AES 7705i
MultiNet Receiver System

Initial Installation
and Setup Guide

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AES 7705i MultiNet Receiver
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This product shall be installed in accordance with NFPA 72, NEC, UL 827 and all applicable local codes

1.0 Overview

This document discusses the initial installation, setup and configuration of the AES MultiNet Receivers and its 1st 7170 IP-Link Transceivers. This document is to be used in conjunction with other provided documentation. It is intended to provide an organized process while focusing on sections of other documents that are needed for this initial installation process.

In many cases this document will direct you to a section in another document.

Although not a requirement, it is generally a good idea to set up your MultiNet System and become familiar with its operation before it is put into an active operational mode. This could be accomplished by a temporary simple setup followed by the relocation or connection in the intended central station network or could be the final installation but not put into active use until ready.

1.1 Product Descriptions:

General descriptions of the equipment used in the MultiNet system can be found in section 1 of the "AES 7705i MultiNet Receiver System – User Manual". Refer to that section to get familiar with the components and general makeup of this system.

2.0   Installation

The installation process outlined in this document suggests that you first install the 7170 IP-Link transceiver to the point where power is to be applied. Then continue by installing, powering and configuring the 7705i MultiNet receiver followed by the powering and configuration on the 7170 installed previously. This is by no means a requirement but a suggestion and geared for those who are installing equipment prior to the visit of an authorized factory technician.

2.1   7170 IP-Link Installation

The first two 7170's are typically installed at the same physical location as the MultiNet receiver. They should be positioned as close to the location of the RF antenna as possible. The location should be selected to produce the shortest and straightest run of coax to the antenna through the bandpass cavity and surge protector. 200 foot separation of the antennas, IP-Link and associated equipment must be maintained to have proper system supervision.

The IP-Link Transceiver and bandpass cavity should be located inside away from the elements. Refer to the provided "AES 7170 IP-Link Transceiver Installation and Operation Manual" for installation details.

The antenna and any surge devices should be bonded to a good earth ground in accordance with the National Electric Code and any applicable Local Codes.

The 7170 IP-Link transceivers should be installed and preparations made to connect to power, phone and network. Follow the installation instruction in the **"AES 7170 IP-Link Transceiver Installation and Operation Manual"** provided with the units and stop at the point where you are instructed to connect or initiate power. An outline of the process is below.

- IP-Link Transceiver installation steps:

    1. Mount the transceiver in your selected location.
    2. Install the bandpass cavity, surge protector, antenna and coax.
    3. Prepare phone connection.
    4. Prepare network connection.
    5. Prepare but do not connect the AC power connections.
    6. Continue with MultiNet receiver installation prior to initial power up.

2.2   MultiNet Receiver Installation

Refer to section 4 of the "AES 7705i MultiNet Receiver System – User Manual" and the following additional information on the Installation and Setup

- Directly connected keyboard, video monitor and mouse are required for initial setup.

- The 7705i, monitor and any network related equipment must be connected to a suitable UL Listed, 864 UPS to maintain power during power outages.

- Each MultiNet receiver /7170 IP-Link Transceiver pair is shipped with identical configurations. At least one pair's TCP/IP configuration must be changed before connecting the two into the same network together.

- Refer to Figures 4-1, 4-1, and 4-3 in the "AES 7705i MultiNet Receiver System – User Manual" for system illustrations.

- MultiNet receiver installation steps:

    1. Mount or locate the 19" rack mountable MultiNet receiver in your selected location. A UL Listed (UL864) 19" rack is required.

    2. Install and connect the monitor, keyboard and mouse to the proper connections on the rear panel of the Receiver. Keyboard and mouse connect using the provided Y cable. This is for initial setup only.

