USER GUIDE

TALKSWITCH 48-CA/CVA
v3.21

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ANSWERS WITH INTELLIGENCE

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GLOSSARY

Introduction to VoIP

This section applies only to customers using the TalkSwitch 48-CVA. Please proceed to Section 2 if you have a TalkSwitch 48-CA (non VoIP version).

The TalkSwitch 48-CVA is a hybrid PSTN/VoIP phone system. The addition of VoIP to the TalkSwitch product line adds the ability to use a broadband IP connection for voice calls.

The TalkSwitch 48-CVA can be used in many different applications. The most popular configurations are multi-branch, teleworker integration and service provider integration.

How does VoIP work?

Voice over IP, or VoIP, sends calls over the Internet or any Internet Protocol (IP) network by converting voice traffic into data packets. These packets are then routed over the IP network in the same way as other data, reassembled at the point of arrival, and then converted back to voice.

Does a VoIP call sound like a regular phone call?

Under the right conditions, VoIP calls can sound as good or even better than regular phone calls. Voice quality is affected by numerous issues, including how it is compressed for delivery over the Internet, decompressed, and how packets are processed. A few steps can help ensure call quality.

1. High-speed connections on both ends of the call: Good quality VoIP is not possible over a dial-up modem connection. To support more simultaneous VoIP calls, a broadband connection is required. Please visit our site at www.talkswitch.com/voip/voip_test.php to determine what your Internet connection can support.

2. Choose the right CODEC for your location: TalkSwitch supports 3 CODECs (compression algorithms). The default CODEC is G.729 which uses approximately 25Kbps bandwidth upstream and 25Kbps bandwidth downstream for each call. G.729 provides very good call quality while minimizing bandwidth usage.

The G.726 (32Kbps) CODEC is a better quality solution compared to the G.729 CODEC. It does, however, require more bandwidth per call. A G.726 call will typically require 50Kbps bandwidth upstream and 50Kbps bandwidth downstream for each call.

The G.711 CODEC provides the best voice quality. The trade-off is the bandwidth requirement. G.711 calls typically requires up to 100Kbps bandwidth upstream and 100Kbps bandwidth downstream.

For example, if you have a typical 1Mbps ADSL connection from your service provider, this usually means that you have an upstream bandwidth of approximately 380 Kbps. Just because the service provider says that you have 380 Kbps upstream bandwidth does not mean that the full 380 Kbps is available. In fact, a conservative approach is to estimate just over half of the upstream bandwidth as being available. In this case you could safely support 2 simultaneous G.711 calls or 4 simultaneous G.726 calls or 10 simultaneous G.729 calls. These estimates do not factor in other data traffic on the network at the same time. With additional traffic on the Internet or private IP network, the number of simultaneous calls supported by the link is reduced.

If the power goes out, does the VoIP network stay up?

To ensure a reliable network connection, all elements of the VoIP network should be connected to back-up power supplies (UPS). These elements might include LAN switches, routers, firewalls, broadband connection devices (ie. cable modems, DSL modems), and VoIP devices. If the power goes out at the Internet Service Provider, then no VoIP calls can be made. Calls can still be placed over the regular phone lines.

What happens to VoIP if the IP network fails?

If the connection to the IP network is lost, it will not be possible to make VoIP calls. Calls can still be placed over the regular phone lines.

I have a firewall and heard that it can prevent VoIP calls from passing through. Is this true?

The purpose of a firewall is to control what kinds of traffic enter and leave your network. The TalkSwitch 48-CVA is designed with embedded applications to help traverse firewalls properly. To allow VoIP calls to pass through your firewall, you may need to use the port forwarding feature on your firewall.

TalkSwitch 48-CVA by default uses the following ports for VoIP:

Format	Type	Unit 1	Unit 2	Unit 3	Unit 4
RTP (voice):	UDP	6000 - 6006	6010-6016	6020-6026	6030-6036
SIP (signaling):	UDP	5060 (This port is mapped to only one unit)			

What is SIP?

The Session Initiation Protocol (SIP) is a signalling protocol used for establishing sessions in an IP network. A session could be a simple two-way telephone call or it could be a collaborative multi-media conference session.

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Over the last couple of years, the Voice over IP community has adopted SIP as its protocol of choice for signalling. SIP is an RFC standard (RFC 3261) from the Internet Engineering Task Force (IETF), the body responsible for administering and developing the mechanisms that comprise the Internet.

The IETF's philosophy is one of simplicity: specify only what you need to specify. SIP is very much of this mould; it just initiates, terminates and modifies sessions. This simplicity means that SIP scales, it is extensible, and it sits comfortably in different architectures and deployment scenarios.

What is a VPN? Can a VPN help me to carry data securely over the Internet?

VPN stands for Virtual Private Network. It is a means of having the advantages of a private network on a shared public infrastructure like the Internet. A VPN provides security by using encryption/decryption. Using a process called 'tunneling', private data is encrypted and then encapsulated before being sent across the network. These packets of information are sent to their destination. Only those with the correct protocol information are able to enter a company's network.

A VPN is very useful for providing employees with remote access to the company network without compromising security. Encryption can have a negative impact on the call quality, as the overhead on the network connection is increased. For example, IPSec adds approximately 10 per cent overhead to VPN traffic.

What's the difference between a Public IP Address and a Private IP Address?

A Public IP Address is a globally unique number that identifies a device on the Internet. If you want someone on the Internet to connect to you, then you must tell them your public address. Also known as your "real" or "external" address.

Private IP Addresses are typically assigned to devices on a LAN (Local Area Network) and are not routable outside the LAN. Private IP Addresses are usually in the range 192.168.x.x, 172.16.x.x or 10.x.x.x. These IP addresses are typically used where you have multiple computers all sharing the same Internet connection.

To access the Internet, a computer or VoIP device must have an IP address. So what do you do if your ISP (Internet Service Provider) has provided you with only 1 IP address but you have more than 1 device that requires Internet access? The solution is to give each of the devices on the LAN a Private IP Address. A router makes them work by performing Network Address Translation (NAT - See the next topic for details).

Note that addresses of the form192.168.x.x, 172.16.x.x or 10.x.x.x are not recognized on the Internet and can only be used for private networks. For example, if you tell someone on the Internet to connect to you using a 192.168.x.x address, it will not work. Instead, you must provide your real/Public IP Address.

What is NAT and how does it affect VoIP?

Network Address Translation (NAT) allows multiple devices to share the same external IP address to access resources on the Internet. NAT is typically used to allow all the devices in a subscriber's local area network to access the Internet through a router with a single public IP address assigned by the Internet Service Provider.

If a VoIP device is sitting behind a NAT, the private IP address assigned to it is not usable for communications with the entities outside the private network. The VoIP device must substitute the private IP address information with the proper external IP address/port in the mapping chosen by the underlying NAT to communicate with a particular public peer address/port. TalkSwitch can automatically check for the current public IP address and substitute the private IP address with the public address so that VoIP traffic is properly routed through the NAT.

What's the difference between a Static IP Address and a Dynamic IP Address? What effect does this have on VoIP?

A Static IP Address is an address that is permanently assigned to a device. Typically, a Static IP Address has to be assigned by the network administrator or Internet Service Provider (ISP).

A Dynamic IP Address is an address that is temporarily assigned to devices by a DHCP or PPP server that maintains and assigns a pool of IP addresses.

When deploying VoIP devices, it's best to have a Static Public IP Address as this prevents destinations from becoming unreachable for periods of time when the IP address changes. But since this can be an expensive option, TalkSwitch 48-CVA supports the ability to handle Dynamic Public IP addresses for the Internet connection. TalkSwitch can automatically check for the current public IP address and substitute the private IP address with the public address so that VoIP traffic is properly routed through the NAT.

What is a SIP Proxy and Registrar?

SIP's basic architecture is client/server in nature. The main entities in the SIP server are the Proxy, Redirect Server and the Registrar.

TalkSwitch 48-CVA has the SIP Server fully integrated for easy deployment and maintenance of your VoIP network. If you are deploying a multi-site configuration which can comprise of TalkSwitch 48-CVA units, certified 3rd party gateways and certified 3rd party SIP phones, then one TalkSwitch 48-CVA can act as the SIP Proxy and Registrar. The other SIP end-points will register with this TalkSwitch 48-CVA and all calls will be negotiated through this TalkSwitch 48-CVA.

When you first set up your VoIP device (TalkSwitch 48-CVA, gateway or phone), it will register itself with the TalkSwitch 48-CVA that is configured as the SIP Server so that calls can be directed to your location.

When you initiate a VoIP call, your device (TalkSwitch 48-CVA, gateway or phone) will contact the TalkSwitch 48-CVA that is configured as the SIP Server to obtain the contact information for the destination you are trying to reach. Once the information is received, the call is established directly between your location and the destination. The SIP Server is no longer involved in the call.

If the location of the SIP Proxy and Registrar has a Dynamic IP Address, then you will have to use Dynamic DNS since the SIP Server location will be unreachable as soon as the IP address changes.

What is Dynamic DNS?

Dynamic DNS is a Domain Name Service that is used with Dynamic IP addresses. DNS is used to allow devices to find other devices on the Internet by name rather than by IP address. Dynamic DNS allows you to use a domain name - FQDN (which does not change) to locate a device with a Dynamic IP address.

There are companies on the Internet which can provide you with a DNS Address, even if your IP address changes. For example www.dyndns.org or hn.org or www.no-ip.com. You should consult with them about how to use their service. But the basic idea is that you will receive an address something like myname.homeip.net which points to your IP address (something like 209.210.230.140). This is important for locations where the SIP Server resides and where the public IP address is dynamic. All other locations will point to this SIP Server's domain instead of an IP address.

What is the drawback of using Dynamic DNS?

When DNS records are updated, they have to be sent all over the world so that everyone will be aware of the changes. Basically, one DNS server connects to another and swaps information. In many cases, the DNS servers are updated very quickly. Updates should take no longer than 15 minutes to propagate throughout the DNS system. It is possible that propagation could take longer under extenuating circumstances, but propagation shouldn't take much more than an hour at the very most.

How often will my Public IP address change?

This depends on the policies of your Internet Service Provider (ISP, the company that provides your Internet access). It can be a matter of days, weeks or even months before your IP address changes. A power loss or reboot to your cable or DSL modem usually results in the assignment of a new IP address.

TalkSwitch has technology that helps keep this information up to date so that the system can function properly after an IP address change has been detected and updated.

What is a port number?

In an IP address like 64.26.209.103:5060, the port number is the number after the colon ':'. For this example, 5060 is the specified port.

Port numbers are required so that a computer or device can support multiple applications or streams of simultaneous data communication. Each stream or application uses a unique port number. You can think of it like mailing a letter to friend in an apartment building at a specific address. You need to specify the apartment number as well as the building address, so that the mail can reach the proper final destination.

CHAPTER 2

Installing TalkSwitch

2.1 What's included with TalkSwitch

The TalkSwitch 48-CA/CVA comes shipped with the following items:

1. The TalkSwitch Unit
2. AC Power Adapter (Warning: never use any power adapter other than the one provided.)
3. 6' RJ-45 Ethernet Cable
4. 6' RJ-11 Telephone Cable – (4)
5. CD containing configuration software and documentation
6. Quick Reference Cards
7. TalkSwitch Start Guide
8. TalkSwitch Memory Card (optional)

If any of these items are missing, please contact your TalkSwitch dealer.

The TalkSwitch line jacks are sensitive to high-voltage spikes from lightning. If you live in an area where electrical storms occur regularly, we recommend that you protect TalkSwitch by plugging the telephone cords coming from the TalkSwitch line jacks to a surge protection device connected to the incoming telephone lines.

If you live in an area with cold temperatures, do not plug TalkSwitch into a power outlet until the system has warmed to room temperature. Otherwise, condensation could build up on the electronics and cause damage when TalkSwitch powers up.

2.2 Front Panel Descriptions

TalkSwitch's front panel consists of a power button ("Power") and 5 LED lights that indicate the usage of the lines with different states of illumination.

What do the LED lights tell you?

LED light:	State	Description
Line 1	On Solid	Line 1 is currently in use.
	Pulsing Slowly	Line 1 caller is on hold.
	Flickering	Line 1 is ringing.
	Quick Pulse	Line 1 is engaged by a device that is sharing the line with TalkSwitch.
Line 2	On Solid	Line 2 is currently in use.
	Pulsing Slowly	Line 2 caller is on hold.
	Flickering	Line 2 is ringing.
	Quick Pulse	Line 2 is engaged by a device that is sharing the line with TalkSwitch.
Power / Data	On Solid	TalkSwitch is powered on.
	Flickering	The PC connected (via Serial or USB) to TalkSwitch is either sending or retrieving information from TalkSwitch.
	Pulsing Slowly	Global Message Waiting Indicator (optional).
Line 3	On Solid	Line 3 is currently in use.
	Pulsing Slowly	Line 3 caller is on hold.
	Flickering	Line 3 is ringing.
	Quick Pulse	Line 3 is engaged by a device that is sharing the line with TalkSwitch.

LED light:	State	Description
Line 4	On Solid	Line 4 is currently in use.
	Pulsing Slowly	Line 4 caller is on hold.
	Flickering	Line 4 is ringing.
	Quick Pulse	Line 4 is engaged by a device that is sharing the line with TalkSwitch.

For more details on line LED error codes, see Troubleshooting — Appendix A.

2.3 Back Panel Descriptions — TalkSwitch 48-CA/CVA

Before connecting all your phones and lines to TalkSwitch, you may want to proceed with configuring the unit first. (See section 3.1) This will minimize the disruption time for your telephone lines while setting up the system.
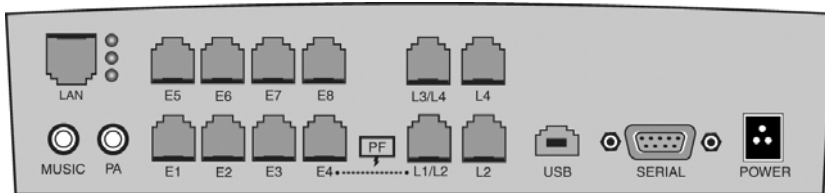
Jacks/Ports	What to plug in
MUSIC	Plug in a radio, CD player, PC soundcard or any other device that emits an audio signal if you wish to use the TalkSwitch Music-on-Hold feature. This is a 1/8" (3.5 mm) phono jack. Mono cables are recommended. If you have multiple TalkSwitch units on a LAN, you will need to provide a music source to each TalkSwitch.
PA	Connect to a P.A. system if you wish to use the external paging feature. This is a 1/8" (3.5 mm) phono jack. Mono cables are recommended. If you have multiple TalkSwitch units on a LAN, you will need to provide a connection from each TalkSwitch to the PA Amplifier.

Jacks/Ports	What to plug in
LAN PORT	You can connect to an Ethernet hub using a Category 5 cable with RJ-45 connectors. This will support configuration across the LAN and Internet and support VoIP calls. If you have 2, 3 or more TalkSwitch units, you can 'network' them and they will function as a single system. There are 3 LEDs next to the LAN port. The top LED is on when the ethernet link is synchronized with a switch or hub. The middle LED is on when data is being received and the bottom LED is on when data is being transmitted.
E1 — E8	Plug in any analog device that uses a standard (RJ-11) telephone jack, such as telephones, fax machines, internal or external PC modems, etc. TalkSwitch identifies the extensions as 1x1 to 1x8. (x represents the unit ID number assigned to that TalkSwitch unit). By default, all TalkSwitch units are shipped with a unit ID of 1. This means the extensions are 111 to 118. A TalkSwitch with unit ID 2 would have extensions 121 to 128. For details on setting up 2 or more units on a LAN to operate as 'networked' units, please see section 2.5.
L1/L2, L2, L3/L4, L4	This is where you plug in your RJ-11 telephone lines. If you have 2 lines out of 1 phone jack, you can plug into the 1/2 and 3/4 jacks. Use a surge protector if you live in an area prone to lightning strikes.
USB	Use the USB port if your PC supports USB connectivity. If you use the USB port, you can't use the serial port simultaneously.
SERIAL	Attach a serial cable (RS232) to connect TalkSwitch to your PC.
MEMORY SLOT	Located on side of box: used to expand internal memory for Voicemail and Auto Attendant messages. TalkSwitch Memory cards can be purchased from your local TalkSwitch reseller or from www.talkswitch.com. Simply place the memory card in the slot and TalkSwitch will automatically detect and start using the extra memory within 20 seconds.
POWER	Plug the supplied AC Power Adapter in here. Rating: 16VAC 1.5 A output. Do not use any other power adapter, as this may cause damage.

The 'PF' box in between E4 and L1/L2 represents power failure support. In the event of a power failure or loss of power to TalkSwitch, Extension 114 will be able to receive calls and make calls on Line 1.

2.4 Plugging into the Back Panel

2.4.1   Attaching telephone lines to TalkSwitch line jacks

You can connect your telephone lines from the wall jack(s) to the TalkSwitch line jacks with the phone cables provided. Take note of which telephone line is connected to which line jack on TalkSwitch — this information will be used in the configuration section. In order to minimize disruption to your business, you may want to configure TalkSwitch first before connecting it to your lines and phones. See section 3.1 for information about configuring TalkSwitch.

We recommend that you connect surge protectors between TalkSwitch and your telephone lines to protect against lightning damage.

2.4.2   Attaching phones and other devices to TalkSwitch extension jacks

You can connect any regular analog telephone, cordless phone, fax machine, answering machine or modem to TalkSwitch's extension jacks. Multiple devices can be connected to each extension jack by 'chaining' them together or using a line splitter.

To attach a single-line corded or cordless telephone, fax machine or answering machine:

Connect your single-line analog telephone or fax machine to one of TalkSwitch's extension jacks (E1 to E8) just as you would if you were plugging them into a standard telephone wall jack.

To attach a 2-line telephone:

Option #1 (Use it as one TalkSwitch extension.)

Disregard the telephone's Line 2 jack (plug-in). Connect the telephone's Line 1 plug-in to any one of TalkSwitch's extension jacks. You will be able to access both telephone lines, but in the same manner as a single-line telephone attached to TalkSwitch.

Option #2 (Use it as two TalkSwitch extensions.)

You could use your two-line telephone as two separate TalkSwitch extensions. Connect the telephone's Line 1 and Line 2 plug-ins to two separate extension jacks on TalkSwitch.

Most two-line phones have separate plug-ins for two incoming telephone lines (Line 1 and Line 2). If your two-line telephone does not have separate plug-ins, you can use a "Line 1/Line 2" line splitter to separate the two lines. Read the Connecting Phones, Faxes and Devices Quick Guide in the TalkSwitch software or at www.talkswitch.com/support for more detailed examples on connecting multi-line phones.

