

Allworx / IntelPeer Setup Application Notes

Version 1.0

May 2013

- 1** Phone system
- 2** Network server
- 3** Message center

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Introduction

This document provides setup instructions to authorized Allworx Resellers for configuring IntelPeer services on Allworx servers.

Prerequisites

It is assumed that the Reseller has:

- Completed Allworx Technical training and their main technician is certified as either *Allworx Certified Administrator (ACA)* or *Allworx Certified Professional (ACP)*
- Set up all other functions within the Allworx system prior to connecting IntelPeer services (e.g. DHCP settings, installed latest software version)
- Ordered IntelPeer services and received the associated configuration information for SIP Trunking

Key Notes

- 1 A. The Allworx server must be running software release 7.4.12.5 or higher. To obtain the latest software, visit the Allworx Authorized Reseller Portal (www.allworxportal.com).
- 2 B. Allworx Customer Support has verified the interoperability of Allworx and IntelPeer under controlled conditions. The following items were tested:
 - RTP frame rate of 20 for codecs G.711 and G.729a
 - Support of Early Media -183 Session Progress messages
 - Call Hold & Retrieve functionality
 - Call Transfer methods without REFER support
 - SIP Diversion
 - Direct Inward Dial (DID)
 - Handling of E.164 format for phone numbers
 - Performance of the service with remote Allworx phones
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Allworx testing was successful during the time period in which the testing took place. Subsequent changes to the provider's network or differences in local internet connectivity could alter the performance of the product in the field. It is the Reseller's responsibility to properly place and route to the Allworx server on the local network.

C. Limitations

The following limitations were observed during Allworx testing:

- The Caller ID Name (if populated in the SIP Proxy settings page) will be overridden by the value set in the trunk by IntelPeer

Setting up the Allworx System:

The following steps must be performed on the Allworx server:

1. Perform steps 1 through 16 of the Allworx Install Checklist including updating the Allworx server software to the latest release (7.4.1 2.5 or higher).
2. Configure the SIP proxy connection.
3. Configure the VoIP server settings.
4. Create a Dial Plan Service Group for IntelPeer.
5. Configure Dialing Rules for routing calls through IntelPeer.
6. If using DID numbers, configure a Routing Plan for the DID numbers.
7. Reboot all phones to download new settings.
8. Verify the connection and its usability.

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#1. Prior to setting up the connection to IntelPeer, other basic PBX settings must be configured. Complete steps 1 through 16 of the Allworx Install Checklist including loading software release 7.4.12.5 or higher, if the server is running an earlier version. The checklist is located within the Allworx System Administration Tool.