    3. No Ethernet port should be connected to an existing live network until the settings have been confirmed and or modified. Leave the Ethernet cables disconnected for 1st time power up, if connecting to a live network with other active or in use devices.

        a. Because the MultiNet Receiver is preconfigured to operate as shown in Figure 4-1 of the MultiNet Receiver System User Manual, it is OK to connect a 7170 IP-Link Transceiver to Port 1 of the MultiNet Receiver using an Ethernet Crossover cable which you should be able to purchase from a computer supply store.

        b. Once TCP/IP is configured you can connect the Ethernet port(s) to appropriate connections of your network to enable communication to the IP-Link Transceiver(s) and secondary MultiNet Receiver(s).

        c. You may connect a single 7705i and a 7170 to a private network such as to a dedicated router. Whereas there are no other network devices other than the router itself, there should be no conflicts. Before connecting the second system the first should be changed or disconnected until changes are made to the second. Once both pairs have unique settings, they can both be connected to the same router/private network.

    4. Connect printer. Attach only a printer Listed by UL for "Signaling use" such as an AES 75-0101.

    5. Plug MultiNet receiver, monitor and printer power cords into appropriate power sources. A UL Listed UPS (UL864) or UL1481 power supply is required.

3.0   Software Installation:

All necessary software is pre-installed on your 7705i

If your system has a catastrophic failure it may require the reinstallation of the Linux operating system and the specialized IP-Link software programs. BIOS settings should also be checked to confirm that the unit would initialize and operate properly.

Contact AES technical Support for software assistance.

4.0   Initial Programming and setup:

Section 5 "System Startup and Access" of the "MultiNet Receiver System User Manual," should now be followed to power up, login and perform the steps needed to configure your MultiNet Receiver for operation in your local area network (LAN).

Keep in mind that the simplest configuration may be to connect your 7170 IP-Link Transceiver's Ethernet Port directly to Ethernet Port 1 on the MultiNet receiver and operate without a network using a CAT5 Crossover Cable (available separately from a computer supply store). This configuration is useful for quick setup to become familiar with the system before its final deployment in your target network. This is illustrated in Figure 1 of the manual.

5.0   Additional Configuration:

Section 6 "Admin GUI for Configuration and Administration" of the "MultiNet Receiver System User Manual," is the next section to follow. Instructions in that section assume you are now connected to a network that has a workstation with a Web browser.

5.1   Operating in Simplest Configuration:

If you are operating in the temporary simplest configuration as shown in Figure 4 in the User Manual, you may not have access to a remote workstation. Follow these steps to start a Web Browser using the directly connected Keyboard, mouse and monitor to be able to proceed with section 6.

1. Login as root

2. Enter the following to start the GUI. startx<Enter>

3. Start a new terminal. Right click and select New terminal

4. At the command prompt in the terminal type the following command: konqueror<Enter>

5. This will start the Konqueror Web Browser. It may take a minute to start.

6. Enter the following URL in the location box: http://localhost/Admin/

7. You may now continue with section 6 to login to the Admin GUI.

8. Be advised: there is no shortcut provided to exit the Admin GUI initiated in step 2 above. After closing or exiting the programs you initiated after starting the GUI, either select Reboot Server or press <Ctrl> + <Alt> + <Backspace> to force the system to "kill" the x-server GUI.

5.2   Highlights of Section 6 of the MultiNet User Manual

Once you have logged in to the Admin GUI As instructed in Section 6 of the User Manual, you can select links to perform a number of configuration functions. Listed below are some areas to pay attention to assuming this is your first time using the Admin GUI.

- Server Configuration where you will set some important server parameters

- Define your first Business Unit.

    o No user Business Unit, exits from the factory default configuration. You need at least one.

    o If you cannot select a name at this time "use a name like "PrimaryBusinessUnit" or the name of an organization or a word related to the purpose of this Business Unit. You could later delete it and create one once you become familiar with its purpose.

    o Select Data Type: "Security", but for now do not select "Alarm Automation System? □".

    o Select "Universal ID". You need to know the ID of the IP-Link(s). Factory default for the IP-Link is ID 1111

- If you did not select Universal ID then add Subscriber ID's to the Business Unit. By selecting Universal ID on the first page of creating the Business Unit, all messages from the IP-Links listed will automatically be associated with this Business Unit. If you do not select Universal ID then every Subscriber ID must be entered into each Business Unit's database manually. Any messages from an ID not in a database will be sent to the Business Unit named orphan. The orphan Business Unit is discussed in Section 6.2 of the 40-7705i MultiNet Receiver System – User Manual.