To Attach an Internal or External Modem:

Simply plug the modem's telephone cable into one of TalkSwitch's extension jacks. Your modem is now a TalkSwitch extension and will be able to access all lines and take advantage of TalkSwitch's call routing features.

If you don't want to change your dial-up settings for the modem, you will need to enable Direct Line Access for the extension associated to the modem. See section 3.3.1.4 for more details on configuring Direct Line Access.

2.4.3   Connecting devices to the Music and PA jacks

The Music jack is designed to support any audio source (CD player, radio, tape player, sound card etc.) for playing music or messages to callers while on hold. Simply connect the audio source via its headphone output to the Music jack. The Music jack requires a 1/8" (3.5mm) mono phono connector. If you have more than one TalkSwitch connected to a LAN, you will need to provide audio to the Music jacks on each TalkSwitch.

The PA jack can be connected to a PA System for external paging or to an amplification system to screen voicemail or to use as a line simulator. The PA jack requires a 1/8" (3.5mm) mono phono connector. If you have more than one TalkSwitch connected to a LAN, you will need to provide a connection from each TalkSwitch to the PA system.

2.4.4   Connecting TalkSwitch to a LAN and/or PC

There are currently 4 ways to connect to TalkSwitch for PC configuration — over the LAN (Ethernet port), USB, Serial, or Internet.

LAN:	Use the provided Ethernet cable to connect TalkSwitch to the LAN via your switch
USB:	Use a USB cable to connect TalkSwitch to an available USB port on your PC or USB hub.
Serial:	Use a serial cable (RS232) to connect TalkSwitch to an available Serial COM port on your PC.
Internet:	The TalkSwitch 48-CA and CVA support remote configuration from a PC via IP from a local or remote location.

2.4.4.1 Connecting TalkSwitch to a LAN for local configuration

If you want to connect multiple TalkSwitch units to a LAN, please see section 2.5

To connect TalkSwitch to a LAN for configuration purposes, simply use the supplied Category 5 cable with RJ45 connectors on either end. Connect TalkSwitch to the switch. The top LED should light up to indicate a connection has been established with a switch or hub.

If you are running Windows XP, please make sure you are not using Windows 98 compatibility mode.

Any time TalkSwitch is being configured, it is 'locked' so that no other computer or person using a phone can make configuration changes at the same time. If you leave the software open for longer than 1 hour, TalkSwitch will automatically unlock itself to allow configuration changes.

2.4.4.2 Connecting TalkSwitch to a PC using a USB cable

If you have an available USB port and cable, then connect TalkSwitch to the PC using a USB cable (cable not provided).

Make sure you do not have any other communications programs running at the same time you want to use the TalkSwitch configuration software. These may include Palm Pilot, Hot Sync, TalkWorks, digital camera software. These programs tend to 'hold' onto COM ports, making them unavailable for any other programs.

2.4.4.3 Connecting TalkSwitch to a PC using a Serial cable

If you have an available Serial port, then connect TalkSwitch to your PC using an RS-232 Serial cable (cable not provided). By default, TalkSwitch is shipped with the Serial and LAN ports enabled and the USB port disabled.

When you run the TalkSwitch software, select 'Serial' as the connection type then select the Serial Port associated to this physical Serial port on your PC.

Make sure you do not have any other communications programs running at the same time you want to use the TalkSwitch configuration software. These may include Palm Pilot, Hot Sync, TalkWorks, digital camera software. These programs tend to 'hold' onto COM ports, making them unavailable for any other programs.

If you are having problems communicating with TalkSwitch, please check the Troubleshooting section of the manual.

2.4.4.4   Connecting to TalkSwitch over IP

Ensure TalkSwitch is connected to a LAN with the supplied Category 5 cable. The top LED should light up to indicate a connection has been established with a switch or hub. To support remote configuration over IP, you will need to map port 9393 from your firewall to TalkSwitch. Please refer to the router/firewall manual for activating port forwarding.

When you open the TalkSwitch software, you will be prompted to select your connection type. Select 'Internet' then enter the public IP address of the TalkSwitch location you wish to configure. You can click on 'Address Book' to maintain a list of internet addresses.

Any time TalkSwitch is being configured, it is 'locked' so that no other computer or person using a phone can make configuration changes at the same time. If you leave the software open for longer than 1 hour, TalkSwitch will automatically unlock itself to allow configuration changes.

2.5 Using 2 or more TalkSwitch units on a LAN

If you have only one TalkSwitch unit, ignore this section and proceed to Section 3.

2.5.1   Connecting 2 or more TalkSwitch units to a LAN

TalkSwitch, CA and CVA units can be networked together on the same LAN. Ensure you have the appropriate firmware on all units before adding units to the LAN. Check the support section of our website for the latest updates.

We recommend integrating your phone system into your existing LAN with an Ethernet switch. A switch provides direct communication between TalkSwitch units, thus keeping the TalkSwitch voice-over-LAN data isolated from other data on the network.

For example, the Linksys BEFSR81 EtherFast® Cable/DSL Router with 8-Port Switch is a solution that supports prioritization of traffic at an affordable price.
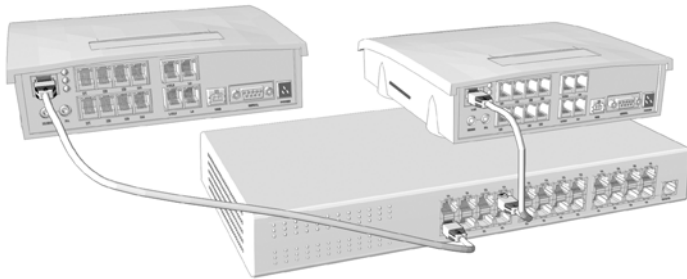
Connect up to four TalkSwitch units (2 are shown in the diagram above) to the LAN switch or switched hub.

Note: TalkSwitch unit enclosures are not designed for stacking. We recommend wall-mounting units in a horizontal row to maximize airflow and keep the units from overheating.

2.5.2   Setting the Unit ID for the first time

When TalkSwitch units are shipped from the manufacturer, they are all programmed with Unit ID 1. If two or more units are placed on the same LAN and have the same Unit ID number, then there will be a conflict. TalkSwitch identifies this conflict by flashing all the Line lights on the front panel of the units that have the conflict.

To resolve the conflict, you need to assign a different Unit ID to one or more of the units. Pick up a telephone handset connected to one of the extension jacks on the TalkSwitch unit that you want to assign a different Unit ID. You will immediately hear a system prompt indicating that there is a conflict and a new Unit ID needs to be chosen. Select an available Unit ID between 2 and 4.

Next, the system should indicate that the update was successful and the front panel lights should stop flashing after several seconds. When none of the front panel 'Line' lights are flashing, then all units are ready for network use.

No IP configuring is required to configure TalkSwitch since it does not use the TCP/IP protocol for voice traffic over the LAN. IP configuration is however required once the system has been configured.

2.5.3   Changing the Unit ID

If you need to change the Unit ID of any TalkSwitch system, you can first press #
from a Local Extension to enter command mode, enter a password if necessary, then
dial 0 0 # . The system will respond with the Unit ID of that particular TalkSwitch.
To change the Unit ID, use any of the following commands once in command mode:

Unit ID	Touch Tone Command
1	01 #
2	02 #
3	03 #
4	04 #

2.5.4   Unit IDs and how they affect system extension numbers

When more than one TalkSwitch is connected to a LAN and they operate in networked
mode, the extensions and voicemail have different numbers based on the Unit ID
assigned to the TalkSwitch unit they belong to.

The extensions and voice mailboxes affected by the new numbering system are listed
in the following table.

	Unit ID 1	Unit ID 2	Unit ID 3	Unit ID 4
Local Extensions	111-118	121-128	131-138	141-148
Remote Extensions	211-218	221-228	231-238	241-248
Local Mailboxes	111-118	121-128	131-138	141-148
Remote Mailboxes	211-218	221-228	231-238	241-248
General Mailboxes	410-419	420-429	430-439	440-449

None of the Extension Ring Groups are affected, since they are global to the entire
system. It doesn't matter if there is one or four TalkSwitch units on a LAN, there will
always be 10 Extension Ring Groups with the extension numbers 300-309.

2.5.5   Keeping track of the lines and extensions

To keep track of the extensions and lines connected to each TalkSwitch, you may want to label each unit with its respective Unit ID. This will simplify matters when it comes to adding or removing extensions and lines.

In the event the TalkSwitch units are located in a room away from the extensions and you need to identify which unit is which, there is a utility in the configuration software that will allow you to identify each unit by flashing the lights on the front panel. When the configuration software is opened, you can check details of the TalkSwitch units on the LAN by clicking on the 'LAN Details' button.

In the pop-up window, you can select a Unit ID, then click the Identify button to have the lights flash on that unit. The lights will stop flashing when you click 'finished' or 5 minutes have elapsed.

2.5.6   Optimizing the system for networked use

TalkSwitch has been designed to operate optimally when in a networked state. Here are a few items that have been designed for better network use:

Configuration Settings:

All units are 'cloned' with identical settings. In the event that a unit has 'disappeared' off the network (adapter unplugged, LAN connection disconnected, LAN failure etc.), the system can still handle the calls, since it retains the configuration settings of the 'missing' unit. In the event an extension or voice mailbox cannot be reached, the caller will hear the following system prompt: "The extension you are trying to reach is currently unavailable, please try again later."

Outgoing Line Hunt Groups:

By default, when 2 or more units are on a LAN, the system tries placing calls out on the same TalkSwitch unit the call originates from. This avoids using a line across the LAN on another unit, which helps to minimize the LAN traffic and optimizes the opportunity for all inbound calls to connect across the LAN if required.

Auto Attendants:

There are a total of 9 Auto Attendants that are shared by all units on the LAN. When an Auto Attendant is recorded on any unit, it is then automatically copied to all other units on the LAN. This design minimizes LAN traffic and also provides functionality back-up in case a unit or units have 'disappeared' off the network (adapter unplugged, LAN connection disconnected, LAN failure etc.). In this event, all units can still answer inbound calls with the same Auto Attendant messages).

Voicemail:

All Local Extension and Remote Extension Voicemail data is stored on the unit where the extensions normally reside. For example, all greetings, directory names and voicemail messages for extensions 121-128, 221-228 and mailboxes 420-429 are stored on the TalkSwitch with Unit ID 2. If a unit is completely filled with voicemail messages, new messages will not be stored on other units. The system will simply not accept anymore messages for mailboxes belonging to that unit. If you need more memory, TalkSwitch Memory Cards can be purchased from your reseller. You can also use the Voicemail Memory Manager to view the memory usage of each TalkSwitch unit and each mailbox.

2.6 Optimizing Your IP Network for VoIP

2.6.1   The Broadband Connection
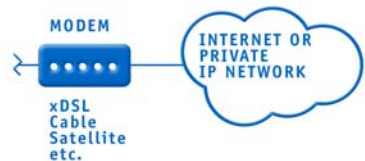
For optimum quality of VoIP calls on your system, we recommend that you subscribe to a high-speed broadband connection from your Service Provider. 'Lite' broadband connections (typically 128 Kbps downstream and 64Kbps upstream) are not typically suitable for simultaneous voice and data traffic. The limiting factor for a broadband connection is typically the upstream bandwidth to the Internet Service Provider.

For example, if you have a typical 1Mbps ADSL connection from your service provider, this usually means that you have an upstream bandwidth of approximately 380 Kbps. Just because the service provider says that you have 380 Kbps upstream bandwidth does not mean that the full 380 Kbps is available at all times. In fact, a conservative approach is to estimate about half of the upstream bandwidth as being available. In this case you could safely support 2 simultaneous G.711 calls or 4 simultaneous G.726 calls or 10 simultaneous G.729 calls. These estimates do not factor in other data traffic on the network at the same time. With additional traffic on the Internet or private IP network, the number of simultaneous calls supported by the link is reduced. For more information on VoIP calling, see chapter 1.

2.6.2   The Router/NAT/Firewall
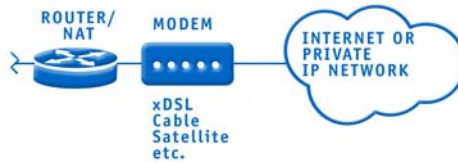
In a typical small office environment, there are several computers connected to an Ethernet switch which is sometimes integrated into a router. A router handles the connection between 2 or more IP networks. Routers spend all their time looking at the destination IP addresses of the packets passing through and routing them accordingly. In a network that shares both data and voice, it is critical that the voice traffic has priority over the data packets. Some routers support Quality of Service (QoS) functionality for such purposes. These routers are typically identified as devices that support QoS, VoIP or prioritization. One such inexpensive router for the small office market is the Linksys BEFSR81. It can be configured to provide prioritization of the voice traffic on the broadband connection to ensure that voice traffic gets through. It also supports DHCP, UPnP and VPN Pass Through.

TalkSwitch uses UPnP (Universal Plug and Play) to automatically configure port forwarding VoIP ports, and receive updates whenever the WAN IP address changes so that it can properly update SIP messages.

2.6.3 The Local Area Network
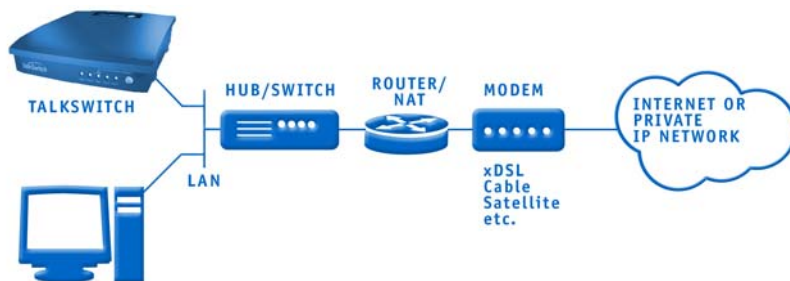
To share voice and data properly, your network requires an Ethernet switch. A switch, in effect, isolates the Ethernet ports from each other and only passes through traffic intended for the device connected to that port, which ensures that data traffic doesn't compete with voice traffic. For example, the Linksys BEFSR81 router has a built-in 8 port switch which is perfect for a LAN supporting both TalkSwitch units and computers. If you're not certain whether your equipment is an Ethernet switch, contact the manufacturer.

CHAPTER 3

Configuring TalkSwitch

3.1 Installing the TalkSwitch Configuration Software

Insert the TalkSwitch CD into your CD drive. The Install program will automatically launch. If the software does not launch automatically, you can use Windows Explorer to explore your CD-ROM drive. Double-click the Setup.exe file, then follow the instructions on the screen. If you are installing on a Windows XP machine, do not enable Windows 98 compatibility mode for the TalkSwitch software. The TalkSwitch software can also be downloaded from the TalkSwitch website (www.talkswitch.com).

Configuration software system requirements:

• PC running Windows XP/2000

• 120 MB free hard disk space

• 128 MB RAM

• An available Ethernet port

• 800 x 600 minimum video resolution

If you are having problems retrieving the settings from TalkSwitch, please check the Troubleshooting section of the manual.

3.2 Running the TalkSwitch software

After installation is complete, double-click the TalkSwitch icon. If TalkSwitch is currently connected to the same network as your PC, then the configuration software should automatically detect and retrieve the settings from TalkSwitch (See section 3.3). If TalkSwitch is not yet connected, or connected via the Serial or USB port, then the following screen will appear with different configuration options.
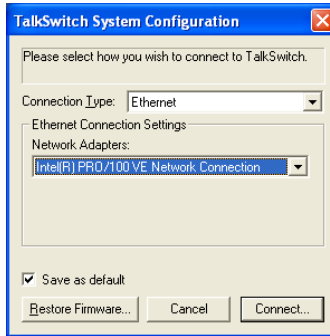
Connect via Ethernet:

> If TalkSwitch is connected on the same LAN as the PC being used to configure the system, then use this option. Ensure your network cable is properly connected and the top green LED is on at the back of the TalkSwitch.

Connect via USB:

> If TalkSwitch is connected to the PC via a USB cable, then select this option and press 'Connect' to continue.

Connect via Serial Port:

> If TalkSwitch is connected to the PC via a Serial cable, then select this option and choose the Serial Port associated to the connection. Press 'Connect' to continue.

Connect via Internet:

> If TalkSwitch has access to the Internet and port 9393 is mapped from the router/firewall to TalkSwitch, then you can select this option for remote management of TalkSwitch.

Work Offline — Open File:

If you wish to work offline on a configuration file, select this option then press the Browse button to select the file you wish to view/edit.

Restore Firmware:

This activates the TalkSwitch Firmware Update procedure in the event a firmware update has failed. Follow the instructions accordingly.

3.3 Configuration

The configuration screen consists of 4 parts:

1. Menu Items

2. Configuration Navigation

   Controls what is displayed in the configuration window.

3. Configuration Window

   Displays configuration information.

4. View System Information

   Click this button to view each TalkSwitch unit's MAC address, IP address, hardware version and firmware version.

5. Resize

   Grabbing this corner by left-clicking on the mouse allows you to increase or decrease the window size.

There is context sensitive help information available for each option in the configuration software. Simply rest your mouse cursor over any control for a second or two and then information related to that control will appear.

Menu Items — File

Open...

Opens existing configuration files from the PC. Default configuration files are included with the software. TalkSwitch also backs up to a file called "LastSavedConfig.dat" every time you save settings to TalkSwitch.

Save to TalkSwitch

Saves the current configuration to TalkSwitch.

Save to File...

Saves the current configuration to a file.

Exit

Closes the Configuration.

Retrieve Settings

Retrieves settings from TalkSwitch connected to the PC.

Update Firmware:

This action locks the system down and then proceeds with updating the firmware once all calls have terminated. For more details on upgrading the TalkSwitch Firmware, see Section 4.8.

Menu Items — View

Toolbar

Toggles the toolbar on/off.

Status Bar

Toggles the status bar on/off.

Menu Items — Tools

Memory Usage:

Displays a dialog box showing internal memory usage for Voicemail or Auto Attendant messages.

Voicemail Manager:

Displays a dialog box giving you options to check the status of all voicemail, delete a mailbox password, and reset mailboxes to factory default.

Terminal Window:

Displays a command line interface to enter commands. Useful for troubleshooting in conjunction with technical support.

Defaults:

Select this option to reset the current page or the entire configuration back to defaults.

Menu Items — Help

Support on the Web:

Launches your browser and directs you to our support site.

About TalkSwitch:

Displays the TalkSwitch software version number, TalkSwitch firmware version number and Copyright information.

