



Documentation

Alphone AI-900 RTU Guide

Version 3.x

Intelli-Site

Security Management Software

Aiphone AI-900 RTU Guide

PC Software RTU Interface Guide
For Windows 7 SP1, 2008 R2 SP1, XP SP3 & 2003 SP2

Version 3.x
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OSSI, LLC
W228 N727 Westmound Drive
Waukesha WI 53186
TEL: 262-522-1870
FAX: 262-522-1870

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Section 1 – Introduction

This section describes the following:

- Overview
- Technical Support Assistance

Overview

The Aiphone AI-900 RTU (Receiver/Transmitter Unit) is the Intelli-Site software representation of an Aiphone AI-900 Intercom and Public Address (PA) system. For purposes of this document, the term RTU is synonymous with an Aiphone AI-900 system.

The AI-900 RTU is a General Protocol RTU that provides for user configuration of all aspects of the AI-900 network, including:

- System Status – On/Off-Line
- System Settings – Configuration of the AI-900 “parent” node.
- Communications Settings - In conjunction with Driver Services.
- Substation Configuration – The ability to add substations (in groups of up to 16 units) in order to monitor call-ins (from the Substations) and connection status.
- Exchange Configuration – Multiple exchanges – each equipped with multiple Master Stations – can be configured for control and monitoring of:
 - Paging Zone Connection
 - Substation Connection
 - Master Station Status
 - Master Station Front-Panel Control

Technical Support Assistance

OSSI Headquarters


W228 N727 Westmound Drive
Waukesha WI 53186 USA
Tel: 262-522-1870
Fax: 262-522-1872

Technical Support

Technical support is available via Telephone, Fax or Email. Contact Intelli-Site Technical Support 8:00 AM to 5:00 PM Central Standard time. If calling after hours, please leave a detailed voice mail message, and someone will return your call as soon as possible.

E-Mail: support@ossi-usa.com
Fax: 262-522-1872 (Attention Technical Support)
Local: 262-522-1870

When calling, please be at the computer prepared to provide the following information:

- Product version number, found by selecting the **About**  button from the Intelli-Site Menu Application Bar.
- Product serial number used for registration.
- The type of computer being used including, operating system, processor type, speed, amount of memory, type of display, etc.
- Exact wording of any messages that appear on the screen.
- What was occurring when the problem was detected?
- What steps have been taken to reproduce the problem?

Section 2 – AI-900 RTU Configuration

This section describes the following Design Mode RTU activities in Intelli-Site.

- Adding an Aiphone AI-900 RTU to the Intelli-Site tree
- General Protocol RTU Configuration

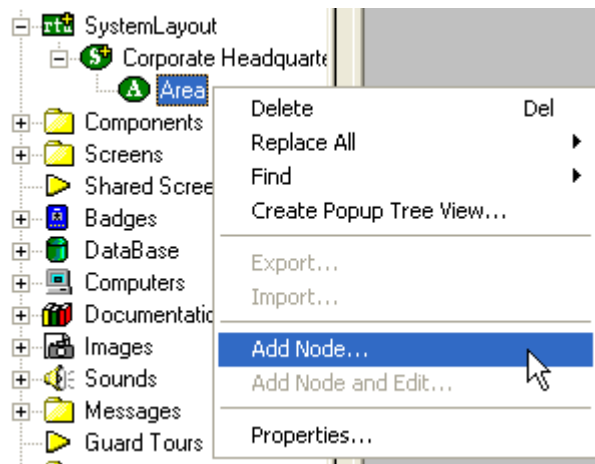
Adding an AI-900 RTU to the Intelli-Site Tree



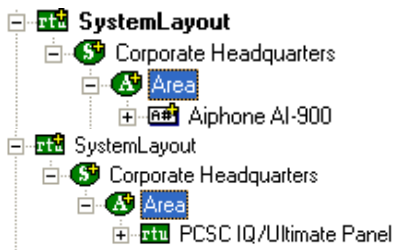
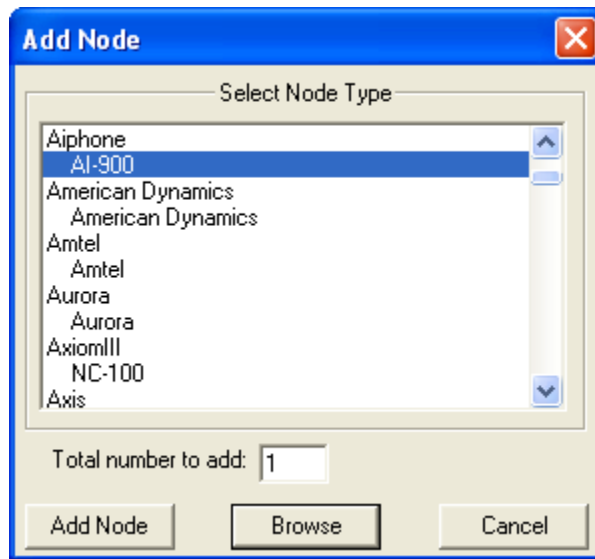
The following section will describe how to add one or more Aiphone RTU nodes to the tree. All procedures described in this section are accomplished in Design Mode.