After successfully completing the tasks outlined in Sections 1 through 6 of the "MultiNet Receiver System – User Manual", you should be ready to power up, configure as shown in figure 4-2 or figure 4-3 of 40-7705I-UM and bring your 7170 IP-Link transceiver(s) online.

- If you are finished using the Admin GUI Web pages then you should close your Web Browser to avoid unauthorized access to system sensitive configurations.

- If you are directly logged into the MultiNet receiver then you should Logout the user.

- If you were running the x-server GUI from the directly attached keyboard monitor and mouse started by entering the startx command, then it would be advisable to select "Reboot Server!" from the right click menu thus beginning from a clean start of the system.

6.0   Setup 7170 IP-Link Transceivers:

The 7170 IP-Link Transceiver wants to connect to its assigned MultiNet Receiver when it starts. For that reason, you will want to have configured and started the 7705i as outlined in the manual up to this point.

Refer to Section 8 "Programming and Setup in the "7170 IP-Link Transceiver – Installation and Operation Manual" for specific details and instruction for the installation.

Prerequisites:

- The AES 7705i MultiNet Receiver(s) must be on and connected to the network or ready for direct connection to the IP-Link Ethernet Port.

- The MultiNet receivers should have their AES Programs running.

- If using static IP then you need to know the IP address, Netmask and Gateway for each 7170 being configured. Even if using DHCP you need to have the static IP address of the Gateway.

- You need to know the phone number(s) to the MultiNet receiver(s). If you are not ready with these you can still continue but will receive messages when communication attempts fail.

- You will need a serial terminal to attach to the serial port of the 7170 to access the built-in programming functions. Microsoft HyperTerminal or similar program on a Windows PC will work well for this purpose.

- Make sure that the antenna or a proper load is attached to the antenna connection of the IP-Link Transceiver.

Continue with 7170 IP-Link Installation and Operation Manual:

It is now time to return to where you left off in the AES 7170 IP-Link Transceiver – Installation and Operation Manual on page 14.

7.0   Test your Network Settings:

Assuming you completed all the tasks in the 7170 IP-Link Installation and Operation manual you have already performed testing from the IP-Link. It is now time to return to the MultiNet Receiver and perform some additional testing.
Listed Sections refer to the AES MultiNet Receiver System - User Manual

- Log in to the MultiNet Receiver as user root. (Refer to Section 5.4).
  Or if you have established remote VNC access then select "New Terminal" form the AES Menu on the desktop.

- Ping another device on the network.

  Ping another known computer or device that is on your network to determine if the configuration is working properly. At the command prompt in the terminal, issue the following command replacing {network ID of another computer} with the IP address of the gateway, or other known PC on the network.
  ping –c4{network ID of another computer}**<Enter>**
  Example: ping –c4 192.168.0.1<Enter>   (Default Gateway PC)
  or   ping –c4 192.168.0.11<Enter> (Default System 1 7170 setting)