Additional PDF help documents can be located in the Start Menu> TalkSwitch folder.

Configuration Navigation

The Configuration Navigation organizes all the configuration topics within folders. The following is a brief description of each configuration folder:

About TalkSwitch

This tab displays version information about the TalkSwitch software, firmware and hardware. It also displays memory usage with details about voicemail messages and Auto Attendants.

System Information

This folder allows you to configure the system setup. This includes activating lines, extensions, VoIP and music-on-hold.

Voicemail

This folder allows you to configure each individual voice mailbox and also some global settings for the voicemail system.

Call Handling

This folder allows you to configure how you want incoming calls to be handled. It allows you to setup your Auto Attendants and individual call handling for each line and distinctive ring number for both operating modes.

Call Back / Call Bridge

TalkSwitch's Call Back and Call Bridge features are configured from this folder. Both of these features can reduce your company expenses by reducing long distance costs.

Options

In this folder, advanced settings are configured including audio controls, troubleshooting and various operating options.

Configuration considerations when connecting multiple units to a LAN.
When 2 or more units are connected to a LAN and are set up for network use, you will have the ability to configure all units connected to the LAN via the Serial or USB connection to one of the TalkSwitch units, or a PC connected to the same LAN as the TalkSwitch units.

When 2 or more TalkSwitch units are connected to the same LAN, they are designed to act like a single phone system. For example, if you have 2 TalkSwitch units connected on the same LAN, the system will now function as a single system supporting 8 lines, 16 local extensions and 16 remote extensions.
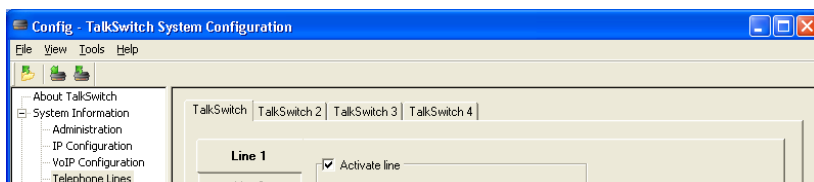
You will notice that on some of the configuration pages, there will be up to 4 tabs across the top that allow you to select each TalkSwitch in the group.

Important:

Anywhere in this manual where there are details specific to the use of TalkSwitch in a networked configuration, you will see the icon to the left. For people using only 1 TalkSwitch unit, you can ignore any of the comments associated with this icon.

Anywhere in this manual where there are details specific to the configuration or use of features related to only the TalkSwitch CVA, you will see the icon to the left. If you have a TalkSwitch 48CA, you can skip these sections in the manual.

3.3.1 System Information

3.3.1.1 Administration

This tab allows you to assign a System name and Administrator password for TalkSwitch. The Administrator password gives access to all configuration options. The password that is entered here will be used at configuration start-up and through Touch Tone configuration.
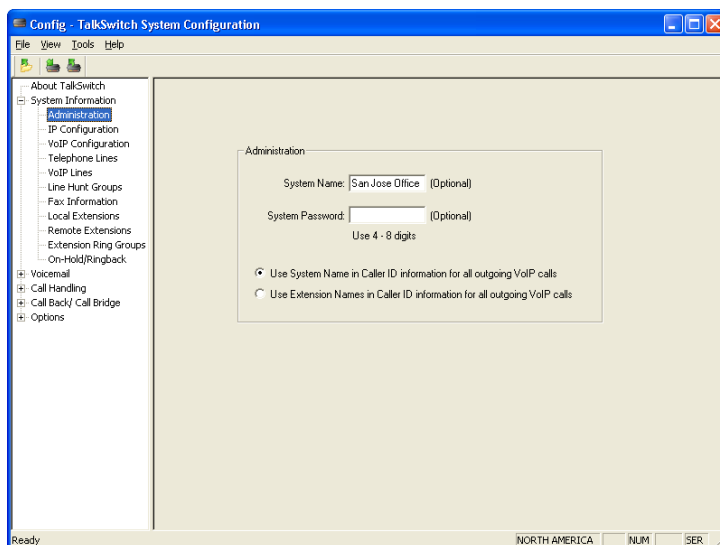
System Name:

   For tracking purposes, a system name can be assigned.

System Password:

   To activate the use of a system password, enter a 4- to 8-digit password. The password can only contain numbers, since it is also used to gain access to the system using a touch-tone phone.

   If you do not want a password, or want to delete the existing password, simply clear the password field and click 'Ok'.

   For TalkSwitch 48-CVA systems, the system name or extension names can be used to appear as Caller ID information for all outgoing VoIP calls.

If the administrator forgets the password, the only option to gain access to the configuration settings is to contact TalkSwitch Technical Support.

3.3.1.2   IP Configuration

In order for the TalkSwitch 48-CVA to function properly, an IP address and other pertinent information is required. If you have a TalkSwitch 48-CA, then this information is only required if you want to configure the system remotely or network it with a CVA on the LAN.
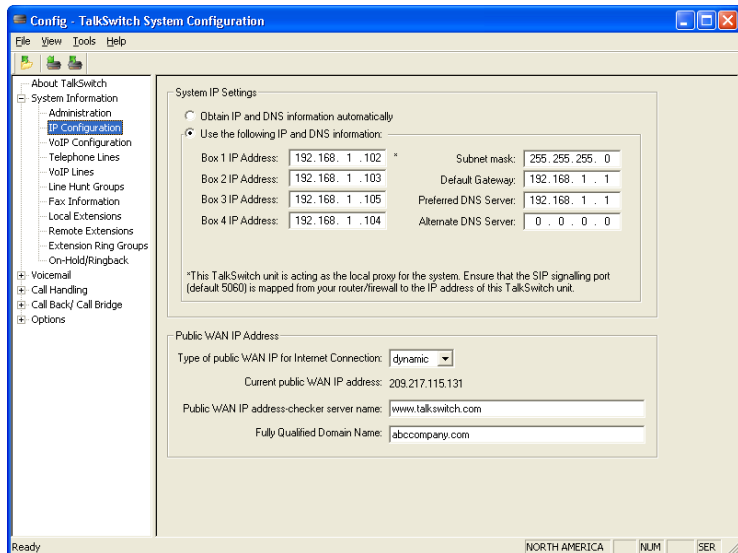
In the "System IP Settings" section:

If you have a DHCP server and your TalkSwitch unit(s) are connected to the LAN, then all fields should already be filled with the correct information. If there is no DHCP server present, the following fields need to be filled in if you plan on using the VoIP capabilities of the TalkSwitch 48-CVA.

Box X IP Address:

Assign an available static IP address to each TalkSwitch unit. If you use a DHCP server, you need to reserve an IP address for each TalkSwitch unit. To reserve an IP address, you will need the MAC address of each unit. See the beginning of section 3.3 for details on checking the MAC address.

Subnet Mask:

Enter the subnet mask for the LAN. If you have a DHCP server running, then this information will automatically be obtained.

Default Gateway:

Enter the IP address of the gateway on your network. A gateway is a hardware device (such as a router / NAT) that connects the office network to the Internet. The gateway allows you to share a DSL, cable modem or other Internet connection with all of the computers and IP devices in your office network.

Preferred DNS Server:

Enter the preferred DNS server IP address. This is also known as the primary DNS server. DNS is a Service that maintains information about a portion of the Domain Name System (DNS) database and responds to DNS queries for resolving a domain name to an IP address. For more information about DNS, see chapter one.

Alternate DNS Server:

Enter the alternate DNS server IP address. This is also known as the secondary DNS server.

In the "Public WAN IP Address" section:

Type of public WAN IP address for Internet Connection:

Select dynamic if your public IP address is a dynamic IP address from your Internet Service Provider (ISP). If you are unsure if your connection is dynamic or static, then leave this option set to 'dynamic'. When set to dynamic, TalkSwitch checks your public IP address every 5 minutes. If it changes, TalkSwitch automatically updates its information so that VoIP calls are properly handled.

Current public WAN IP address:

When 'dynamic' has been selected for the public IP address type, this entry shows the current public IP address and is not editable. If the public IP address is 'static', then you will need to enter it here.

Public WAN IP address-checker server name:

When 'dynamic' has been selected for the public IP address type, this entry shows the current server name for the IP checker utility. If the public IP address type is 'static', then no information is required. The default location is www.talkswitch.com where there is an IP checker application running on the server which responds to requests from TalkSwitch units for the public IP address at its location.

Fully Qualified Domain Name:

A Fully Qualified Domain Name (FQDN) is required if this location is going to act as the SIP Server and it does not possess a static public IP address from your service provider. You can obtain FQDNs for free at www.dyndns.org. You will also need to download one of the applications they mention on the site that will need to run on a PC connected to the same LAN to auto-update the DNS servers.

3.3.1.3   VoIP Configuration

This section deals with configuring your TalkSwitch for VoIP.
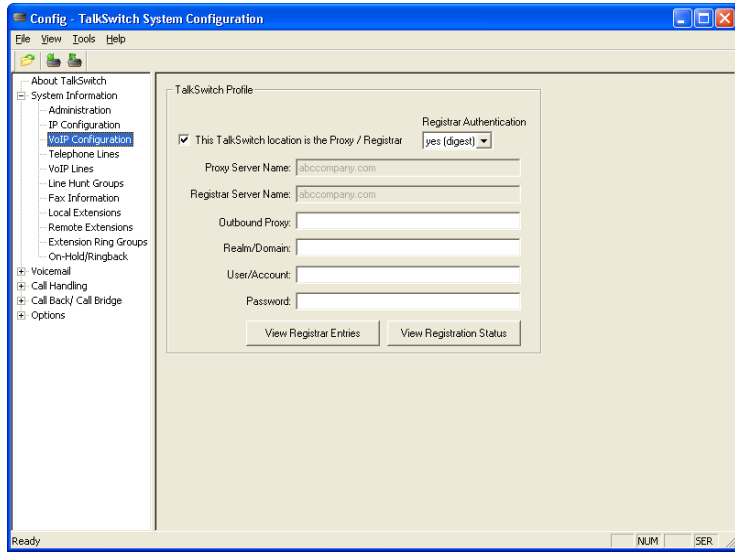
In the "TalkSwitch Profile" section:

TalkSwitch has a built-in SIP Server Proxy / Registrar / Redirect server. This facilitates the configuration and maintenance for multi-branch and teleworker applications. One location needs to be assigned as the SIP Server so that it can manage call requests between VoIP locations and the other locations need to register with the SIP Server location.

To facilitate calling between TalkSwitch locations, we recommend that you use TalkSwitch location codes 250-299 as phone numbers for each of your VoIP Lines. Ensure no duplicate numbers are assigned between any 2 locations.

This TalkSwitch location is the Proxy / Registrar

If this location is going to be the Proxy / Registrar Server, then check this box. When enabled and other SIP devices are registered with this system, then any calls made within the group contact this device to resolve the destination location. Once the destination is resolved, the call is made directly from the source location to the destination location.

The TalkSwitch Registrar supports Digest authentication. The Digest mechanism is a challenge/response protocol in which the client presents its credentials in response to a challenge from the server. This method of authentication is very secure. To enable authentication, select 'yes (digest)' from the drop-down list under Registrar Authentication

Proxy Server Name:

If this location is acting as the Proxy Server, then this information will be automatically filled in. If this location is not the Proxy Server, then enter the IP address or domain name associated to the Proxy Server. If the Server is using a different port number than the default, then specify the port number after a colon at the end of the domain or IP address. Example 222.234.432.234:5061

Registrar Server Name:

If this location is acting as the Registrar Server, then this information will be automatically filled in. If this location is not the Registrar Server, then enter the IP address or domain name associated to the Registrar Server. If a TalkSwitch 48-CVA is acting as the Server, then both the Proxy Server Location and Registrar Server Location fields should have the same information.If the Server is using a different port number than the default, then specify the port number after a colon at the end of the domain or IP address. Example voip.domain.com:5061

Outbound Proxy:

If TalkSwitch is being provisioned with a VoIP Service Provider, enter the Outbound Proxy associated with the Service Provider.

Realm/Domain:

If this location is the Proxy/Registrar, you can assign a realm/domain name to this unit. (for example, 'domain.com'). Note: This field is only required when TalkSwitch is being provisioned with a VoIP service provider, in which case enter the realm/domain associated with the service provider.

If this unit is not the Proxy/Registrar, then it must have the same realm filled in as the Registrar Server.

User/Account:

If this location is the Proxy/Registrar and you have enabled authentication, then assign a User/Account name to this unit that will be required by all other locations for registration purposes. If this unit is not the Proxy/Registrar, then it must have the same User/Account name filled in as the Registrar Server, if authentication is required.

Password:

If this location is the Proxy/Registrar and you have enabled authentication, then assign a password to this unit that will be required by all other locations for registration purposes. If this unit is not the Proxy/Registrar, then it must have the same password filled in as the Registrar Server, if authentication is required.

View Registrar Entries

If this location is the Registrar Server, click this button to view which systems are registered with the Registrar Server.

View Registration Status

Click this button to view whether or not this system is registered with the designated Registrar Server.

3.3.1.4 Telephone Lines

This section tells TalkSwitch about the telephone lines plugged into its back panel. Simply select a line and fill in the information. For each line there is a status message ("Line detected at initialization") indicating if TalkSwitch detected a line plugged into
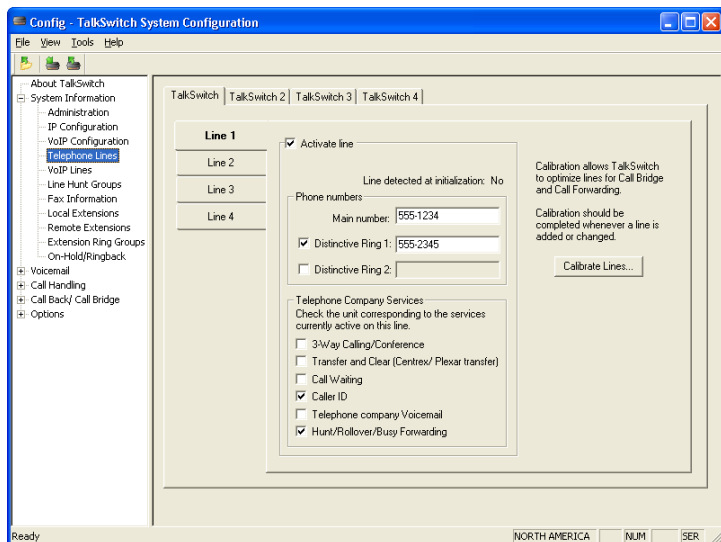
the associated line port. If a line is plugged into a line port and is not detected, check your telephone line, and then choose File>Retrieve Settings to update the screen.

If networked, you will need to configure the options for all the units. At the top of the window, select the tab for each TalkSwitch units (labeled 'TalkSwitch 1', 'TalkSwitch 2', etc...) and follow the instructions below.

In the "Phone numbers" section:

Enter the 'main' telephone number for the appropriate line connected to TalkSwitch. Enable the Distinctive Ring Numbers 1 and/or 2 if you have this service on the current line and wish to have incoming calls handled 'differently' on the basis of the distinctive ring. If you want Distinctive Ring numbers handled the same way as your 'Main' number, do not place a check mark in the box.

Next, enter the 'Distinctive Ring' telephone number for each of the Distinctive Ring numbers associated to this line. Distinctive Ring 1 corresponds to any double ring pattern. Distinctive Ring 2 corresponds to any triple ring pattern.

In the "Telephone company services" section:

Select any of the Telephone Company Services that you currently have for each line. The following is an explanation of each service and the impact of selecting each option on how TalkSwitch handles calls. For definitions and further details on how to use these features with TalkSwitch, see Appendix B.

3-Way Calling/Conference:

TalkSwitch can work with either service to forward calls to Remote Extensions or other external phone numbers while using the same line (Same Line Connect). You can also use this service as an option for bridging calls to external numbers when calling into TalkSwitch from the outside. If you find that you are having difficulties with line volume levels when forwarding calls to Remote Extensions or using Call Bridge, you should use 3-way calling to forward calls as a solution.

Transfer and Clear (Centrex/Plexar transfer):

TalkSwitch can clear the line after forwarding a call to a Remote Extension if your telephone line supports this feature. If you enable this feature without actually having the service, callers will be disconnected when TalkSwitch attempts to forward their call to the Remote Extension.

Call Waiting:

Check this box if you have Call Waiting service on the current line. It is strongly recommended that you remove this service from your line(s), since there is no way for TalkSwitch to answer a second call on the same line while it is handling the first call. You may instead want to consider adding the Hunt/Rollover service to your lines.

Caller ID:

Check this box if the current line provides Caller ID information. TalkSwitch will pass along the Caller ID information to the selected extensions. Also, TalkSwitch can use the time information provided by Caller ID to update TalkSwitch's internal clock. (see section 3.3.5.3).

Telephone Company Voicemail:

Check this box if you are subscribed to a Telephone Company Voicemail service.

Hunt/Rollover/Busy Forwarding:

Check this box if the current line is associated with a Line Hunt or Line Rollover service from the Telephone Company. In general, any lines that belong to a Hunt/Rollover group should be configured to handle calls the same way.

Calibrate Lines:

Click this box whenever a line is added or changed. Calibrate Lines allows TalkSwitch to optimize lines for Call Bridge and Call Forwarding.

3.3.1.5   VoIP Lines

The TalkSwitch 48-CVA supports 4 VoIP lines per unit. Up to 3 phone numbers can be assigned to each of the 4 lines so that unique call handling scenarios can be configured for up to 12 numbers. For example, you might assign a general number for customers to reach the main Auto Attendant greeting and configure up to 11 other numbers so that the inbound calls ring straight through to specific extensions in the office.
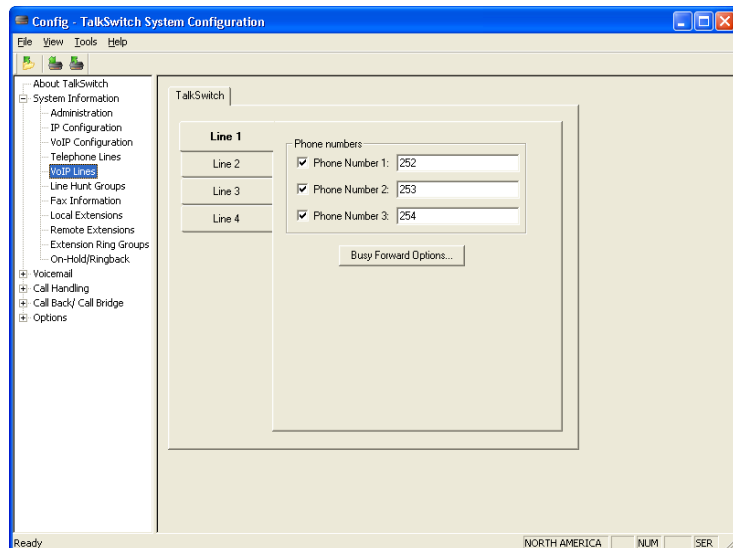
In the "Phone numbers" section:

All VoIP Lines are active when the system is first configured. Up to 3 phone numbers can be assigned to each VoIP line for internal calling. Phone numbers need to be assigned so that inbound VoIP calls can be handled according to the configuration parameters set for VoIP lines under the Call Handling section. Phone numbers can be 1 or more digits in length.

