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ASTi

ACE Studio VM

Quick Start Guide

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Product Name: ACE Studio VM

ASTi ACE Studio Virtual Machine Quick Start Guide

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1.0. Introduction

ACE Studio is a powerful suite of software tools providing: centralized access to remote networked Telestra 4 Target equipment and associated software models, a software development toolkit for building sound and communications models, and managing network-wide communications plans and equipment configurations.

1.1. Features

ACE Studio incorporates these ASTi software tools:

- **ACE Studio Viewer** - Intuitive GUI-based software development toolkit that facilitates model development and accelerates the test and debug cycle
- **ACE Studio Project Manager** - Generate and distribute communications plans and equipment layouts to remote sites, from a single Studio management node using advanced peer-to-peer file sharing
- **Radio Monitor** - Network analysis tool for simulated radio traffic. Radio Monitor presents a variety of 'views' that provide the ability to list and examine radios that have been detected on the network

ASTi offers two Studio configurations:

1. Hosted on a dedicated ASTi Telestra industrial computer platform
2. Hosted on a customer-furnished computer, running as a virtual machine (VM)

Both configurations incorporate the same powerful feature set.

Studio VM runs seamlessly on customer-furnished Windows[®] or Linux[™] computers using Virtual Machine (VM) technology. Benefits include:

- Eliminates the need for additional processing platforms
- Run multiple versions of Studio on the same computer
- Reduce cold start procedure time
- Runs under Windows[®] or Linux[™]

1.2. Scope of This Guide

This quick start manual describes the installation of VMware Player and ACE Studio software, and configuration and operation of the VMware Player.

Refer to these sources for additional information:

ACE Studio User Guide. Complete application information:

<http://www.asti-usa.com/support/document/telestra4.html>

Synapse Workstation and Synapse Radio Bridge Operator Manuals,
Synapse-specific information:

<http://www.asti-usa.com/support/document/synapse.html>

Telestra 4 ACE, complete system information:

<http://www.asti-usa.com/support/document/telestra4.html>

VMWare Player, complete information:

www.vmware.com

2.0. Minimum System Requirements

To complete the software installation ASTi recommends the following:

- 2 GB RAM
- Gigabit Ethernet
- DVD Drive
- CPU -P4 (3 GHz or higher) or Multicore CPU (core, core2, i7 1.8 GHz or higher)
- VMware Player 2.5.x or greater or VMware Workstation 6.5 or greater
- VMware Player Supported OS (see the VMware Player at www.vmware.com)
- The host PC network must be on the same subnet as the Target. NAT mode is not supported.

3.0. Software Installation

Follow the steps below to install the VMware Player and ACE Studio software.

1. Download VMware Player from www.vmware.com.
2. Install VMware Player by following the instructions in the VMware Player Guide at www.vmware.com.
3. Reboot the computer.
4. Create a directory to store your Virtual Machines, for example “C:\Virtual Machines\”.
5. Insert the “ASTi ACE Studio VM” DVD into the computer.
6. From the DVD, copy the ASTi provided VM directory (i.e. ASTi_ACE_STUDIO_4x-xxxxx) into the “Virtual Machines” directory previously created.

Note 1: Some operating systems and security settings may copy the files as read-only. To correct this see the FAQ section and the FAQ regarding permissions.

Note 2: The default RedHat® Enterprise Linux® (RHEL) version is 5.4. Contact ASTi if you require RHEL 5.3 version.