Add an RTU – Procedure

1. Expand the System Layout Node and Right-Click on an Area. Select **Add Node...** from the Shortcut Menu as shown below:



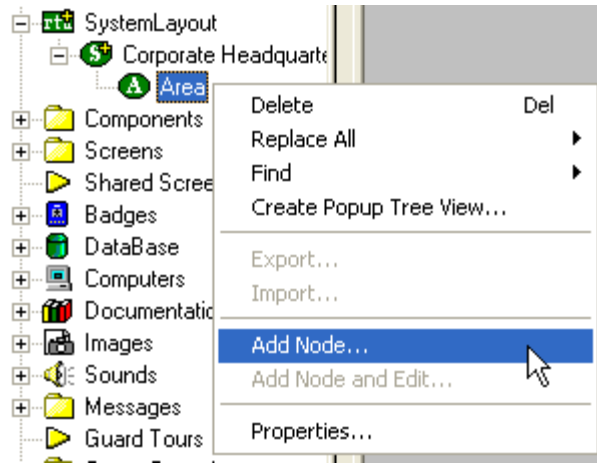
- As mentioned previously, the AI-900 RTU is of the Generic Protocol type. The default RTU includes a Substation Node (which includes 2 Substation Groups – each Substation Group can contain up to 16 Substations and more groups can be added) and one Exchange Node which can contain multiple Master Station nodes. Note: The total number of AI-900 RTUs that may be added must not exceed 255 for a given domain.



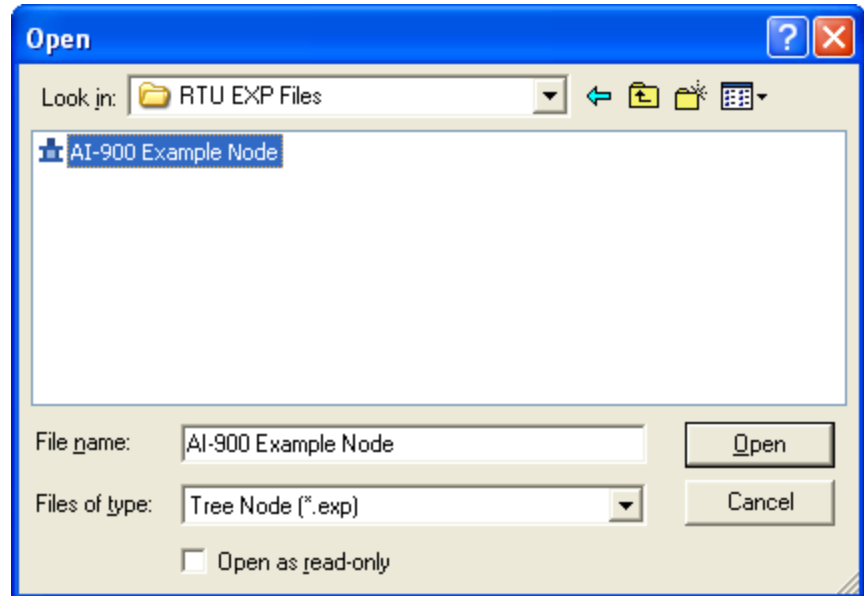
- The RTU(s) will be added to the tree and the system level Text-To-Speech message **"Node Added"** will sound.