Phone numbers 250-299 have special functionality with TalkSwitch. These numbers can be directly dialed from any extension or Auto Attendant and will be automatically routed via VoIP to the destination that has the number assigned to one of its ports. An administrator should keep track of all phone numbers assigned to each location to prevent duplicate numbers being assigned to multiple locations. We recommend that you use these numbers as it will facilitate calling from extensions and the Auto Attendants.

Busy Forwarding Options:

This section allows you to configure how inbound calls are handled for each port when it is busy. You can click 'Assign ports' to assign ports for busy forwarding when the port associated to this phone number is busy. This feature is similar to the phone company's Rollover/Busy Forwarding service. By default this feature is enabled so that the maximum number of inbound calls can be handled by the system at any one time.
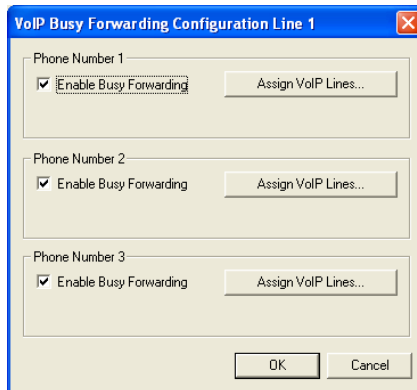
3.3.1.6 Line Hunt Groups

There are a total of 9 Line Hunt Groups for controlling outbound call line selections. These Line Hunt Groups are used by the Local and Remote Extensions, and when using the Call Bridge feature. Each Hunt Group can support several line choices and will attempt to grab an available line in the order that they are listed (Lines to hunt) for that Hunt group. These settings have no effect on incoming calls.

Default setup:

Hunt Group 9:	selects any available telephone line
Hunt Group 81:	selects telephone Line 1
Hunt Group 82:	selects telephone Line 2
Hunt Group 83:	selects telephone Line 3
Hunt Group 84:	selects telephone Line 4

First select a Line Hunt Group then enter a useful name for identifying this hunt group elsewhere in the configuration software.

Under Set Line Hunt Group, select the Line Type. If you wish to use this hunt group for accessing telephone lines, then select 'Phone Lines'. If you wish to use this hunt group for accessing VoIP lines, then select 'VoIP Lines'.
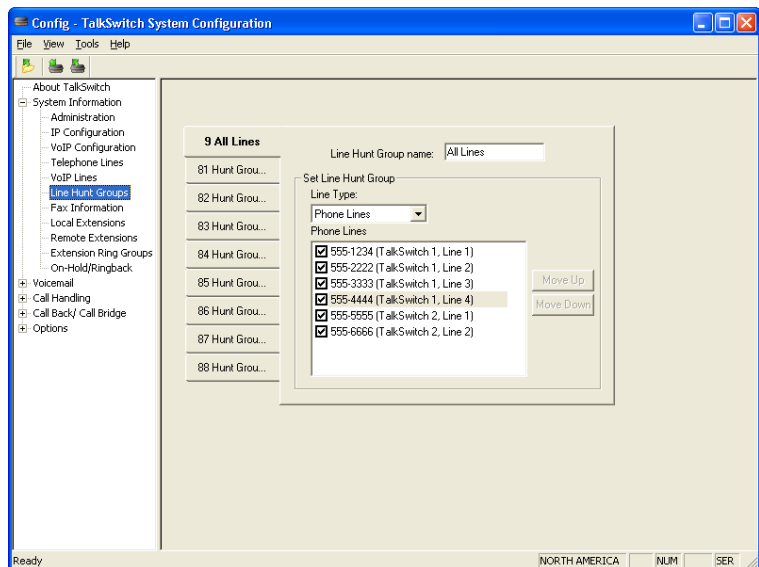
Under Set Line Hunt Group, select the lines you wish to add to the Hunt Group by simply checking the box next to the line.

If you have multiple TalkSwitch unit connected to the LAN, then a checkbox will be present and enabled so that outbound calls will always hunt the lines on the unit where the extension is connected to minimize network traffic between units.

3.3.1.7   Fax Information

The information in this tab helps configure TalkSwitch to handle faxes.

If you have a dedicated fax line or a Distinctive Ring number for faxing associated to a line, please choose this 'Fax number' in the list. If you don't have a line dedicated for inbound faxing, select 'none'.

If you do not see your fax number in the list, make sure you have activated the appropriate line or Distinctive Ring number in the Telephone Lines section under System Information. See section 3.3.1.4.

Next, select the extension number where you have your fax device connected. For example if you have your fax machine connected to E8 on the rear of TalkSwitch unit 1, then select extension number 118.
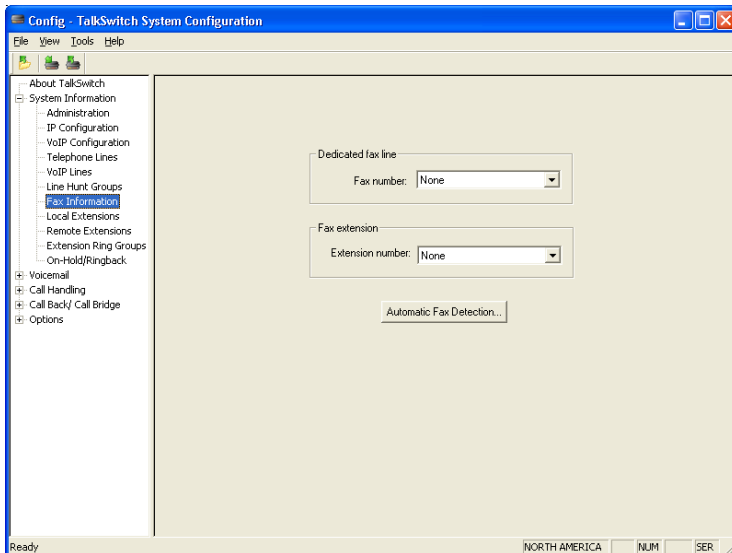
If your fax machine is connected to E8 on a TalkSwitch with Unit ID 2, then the fax extension number is 128. If you have a dedicated fax line or number, your fax machine should be connected to an extension jack on the same TalkSwitch unit where the fax line/number is connected.

By default, when both a dedicated line and fax extension have been selected for the first time, the software automatically configures the incoming call handling properties for that line to ring only the fax extension you have specified.

3.3.1.8   Local Extensions

Local Extensions are phones or devices connected to any of the extension jacks at the back of TalkSwitch. See sections 1.3 and 1.4 for more details on connectivity.

If you have 2 or more TalkSwitch units connected on a LAN, you will be able to select the tabs associated to each unit and see the extensions associated to that unit. If a TalkSwitch48-CA/CVA unit has a Unit ID of 2, then the Local Extensions will be 121 to 128. The second digit for all Local and Remote Extensions, Local, Remote and General voicemail represents the Unit ID of the associated TalkSwitch unit.

Select any of the extensions that you wish to configure.
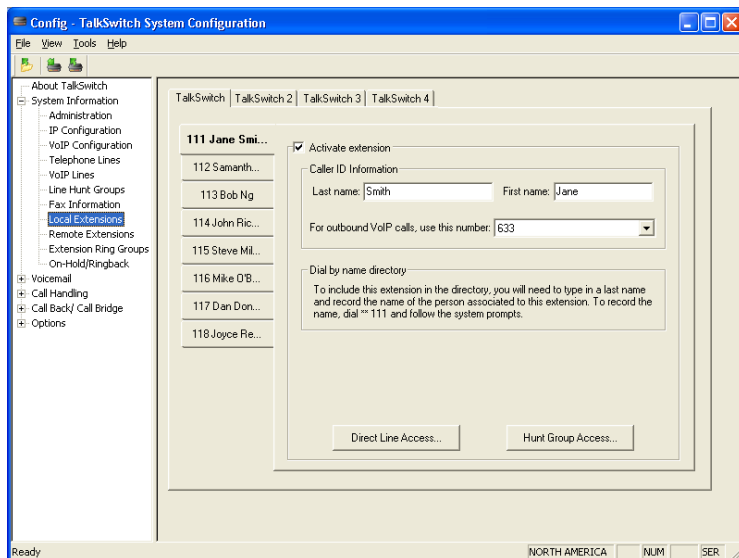
Local Extensions are by default activated with the associated Voice mailbox. Voice mailboxes for each Local Extension can be de-activated in the Voicemail section in the System Information folder.

Last Name / First Name:

Enter the first and last name of the person associated to the extension. The last name is required if the person is to be included in the 'Dial by Name' directory listing used by the Auto Attendant. The person using that extension must also record their name for the directory by following the instructions below the name fields. The name entered will also appear on the Caller ID of other Local Extensions during intercom calls.

For outbound VoIP calls, use this number:

Select the number you want to appear at the remote location when VoIP calls are placed from this extension. If 'Default VoIP Number' is selected, then the phone number associated to the outgoing VoIP port will be used. This selection makes the most sense if your VoIP lines have been configured to handle all inbound calls in the same manner.

VoIP

Direct Line Access:

Direct line access allows you to configure the extension to access a specific Hunt Group automatically for outbound calls when the extension goes off hook. For example, you may have a fax machine connected to this extension and don't want to reprogram the speed dial phone numbers. In this case you would select 'Direct line access' and choose the appropriate Hunt Group. As soon as the fax goes off hook, TalkSwitch will hunt the specified lines for an available line. This feature allows users to avoid dialing extra digits to access a line.

Warning: When using Direct Line Access, telephone company line dialtone is first available when picking up the handset. The following features are only available from TalkSwitch internal dialtone: Intercom Calling, Hold Retrieve, line Hunt Groups, Voicemail Retrieval/Access, Call Pick Up, P.A. Access, Parked Call Retrieval, Do Not Disturb functions and entering Command Mode. **To obtain internal dialtone at an extension which has Direct line Access enabled, dial Flash after going off hook.**

Hunt Group Access:

This is used if you want to permit or restrict specific Hunt Group access to the extension. Click the button and simply organize the appropriate line Hunt Groups that are permitted for this extension. (Extensions are defaulted to have no restrictions.)

3.3.1.9   Remote Extensions

With TalkSwitch's Remote Extensions, you can have calls forwarded directly from your office to any phone number you choose. Your cell phone, pager or any out-of-office number becomes a 'Remote Extension' of your office system. You can choose to screen callers if required. If you are unavailable or choose not to accept calls, they can be transferred back to your office (e.g. to voicemail or another extension) or forwarded to another out-of-office telephone number (e.g. to a business partner's cell phone) depending upon the Call Cascade configuration.

For details on how to use Remote Extensions, see section 4.3

Once your remote extensions are configured, calls can be forwarded by the Auto Attendant or transferred by someone in your office simply by dialing the Remote Extension number. There are 8 Remote Extensions available per TalkSwitch unit.

If a TalkSwitch has Unit ID 2, then the Remote Extension numbers are 221 – 228. Unit ID 3 has remote extensions 231-238, and Unit ID 4 has 241-249

Choose a Remote Extension to configure. You must enter a phone number in order for the extension to be considered active and usable by the system.
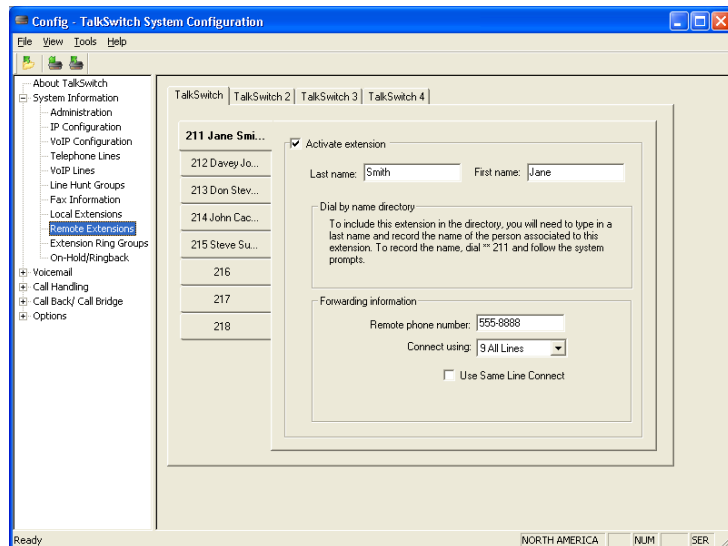
Remote phone number:

Enter the phone number of the Remote Extension (note: no specific prefixes are required other than area codes for long-distance calls — put the number in just as though you were dialing it from a regular phone). You may use the following in the space provided: digits 0 – 9, space, comma, dash, **#** and **＊**.

Last Name / First Name:

Enter the first and last name of the person associated to the extension. The last name is required if the person is to be included in the 'Dial by Name' directory listing used by the Auto Attendant. The person using that extension must also record their name for the directory following the instructions listed below the name fields.

Connect using:

Select the line Hunt Group that TalkSwitch will use to connect the Remote Extension. This is advantageous if you have an inexpensive long-distance plan set up for the lines in Hunt Group 84, you may want to use this Hunt Group for your long-distance Remote Extensions.

Use Same line Connect

Enabling this option allows incoming calls, when forwarded to the Remote Extension, to use the same line in which the originating call came in. Using this feature allows only one line to be used when forwarding incoming calls to a Remote Extension. This feature can only be used when the line that the originating call came in on has the 3-Way Calling/Conference or Transfer service (Centrex/Plexar). If the line does not have any of these services, the call will be forwarded using the Hunt Group chosen in the "Connect using:" section.

If you have a 'Transfer and clear' service on your line(s) and want to have TalkSwitch clear lines after forwarding calls to Remote Extensions, you will need to enable 'Clear telephone line after call transferred' on the Transfer Options page under 'Options'. If your service requires the remote end to answer the call before the transfer can be made, then you should use 'play accept/reject prompt' or 'play caller's name first' screening option set on the 'Answered at ext.' in the Remote Extension section under Call Handling. Check with your telephone company if you are uncertain which setting works best for you.

Note: Remote Extensions do not have the ability to manually transfer calls when using 'Same line Connect'.

When using Same line Connect, callers will hear silence while they are on hold, since the callers are on hold at the Telephone Company and not at TalkSwitch. If you want callers to hear music while they are on hold for calls forwarded to Remote Extensions, do not use Same line Connect. It's best to experiment with different settings in order to decide what works best for your configuration.

3.3.1.10 Extension Ring Groups

There are a total of 10 Extension Ring Groups available for your use. Ring Groups are extensions 300 to 309. By default, extension 300 is configured to ring all extensions.

Different uses for Extension Ring Groups:

Send calls to specific groups of employees: For example, if you have a company with several departments, you can configure Extension Ring Group 300 for the Sales Department, to ring extensions 111, 112, 113, and 114. Ring Group 301 might be for Technical Support, ringing extensions 115 and 116.
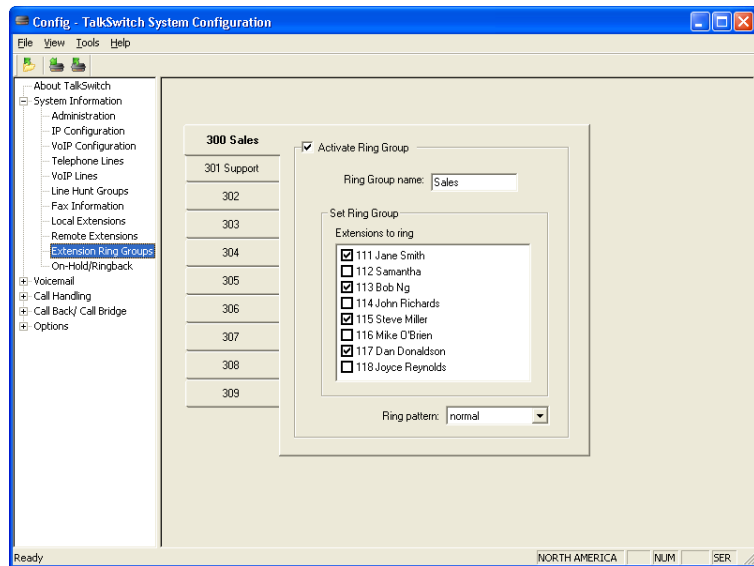
Identify types of calls by different ring patterns:

You are the president of a company and you don't want to handle calls from the general public, yet you want to be alerted when important colleagues try to contact you. Your regular Local Extension may be 111 for most people, but you can also configure a Ring Group such as extension Ring Group 300 to ring your extension with

a different ring pattern. You then tell your colleagues to choose extension 300 at the Auto Attendant or ask to be transferred to extension 300 when speaking to someone in the office. Now without being subscribed to Caller ID, you can tell just by how your phone rings if you consider the caller to be important or not.

First select an Extension Ring Group (300-309) that you would like to configure and activate it.

In the "Set Ring Group" section:

Select each extension that you wish to add to that Ring Group. Repeat this process for each of the Extension Ring Groups you want to activate.

Ring pattern:

Choose how you want the phone(s) to ring for the Ring Group.

3.3.1.11 On-hold/ Ringback

If you wish to have callers listen to music or advertising while they are on hold, you will need to enable Music-on-hold in this tab.
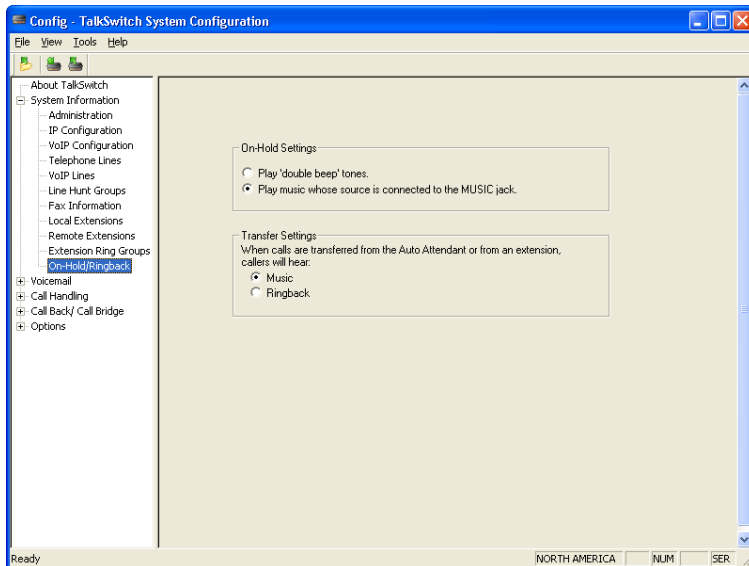
On-Hold Settings:

If you have a music source connected to the MUSIC jack, then you can select the 'play music' option. Otherwise leave the option set to play a 'double beep' when callers are placed on hold.