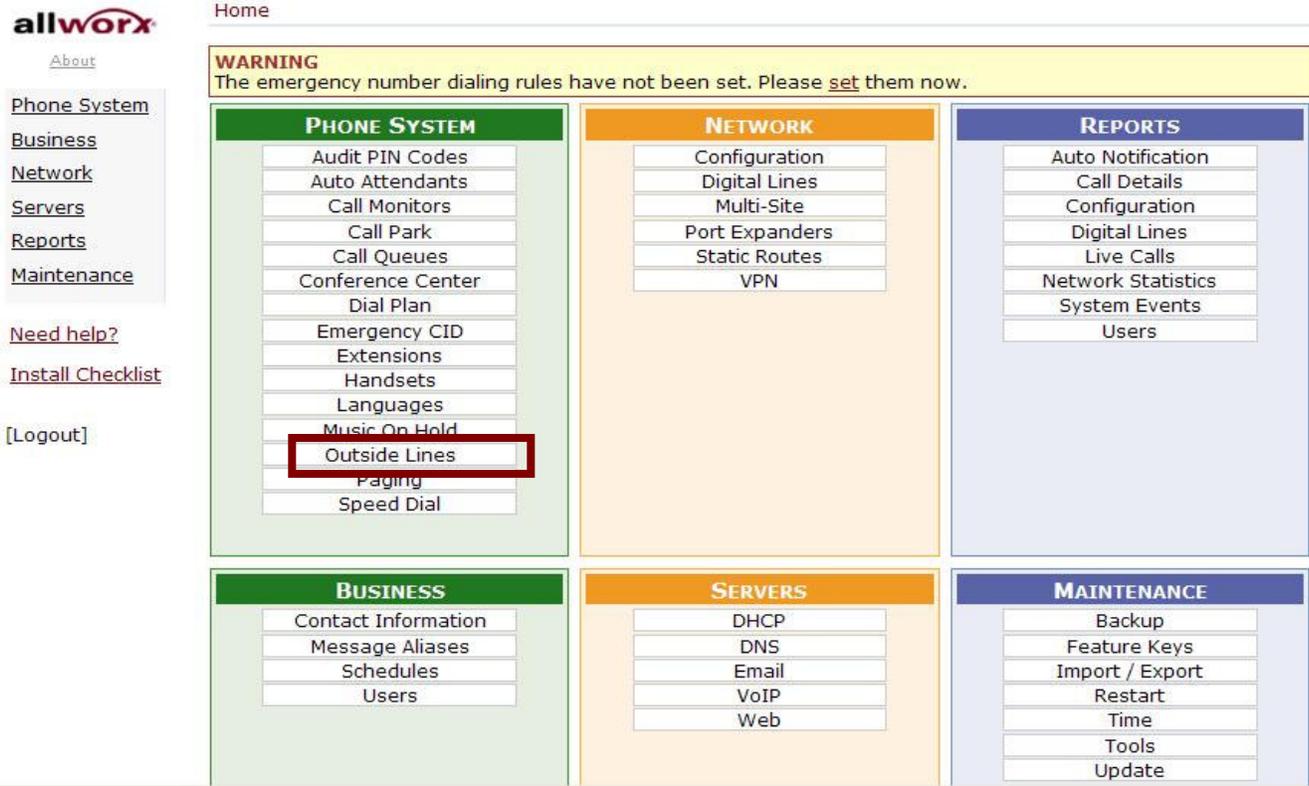
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The screenshot shows the Allworx System Administration Tool interface. On the left sidebar, the 'Install Checklist' menu item is highlighted with a red circle and a callout box containing the number '1'. A second callout box with the number '2' points to the 'PHONE SYSTEM' section of the main content area. A third callout box with the number '3' points to the 'Allworx - Install Checklist - Windows Inte...' pop-up window. The pop-up window displays a list of configuration steps:

Allworx Install Checklist		
clear all checked		
<input type="checkbox"/>	1 Set time on server.	Maintenance / Time
<input type="checkbox"/>	2 Program Digital Lines: If connected to T1 interface(s), configure the system to match the settings obtained from the service provider.	Network / Digital Lines
<input type="checkbox"/>	3 Program Network configuration: set the Network Mode, LAN and WAN interface settings, Gateway, server Host Name and Domain Name, and Firewall settings	Network / Configuration
<input type="checkbox"/>	4 Enable/Disable DHCP server.	Servers / DHCP
<input type="checkbox"/>	5 Set DNS server addresses.	Servers / DNS
<input type="checkbox"/>	6 Optional: Configure Port Expanders	Network / Port Expanders
<input type="checkbox"/>	7 Enable VPN, if required.	Network / VPN
<input type="checkbox"/>	8 Reboot server for...	

The main interface also shows a 'WARNING' message: 'The emergency number dialing rules have not been set. Please set them now.' The main content area is divided into four sections: PHONE SYSTEM, NETWORK, BUSINESS, and SERVERS, each with a list of configuration options.

#2. To set up the SIP proxy, log into the Allworx System Administration Tool and go to Phone System > Outside Lines > SIP Proxies. Select “Add New SIP Proxy”.