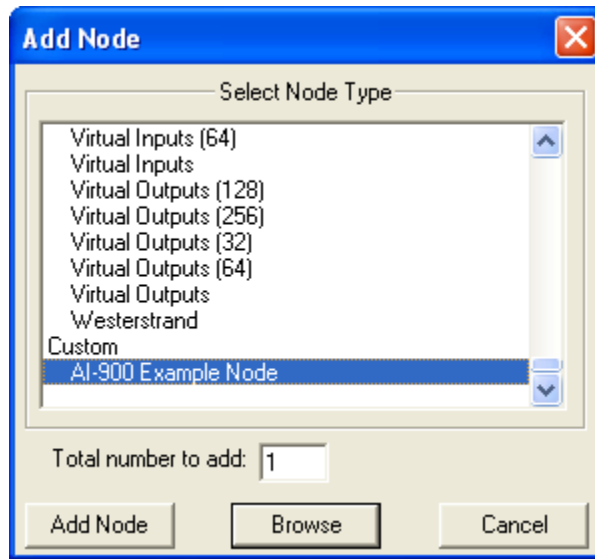
Import an RTU – Procedure

- Expand the System Layout Node and Right-Click on an Area. Select **Add Node...** from the Shortcut Menu as shown below:



2. Select the **Browse** button on the **Add Node** dialog: A browse window will open. Browse to the appropriate location then select the RTU .exp file you wish to import and select the **Open** button. A new type (**Custom**) will be automatically added to the **Add Node** dialog and the imported .exp will be listed below the **Custom** type.





3. Select the imported RTU then enter the number of AI-900 RTUs you wish to add to the tree in the **Total number to add:** edit box. You may add multiple RTUs to an area.
4. The RTU(s) will be added to the tree and the system level Text-To-Speech message "**Node Added**" will sound.



AI-900 RTU Configuration

The following section describes configuration of the AI-900 RTU.

The AI-900 RTU consists of a parent (the basic system node), the System Online I/O point and two children as follows:

- **Substations** – a collection of Substation Groups and their call-in and connected status inputs.
- **Exchange(s)** – a collection of all:
 - Paging Zone command outputs and Paging Zone Status inputs.
 - Substation command outputs
 - Exchange Status inputs
 - Master Station Buttons – all commands that can be sent from the Master Station(s) via the Graphical User Interface (GUI)

RTU Node (Parent Node)

The parent (Aiphone AI-900) node is configured by **Right-Clicking** on the RTU and selecting **Properties...**

General Protocol Node Settings Tab

The screenshot shows a dialog box titled "Aiphone AI-900 - Aiphone Area Aiphone AI-900" with two tabs: "General Protocol Node Settings" (selected) and "Notes/Comments". The "General Protocol Node Settings" tab contains the following fields and controls:

- Name:** Aiphone AI-900
- ID:** 15711
- Access Level:** Level 1 (dropdown menu)
- Domain:** 11
- Node Type:** General (dropdown menu)
- Driver:** Aiphone AI-900 (dropdown menu)
- Address:** (empty text field)
- Protocol:** (empty text field)
- RTU Setup:**
 - Virtual
 - Virtual Point: *None* (dropdown menu)
 - Retain

At the bottom right of the dialog are "Ok" and "Cancel" buttons.

1. **Name:** - enter a descriptive name for the system here. Example: Primary PA System
2. **Access Level:** – this is the Access Level of the node object (RTU).
3. **Domain:** – the domain identifies the communications chain used for the AI-900 system, (i.e., a communications (COM) port or IP address) and is tied to the domain setting on the AI-900 driver in Driver Services.exe.

Note: The Domain of an Ethernet-based (TCP/IP) or RS-232-based AI-900 will be unique for each AI-900 system.

4. **Node Type:** – This field will be “grayed-out” and should not change.

5. **Driver:** – This combo-box field must be set to Aiphone AI-900.
6. **Address:** – Remains blank.
7. **Protocol:** – Remains blank for this node.
8. **RTU Setup:** - this area is used to configure the virtual state characteristics of the node.
 - a. **Virtual Point:** - Check this box to “virtualize” the AI-900 system. When an RTU has been virtualized all server-to-driver services communications stop and will not be reinitiated until the RTU has been un-virtualized. Drag-and-drop a virtual I/O point into the drop field. This I/O point will be set high whenever the AI-900 system is virtualized.
 - b. **Retain:** - Reserved for future use and has no function at this time.

Notes/Comments Tab

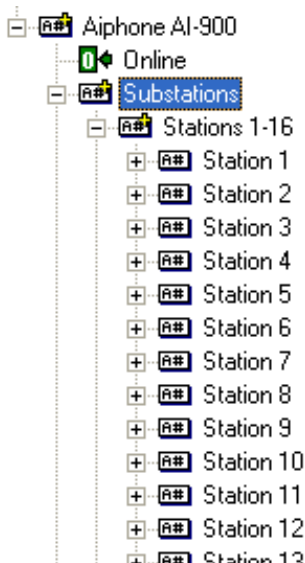
This tab allows the programmer to enter descriptive text regarding the RTU (programmer’s notes). The programmer may enter any number of descriptive text lines (use CTRL+M to enter a new line).