Transfer Settings:

Select whether you would like callers to hear ringing or, if you have a music source connected, music while they are being transferred.

Note: If you connect a music source to the Music jack and do not enable Music-on-hold, the caller will hear both music and a beep sound when on hold. Also when the caller makes a selection at the Auto Attendant to go to an extension that has call screening enabled, they will hear both ringing and music.

If you have more than one unit connected to the LAN, you will need to provide a music source to all units with lines connected. A 1/8" audio splitter can usually be obtained at most electronics stores.

3.3.2 Voicemail

This section deals with the internal voicemail system included with TalkSwitch. It allows you to activate Local, Remote and General mailboxes and to change global settings to the voicemail system. For details on how to use voicemail, see section 3.4.

3.3.2.1 Local Extension Voicemail
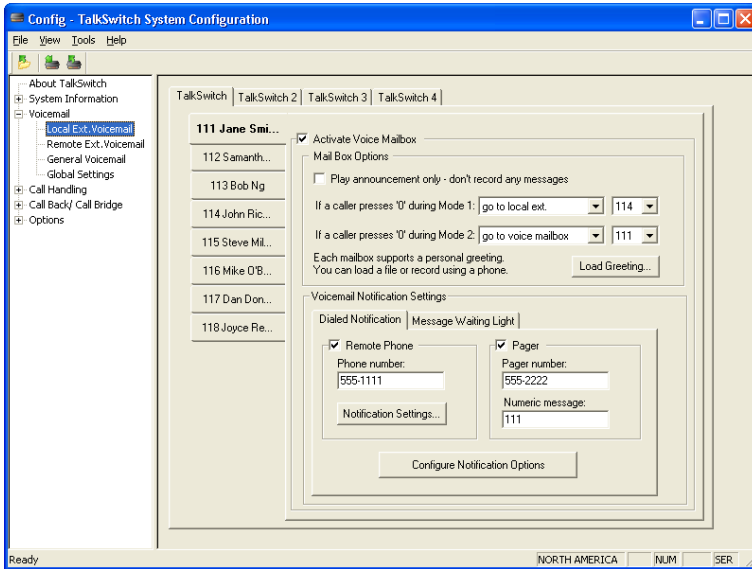
By default, all Local Extensions are activated with an associated voice mailbox.

Play announcement only:

>   If you want to use a local extension mailbox for informational purposes only and prevent callers from recording messages, then check the 'Play announcement only' box.

If a caller presses '0':

Select what action to take when a caller presses '0' during the different modes while in a voice mailbox:

go to voice mailbox:	Callers will be transferred to the specified mailbox.
go to local extension:	Callers will be transferred to the specified local extension.
go to remote extension:	Callers will be transferred to the specified remote extension.
go to ring groups:	Callers will be transferred to the specified ring group.
play announcements:	Callers will be transferred to the specified announcement.
go to auto attendant:	Callers will be transferred to the Auto Attendant.
perform no action:	No action will be performed when '0' is pressed.

Load Greeting:

You can load a pre-recorded voicemail greeting from your PC to TalkSwitch. The file must be an 8khz, 8-bit, mono µ-law .wav file.

Voicemail Notification Settings:

Set the manner in which you want to be notified when new messages arrive.

Remote Phone Notification:

If you want to be notified at another location when new messages arrive, you can use Remote Phone Notification. Simply enter the phone number of the cell phone, pager or location where you want to be notified.

Notification Settings:

Select Notification Settings to specify how you want TalkSwitch to handle notification calls.

Pager Notification:

Use Pager Notification if you want to be notified by pager when new messages arrive. Simply activate the feature then enter the pager phone number and the numeric message to be displayed on the pager.

Message Waiting Light:

Click on this option to set a message waiting light to indicate when a message has been received for an extension. You can select on which local extensions in your system the light will be activated when a message is received. By default, the message waiting light will turn on at the extension associated with a local mailbox.

Configuration Notification Options:

Define how TalkSwitch will dial out of your office when notifying you of a voicemail. If the first connection is not successful, define how many times, and at what intervals TalkSwitch will continue to attempt to reconnect.

Under the conditions where you choose to be notified by both pager and remote phone, TalkSwitch makes sure that both locations have been contacted before finishing the notification process.

Dial notification phone number:

These parameters control which Hunt Group is used for both the Remote Phone and Pager Notification calls. It also allows you to adjust the number of rings before it will abort the attempt then follow the parameters listed in the next section.

If attempt unsuccessful:

These parameters control how many times TalkSwitch will try to notify the Remote Phone or Pager before it will abort the entire notification attempt. You can also specify the time interval between attempts.

3.3.2.2   Remote Extension Voicemail
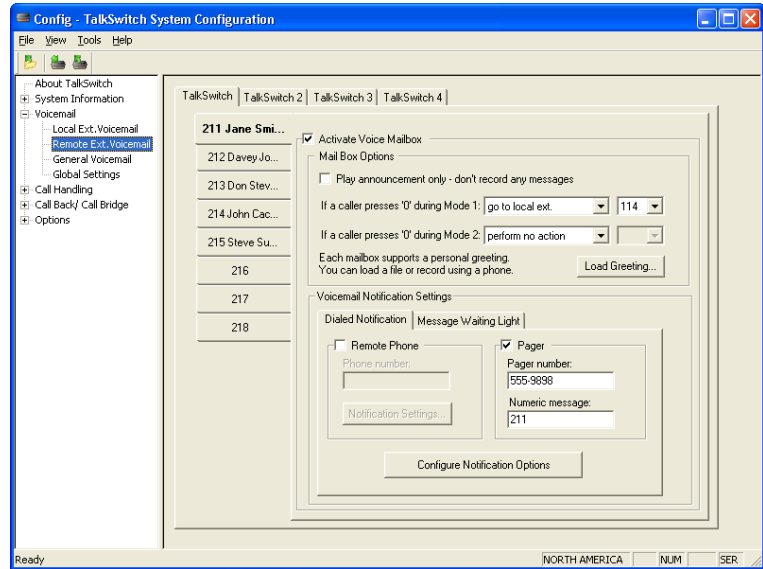
Remote Extension voicemail is similar to the Local Extension voicemail. Ensure that the remote extension has been enabled, otherwise you will not be able to activate its voicemail.

Play announcement only:

   If you want to use a remote extension mailbox for informational purposes only and prevent callers from recording messages, then check the 'Play announcement only' box.

If a caller presses '0':

   Select what action to take when a caller presses "0" during the different modes while in a voice mailbox:

go to voice mailbox:	Callers will be transferred to the specified mailbox.
go to local extension:	Callers will be transferred to the specified local extension.
go to remote extension:	Callers will be transferred to the specified remote extension.

go to ring groups:	Callers will be transferred to the specified ring group.
play announcements:	Callers will be transferred to the specified announcement.
go to auto attendant:	Callers will be transferred to the Auto Attendant.
perform no action:	No action will be performed when '0' is pressed.

Load Greeting:

You can load a pre-recorded voicemail greeting from your PC to TalkSwitch. The file must be an 8khz, 8-bit, mono μ-law .wav file.

Voicemail Notification Settings:

Set the manner in which you want to be notified when new messages arrive:

Remote Phone Notification:

If you want to be notified at another location when new messages arrive, you can use Remote Phone Notification. Simply enter the phone number of the cell phone, pager or location where you want to be notified.

Notification Settings:

Select Notification Settings to specify how you want TalkSwitch to handle notification calls.

Pager Notification:

Use Pager Notification if you want to be notified by pager when new messages arrive. Simply activate the feature then enter the pager phone number and the numeric message to be displayed on the pager.

Message Waiting Light:

Click on this option to set a message waiting light to indicate when a message has been received for an extension. You can select on which local extensions in your system the light will be activated when a message is received. This option can be useful since remote voice mailboxes are not associated with any local extensions.

Configuration Notification Options:

Define how TalkSwitch will dial out of your office when notifying you of a voicemail. If the first connection is not successful, define how many times, and at what intervals TalkSwitch will continue to attempt to reconnect.

Under the conditions where you choose to be notified by both pager and remote phone, TalkSwitch makes sure that both locations have been contacted before finishing the notification process.

Dial notification phone number:

These parameters control which Hunt Group is used for both the Remote Phone and Pager Notification calls. It also allows you to adjust the number of rings before it will abort the attempt then follow the parameters listed in the next section.

If attempt unsuccessful:

These parameters control how many times TalkSwitch will try to notify the Remote Phone or Pager before it will abort the entire notification attempt. You can also specify the time interval between attempts.

3.3.2.3 General Voicemail
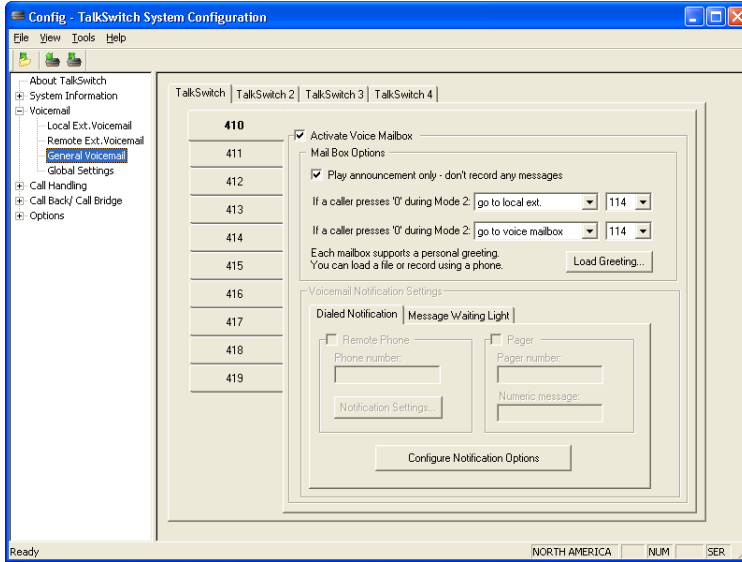
General Voicemail is similar to both Local and Remote Extension Voicemail. These are generic mailboxes used for general purposes; such as messages for a sales team or technical support group.

Play announcement only:

> If you want to use a general mailbox for informational purposes only and prevent callers from recording messages, then check the 'Play announcement only' box.

If a caller presses '0':

> Select what action to take when a caller presses '0' during the different modes while in a voice mailbox:

go to voice mailbox:	Callers will be transferred to the specified mailbox.
go to local extension:	Callers will be transferred to the specified local extension.
go to remote extension:	Callers will be transferred to the specified remote extension.

go to ring groups:	Callers will be transferred to the specified ring group.
play announcements:	Callers will be transferred to the specified announcement.
go to auto attendant:	Callers will be transferred to the Auto Attendant.
perform no action:	No action will be performed when '0' is pressed.

Load Greeting:

You can load a pre-recorded voicemail greeting from your PC to TalkSwitch. The file must be an 8khz, 8-bit, mono µ-law .wav file.

Voicemail Notification Settings:

Set the manner in which you want to be notified when new messages arrive:

Remote Phone Notification:

If you want to be notified at another location when new messages arrive, you can use Remote Phone Notification. Simply enter the phone number of the cell phone, pager or location where you want to be notified.

Notification Settings:

Select Notification Settings to specify how you want TalkSwitch to handle notification calls.

Pager Notification:

Use Pager Notification if you want to be notified by pager when new messages arrive. Simply activate the feature then enter the pager phone number and the numeric message to be displayed on the pager.

Message Waiting Light:

Click on this option to set a message waiting light to indicate when a message has been received for an extension. You can select on which local extensions in your system the light will be activated when a message is received. By default, the message waiting light will turn on at the extension associated with a local mailbox. This option can be useful since general voice mailboxes are not associated with any local extensions.

Configuration Notification Options:

Define how TalkSwitch will dial out of your office when notifying you of a voicemail. If the first connection is not successful, define how many times, and at what intervals TalkSwitch will continue to attempt to reconnect.

Under the conditions where you choose to be notified by both pager and remote phone, TalkSwitch makes sure that both locations have been contacted before finishing the notification process.

Dial notification phone number:

These parameters control which Hunt Group is used for both the Remote Phone and Pager Notification calls. It also allows you to adjust the number of rings before it will abort the attempt then follow the parameters listed in the next section.

If attempt unsuccessful:

These parameters control how many times TalkSwitch will try to notify the Remote Phone or Pager before it will abort the entire notification attempt. You can also specify the time interval between attempts.

3.3.2.4   Global Settings

Any changes made to Global Settings will affect all system voice mailboxes.
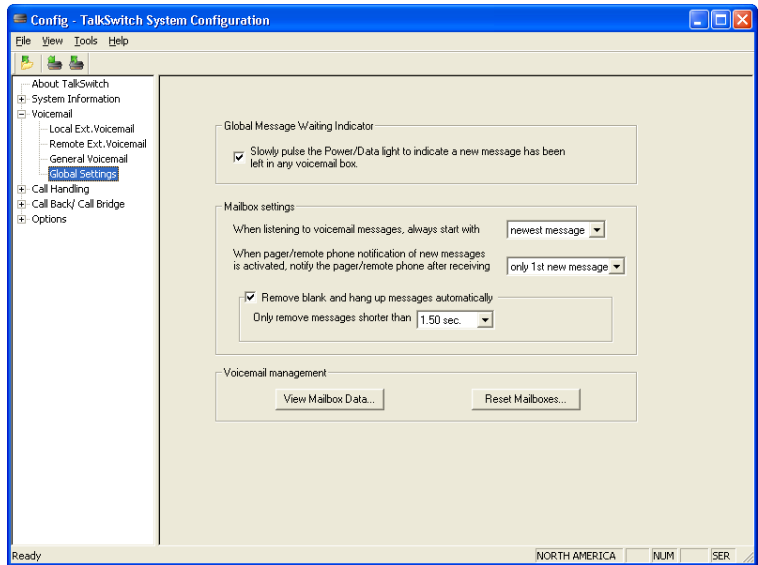
Global Message Waiting Indicator:

> This option can be useful if you use only a limited number of voice mailboxes. Anytime a new message is left in any active voice mailbox, the Power/Data light will pulse very slowly to indicate that there is at least one new message in one of the mailboxes. Once all new messages have been heard, this light will return to the default state of being on solid.

Mailbox Settings:

> The first option controls the order that messages are played back when   listening to voicemail. The default setting plays messages back starting with the newest message and working back to the oldest messages. This setting is convenient since many people store several saved messages and don't want to skip through these messages every time they want to listen to newer messages.

> The second option controls whether the system pages or calls your remote phone for every new message received in voicemail or only the first new message received in voicemail.
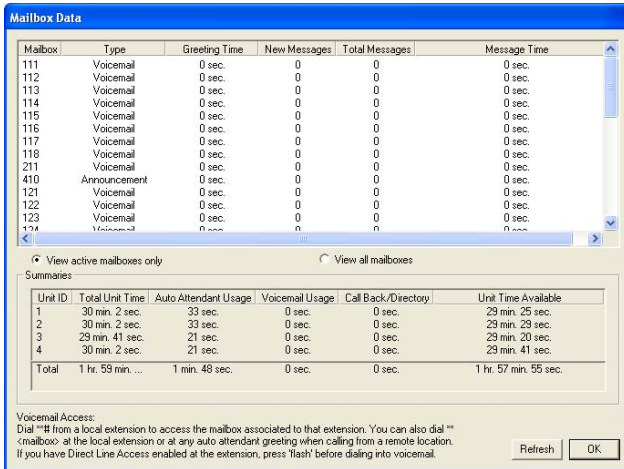
Remove blank and hang up messages automatically:

Enable this option if you tend to get several messages where callers hang up rather than leave messages. The advantage of not clearing the short messages is that users can listen to the Caller ID information played at the end of the message to identify callers*.

*Caller ID service required from your telephone company.

View Mailbox Data:

Details are provided for each voice mailbox and announcement. This tool is useful for better managing the voicemail resources of the system.

Reset Mailboxes:

Use this feature if, for example, an employee has left the company and all greetings, messages and settings for a particular mailbox need to be reset. If you need to simply delete a password, use the Voicemail Manager located under 'Tools' in the menu bar.
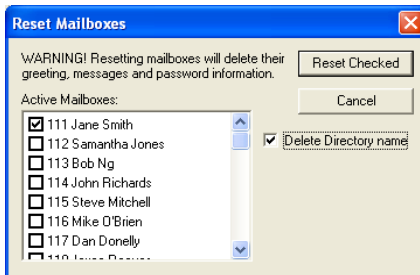
3.3.3 Call Handling

3.3.3.1 Modes

The use of Modes allows you to run different call handling configurations at different times. For example, you may want calls handled one way during business hours and another way for non-business hours. Modes can be switched either manually or automatically with the use of Automatic Mode Switching. Name the modes if desired. The names will be displayed elsewhere in the configuration software whenever modes are used.
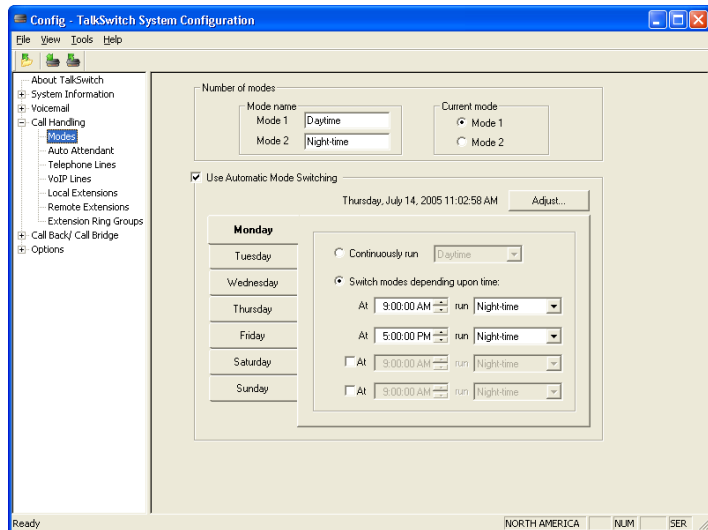
To use the Automatic Mode Switching feature, you must first activate it by clicking 'Use Automatic Mode Switching'. Next, set the start times for each mode. If you want TalkSwitch to change modes more than twice in one day, you can activate up to two extra mode changes.