The New SIP Proxy page is displayed:

SIP Proxy ⓘ

Description

User ID

SIP Server **Port**
(customer domain/realm) (enter IP Address or Domain Name)

Outbound Proxy **Port**
(if different from SIP Server) (enter IP Address or Domain Name)

SIP Registration required

Login ID

Password (maximum 40 characters)

Registrar **Port**
(if different from Outbound Proxy) (enter IP Address or Domain Name)

Maximum Active Calls (1 to 99, should not exceed proxy capabilities or available bandwidth)

Number of Line Appearances (0 to Maximum Active Calls)

Send digits as dialed (without preceding 1 and/or area code)

Digits Sent (digits from the full number, 1-XXX-XXX-XXXX, to send to the proxy)

Default Auto Attendant

Select the attendant used to answer when calls received from this source are routed to an Auto Attendant.

Call Route ⓘ

Proxy is an "Enterprise Server" (calls received from this proxy follow the server's internal dial plan)

Calls received from this SIP Proxy go to:

Extension

Auto Attendant

Voicemail for user

Routed using DID Block(s): **No DID Blocks have been defined!**

Configure the settings as listed in the table below then select “Add”.

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SIP Proxy ?

Description

User ID

SIP Server **Port**
(customer domain/realm) (enter IP Address or Domain Name)

Outbound Proxy **Port**
(if different from SIP Server) (enter IP Address or Domain Name)

SIP Registration required

Login ID

Password (maximum 40 characters)

Registrar **Port**
(if different from Outbound Proxy) (enter IP Address or Domain Name)

Maximum Active Calls (1 to 99, should not exceed proxy capabilities or available bandwidth)

Number of Line Appearances (0 to Maximum Active Calls)

Send digits as dialed (without prepending 1 and/or area code)

Digits Sent (digits from the full number, 1-XXX-XXX-XXXX, to send to the proxy)

Default Auto Attendant

Select the attendant used to answer when calls received from this source are routed to an Auto Attendant.

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Description	Recommended Setting
Description	User-assigned label. e.g. "IntelPeer" (without the quotes)
User ID	Provided by IntelPeer.
SIP Server	Provided by IntelPeer.
SIP Server Port	Provided by IntelPeer. Default value is 5060.
Outbound Proxy	Provided by IntelPeer
Outbound Proxy Port	Leave Blank
SIP Registration Required	<u>NOT</u> checked
Login ID	N/A
Password	N/A
Registrar	Leave Blank
Registrar Port	Leave Blank
Maximum Active Calls	Enter the number of SIP trunks purchased from IntelPeer
Number of Line Appearances	Should be set to a value no greater than the number of sip trunks purchased
Send Digits as dialed	<u>NOT</u> checked
Digits Sent	Select all digits
Default Auto Attendant	This is a customer-specific setting and defines which automated attendant is to be played for each incoming call that ends up at the AA.
Proxy is an Enterprise Server	<u>NOT</u> checked
Calls from this SIP Proxy go to:	Default value is Auto Attendant. Change to suit customer's environment.

After creating the SIP proxy, the Outside Lines page will be displayed. There are additional settings to configure on the Modify screen. Select “Modify SIP Proxy”. The Modify screen which now includes Advanced Settings is displayed.

Advanced Settings ?

- Pad DTMF RTP Packets
- Enable Early Media** (allow audio from 183 Session Progress responses)
- Supports Symmetric Response Routing** (RFC 3581 - include "rport" in requests)
- Use SIP Diversion for deflected calls** (draft-levy-sip-diverison-08.txt)
- Supports SIP REFER** (when calls from this proxy are transferred back to this proxy)
- Supports SIP Redirect** (when call requests from this proxy are routed back to the proxy)
- Use E.164 format for phone numbers**
- Offer '100rel' support** (RFC 3262 - PRACK)

Obtain DID/DNIS number from SIP To: header field

Use dialed number in Request URI of outbound calls

Configure the Advanced Settings as listed in the table below then select “Update”

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Description	Recommended Setting
Pad DTMF RTP Packets	<u>NOT</u> checked
Enable Early Media	Checked
Supports Symmetric Response Routing	<u>NOT</u> checked
Use SIP Diversion for deflected calls	<u>NOT</u> checked
Supports SIP REFER	<u>NOT</u> checked
Supports SIP Redirect	<u>NOT</u> checked
Use E.164 format for phone numbers	<u>NOT</u> checked
Offer '100rel' support	Checked Note: This setting is available in Release 6.8 or higher
Obtain DID/DNIS number from:	SIP Request URI
Use in Request URI of outbound calls	Dialed number

Note: The appropriate advanced features can be checked according to features required and supported.

