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SIP Trunking using the Optimum Business SIP Trunk Adaptor and the Allworx 6x IP-PBX

6x IP-PBX

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1 Overview

The purpose of this configuration guide is to describe the steps needed to configure the Allworx 6x PBX for proper operation with Optimum Business SIP Trunking.

2 Prerequisites

Please follow the instructions in the Optimum Business SIP Trunk Set-up Guide. The Set-up Guide was left by the Optimum Business technician at installation. If you do not have the Set-up Guide, go to www.optimumbusiness.com/SIP to download a copy.

SIP authentication credentials

- This knowledgebase solution provides the configuration steps for both PBX registration and static or non-registration modes of operation.

Table 1 – PBX Information

Manufacturer:	Allworx
Model:	Allworx 6x
Software Version:	8.0.7.6
Does the PBX send SIP Registration messages (Yes/No)?	Yes
Vendor Contact:	www.allworx.com

3 Allworx 6x PBX Configuration

The steps below describe the minimum configuration required to enable the PBX to use Optimum Business SIP Trunking for inbound and outbound calling. Please refer to the Allworx 6x product documentation for more information on advanced PBX feature configuration.

The configuration described here assumes that the PBX is already configured and operational with station side phones using assigned extensions or DIDs. This configuration is based on Allworx 6x version 8.0.7.6.

3.1 SIP Configuration

To configure SIP, navigate to **Home➔Phone System➔Outside Lines** and click **add new SIP Proxy** under **SIP Proxies** below.

Enter a description for the Optimum Business SIP Trunk Adaptor next to **Description**. Enter the Pilot DID next to **User ID**. Enter the Optimum Business SIP Trunk Adaptor's IP address next to **SIP Server** and **Outbound Proxy** followed by port **5060**. This is the same IP Address assigned to the Optimum Business SIP Trunk Adaptor in step 2 of the Optimum Business SIP Trunk Set-Up Guide.

Check **SIP Registration required**. Enter the same Pilot DID next to **Login ID** followed by a password. The login and password must match what was configured in the Optimum Business SIP Trunk Adatpor. This was step 3 in the Optimum Business Sip Trunk Set-Up Guide.

In fields **Maxium Active Calls** and **Number of Line Appearances** enter **10**. Check **Send digits as dialed** and select all digits next to **Digits Sent**.

Under **Advanced Settings** check **Enable Early Media**. Set **Obtain DID/DNIS number from** to **SIP To:header field**. Enter **dialed number** after **Use**.

A DID Block needs to be configured for **Call Route** below. Navigate to **Home➔Phone System➔Outside Lines** and next to **Direct Inward Dial Blocks** click **add new DID Block**. Specify the Pilot DID next to **Starting Phone Number** and enter the number of DIDs next to **Total number of phone numbers in DID Block**. Leave **DID Routing Plan** to **Routing Plan 1**. When done click **Update**.

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Navigate back to **Home➔Phone System➔Outside Lines** and click **Modify** under **SIP Proxies**. Under **Call Route** check **Routed using DID Block:** and select the configured DID Block.

When done click **Update**.

To configure Static mode leave fields as is except uncheck **SIP Registration required**.

When done click **Update**.

3.2   Extensions/DID

To create DIDs for the extensions navigate to **Home➔Phone System➔Outside Lines** and next to **Direct Inward Dial Blocks** click **add new DID Block**.

Enter the Pilot DID next **to Starting Phone Number** then specify the amount of numbers within this DID block next to **Total number of phone numbers in DID Block**. Leave **DID Routing Plan** to **Routing Plan 1**. When done click **Update**.

To map the created DID block to extensions navigate to **Home➜Phone System➜ Outside Lines** and under **Direct Inward Dial Routing Plans** click on **Details**.

By clicking **Modify** next to each DID, specific extensions may be assigned as shown.

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Navigate to **Home→Phone System→Handsets** and click on **Modify** next to a user.

Make sure the user's DID is specified under **External Caller ID Number**.

To configure Call Forward for a user navigate to **Home➔Phone System➔Users** and click **Modify** next to a user. As an example this user's presence will be changed to **Busy**. In a similair way change the user to a desired status other than **In Office**.

When done click **Update**.

Next navigate to **Phone System➔Extensions** and click **View Call Routes** for that specific user and **Active** should appear under **Busy**.

Click **Modify** next to **Presence: Busy** and under **Call Route** enter the number to be forwarded to next to **Dial number**.

When done click **Update**.

For Call Park the number to dial upon pushing park from the phone will be displayed on the screen. The parking location will be a number between 701 and 709. This number should then be dialed from a different phone for Call Retrieve.

3.3   Dial Plan

To configure Dial Plan navigate to **Home➔Phone System➔Dial Plan** and here is where dialing rules may be added or changed. Click **modify** next to **Internal Dial Plan** to change Dial Plan settings.

Note: It is required to reboot the phones for new settings to take effect.