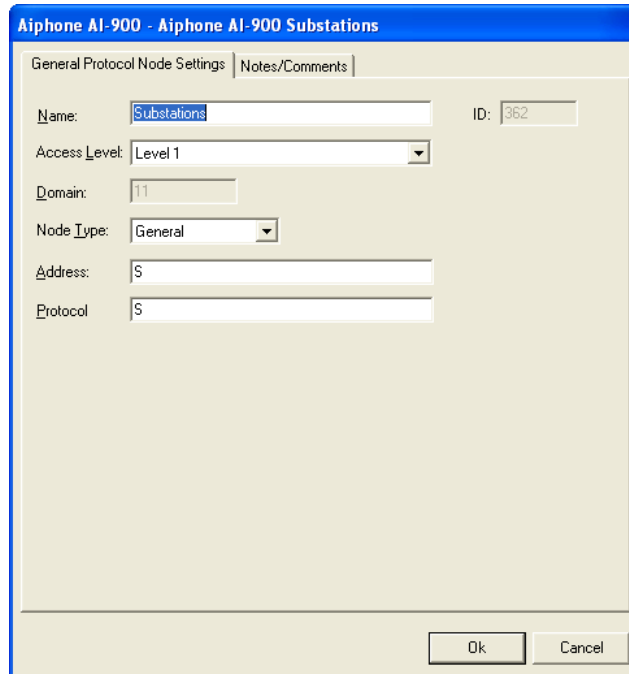
The text entered on this tab may be printed in a special report: **Project Notes Report**. This is a useful tool for generating programmers’ comments as a part of the “as-built” system documentation.

Substations

The Substations “parent” node is configured by expanding the **Aiphone AI-900** folder then **Right-Clicking** on the Substations and selecting **Properties...**

General Protocol Node Settings Tab





- 1. Name:** - enter a descriptive name for the system here.
- 2. Access Level:** – this is the Access Level of the node object (RTU).
- 3. Domain:** – This entry is derived from the AI-900 System Node and is grayed-out (cannot be changed).
- 4. Node Type:** – This combo-box field must be set to General.
- 5. Address:** – This must be set to S (Substations).
- 6. Protocol:** – This must be set to S (Substations).

Notes/Comments Tab

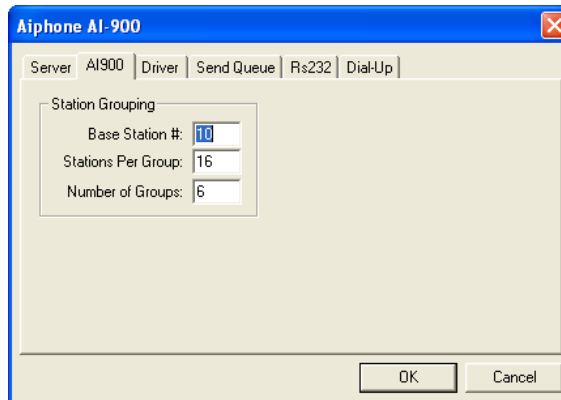
This tab allows the programmer to enter descriptive text regarding the RTU (programmer's notes). The programmer may enter any number of descriptive text lines (use CTRL+M to enter a new line).

Substation Groups

Substation groups must conform to settings in the AI-900 driver. The default RTU (and default driver settings) define the base station number (the first station as programmed in the AI-900) as Station No 10, that there are 16 stations per group and that there can be up to 6 groups. The reason that a grouping of 16 stations was chosen is because each AI-900 station card can accommodate up to 16 separate connections.

Note: The AI-900 is required to be programmed in order to recognize the groups and stations. This programming is not accomplished in Intelli-Site. Refer to the AI-900 manual for information on this.

The illustration below shows the AI900 tab in the driver configuration settings page. To access this tab, select the driver from Drivers Services.exe and then choose the tab.