#3. To set up the Allworx VoIP Server, go to Servers > VoIP and select “Modify”.

The screenshot shows the Allworx web interface. On the left is a navigation menu with links for Phone System, Business, Network, Servers, Reports, and Maintenance. The main content area is titled 'Home' and contains a yellow warning banner: 'WARNING The emergency number dialing rules have not been set. Please set them now.' Below the banner is a grid of six categories: PHONE SYSTEM, NETWORK, REPORTS, BUSINESS, SERVERS, and MAINTENANCE. The 'SERVERS' category is highlighted in orange, and the 'VoIP' link within it is enclosed in a red rectangular box.

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The Modify screen is displayed.

The screenshot shows the 'VoIP Server' configuration form. It includes the following fields and options:

- BLF Port:** 2088 (typically set to 2088, change if needed for firewall)
- Secure BLF** (typically not checked)
- Force Remote Phone audio through server** (WAN to WAN calls)
- Plug and Play Secret Key:** ***** [show](#)
- Phone Administration Password:** ***** [show](#)
- Global SIP Connection Limit:** 8 (set to at least 1, for SIP Trunks, remote phones, remote sites as bandwidth allows)
- Paging Base IP Address:** 239.255.10.0 (Multicast IP/UDP/RTP address, set to 224.0.0.0 through 239.255.254.245)
- Paging Port:** 56586 (recommended set to between 49152 through 65534)
- Paging Maximum Hop Count:** 1 (set to between 1 through 255)
- Paging Maximum Duration:** 1 (set to between 1 through 30 minutes)
- RTP Base Port:** 15000 (512 ports used, must be an even number from 15000 to 65024)
- RTP DTMF Payload:** 96 (96-127)
- RTP DSCP Tag:** Expedited Forwarding (EF)
- SIP DSCP Tag:** Assured Forwarding 41 (AF41)
- Disable Phone Creates via LAN Plug and Play**
- Disable Phone Creates via WAN (Remote Phone) Plug and Play**
- Disable Assign User at Phone**

At the bottom of the form are three buttons: Update, Start Over, and Cancel.

Configure the settings as listed in the table below then select “Update”.

Description	Recommended Setting
BLF Port	Typically set to 2088, change if needed for firewall
Secure BLF	<u>NOT</u> checked
Force Remote Phone audio through server	Checked
Plug and Play Secret Key	6-64 characters use 0-9, and #. Keep this key closely guarded
Phone Administration Password	4-32 character password to access handset administration
Maximum Active Remote Calls	Should be set to 8. Check with IntelPeer if more than 8 calls will be permitted.
Paging Base IP address	Use the default setting of “239.255.10.0”
Paging Port	Use the default setting of “56586”
Paging Maximum Hop Count	Use the default setting of “1”
Paging Maximum Duration	Use the default setting of “1”
RTP Base Port	Use the default setting of “15000”
RTP DTMF Payload	Use the default setting on “96”

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#4. To create a Dial Plan Service Group, go to Phone System > Dial Plan

The screenshot shows the Allworx web interface. At the top left is the Allworx logo and a navigation menu with links for About, Phone System, Business, Network, Servers, Reports, and Maintenance. Below these are links for Need help?, Install Checklist, and [Logout]. The main content area is titled 'Home' and features a yellow warning banner: 'WARNING The emergency number dialing rules have not been set. Please set them now.' Below the warning are six categorized menu panels: PHONE SYSTEM (with 'Dial Plan' highlighted in a red box), NETWORK, REPORTS, BUSINESS, SERVERS, and MAINTENANCE. Each panel contains a list of sub-menu items.

Create a new service group for IntelPeer or add it to a previously-defined service group. To create a new one, select “Add new Service Group” near the bottom of the page. The New Service Group screen is displayed.

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Configure the settings as listed in the table below then select “Add”.