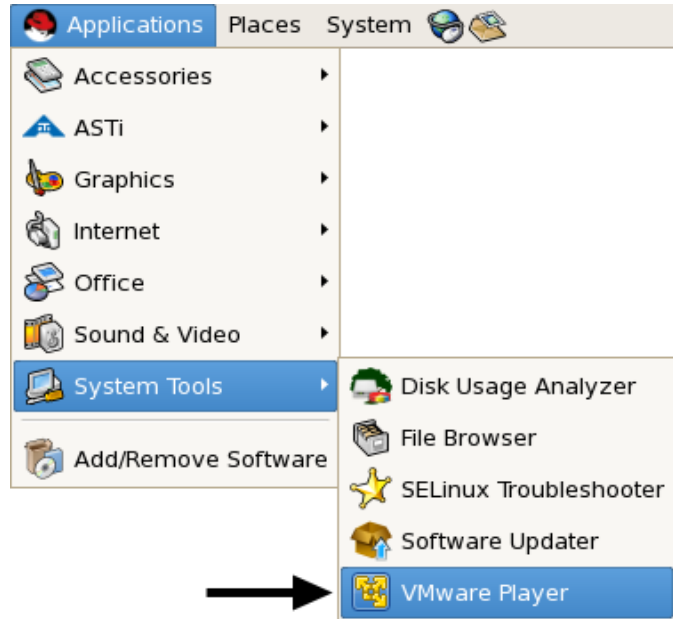
3.1. Getting Started

1. To open the VMware Player:

1a. In Windows[®], navigate to Start > All Programs > VMware Player.

1b. In Linux[™], navigate to Applications > System Tools > VMware Player.

Note: This is an example using Red Hat[®] Enterprise Linux[®] 5.0. The VMware Player location may vary depending on host OS.



2. Opening virtual machine.

2a. In Windows, in the VMware Player window, select “Open a Virtual Machine.”



2b. In Linux, in the VMware Player window, select “Open an existing Virtual Machine.”



Note: Setup screens may vary depending on VMware version.

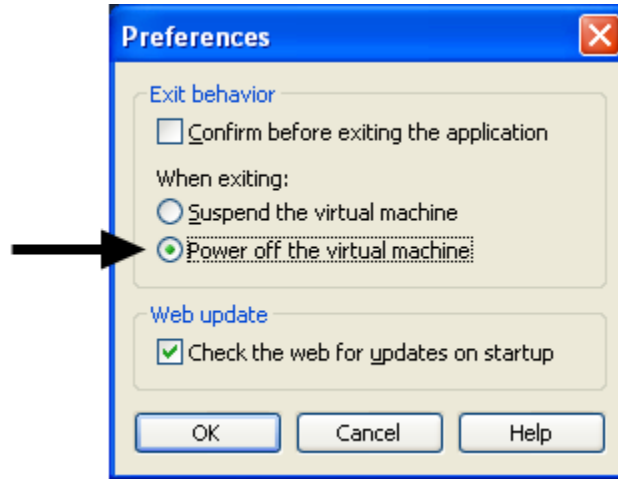
3. Navigate to the “Virtual Machines” directory previously created.
4. Open the “ASTi_ACE_Studio_4x-xxxxx.vmx” file.
5. Wait while the system loads.

If the software is installed properly a user login prompt will appear. For login information continue with the ACE Studio User Guide (DOC-01-TELAS-UG-4), specifically the “System Accounts and Services” section.

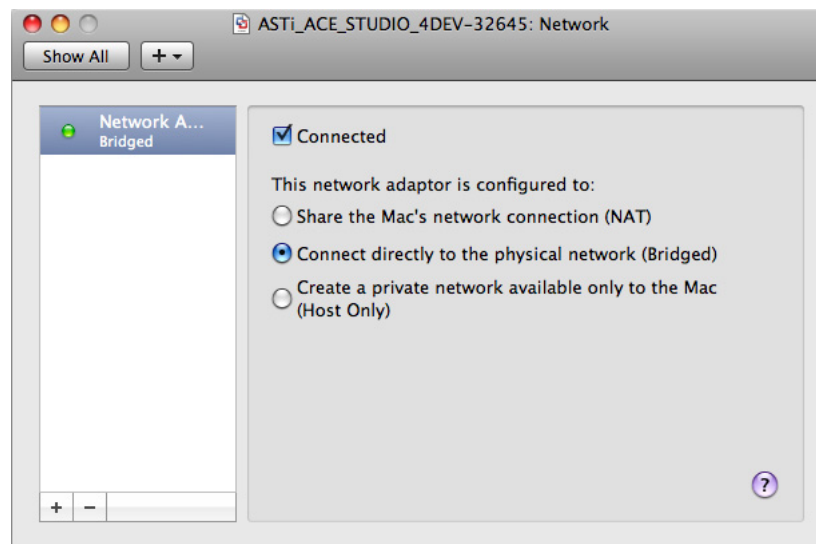
Important: Do not “Suspend” the OS or close the VMware Player when running ACE Studio, you must shutdown the OS by using the shutdown command.