  The above listed ping commands will ping 4 times (-c4), either the default Gateway, assuming it is 192.168.0.1 or the 1st 7170 assuming it is set to 192.168.0.11.
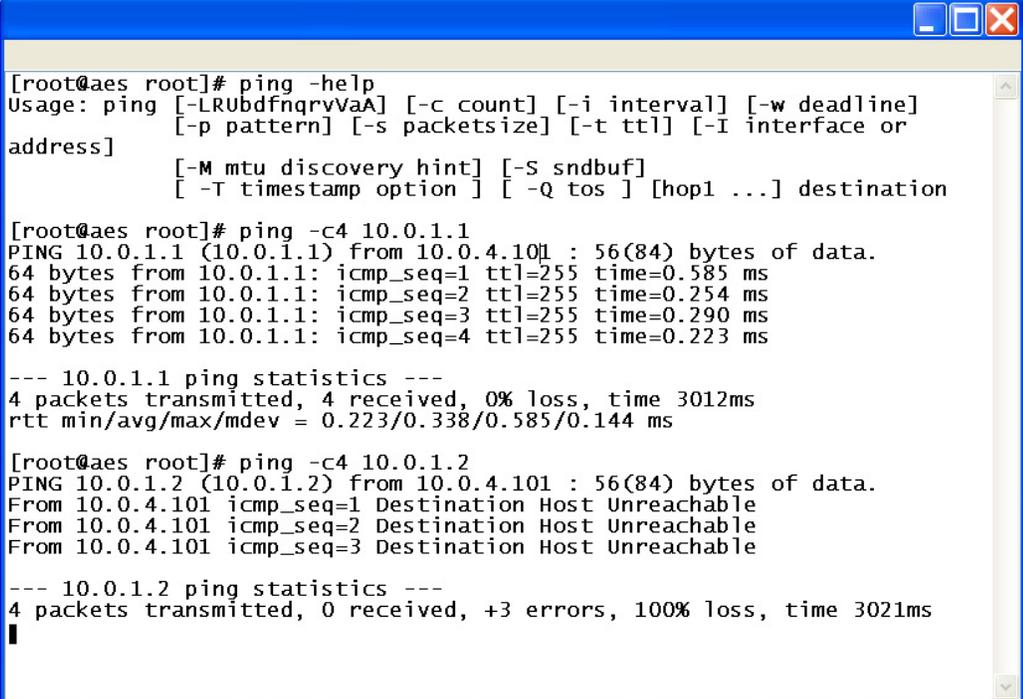
  You can ping the address of the receiver itself to see how the ping program works.
  Example: **Ping –c4 192.168.0.101<Enter>** (Default Receiver setting)

  If necessary press **<Ctrl> + C** to stop pinging attempts or get a command prompt.

  Received responses indicate how long the response took, if it failed or timed out.

  Example below shows the "ping –help" response, a successful and a failed ping.

```
[root@aes root]# ping -help
Usage: ping [-LRUbdfnqrvVaA] [-c count] [-i interval] [-w deadline]
            [-p pattern] [-s packetsize] [-t ttl] [-I interface or
address]
            [-M mtu discovery hint] [-S sndbuf]
            [ -T timestamp option ] [ -Q tos ] [hop1 ...] destination

[root@aes root]# ping -c4 10.0.1.1
PING 10.0.1.1 (10.0.1.1) from 10.0.4.101 : 56(84) bytes of data.
64 bytes from 10.0.1.1: icmp_seq=1 ttl=255 time=0.585 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=255 time=0.254 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=255 time=0.290 ms
64 bytes from 10.0.1.1: icmp_seq=4 ttl=255 time=0.223 ms

--- 10.0.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% loss, time 3012ms
rtt min/avg/max/mdev = 0.223/0.338/0.585/0.144 ms

[root@aes root]# ping -c4 10.0.1.2
PING 10.0.1.2 (10.0.1.2) from 10.0.4.101 : 56(84) bytes of data.
From 10.0.4.101 icmp_seq=1 Destination Host Unreachable
From 10.0.4.101 icmp_seq=2 Destination Host Unreachable
From 10.0.4.101 icmp_seq=3 Destination Host Unreachable

--- 10.0.1.2 ping statistics ---
4 packets transmitted, 0 received, +3 errors, 100% loss, time 3021ms
```

Figure H - Example of a ping to a gateway PC.

8.0   Test Communication from Subscribers:

- Power up and program a Subscriber

- Program it with a unique ID and the same Cypher Code programmed into the 7170 IP-Link Transceiver.

- Generate some signals and confirm reception of expected messages using one or more of the following methods:
    - If available, using the IPCtrl program.
    - If connected and functional, using the attached Event Printer.
    - If connected and configured using the Alarm Monitoring System.
    - Using subscriber database section of the Admin GUI (Subscribers / View).

9.0   Initial Installation Complete:

You have completed your initial installation if your testing was successful.

You should now be ready to familiarize yourself with the MultiNet System operation and use. Then, once you have become familiar with the system you should be confident with introducing it into your existing or new central station network and environment. You will then be ready to begin using your MultiNet system to provide your customer base with the reliable data communication capability they expect and deserve.

10.0 Contact information:

Below is the contact information for AES, if you need assistance with the installation or operation of your MultiNet Receiver System,

AES corporate Phone: (800) 237-6387   (800) AES-NETS
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