If you do not want to use Automatic Mode Switching, you can still switch modes manually in the software or through any telephone using touch tone commands. Enter command mode by dialing #️⃣ then your password if required. Next, dial any of the following commands followed by #️⃣ to confirm.

31	Changes TalkSwitch to mode 1
32	Changes TalkSwitch to mode 2
30	TalkSwitch tells you what mode it currently is using

3.3.3.2   Auto Attendant

The Auto Attendant greets callers and tells them which number(s) they should press on their telephone keypad to reach a particular extension, person, message, or department. Callers can also directly dial Local Extensions (1xx), Remote Extensions (2xx), Extension Ring Groups (300-309), Voicemail (to both leave messages and access messages), access Call Back, access Call Bridge and enter Command mode for making changes to the system configuration.

400 series mailboxes can be dialed at the Auto Attendant without having to press ⬛#⬛ first. This can be useful for providing 'virtual' Extensions associated to a mailbox for telecommuters or other part-time staff.
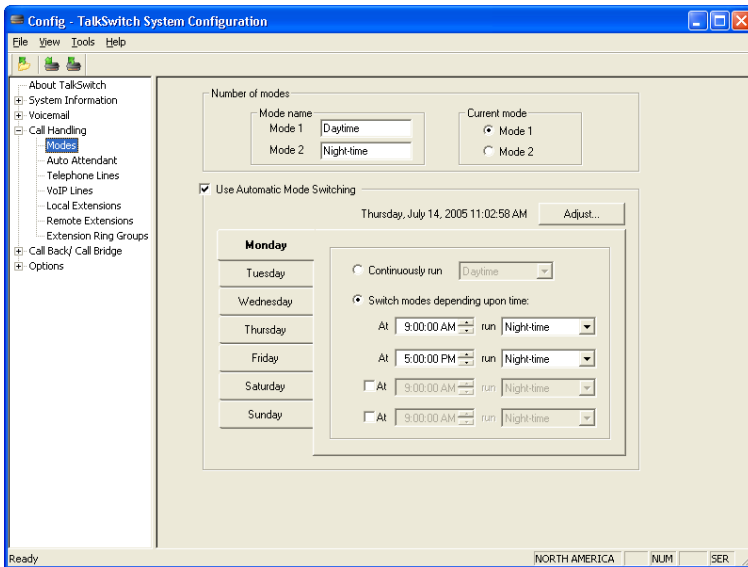
A total of 9 different Auto Attendants can be recorded or loaded with a combined total time of 30 minutes (shared with voicemail. Memory can be expanded up to 5 hours using TalkSwitch Memory cards). You do not have to use or record all 9 Auto Attendants.

When 2 or more units are networked, they share the same 9 Auto Attendants. When an Auto Attendant message is recorded on any TalkSwitch unit, it is automatically copied to all the other TalkSwitch units on the same LAN. This feature helps reduce network traffic and allows any system to continue functioning even if another unit loses power or is disconnected from the LAN.

The Auto Attendants can be recorded from any Local Extension or remote phone with touch-tone commands.

Recording Auto Attendant messages:

Pick up any Local Extension or dial into TalkSwitch. at the Auto Attendant, enter command mode by pressing (#). If you have the Administrator password enabled, you need to enter it. Next, begin entering the touch tone commands listed on the next page. TalkSwitch will prompt you through the recording. After entering a command, you will need to press (#) to confirm the entry before entering another command or exiting command mode. To exit command mode, press (*) or hang up.

Auto Attendant	Record message	Playback message	Erase message
1	41	51	041
2	42	52	042
3	43	53	043
4	44	54	044
5	45	55	045
6	46	56	046
7	47	57	047
8	48	58	048
9	49	59	049

Example:

1. Press (#) to enter command mode, then dial 4 1 (#).

2. After the tone, record your Auto Attendant message. Press (#) when you have finished.

3. Press 5 1 (#) to listen to your recording.

Note: If you have the Administrator password enabled, you will need to enter this password after you hit (#) the first time to enter command mode.

Recording Auto Attendants from an out-of-office phone:

1. Dial into TalkSwitch and wait for the Auto Attendant message.

2. Once the Auto Attendant is playing, use the same keypad commands as you would from a TalkSwitch extension (as listed above). If you have Password Protection enabled, you will be prompted for your password.

In the "at the Auto Attendant, perform the following actions:" section:

If the caller selects '0':

In general, the '0' option is used to direct callers to a receptionist. You may want to configure this option to ring a Local Extension. For an after hours Auto Attendant, you might want to use this option for forwarding to a Remote Extension for emergency purposes or simply direct callers to a voice mailbox.

If the caller selects '1', '2', '3', '4' or '5':

If the caller presses '1', '2', '3', '4' or '5' at the specified Auto Attendant, TalkSwitch can perform one of several actions:

perform no action:	If you don't want to use a particular option, then set it to perform no action.
go to voice mailbox:	You can configure any single digit option to send a caller immediately to voicemail. Select the appropriate mailbox or 'new' to create a new mailbox if required.
go to local extension:	You can provide a single-digit option to ring a particular extension, as opposed to 3 digits.
go to remote ext.:	You can provide a single-digit option to ring a particular remote extension, as opposed to 3 digits.
go to ring group:	you can provide a single-digit option to ring an extension as opposed to 3 digits.
go to auto attendant:	TalkSwitch can direct callers to multiple levels of auto attendants. For example, you might want to use your main auto attendant to provide language options such as "press 1 for English, 2 for Spanish." Then you configure option 1 to go to auto attendant 2 (English version) and option 2 to go to auto attendant 3 (Spanish version).
queue at ring group:	Similar to Uniform Call Distribution, this directs calls to a group of Extensions and keeps callers on hold until a member of the ring group is free to take the call.

play announcement:	Announcements are useful for providing directions, business hours or other information. You can inform callers that they can press ✱ to return to the previous greeting.
go to directory:	If you want callers to be able to locate employee extension numbers by last name, then enable this option for one of the selections.

Note: TalkSwitch waits 1.5 seconds after your caller inputs a digit for another digit to follow it. If another digit is not received, then TalkSwitch will follow the action set for the single digit. This allows caller to use, for instance, both "1" for the auto attendant option and "111" as an extension number.

If a fax call is detected:

> If TalkSwitch detects a fax call (by CNG detection, which is identifying the tones emitted by a fax), it has the ability to route it to a Local Extension or if you do not want to use fax detection, you can have TalkSwitch perform no action.

After the Auto Attendant has finished playing and no selection has been made within x seconds:

> If no selection is detected at the specified Auto Attendant, TalkSwitch can route the call to any Local or Remote Extension, Ring Group, Voice mailbox, Auto Attendant, Announcement, dial by name directory, queue the caller or simply hang up. This feature is included in case someone does not have a touch-tone phone or if it is a fax call where the calling fax machine does not emit a CNG tone. It can also be used to forward calls immediately after the Auto Attendant answers the call. You can specify the length of time after the Auto Attendant has finished playing before it performs the 'no selection' action.

Fax calls are detected by a series of beeps called a CNG tone. If a fax machine sends this tone while trying to establish a connection to a fax machine connected to TalkSwitch, TalkSwitch will handle the call accordingly. Not all fax machines emit a CNG tone, and as a result, TalkSwitch will not be able to detect those fax calls and route them to the fax machine. To guarantee the reception of every fax, we recommend the use of a 'Distinctive Ring Number' added to one of your lines for fax calls. TalkSwitch can then handle every fax call consistently.

The digits 6, 7, 8 and 9 are not available as programmable options, since they are used for other system features:

If 6 is dialed:

If you press '6' at the Auto Attendant, you will be able to configure and use Auto and Prompted Call Back. See section 2.3.4 for more details about configuring Call Back and section 3.7.2 for details on using Call Back.

If 7 is dialed:

TalkSwitch uses 7 to precede PBX Extensions of another Centrex or PBX system. If TalkSwitch is not connected to another system, 7 is inactive. If TalkSwitch is connected to another PBX system, see section 2.3.5.4 for more details.

If 80 – 88, or 9 is dialed:

If you press '80 – 88 or 9' at the Auto Attendant, you will access Call Bridge if it has been permitted. See section 2.3.4.3 for more details on configuring Call Bridge and section 3.7.1 for details on how to use Call Bridge.

Utilities for Auto Attendants:

Record Instructions:

Selecting this button displays a dialog box showing the instructions on how to record and playback an Auto Attendant using a telephone. No adjustments are required for the recording volume, as TalkSwitch automatically adjusts the recording volume for optimal recordings. If you find that the playback of your Auto Attendant messages are too low, you can adjust the playback volume on the Audio Controls page located under 'Options'.
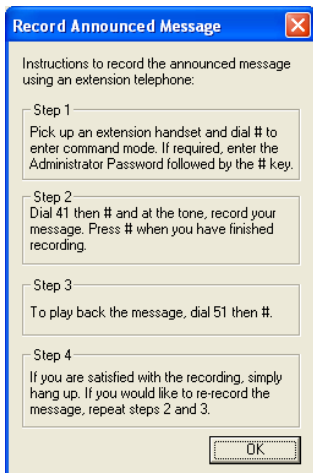
Load Auto Attendant:

Selecting this button displays a dialog box with instructions on how to load an Auto Attendant using a pre-recorded .wav file. If you want to have Auto Attendants professionally recorded, make sure you specify that the files need to be 8KHz, 8bit, mono, and saved as a mu-law format .wav file.
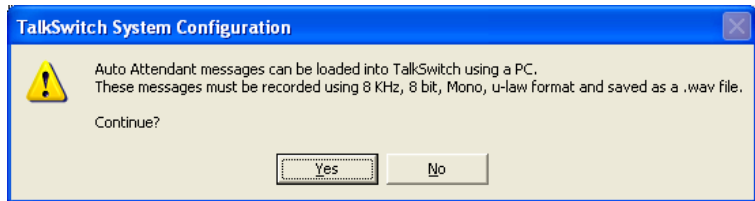
Erase Instructions:
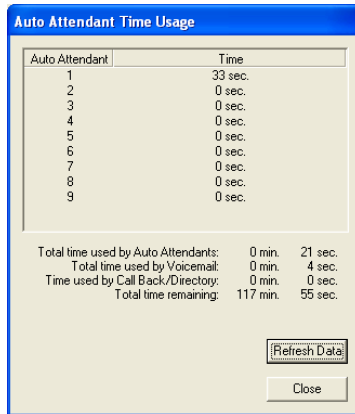
Selecting this button displays a dialog box showing the instructions on how to erase an Auto Attendant using a telephone. It is a good idea to erase any unused Auto Attendants, since they share the same memory as voicemail.

View Auto Attendant Memory Usage:

Select this option from the Tools menu then Memory Usage to view the amount of time used by all of the Auto Attendants. This feature helps you keep track of memory usage, as you may have unused Auto Attendant messages that can be deleted to free more memory.

3.3.3.3 Telephone Lines

This section deals with how TalkSwitch will handle incoming calls based on the incoming line and ring cadence (distinctive ring numbers).

First, select a line to configure. Then select the appropriate mode for which you want TalkSwitch to use these settings. If you entered the phone number in the Telephone Lines section under System Information, the number will appear on the corresponding button.

Play Auto Attendant/Go to Voice Mailbox:

If you wish to have the Auto Attendant answer calls to give callers options, select the appropriate Auto Attendant and number of rings before the Auto Attendant answers. If you do not want to use an Auto Attendant and simply want the call to go to a voice mailbox, then select the appropriate mailbox. The caller will always hear one more ring than the number of rings you select, since TalkSwitch uses the first ring to determine the ring type and support Caller ID information.

Ring Extensions only (no Auto Attendant is played):

If you don't want the Auto Attendant to answer calls on this line, select this option. by default, all the Local Extensions are set to ring immediately during an inbound call. If you select this option, no Call Cascade actions (such as voicemail) can be performed.

Note: if you call on any line, TalkSwitch will answer after 15 rings with a generic Auto Attendant so that you can still access the system to make configuration changes, change modes, access voicemail or dial Extensions.

Extensions to ring on an incoming call (before Auto Attendant answers):

Select the Local Extensions you would like to ring before the Auto Attendant answers. by default, all activated Local Extensions will ring. If you require certain Extensions to ring in a sequence, i.e. one extension rings first, then another on the 2nd ring, click the "Adjust Sequence" button to configure.

Remember: Callers will only be directed according to settings for an Auto Attendant first. Calls will not follow the Call Cascade settings of any of the Local Extensions programmed to ring before the Auto Attendant answers.

Adjust Sequence:

This section controls how the Extensions will ring before the Auto Attendant answers the call.

- If you have chosen the Auto Attendant to answer calls immediately, this section does not require configuration and will be grayed out.

- If the Auto Attendant is set to answer after 1 or more rings, you can then configure when specific Extensions will ring before the Auto Attendant answers.

- If no Auto Attendant is chosen to answer on the specified line, then you can specify when particular Extensions will ring up to 9 rings. Remember that no calls will go to voicemail unless you first have an Auto Attendant answer.

3.3.3.4   VoIP Lines

This section deals with how TalkSwitch 48-CVA will handle incoming VoIP calls.

First, select a VoIP line to configure. Then select the appropriate mode for which you want TalkSwitch to use these settings. If you entered the phone number in the VoIP

Lines section under System Information, the number will appear on the corresponding button.

Play Auto Attendant/Go to Voice Mailbox:

If you wish to have the Auto Attendant answer calls to give callers options, select the appropriate Auto Attendant and number of rings before the Auto Attendant answers. If you do not want to use an Auto Attendant and simply want the call to go to a voice mailbox, then select the appropriate mailbox. The caller will always hear one more ring than the number of rings you select, since TalkSwitch uses the first ring to determine the ring type and support Caller ID information.

Ring Extensions only (no Auto Attendant is played):

If you don't want the Auto Attendant to answer calls on this line, select this option. by default, all the Local Extensions are set to ring immediately during an inbound call. If you select this option, no Call Cascade actions (such as voicemail) can be performed.

Note: if you call on any line, TalkSwitch will answer after 15 rings with a generic Auto Attendant so that you can still access the system to make configuration changes, change modes, access voicemail or dial extensions.

Extensions to ring on an incoming call (before Auto Attendant answers):

Select the Local Extensions you would like to ring before the Auto Attendant answers. By default, all activated Local Extensions will ring. If you require certain extensions to ring in a sequence, i.e. one extension rings first, then another on the 2nd ring, click the "Adjust Sequence" button to configure.

Remember: Callers will only be directed according to settings for an Auto Attendant first. Calls will not follow the Call Cascade settings of any of the Local Extensions programmed to ring before the Auto Attendant answers.

Adjust Sequence:

This section controls how the extensions will ring before the Auto Attendant answers the call.

- If you have chosen the Auto Attendant to answer calls immediately, this section does not require configuration and will be grayed out.

- If the Auto Attendant is set to answer after 1 or more rings, you can then configure when specific extensions will ring before the Auto Attendant answers.

- If no Auto Attendant is chosen to answer on the specified line, you can specify when particular extensions will ring up to 9 rings. Remember that no calls will go to voicemail unless you first have an Auto Attendant answer.

3.3.3.5   Local Extensions — Call Cascade

This section configures the incoming Call Cascade options for the Local Extensions. The Call Cascade routing options are only engaged if the extension is chosen from the Auto Attendant or if a call is manually transferred to the extension. Once a call enters an extension's Call Cascade sequence, the extension "owns" the call. It will not follow any other extension's options, even if that extension is chosen in the Cascade sequence— what you see in an extension's Cascade sequence is exactly what you'll get. You can set

Networked

up the Call Cascade sequences differently for both scheduling modes (the scheduling for these modes are set up on the Modes tab).
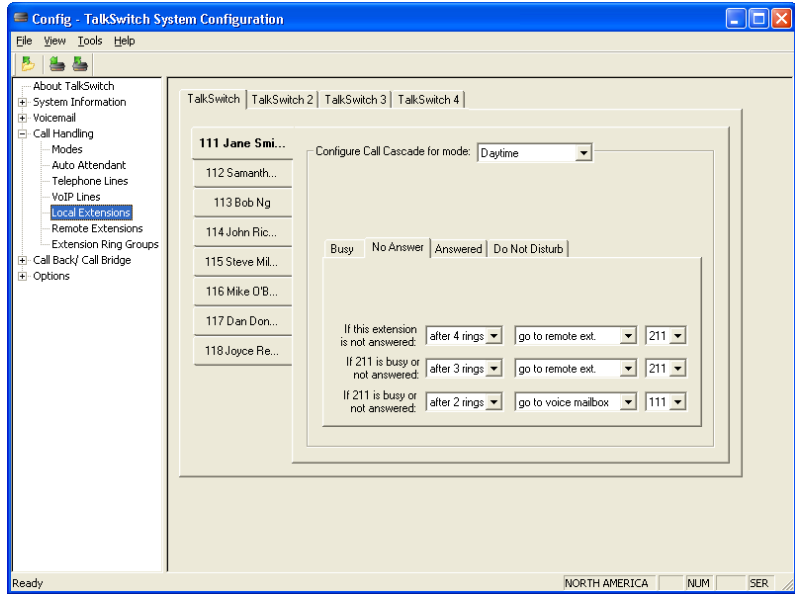
Even if a call is manually transferred to a Local Extension that is busy, TalkSwitch will follow the Call Cascade options for that extension.

For Local Extensions, there are 4 different 'Call Cascade' situations; Busy at extension, No answer at extension, Answer at extension (routing when a call is rejected) and Do not Disturb (when turned on at an extension). For each of these situations, you can control how and where you want the incoming call to the extension handled with up to 3 'cascade' destinations available.

1. Busy at extension — routing options when this extension is busy:

   Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, invoke Call Waiting, Auto Attendant, play busy tone (for example: used if a fax machine is at the extension), queue caller, or hang up. For more information on these features, see chapter 4.0 — Using TalkSwitch.

2. No answer at ext. — routing options when this extension does not answer after a specified number of rings:

Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, built in Voicemail, Announcement, Auto Attendant or keep ringing.