Description	Recommended Setting
Description	Enter any descriptive name. It is common to use the name of the ITSP, i.e. IntelePeer.
Service Group	Put IntelePeer in the Service Group by choosing it and selecting “move ->”.

#5. Once the Service Group is created, configure the dialing rules.

On the Dial Plan page in the External Dialing Rules section, the “North American numbering Plan Administration (NANPA)” should be set to “Enabled”. If it is “Disabled”, select “Modify”, check the box labeled “Enable North American Number Plan Administration (NANPA)”, then select “Update”.

External Dialing Rules

North American Numbering Plan Administration (NANPA)	enable	Modify
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The next section of the Dial Plan screen lists Area Codes and Exchanges. Select “Modify” in this section to set up rules to route outgoing calls through IntelPeer.

Area Code	Exchange	Number Dialed	Service Group	Action
any		9+1+aaa-xxx-nnnn	All CO Lines, SIP Gateways & SIP Proxies	Modify

aaa - area code xxx - exchange nnnn - number

The Modify screen is displayed.

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Internal Extension Length Internal Dial Plan External Dialing Rules Dialing Privileges Groups Service Groups

Allworx phones must be rebooted after changes to the Internal Extension Length, Internal Dial Plan, or External Dialing Rules.

Dialing Rules

The Allworx uses the table below to determine how numbers in your region are dialed and which Service Group is used to complete the call. Enter your **Home** Area Code and any area codes that do not require dialing 1 before the area code. If some exchanges inside an area code require dialing 1 while others do not, you need only to enter the area code/exchanges that require dialing 1. You may also enter any area codes or area code/exchanges for which you require a specific Service Group to be used to complete the call.

Area Code	Exchange	Dial Method	Service Group
add new row			
Home <input type="text"/>		Area Code NOT dialed	All Digital Lines, CO Lines & SIP Gateways
all others		1 + Area Code dialed	Intelepeer All CO Lines All Digital Lines All Digital Lines & CO Lines All Digital Lines, CO Lines & SIP Gateways All SIP Gateways All SIP Proxies All Trunk Devices Intelepeer

NOTE
If the **Home** Area Code has been set, seven digit ph...
Group selected for the **Home** Area Code. If the **Hon**...
routed using the "All Trunk Devices" Service Group.

the Service numbers will be

Enter the home area code and exchanges to be serviced by IntelPeer into the appropriate boxes. Under Service Group, select the IntelPeer Service Group from the drop-down menus for all appropriate area codes and exchanges then select “Update”.

The next section of the Dial Plan screen lists special dialing cases including Emergency and Operator. Select "Modify" in this section to direct these calls to IntelPeer as required.

Type	Number Dialed	Service Group	Action
Emergency	9+911	see Dialing Privileges Group for source of call	
Phone Services <small>(211,311,411,511,611,711,811)</small>	9+n11	All Trunk Devices	
Operator	9+0	All Trunk Devices	
Long Distance Services	9+1010...	All Trunk Devices	Modify
International Calls	9+011...	All Trunk Devices	
Public SIP Directory	8+nnnn <small>(4 digits)</small>	All SIP Proxies	
PIN Code	78+nnnnn <small>(5 digits)</small>	All Digital Lines & CO Lines	
Outside Line Seizure	9#	All Trunk Devices	

The Modify screen is displayed.

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External Dialing Rules

Description	Number Dialed	Service Group
Phone Services <small>(211,311,411,511,611,711,811)</small>	9+n11	All Trunk Devices
Operator	9+0	All Trunk Devices
Long Distance Services	9+1010...	All Trunk Devices
International Calls	9+011...	Intelpeer
Public SIP Directory	8+ <input type="text" value="11"/> digits	All CO Lines All Digital Lines
PIN Code	78+ <input type="text" value="5"/> digits	All Digital Lines & CO Lines All Digital Lines, CO Lines & SIP Gateways
Outside Line Seizure	9#	All SIP Gateways All SIP Proxies All Trunk Devices Intelpeer

NOTE
Allworx phones must be rebooted when changes are made to the **Public SIP Directory** or **PIN Code** values.