4.0. VMware Player Configuration

1. Set VMware Player preferences to “Power off the virtual machine” as the default. Suspending the virtual machine will cause problems.



2. By default, the network is setup as bridged. This means the host OS must be on the same subnet mask as the guest OS. NAT mode is not supported.



3. To properly configure your network settings for ACE Studio, see the Telestra 4 Quick Start Guide (DOC-01-TEL4-QSG-1) “Setting up the ACE Studio” section.

4.1. VMware Player Helpful Hints

Click inside the window to register the mouse and keyboard commands.

Press 'Ctrl+Alt' to return the mouse and keyboard to the host OS.

Press 'Ctrl+Alt+Enter' to enter full screen mode or to exit full screen mode.

Press 'Shift + CTRL + ALT + Function Key' to switch terminals within the VM.

5.0. Frequently Asked Questions (FAQs)

Q: How do I assign a static MAC address to my VMPlayer?

By default, ASTi VM's automatically generate a random MAC address. In some instances it may be preferable to have a static MAC address.

1. Shutdown VMware Player.
2. Browse to the directory where your VM is stored.
3. Open the file with the .vmx extension in a text editor.
4. Find the following lines and remove them from the vmx file.

```
ethernet0.addressType = "generated"
ethernet0.generatedAddress = "XX:XX:XX:XX:XX:XX"
ethernet0.generatedAddressOffset = "0"
```

5. Add the following lines to the .vmx file. The MAC address must be in the following range 00:50:56:00:00:00 - 00:50:56:3f:ff:ff.

```
ethernet0.addressType = "static"
ethernet0.address = "00:50:XX:XX:XX:XX"
```

6. Save the file.

Your VM should now have a static MAC address.

Q: Why do I get an error about Insufficient Permissions when opening a VM or the VM fails to start?

Linux Operating System

Sometimes when copying files off a DVD a user may run into permission issues. From a terminal on the host operating system, run the following commands:

```
cd ZZZZ (where ZZZZ is the location of the Virtual Machine Directory)
chmod 775 ASTi_ACE_STUDIO_X.XX-XXXXX (where X.XX-XXXXX is the version of Studio VM you are using)
cd ASTi_ACE_STUDIO_X.XX-XXXXX
chmod 664 *.*
```

Windows® Vista or 7 Operating Systems

Right-click on the VMWare Player or Workstation icon and select to run it as administrator.

Q: How do I set the Default Host Network Port?

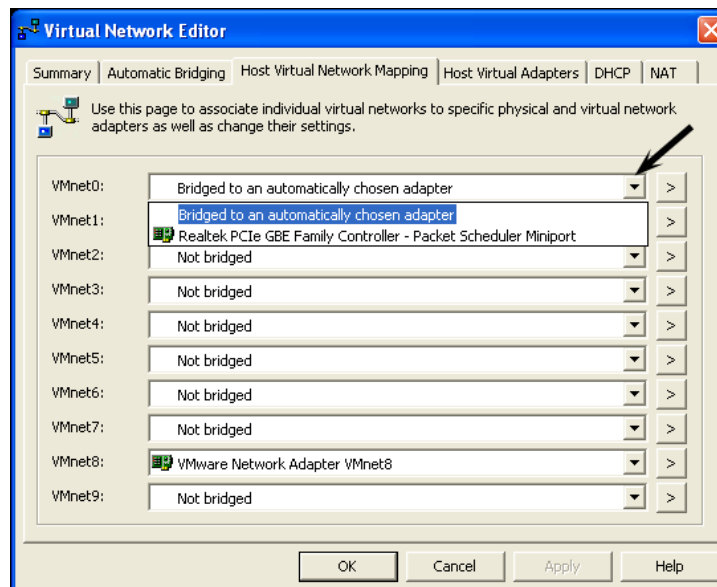
By default, VMware Player and Workstation automatically guess which network port to use when the Host PC has multiple network interfaces. Sometimes this guess is incorrect and it is beneficial to manually select the network interface for the VMware Player and Workstation.