3. Answered at ext. — routing options when this extension 'rejects' a screened call:

Selecting 'play caller's name first' will prompt callers, when they choose this extension at the Auto Attendant, to record their name. When you answer the call at the extension, it will announce the caller (by playing their recording), at which time you can choose to accept the call by pressing **#** or reroute the call to the Cascade options on this tab by either hanging up or pressing *****. Routing options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, Auto Attendant or hang up. In the case where 'hang up' is selected, TalkSwitch will first play the following prompt before hanging up: "I'm sorry, that extension is unavailable at this time. Please try again later."

4. Do not Disturb — routing options when this extension has engaged the 'Do not Disturb' feature:

The Do not Disturb feature is toggled on or off by dialing *****62 from a Local Extension handset. Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, Auto Attendant or hang up. When Do not Disturb is enabled, you will hear "Do not disturb on" before the dialtone as a reminder since no calls will ring through to your extension. You may still dial during this prompt.

In the Cascade sequence, only choosing an extension (Local, Remote or Ring Group) will allow you to choose an option in the next selection. Any other selection is considered an end-of-call option. Note as well that the last selection in the Cascade sequence only allows the choice of an 'end-of-call' option. This is done so the chance of a caller being "looped" within the system is removed.

3.3.3.6 Remote Extensions — Call Cascade

This section allows you to configure the incoming Call Cascade options for the Remote Extensions. The Call Cascade routing options are only engaged if the extension is chosen from the Auto Attendant or if a call is manually transferred to the extension. Once a call enters an extension's Call Cascade sequence, the extension "owns" the call. It will not follow any other extension's options, even if chosen in the Call Cascade sequence—what you see in an extension's Call Cascade sequence is exactly what you'll

get. You can set up the Call Cascade sequences for both modes (the scheduling for these modes are set up in the Modes tab).
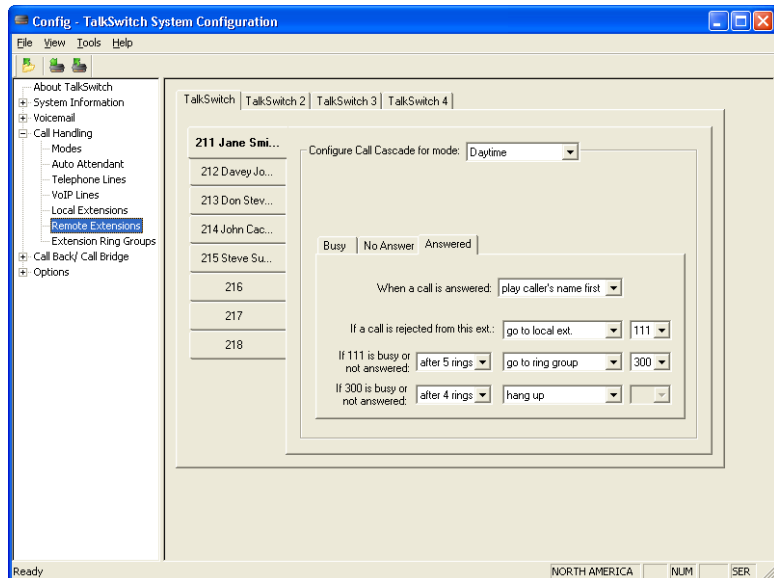
For Remote Extensions, there are 3 different 'Call Cascade' options. For each of these options, you can control how and where you want the incoming call to the extension handled.

1. Busy at extension — routing options when this extension is busy:

   Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, Auto Attendant, play busy tone or hang up. Note: If this is a remote extension, such as a cell phone, that has its own voicemail or a phone company prompt that answers calls when the line is busy, TalkSwitch will assume the call has been answered and will not follow through with the Call Cascade. You may want to consider using the 'Play accept/ reject prompt' option under the Answered at ext. tab, which specifies that the call to this extension will not be considered answered until the call recipient enters the appropriate digit.

2. No answer at ext. — routing options when this extension does not answer after a specified number of rings:

   Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement or Auto Attendant, keep ringing or hang up. If you have cell phone voicemail or a phone company message that

answers after a specified number of rings, and you want the calls redirected to TalkSwitch voicemail, please ensure you set the number of rings in this section to a number less than the cell phone company voicemail or system prompt.

3. Answered at ext. — routing options when this extension 'rejects' a call:

With Remote Extensions, you have the choice between two different Call Screening methods, 'play accept/reject prompt' and 'play caller's name first'. 'Stay connected' is the default setting, which means that as soon as the remote phone number is dialed, the call is connected. The 'play accept/reject prompt' option results in TalkSwitch saying "This is call forward" when the remote extension answers. Selecting 'play caller's name first' will have TalkSwitch prompt callers to announce their name. When the call is answered at the extension, TalkSwitch will announce the caller (by playing the recorded name). After hearing either message, the Remote Extension can choose to accept the call by pressing ⬛#⬛ or reroute the call to the Call Cascade options on this tab by either hanging up or pressing ⬛*⬛. Routing options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, Auto Attendant or hang up.

If you select 'stay connected', the Call Cascade options are grayed out. TalkSwitch can only control forwarded calls when prompting is enabled. Also, if you use one of the prompted methods for this Remote Extension, and you have Music-on-hold enabled, and are not using 3-way calling to forward calls to this Remote Extension, the Call Cascade will be seamless to the caller, as they will only hear music throughout the entire process of trying to locate you.

If a call is forwarded to a Remote Extension from a Call Cascade sequence and has either 'play caller's name first' or 'play accept/reject prompt' enabled, the Remote Extension will hear "This is Call Cascade..." instead of "This is Call Forward...". This is done so that you know when the call is rejected, it will send the caller to the next Call Cascade option of the extension that forwarded the call and not follow the Remote Extension's 'Answer at ext.' Call Cascade options.

3.3.3.7 Extension Ring Groups — Call Cascade

The following section configures the incoming call routing options for Ring Groups. The Call Cascade routing options are only engaged if the Ring Group has been chosen from the Auto Attendant or if a call has been manually transferred to the Ring Group. Once a call enters a Ring Group's Call Cascade sequence, the Ring Group "owns" the call. It will not follow any other extensions options, even if that extension is chosen in the Call Cascade sequence — what you see in a Ring Group's Call Cascade sequence is exactly what you'll get.
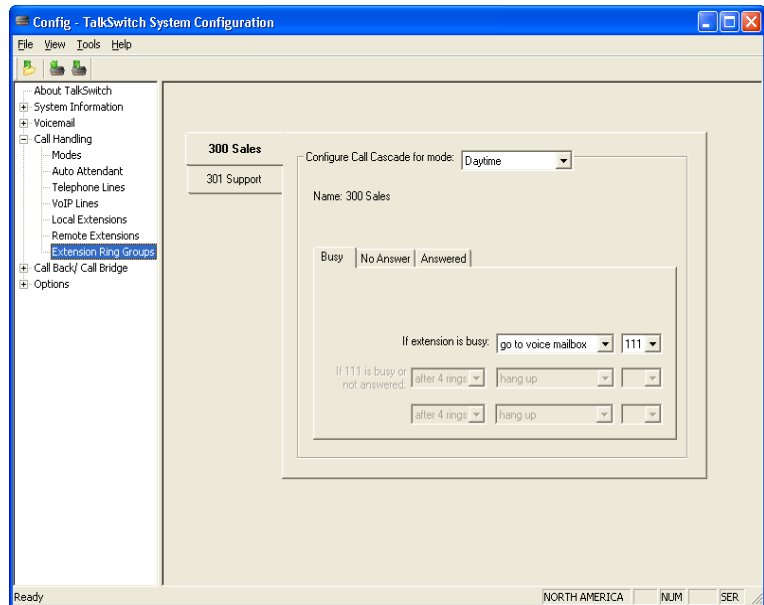
For Ring Groups, there are 3 different Call Cascade options. For each of these options, you can control how and where you want the incoming call handled with up to 3 'cascade' destinations available. You can set up the Call Cascade sequences for both Modes (the scheduling for these modes are set up on the Modes tab).

1. Busy at extension — routing options when all the extensions in the Ring Group are busy:

    Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, built in Voicemail, Announcement, Auto Attendant, play busy tone, queue caller or hang up.

2. No answer at ext. — routing options when all the extensions in the Ring Group do not answer after a specified number of rings:

    Cascade options include forwarding calls to a Local Extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, Auto Attendant, keep ringing or hang up.

3. Answer at ext. — routing options when any of the extensions in the Ring Group 'rejects' a screened call:

Selecting 'play caller's name first' will prompt callers (when they choose this Ring Group at the Auto Attendant) to record their name. When you answer the call at a Ring Group extension, it will announce the caller (by playing their recording), at which time you can choose to accept the call by pressing **#** or reroute the call to the Cascade options on this tab by either hanging up or pressing **✱**. Routing options include forwarding calls to a Local extension, Remote Extension, Extension Ring Group, Voicemail, Announcement, Auto Attendant or hang up.

3.3.4   Call Back/Call Bridge

Working together, Call Back and Call Bridge act as your personal long distance operator. Whether you are across town or around the world, you can place calls from your office telephone or VoIP line(s), accessing your long distance savings plan.

You can make a direct call to TalkSwitch, activate Call Bridge and enter the telephone number you want to dial. TalkSwitch dials the number from your office telephone or VoIP lines and connects the two calls together (the call you made to TalkSwitch and the call TalkSwitch made from your office to the dialed party).

Here is how it works:

Step 1: Call your TalkSwitch telephone number to activate Call Back, then hang up.

Step 2: TalkSwitch calls you back within 10 seconds. You answer and accept Call Back. Your Auto Attendant will play or if you have none recorded, the TalkSwitch message will play.

Step 3: You can now access any TalkSwitch extension, voice mailbox or use Call Bridge to make calls around the globe just as if you were sitting in your own office.

There are two ways to activate Call Back:

1. Auto Call Back — Auto Call Back is immediate and eliminates the initial long distance call charge required to activate Call Back. When using Auto Call Back, all the Call Back settings must be pre-configured before Call Back is activated. To use Auto Call Back, simply dial your office telephone number, let the call ring twice and then hang up. Call Back is instantly activated.

2. Prompted Call Back — Prompted Call Back offers the convenience of entering or changing your Call Back telephone number and message each time Call Back is activated. To use Prompted Call Back, simply dial your office telephone number. When the Auto Attendant answers your call, you dial '6' to access the Call Back settings through a series of prompts which allow you to:

   a) Enter the telephone number where you would like TalkSwitch to call you.

   b) Record an 'Announced' message if required. Call Back will be activated right after you initiate Prompted Call Back and hang up. It is important to remember

that a small initial long distance charge will be incurred at your current location when activating Prompted Call Back.

By default, Prompted Call Back is not activated in the TalkSwitch configuration. You will need to activate Prompted Call Back before you can use this feature.

The Call Back out of the system to the number programmed always uses the same line that was dialed.

3.3.4.1   Auto Call Back

There are 4 Auto Call Back numbers that can be configured. Choose an Auto Call Back to configure and then activate it.
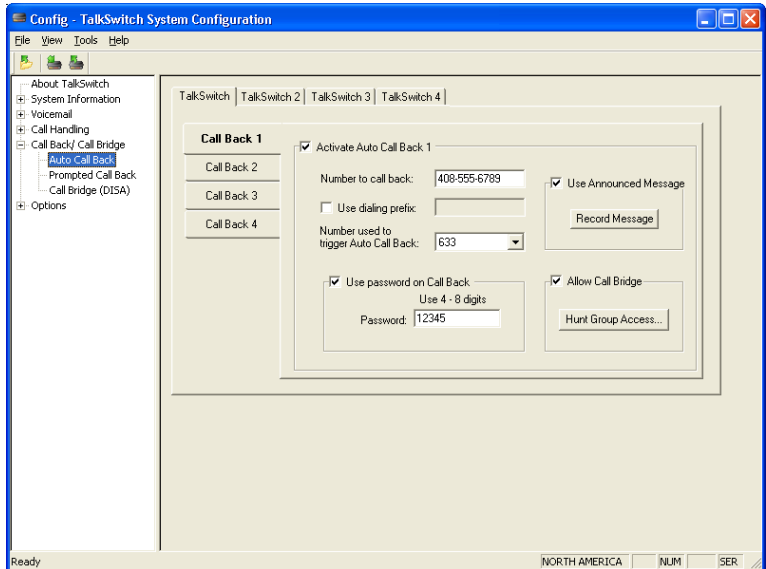
Number to call back:

Enter the Call Back number. This phone number should be entered exactly as you would normally have to dial the number from this line (i.e. do not enter a line Hunt Group in the dialing string).

Use dialing prefix:

If you usually have to dial the same prefix when using Auto Call Back (for example a long distance calling card number), you may want to enable 'Use dialing prefix'.

Enter the dialing prefix including any required pauses or feature keys such as **✱** or **#**. The corresponding key for inserting a 2-second pause is the comma. For example, if you want to disable Call Waiting and want to dial a long distance prefix before dialing the long distance number you could enter the following:

*70,1010555,, This corresponds to **✱**70 for disabling the Call Waiting feature, a 2 second pause to wait for the new dialtone, then 1010555 for the long distance prefix, and a 4 second pause to wait for the new dialtone before dialing the actual long distance phone number.

This saves you the hassle of having to enter the same prefix every time you want to set up an Auto Call Back phone number.

Number used to trigger Auto Call Back:

Select the line/phone number that you will be dialing when out of the office to trigger this Auto Call Back. TalkSwitch will initiate the Call Back using the same line you initially called. You can make configuration changes to this Auto Call Back by dialing into this phone number only.

Use Password on Call Back:

This option is designed to give you security and to restrict who can use this particular Call Back number. Simply fill in a 4- to 8-digit password for the Call Back. When TalkSwitch calls you back, you will be prompted to input the password to accept Call Back.

Use Announced Message:

This option is recommended if the number TalkSwitch will be calling back is to a hotel or a location where somebody else will be answering the call. The Announced Message option allows you to record a message that plays when the call is initially answered during a Call Back. For example, you may want to say "Please transfer this call to Bob in room 307".

The Announced Message can be recorded locally using an extension handset or remotely by accessing Call Back from the Auto Attendant. The Record message button gives the instructions as follows:

Pick up a telephone handset connected to the TalkSwitch and use the following keypad commands to record the specific Auto Call Back Announced Message:

1. Press **#** to enter command mode. If required, enter the password.

2. Next, enter the appropriate command as listed below. After each command, press **#** to confirm the entry.

Auto Call Back	Recording	Playback
1	61	71
2	62	72
3	63	73
4	64	74

There are 4 Auto Call Back accounts per TalkSwitch unit. If you need to record an Announced Message for a particular Auto Call Back account, it must be on the same TalkSwitch unit as the account.

If you need to configure and/or record an Announced Message from a remote location and do not have the Auto Attendant set to answer this Call Back line, you can call your Call Back number and let it ring 15 times. A generic Auto Attendant will answer and you can configure Call Back by pressing 6.

Allow Call Bridge:

To allow Call Bridge after a Call Back has been accepted, check the Allow Call Bridge box. You may also restrict the Call Bridge line access by choosing the Hunt Group Access button. By default, Call Bridge is enabled when Call Back is activated. You will not be prompted for another password when you choose a Hunt Group at the Auto Attendant.

When entering a Call Back phone number using a telephone, you can enter special characters using a special prefix. The default prefix is the ***** key. To enter a ***** in a dialing string you will need to dial *** ***, for a 2 second pause dial *****0, and for a **#**, dial *** #**. When you have completed the entire dial string, dial **#**.

3.3.4.2   Prompted Call Back

If you are travelling to a location where you do not yet know the phone number, you can use Prompted Call Back to save on your long distance charges. For details on using Call Back, see section 4.7.2.
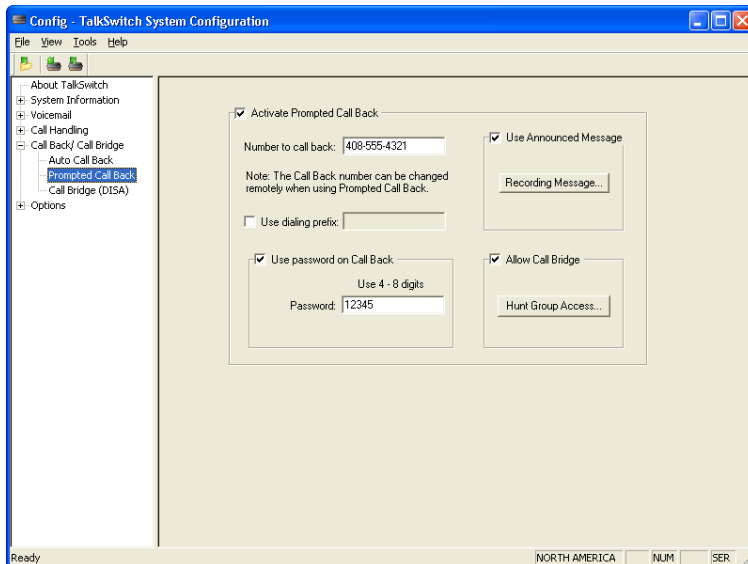
Number to call back:

> This phone number should be entered exactly as you would normally have to dial the number from this line (do not enter a Line Hunt Group in the dialing string). TalkSwitch will Call Back out on the same line the call originated.

When you access Prompted Call Back from out of the office, you may change this number before initiating a Prompted Call Back. This is the benefit of Prompted Call Back — you do not need to preset the number before you leave the office.

Use dialing prefix with Call Back number:

> If you usually have to dial the same prefix when using Prompted Call Back (for example a long distance calling card number), you may want to enable 'Use dialing prefix with Call Back number'. Enter the dialing prefix including any required pauses or feature keys such as ✱ or #. The corresponding key for inserting a 2-second pause is the comma. For example, if you want to disable Call Waiting and want to dial a long distance prefix before dialing the long distance number you could enter the following:

*70,1010555,, This corresponds to ***** 70 for disabling the Call Waiting feature, a 2 second pause to wait for the new dialtone, then 1010555 for the long distance prefix, and a 4 second pause to wait for the new dialtone before dialing the actual long distance phone number.

This saves you the hassle of having to enter the same prefix every time you want to set up a Prompted Call Back phone number.

When entering a Call Back phone number using a telephone, you can enter special characters using a special prefix. The default prefix is the ***** key. To enter a ***** in a dialing string you will need to dial ***** *****, for a 2 second pause dial ***** 0, and for a **#**, dial ***** **#**. When you have completed the entire dial string, dial **#**.

Use password on Call Back:

This option is designed to give you security and to restrict who can use Prompted Call Back. Simply fill in a 4- to 8-digit password, and when TalkSwitch calls you back, you will be prompted to input the password to accept Call Back.