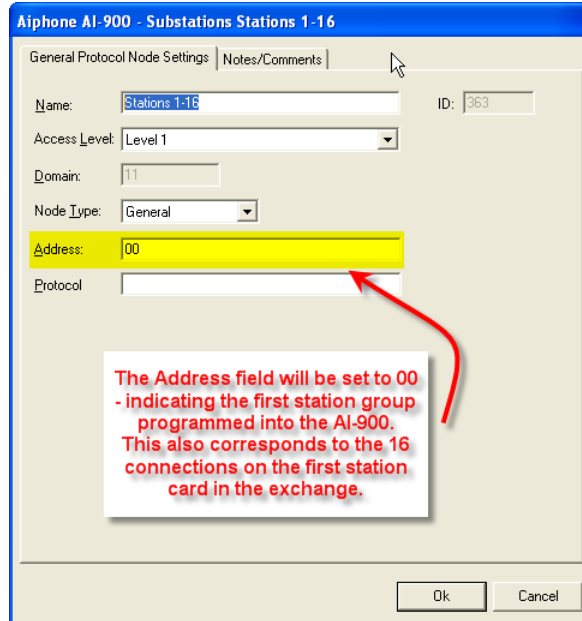


Based on the settings shown above, the addressing for Substation groups will be as shown in the table below:

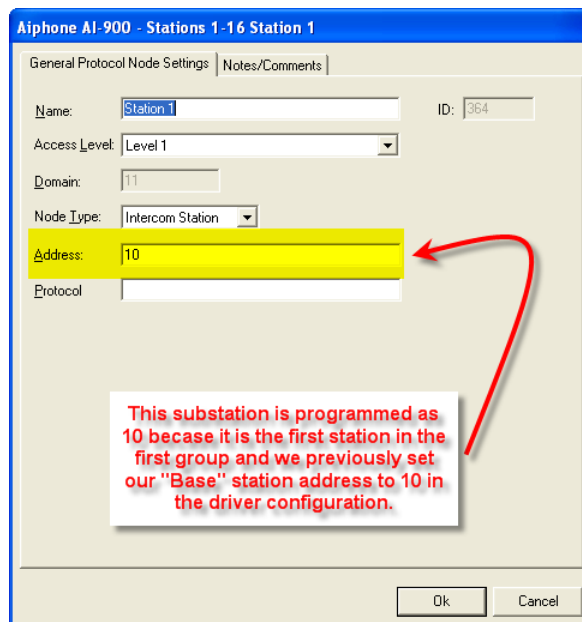
Station Group Address	1st Station Address	Last Station Address
00	10	25

01	26	41
02	42	57
03	58	73
04	74	89
05	90	105
06	106	121

Based on the above scheme, then, the RTU for the first Station Group will be programmed as shown below:

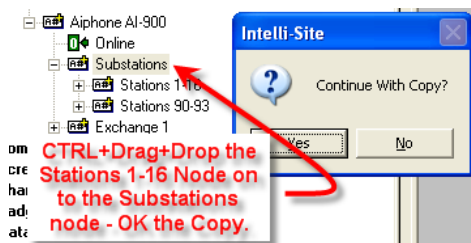


The first station in this group would be programmed as shown below:

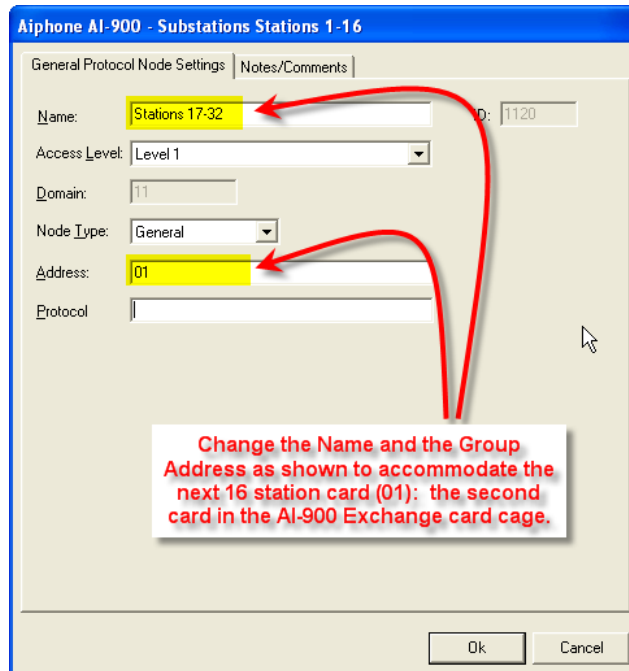


Note: Since it is only possible to have a maximum of 4 master stations per AI-900 exchange, we chose to assign those stations to Station Group 05, with individual Station numbers of 90, 91, 92 and 93 respectively.

