly" in real time. Also make good use of each specific mission Checklist.

As a professional Space Shuttle Commander you should learn as much as possible about the Space Shuttle and its missions from the supplied documentation and of course, from the ultimate source – the NASA website at www.nasa.gov. The NASA website is an almost never-ending source for mission briefings, pictures movies and of course, more in-detail Space Shuttle documentation. After you have covered that, you can always search the Internet for even more.

Conclusion

We hope that you found this short tutorial interesting and useful but please remember that it does not contain all the information needed to be successful in the following missions.

As mentioned before, SSM2007™ is supplied with eleven exciting historical missions. We count on your continuous support in our endeavor of periodically releasing new missions. Our plan is to release them for free to our registered customers until we cover all the historical missions, so that you always have something to do in Space.

With the occasion of the 25th Anniversary of Space Shuttle Flights, we wish you a thrilling and realistic adventure around the Earth.

Now it's your turn Commander - **The Space Conquest Continues**!