Requirements

- VMware Player 2.5.x or 3.x or VMware Workstation 6.5.x or 7.x
- Multiple Ethernet Interfaces

Windows® using VMware Player 2.5.x

1. Shutdown the VMware Player.
2. Double-click on vmnetcfg.exe in your VMware Player directory (i.e. C:\Program Files\VMware\VMware Player\).
3. Select the “**Host Virtual Networking**” tab.
4. Select the network card you want to bridge to from the drop down menu next to “**VMnet0**” and select ‘**Ok**’.
5. Reboot the host OS.



Windows® using VMware Player 3.x

If you are running VMware Player 3 you must first extract `vmnetcfg.exe` if it is not in your VMware Player directory (i.e. `C:\Program Files\VMware\VMware Player\`). To extract this file, follow the steps below:

1. Shutdown the VMware player.
2. Navigate to the command prompt.
3. At the command prompt navigate to the directory where you downloaded VMware Player 3.
4. Type:

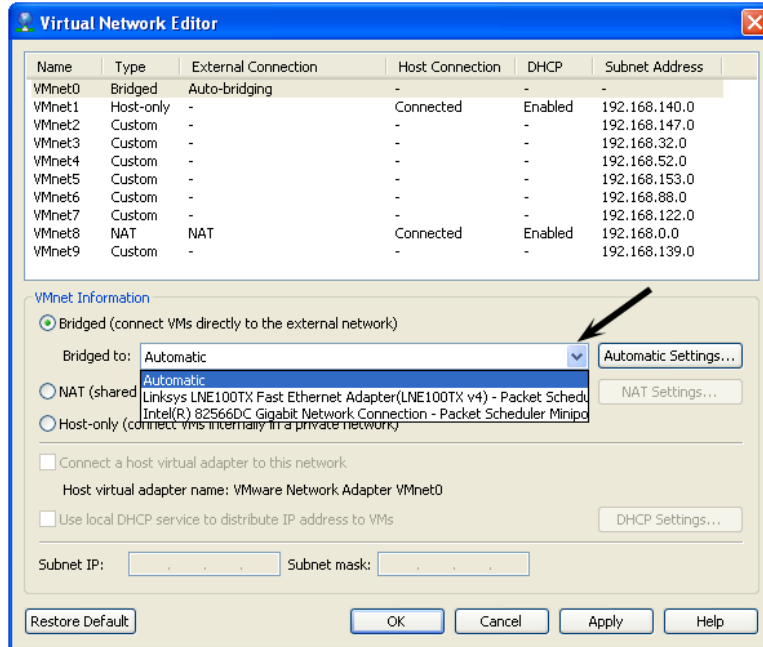
```
VMware-player-3.x.x-xxxxxx.exe /e extract
```

where 3.x.x-xxxxxx is the version number.

All contents will be extracted to “**Extract**” folder.

5. Navigate to the “**Extract**” folder and open it.
6. In the “**Extract**” folder, double-click the “**network.cab**” file which then opens the contents of the folder. Then copy the **vmnetcfg.exe** file to your installation folder, typically `C:\Program Files\VMware\VMware Player\`. To copy the folder you can drag and drop the file into the new folder or right-click on the file and copy then paste it into the installation folder.
7. Double-click on “**vmnetcfg.exe**” in your VMware Player directory.

8. Select “**VMnet0**” then select the network card you want to bridge to from the drop down menu and select ‘**Ok**’.
9. Reboot the host OS.



Linux™ using VMware Player 2.5.x and 3.x

Complete the following steps as the root user.

1. Shutdown the VMware Player.

2. Open a terminal and type:

```
cd /etc/vmware
```

to edit the networking file.

3. Add the following lines to the end of `/etc/vmware/networking` file. Substitute the 'x' for the Ethernet interface in the host OS.

```
add_bridge_mapping ethx 0
```

```
add_bridge_mapping ethx -1
```

Note: 0 = Enabled, -1 = Disabled

Example: This will force the VM to use eth0 and not eth1 or eth2.

```
add_bridge_mapping eth0 0
```

```
add_bridge_mapping eth1 -1
```

```
add_bridge_mapping eth2 -1
```

4. Reboot the host OS.

Q: In Studio, I'm experiencing slow responsiveness and the Studio is not able to find Targets over the network, what should I do?