In order to add Station Groups, simply copy the original group by CNTRL+Drag-Drop onto the "parent" (Substations) RTU:

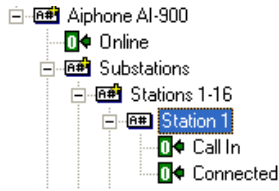


Once the Substations Group is copied we need to change the name and address of the new Substation Group as shown below:



Each of the Stations in the new group will have to be modified as well. Change the names of each Substation and modify the Sub Station numbers to 26 through 41.

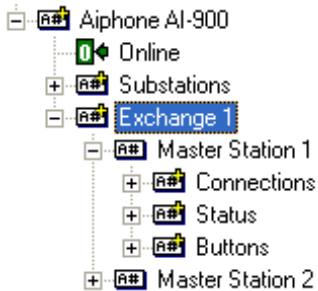
These steps need to be repeated for each new group created.



Substations

Substations include the Substation node and two "child" I/O points:

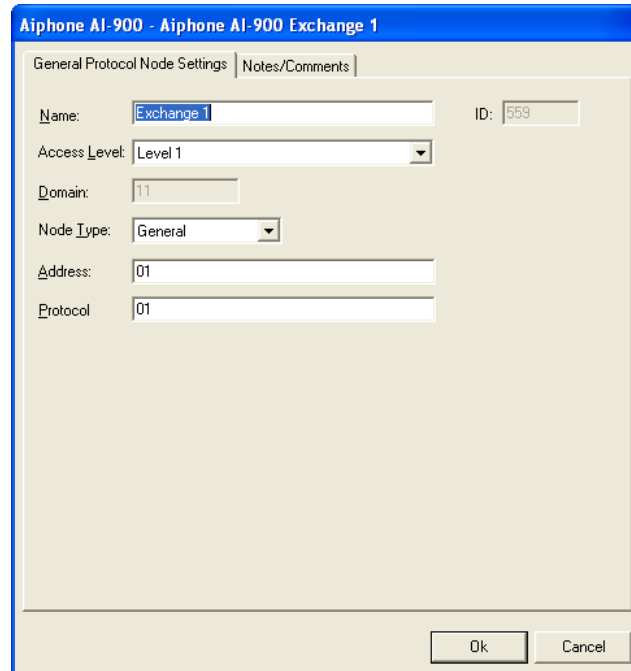
- Call-In – This point is set high whenever the station is calling-in to the master station.
- Connected – This point is set high whenever the station is connected to a master station. (substations cannot call other substations)



Exchange

The Exchange "parent" node is configured by expanding the **Aiphone AI-900** folder then **Right-Clicking** on the Exchange 1 and selecting **Properties...**

General Protocol Node Settings Tab

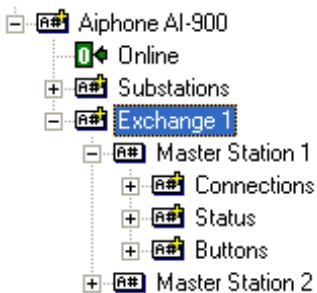


1. **Name:** - enter a descriptive name for the exchange here.

- 2. Access Level:** – this is the Access Level of the node object (RTU).
- 3. Domain:** – This entry is derived from the AI-900 System Node and is grayed-out (cannot be changed).
- 4. Node Type:** – This combo-box field must be set to General.
- 5. Address:** – This must be set to 01 (The Exchange Address).
- 6. Protocol:** – This must be set to 01 (Exchange).

Notes/Comments Tab

This tab allows the programmer to enter descriptive text regarding the RTU (programmer’s notes). The programmer may enter any number of descriptive text lines (use CTRL+M to enter a new line).



Master Station

The Master Station Node(s) consists of three “child” nodes that are used to provide control and monitoring of the exchange from the Master Station:

- 1. Connections** – This folder contains:
 - a. Connections Groups – All Substations (as many as are assigned to the Exchange) and other Master Stations – (up to four Masters).
- 2. Status Group** – A collection of input points that indicate:
 - a. Normal
 - b. Emergency
 - c. Master
 - d. Conference
 - e. Emergency Conference
- 3. Buttons Group** – Controls for:

- a.** 0-9 Numeric
- b.** *, # and C controls
- c.** Off-Hook
- d.** On-Hook
- e.** PTT (push-to-talk) On
- f.** PTT Off
- g.** Register Switch On
- h.** Register Switch Off
- i.** Transfer
- j.** 3-Second Dial Pause
- k.** Disable Master Station
- l.** Enable Master Station
- m.** Clear

Section 3 – AI-900 Programming Examples

This section describes the following Design Mode Screen Development activities in Intelli-Site.