Under Service Group, select the IntelPeer Service Group from the drop-down menus for all required special phone numbers then select "Update".

#6. To create new DID blocks and routing plans, go to Phone Systems > Outside Lines

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The screenshot shows the Allworx web interface. At the top left is the 'allworx' logo. Below it is a navigation menu with links for 'About', 'Phone System', 'Business', 'Network', 'Servers', 'Reports', 'Maintenance', 'Need help?', 'Install Checklist', and '[Logout]'. The main content area is titled 'Home' and contains a yellow warning banner: 'WARNING The emergency number dialing rules have not been set. Please set them now.' Below the banner are six colored boxes representing different system categories: 'PHONE SYSTEM' (green), 'NETWORK' (orange), 'REPORTS' (blue), 'BUSINESS' (green), 'SERVERS' (orange), and 'MAINTENANCE' (blue). Each box contains a list of menu items. In the 'PHONE SYSTEM' box, the 'Outside Lines' item is highlighted with a red rectangular box.

Select "add new DID block".

The screenshot shows two sections of the Allworx interface. The first section is titled 'Direct Inward Dial Blocks' and contains a link 'add new DID Block' and the text 'No DID Blocks have been defined.' The second section is titled 'Direct Inward Dial Routing Plans' and contains the text 'No DID Routing Plans have been defined. (new plans can be created when a DID Block is added or modified)'. Both sections are enclosed in a light gray border.

The DID block page is displayed.

The screenshot shows the 'DID Block' form in the Allworx interface. The form has a title 'DID Block' and three input fields: 'Starting Phone Number' (with a note '(include Area Code and Exchange)'), 'Total number of phone numbers in the DID Block', and 'DID Routing Plan' (with a dropdown menu showing 'make new Routing Plan'). At the bottom of the form are two buttons: 'Add' and 'Cancel'.

In this section, enter the DID information provided by IntelPeer.

To map DID numbers to extensions, select “Details” under the DID Routing Plans.

Select “add number to table” in this section.

Routing Plan Information [modify](#)

Description	Routing Plan 1
Default Extension	0 - Operator
Default DNIS Name	{none}
DID Blocks using this plan	(813) 421-6247 / 1 numbers

Phone Number to Extension Mapping

Search match Phone Number, Extension, DNIS Name, or Default Language.

Bulk Edit

Phone Number	Extension	DNIS Name	Action
(813) 421-6247	{plan default}	{plan default}	Modify

Extension dropdown menu:

- 1000 - Intelpeer User One
- Use Default Extension
- 0 - Operator
- 1000 - Intelpeer User One
- 1001 - Intelpeer User Two
- 1002 - Intelpeer Remote Phone
- 1199 - System Administrator
- 404 - Voicemail
- 431 - Auto Attendant 1
- 432 - Auto Attendant 2
- 433 - Auto Attendant 3
- 434 - Auto Attendant 4
- 435 - Auto Attendant 5
- 436 - Auto Attendant 6
- 437 - Auto Attendant 7
- 438 - Auto Attendant 8
- 439 - Auto Attendant 9
- 408 - Conference Center

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The desired DID to extension mapping can be done as shown above.

The SIP proxy setup page also has to be modified to route the inbound calls to the DID block.

Under Outside Lines, select “Modify” to modify the SIP proxy settings. Check “Routed using DID Block (s)” and the corresponding DID blocks.

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- #7. All phones must be rebooted so that they acquire the new settings from the Allworx server. Reboot them either using each handset’s on-phone menu (Config > Reboot phone) or the Allworx System Administration Tool (Phone System > Handsets).
- #8. The Allworx system is now properly configured to receive and send calls via the IntelPeer service. Verify that both Allworx and IntelPeer are working properly by making test calls using a variety of dialing plans. If you have any questions or need additional technical support, please call:

Allworx: 866-Allworx (866-255-9679)
 Monday – Friday, 8:00am – 8:00pm Eastern Time
 support@allworx.com

For detailed configuration instructions, access the latest Allworx System Administration Guide by visiting the Allworx Authorized Reseller Portal (www.allworxportal.com).