There are a few possible problems including an incorrect gateway IP, invalid domain, or invalid DNS. Here are some possible solutions:

1. You may have an invalid gateway IP set in the Studio's network settings. Correct the address. If no gateway exists, use the Studio's own IP address for the gateway field.
2. You may have an invalid Domain or Domain Name System (DNS). Verify that these are set correctly. Contact your network administrator to see if the network is configured to use DNS.

If you do not have a DNS server or gateway on the network between the Studio and Target platforms, make sure that there is nothing specified in the DNS or gateway field of the Target. This is available in the RMS Configuration > Networking page. Also make sure that the same is true on the Studio. This is available in the System > Administrator > Network.

3. Reboot both Studio and Target platforms.

Q: Why is my “Open Projects” List in Studio VM blank?

You may be experiencing firewall issues. On a security hardened Windows XP box (or any hardened OS box for that matter) certain IPv6 services (per DISA STIG requirements) may be disabled and/or blocked. However, it is the implementation of disabling them that is the important part here as a user should not need the IPv6 services installed under Windows for IPv6 to work in a Studio VM that runs in Bridged mode. Depending on how the VM is setup it is still possible that the firewall may block IPv6 traffic.

When the Studio VM runs in Bridged mode the IPv6 Network Layer firewall rules should not matter since the VM connects to the Windows box at Layer 2 (OSI Model). However since IPv6 has a different EtherType than IPv4 and since the EtherType is at the Layer 2 level it is possible to have a firewall rule at Layer 2 that blocks all IPv6 EtherType traffic. The EtherType for IPv6 is 0x86DD.

First, the user should verify that the firewall is the cause of the problem. The easiest way to do this is to disable the firewall for the duration of the test. However if you are unable to do so contact your system administrator for the best way to diagnose the problem.

If the firewall is the cause of the problem, determine which rule(s) are causing the blocking of the Studio/Target traffic and then modify those rule(s) as needed.

The following relates to Symantec Endpoint Protection, however other firewalls could basically do the same thing.

Symantec Endpoint Protection Example

Verify the Issue

1. Open up Symantec Endpoint Protection.
2. Select View Log.
3. Select Network Threat Protection.
4. Select Traffic Logs.
5. Look for one or more entries that says something like “Blocked IPv6 (type=0x86DD)”.

To Fix the Issue

1. Open up Symantec Endpoint Protection.
2. Select Status.
3. Select Network Threat Protection.
4. Select Options.
5. Select Configure Firewall Rules.
6. There should be an entry that has a **Block** rule for “IPv6 (Ethernet Type 0x86DD).”
7. Change this rule from a **Block** rule to an **Allow** rule. If you choose, you may do it on a per interface, host IP, MAC address, etc. basis.

After you complete the steps, you should be able to run the ping6 command successfully from Studio:

```
# ping6 -i eth0 ff18:6e87:5466:16:cba9:773f:4571:aced
```

This will show you every Target that is powered on, so if there are many Targets you will get one response from each Target with a (DUP!) after it. The address above is the IPv6 T4 project discovery address. Keep in mind that Studio is a member of this group and will see itself in the ping command. For example:

```
# ping6 -i eth0 ff18:6e87:5466:16:cba9:773f:4571:aced
PING ff18:6e87:5466:16:cba9:773f:4571:aced(ff18:6e87:5466:16:
cba9: 773f:4571:aced) from fe80::207:b8ff:fedc:9cd3 eth0: 56 data
bytes
64 bytes from fe80::207:b8ff:fedc:9cd3: icmp_seq=0 ttl=64
time=0.020 ms
64 bytes from fe80::207:b8ff:fedd:401: icmp_seq=0 ttl=64
time=0.414 ms (DUP!)
64 bytes from fe80::207:b8ff:fedc:c464: icmp_seq=0 ttl=64
time=0.457 ms (DUP!)
```