- Adding Intercom and Paging Controls
- Adding Intercom and Paging Status Indicators

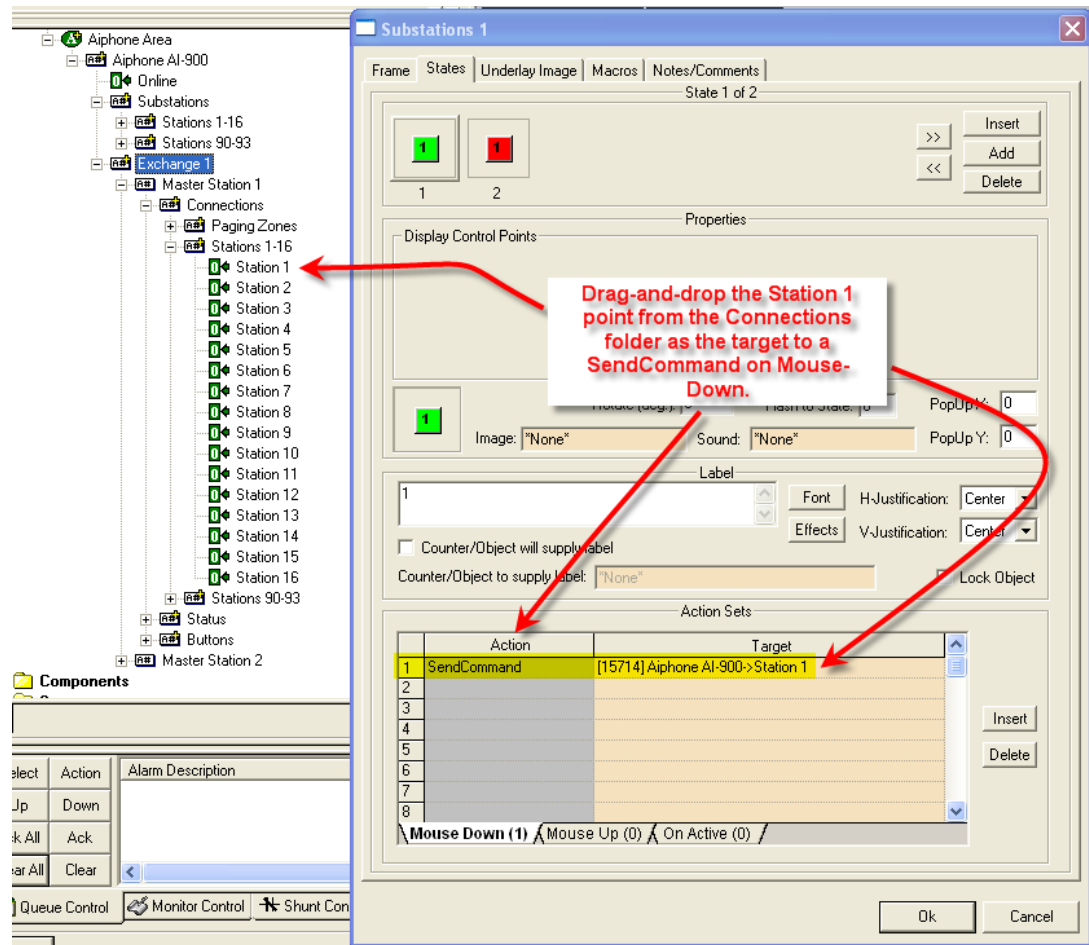
Adding Intercom and Paging Controls



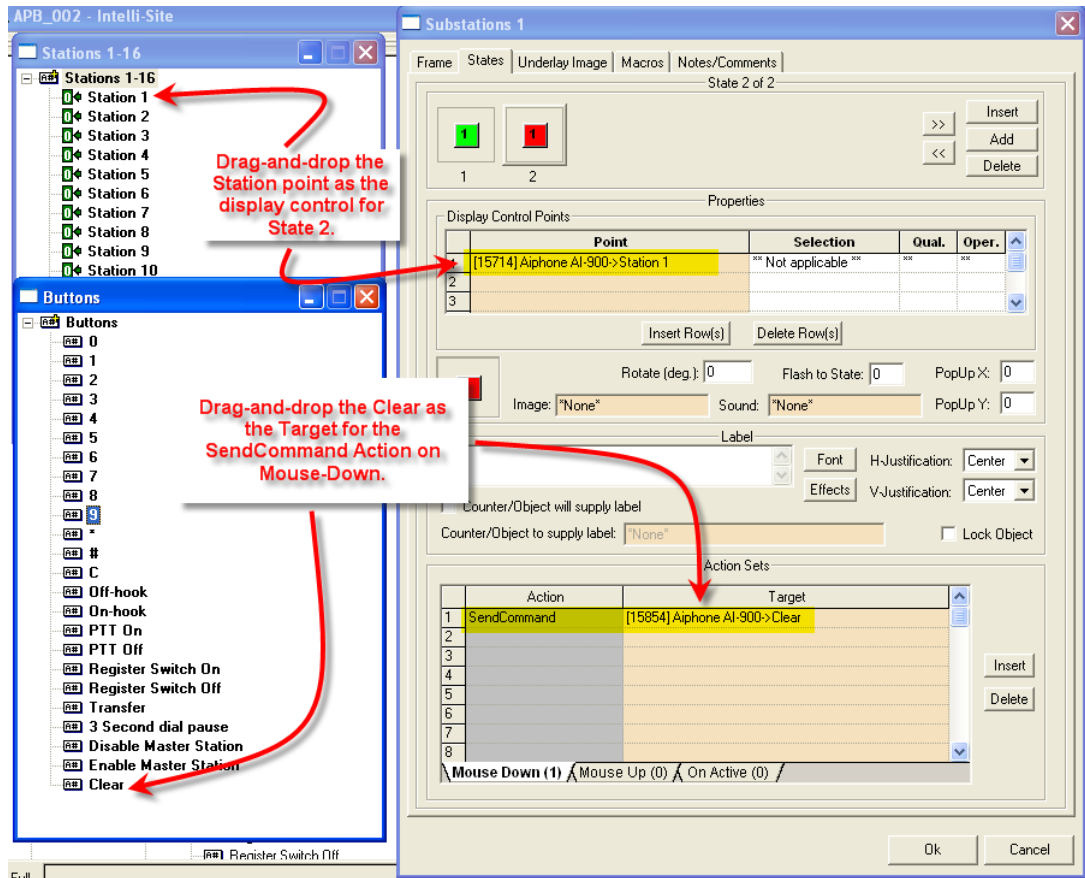
The following section will describe how to add intercom and paging controls to a screen. All procedures described in this section are accomplished in Design Mode.

Add an Intercom Call Control

1. Master to Station Call
 - a. The following screen object (State 1) is designed to send a connection to Substation 1 (10):



- b. State 2 of the screen object is designed to display a call connection to Substation 1 and to clear the call when finished:



2. Paging

- The same procedures, as shown above, apply to setting up a Paging Zone call. The only difference is that a Paging Zone is the Target.
- Clearing a Paging Zone Call also uses the Clear Button as the target.

3. Numeric and Special Characters – SendCommand Action with a target of a numeric or special character button is used. – This also applies to the PTT, Register Switch, Off and On-Hook, Transfer, 3-Second Dial Pause and Disable/Enable Master Station Buttons.

Add Display Objects

1. Substation Call-In