☑ **Use Extension Mode**

		Plan
9 ▼	9 + external number	External Call access (follows External Dialing Rules below)
0 ▼	0	Operator
	1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx	User and System Extensions
	*8 + enterprise number	Enterprise calling
	*5nnn	Internal station access (reserved for system)
	*250-*299 *24nnn	Speed dial numbers
	*6 + user extension	Message Center
	*700 call park *701-*709 call retrieve *7xxx call pickup *79 + audit pin code	Call Functions (park/pickup/audit pin code)
	*3 + user extension	Leave a voicemail for extension
	*403 door relay *408 conference center *42n do not disturb *43n auto attendants *44nn call queues *4950-*4999 call retrieve *45xxx call forwarding *46n paging	PBX Functions

Clicking **view** next to **Internal Dial Plan** displays the Phone Functions Reference Card that will reveal PBX features invoked by the Allworx phones.
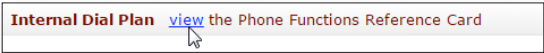
To enable NANPA click **Modify** under **External Dialing Rules** then check the box just above. When done click **Update**.

To set an area code to allow 7-digit dialing click **Modify** next to **Home Area Code**.

An area code may then be entered as shown.

When done click **Update**.

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Under **Automatic Route Selection** outgoing calls may be created to prepend leading digits such as 9 and control the way digits are sent out. To do so click **add new rule** and enter as desired.

Automatic Route Selection	add new rule		
Number Dialed	**Output Dial String**	**Service Group**	**Action**
9+nnnnnnn	1408+nnnnnnn	All SIP Proxies	Modify Delete
9+1nnnnnnnnnn	1nnnnnnnnnn	All SIP Proxies	Modify
9+1408nnnnnnn	1408nnnnnnn	All SIP Proxies	Modify Delete
n - number (0-9)			

A service group is a group assigned a specific set of services. The Optimum Business SIP Trunk Adaptor will need to be assigned into a service group and this service group should be designated under **Services** in the next section. To map the Optimum Business SIP Trunk Adaptor to a service group click **add new Service Group**. In this case the Optimum Business SIP Trunk Adaptor which is the SIP Proxy is designated in service groups **All Trunk Devices** and **All SIP Proxies**.

Service Groups	add new Service Group	
Group	**Service(s)**	**Action**
All CO Lines	*(no services)*	Copy
All CO Lines & SIP Gateways	*(no services)*	Copy
All SIP Gateways	*(no services)*	Copy
All SIP Proxies	EM-4552 (SIP Proxy)	Copy
All Trunk Devices	EM-4552 (SIP Proxy)	Copy

Now under **Services** click **Modify** and this will specify which service groups can use listed services. In this example **All Trunk Devices** was chosen for desired services. Doing this allows the current extensions to call these numbers.

External Dialing Rules		
Description	**Number Dialed**	**Service Group**
Phone Services (211,311,411,511,611,711,811)	9+n11	All Trunk Devices
Operator	9+0	All Trunk Devices
Long Distance Services	9+1010...	No Devices
International Calls	9+011...	All Trunk Devices
Public SIP Directory	*8+4 digits	All SIP Proxies
PIN Code	*79+5 digits	All CO Lines
Outside Line Seizure	9#	No Devices

When done click **Update**.

Click **View** under **Dialing Privileges Groups**.

If needed certain calls may be allowed or denied by clicking **Modify** next to **Toll Restriction**.

IMPORTANT:

The Cablevision network only supports inband DTMF tones. The Allworx PBX only supports sending out-of-band DTMF tones. In order for the Allworx PBX to operate correctly with the Cablevision network, the Optimum SIP Trunk Adaptor must be enabled to convert out-of-band DTMF tones sent by the Allworx PBX to inband DTMF tones. To enable this conversion, log into the Optimum SIP Trunk Adaptor using the login and password specified in the Optimum SIP Trunk Adaptor Set-up Guide. On the **SIP Trunk Configuration** page, you **must** check the **Convert Inband DTMF** checkbox, and click the **Submit** button to update this setting, as shown below. Tone duration cannot be changed on the system nor on the phones.

Optimum Business SIP Trunk Adaptor - Configuration Step 3

3.4   Auto Attendant

To configure Auto Attendant simply map its extension to an available DID like previous extensions by navigating to **Home➔Phone System➔Outside Lines➔DID Routing Plan**.

Once the Auto Attendant extension is mapped to a DID, the Auto Attendant menu can be created by navigating to **Home➔Phone System➔Auto Attendants**. In this example extension 278 was mapped to digit 1 and extension 256 was mapped to digit 2.

3.5   Backup/Restore

To backup or restore the configuration navigate to **Home➔Maintenance** and click on **Import/Export**. Under **Export Configuration** simply right click **View** and save.

To restore click **Choose File** under **Import Configuration** and locate the configuration file for restoration.