- a. The following screen object (State 2) is designed to indicate a call request from Substation 1 (10):

Drag-and-drop the Call-In I/O point as the display control. This indicates an incoming call from this substation.

Substations 1
 State 2 of 3

Frame | States | Underlay Image | Macros | Notes/Comments

1 2 3

Properties

Point	Selection	Qual.	Oper.
1 [15799] Aiphone AI-900->Call In	*** Not applicable ***	***	***
2			
3			

Action Sets

Action	Target
1	
2	
3	
4	
5	
6	
7	
8	

Mouse Down (0) / Mouse Up (0) / On Active (0) /

b. State 3 of the screen object is designed to display a call connection from the Substation:

Substations 1

Frame States Underlay Image Macros Notes/Comments

State 3 of 3

1 2 3

Properties

Point	Selection	Qual.	Oper.
1 [15800] Aiphone AI-900->Connected	** Not applicable **	**	**
2			
3			

Insert Row(s) Delete Row(s)

Rotate (deg.): 0 Flash to State: 0 PopUp X: 0

Image: "None" Sound: "None" PopUp Y: 0

Label

Font H-Justification: Center

Effects V-Justification: Center

Lock Object

Action	Target
1	
2	
3	
4	
5	
6	
7	
8	

Mouse Down (0) / Mouse Up (0) / On Active (0) /

Ok Cancel

Drag-and-drop the Connected I/O point as the display control for this state - indicating a call connected to this Station.