Use Announced message:

As was described in the Auto Call Back section, this option is recommended if the number TalkSwitch will be calling back is to a hotel or a location where somebody else will be answering the call. The Announced message option allows you to record a message that plays when the call is initially answered during a Call Back. For example, you may want to say "Please transfer this call to Bob in room 307".

The Announced Message can be recorded locally using an extension handset or remotely by accessing Call Back from the Auto Attendant. The Record message button gives the instructions as follows:

Pick up a telephone handset connected to the TalkSwitch and use the following keypad commands to record the Prompted Call Back Announced Message:

1. Press **#** to enter command mode. If required, enter the password.
2. Next, enter the appropriate command as listed below. After each command, press **#** to confirm the entry.

    To record message: 65

    To playback message: 75

Allow Call Bridge:

> To allow Call Bridge after a Call Back has been accepted, check the Allow Call Bridge box. You may also restrict the Call Bridge line access by choosing the Hunt Group Access button.

The call back number shown will always be the last number TalkSwitch dialed in the last Prompted Call Back session.

3.3.4.3   Call Bridge

Call Bridge is a useful feature for saving money while using Call Back or on its own to avoid inflated long distance rates, such as with cell phones.
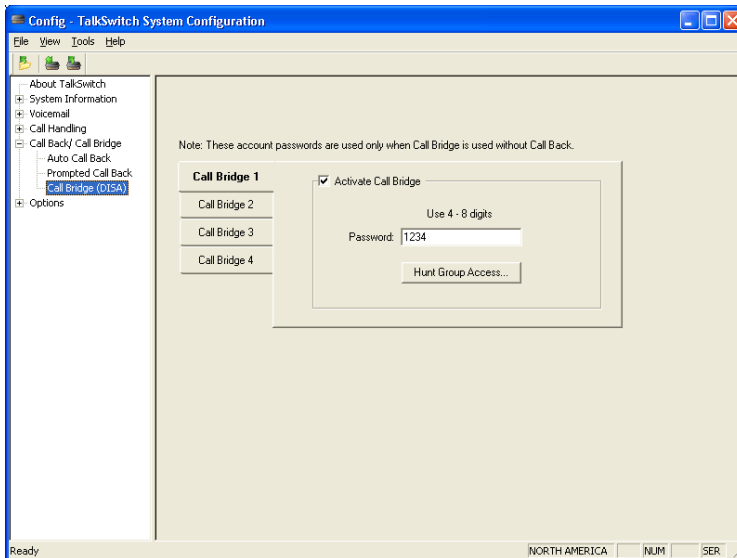
How to use Call Bridge:

1. Call into TalkSwitch from any out-of-office telephone.

2. At the Auto Attendant message, dial the Hunt Group you know you have the account password for, (let's say it's 9 — the default) you will then be prompted for the account password.

3. Dial the password and then the **#** key to access a TalkSwitch telephone line.

4. At this point you can dial a number as though you were sitting in the office. There are four Call Bridge accounts for each TalkSwitch unit activated by passwords. Each account can be configured to allow access to certain Hunt Group(s) when using Call Bridge.

To activate an account, check the 'Activate Call Bridge' box and fill in a 4- to 8-digit password. Next, select 'Hunt Group Access' and assign the Hunt Groups you want to make available for this account.

Call Bridge account passwords are only valid when using Call Bridge by itself, not when used in conjunction with Call Back.

3.3.5   Options

3.3.5.1   Audio Controls

This section deals with the adjustment of volume and system gain controls. All the controls on this page update TalkSwitch in 'real time'. This allows you to adjust levels during a conversation without having to first save the configuration to TalkSwitch.
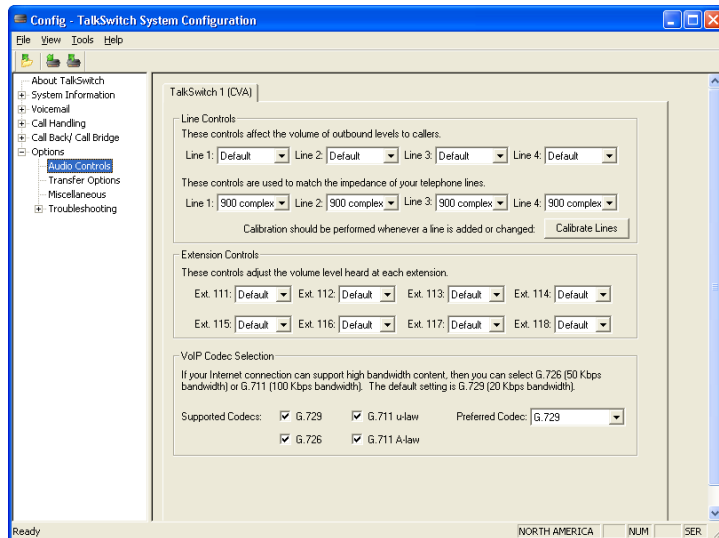
Line Controls:

If you need to adjust the volume of conversations through the system, you can adjust the gain for each line individually. By default, the settings compensate for any loss created by TalkSwitch and a portion of the loss created by your lines. We recommend that you adjust the gain for each line separately, as the characteristics of each line may vary. These controls only affect the volume heard by the caller. To calibrate the lines once a line is added or changed, click on 'Calibrate Lines'.

Extension Controls:

These controls can be used to increase or decrease the volume level of calls and system prompts heard at each extension.

VoIP Codec Selection:

By default, all 3 codecs are active and the preferred codec is G.729 (approximately 20Kbps bandwidth). If, for example, you have a 'lite' version of a broadband service, then you would not have enough bandwidth to support G.711 (approximately 100Kbps bandwidth) or G.726 (approximately 50Kbps bandwidth) codecs, as a 'lite' connection typically has only enough bandwidth to support G.729. In this case, you should uncheck the G.726 and G.711 codecs so that the system will not attempt to use these codecs when setting up a call. Otherwise using these codecs could cause one side of the call to sound 'choppy' since the broadband connection cannot handle the required bandwidth.

3.3.5.2   Transfer Options

This section deals with actions TalkSwitch makes when calls are transferred manually.

Transferring a caller to a Local Extension, Remote Extension or Ring Group:

Here, you can specify how transferred calls are handled if their target — a local extension, remote extension or ring group — is busy or doesn't answer. You have the choice of TalkSwitch either ringing back the extension that transferred the call or performing the "no answer" or "busy" action of the extension that the call was intended for. Any changes made in this section affect the entire system.

Transfer and clear:

TalkSwitch has the ability to clear lines after a call has been transferred. Ensure you have this service/feature activated on your line(s).
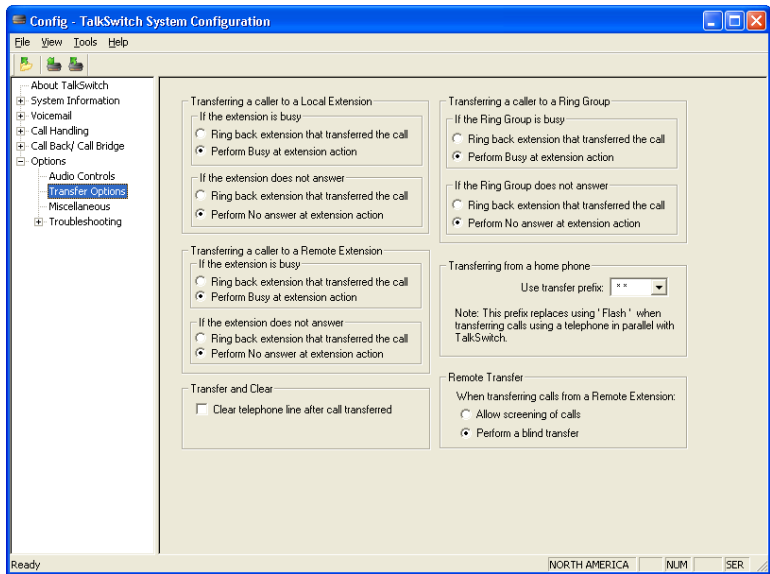
Transferring from a Home phone:

You can transfer a call from a phone connected in parallel to one of the incoming TalkSwitch lines (your home phone, for instance, if you have a home-based business) to a Local or Remote Extension, Extension Ring Group, an Announcement, or a Voicemail box. This section allows you to choose which transfer prefix you would like to use to perform the action. The transfer prefix 'wakes up' TalkSwitch and can be considered the equivalent of the Flash or Link action at a Local Extension. By default the prefix is ***** *****.

Example: Let's say you receive a call on a phone in your home that is not an extension of TalkSwitch and you want to transfer the caller to Remote Extension 215. You would then dial ***** *****, wait for the 'double beep' then dial 215 and hang up. TalkSwitch will now handle the call. For more details, see section 4.2.8.

Remote Transfer:

Calls that are transferred to a Remote or VoIP Extension, can be transferred back to another extension or voice mailbox by dialing ***** ***** to place the caller on hold, then entering the extension or mailbox number. If this is set to Allow screening of calls, then you would dial ***** ***** 4 to complete the transfer. If you want to cancel

the transfer, then dial ⊛⊛ 5. If you have selected 'Perform a blind transfer', then the call will be automatically transferred and the line released once the extension or mailbox number has been entered.

In the case where a call is transferred from a Remote Extension to another Remote Extension or VoIP Extension, it will always be a blind transfer so that 3 lines are not tied-up for the transfer.

This feature can only be used when forwarding call to a Remote Extension or VoIP location over 2 lines. This feature cannot be used with 3-Way Calling or Centrex Transfer services.

3.3.5.3   Miscellaneous

All of the following options affect TalkSwitch as a system. Adjust them according to your needs.
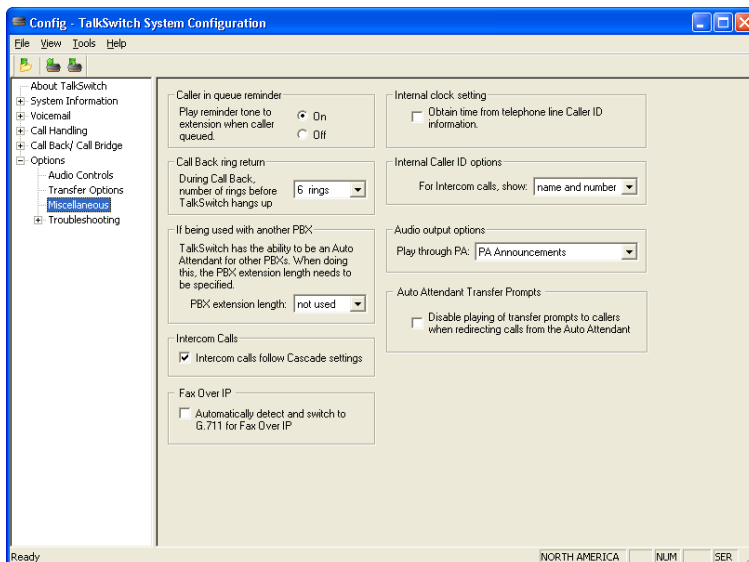
Caller in queue reminder:

> When a caller is in queue at an extension already in use, a reminder tone is played at the extension to let them know they have a caller in their queue. This option allows you to turn this function off.

Call Back ring return:

You can adjust the number of rings during a Call Back session before TalkSwitch disengages the Call Back (i.e. hangs up). Depending upon the situation, you may want to give yourself more time to pick up and accept the Call Back by increasing the number of rings.

If being used with another PBX

PBX extension length:

If TalkSwitch is being used as an Auto Attendant with another PBX, you can set the number of digits the PBX uses for its extensions. This allows TalkSwitch to know what digits to pass on to the PBX to complete the transfer.

This feature can only work with PBXs that use "flash-hook" as a transfer method. Please contact your PBX manufacturer for transfer details.

Setting up TalkSwitch behind an existing PBX:

1. Connect the PBX extension to one of TalkSwitch's Line jacks. You may do this with all your TalkSwitch lines (1 PBX extension per line) depending upon how many Auto Attendant ports you would like on the PBX.

2. Configure incoming calls on your PBX to ring the extensions you have allocated to the TalkSwitch Lines.

3. Configure TalkSwitch's Auto Attendants to answer after x rings (answer immediately is used most commonly).

4. Record your Auto Attendants. The Auto Attendants should list the extensions with the digit 7 in front of them.

Example: If you have chosen the PBX extension length to be 3 digits (and let's say John Doe's extension is 111 on the PBX), the Auto Attendant should say "To speak with John Doe, press 7111...". Now when 7111 is dialed, TalkSwitch puts the caller on hold and transfers the caller to extension 111.

Intercom Calls:

By default this setting is enabled. Any internal calls will follow the Cascade settings of the extension dialed. If disabled, no fall-through actions will take place.

Fax Over IP

Applicable only to the TalkSwitch 48-CVA. TalkSwitch can automatically detect and switch to G.711 for fax over IP.

Internal clock setting:

TalkSwitch can obtain time information from Caller ID for its internal clock. If you have indicated that you do have Caller ID on any of the lines, this option defaults to the active position. If it is de-activated, TalkSwitch can obtain its time information from the time and date set in the 'Mode' tab under Automatic Mode Switching. TalkSwitch's clock information is used for Automatic Mode Scheduling and for internal Caller ID information when intercom calls are placed in the office.

Internal Caller ID options:

TalkSwitch has the ability to generate name and number Caller ID to each extension during intercom calls. If your Caller ID unit/telephone does not support the name option, you can choose to have TalkSwitch send the number only.

Audio Output Options:

TalkSwitch can output different audio to the PA jack. The default setting is to play only PA announcements through the PA jack by dialing ✱ 0 from any extension.

Other options include Voicemail Screening which can be useful in a home environment, Demo with a router which is used for demonstrating the product, and Static VoIP Demo which is used strictly for demonstrating 2 TalkSwitch CVA units connected to a hub or switch and acting as 2 separate locations.

Auto Attendant Transfer Prompts

TalkSwitch can disable playing of transfer prompts to callers when redirecting calls from the Auto Attendant.

3.3.5.4　Troubleshooting

The following controls should not be changed unless you are familiar with the effect they will have on TalkSwitch's operation. If your system does not appear to be functioning properly, please contact your dealer for assistance.
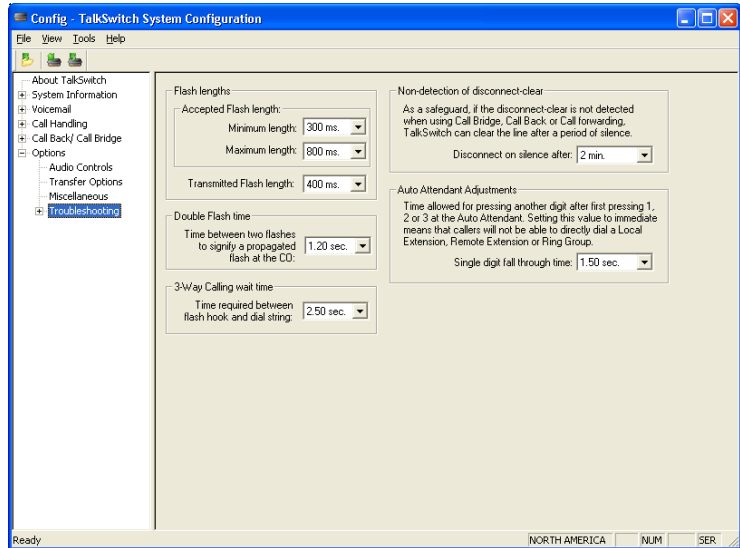
Flash Lengths

   Accepted Flash Length:

      These options control the allowable Flash length from a Local Extension that TalkSwitch will consider to be an intentional Flash. The range can be adjusted to accept anything from 50ms to 1 second. The default range for accepting a Flash signal at a Local Extension is between 400 ms and 800 ms. Most phones emit a 600 ms Flash signal when the 'Flash' or 'Link' button is pressed.

   Transmitted Flash Length:

      This option controls the transmitted Flash length from TalkSwitch to the Telephone Company lines. TalkSwitch emits a Flash when forwarding or bridging calls using the 3-Way Calling/Conference or Centrex Transfer service, or when transferring calls through an existing PBX system. The value can be adjusted from 50 ms to 900 ms. The default setting is 400 ms. If you notice that you are having problems with any of the TalkSwitch features that use 3-way calling, you may want to experiment with this value.

Double Flash time:

When two flashes are detected, TalkSwitch needs to calculate the time between the flashes to establish if they were intended to propagate a flash at the CO or if it was the intention to place a call on hold and then quickly retrieve it. The Double Flash time values signify the maximum time between two flashes that TalkSwitch will recognize as an intended flash to the CO. When two flashes are detected with a time gap larger than the value displayed, no flash will be propagated at the CO. The value can be adjusted from 200ms to 2000ms with the default set at 1200ms.

3-Way Calling wait time:

This option adjusts the time required between flash hook and a dial string. Some telephone company 3-Way Calling/Conference services require different time allowances after the flash signal to re-establish dial tone. The default time is 2 seconds so TalkSwitch can let the lines settle after going off hook before sending the DTMF digits.

Non-detection of disconnect-clear:

This option controls the length of time after which TalkSwitch will "drop" a line when silence is heard. This safeguard is useful when a telephone line does not send out the disconnect-clear signal that tells TalkSwitch the call is finished.

Auto Attendant Adjustments:

Since TalkSwitch allows callers to dial 100, 200, 300 series extensions and 400 series mailboxes, and also allows fall-through options for the single digits 1, 2, 3, 4 and 5 at the Auto Attendant, there needs to be a time limit placed on how long after the first digit is pressed TalkSwitch will wait for another digit before following the single digit option. There are 3 ways to make use of this control. You should be careful not to isolate your callers from having both choices as listed in (1).

1. With the current setting, callers can dial any Local Extension (1xx), Remote Extension (2xx), or Ring Group (3xx) as long as the second digit is pressed within 1.5 seconds of pressing the first digit. Callers can also press just 1, 2, 3, 4 or 5. for options and when TalkSwitch detects no second digit after 1.5 seconds, it will follow the programmed option for that Auto Attendant.

2. If you don't want to use the options 1, 2, and 3 for any of the Auto Attendants, you can set the option to '4 seconds'. Callers will have more than enough time to dial all 3 digits of any extension without accidentally falling through to one of the Auto Attendant options.

3. If you don't want to give callers the ability to dial any of the extensions and only permit them to access single digit options, set this value to 'immediately'. As soon as TalkSwitch detects the first digit, it will follow the specified option for that Auto Attendant.

3.3.5.5 Troubleshooting — Advanced

DTMF Detection:

If callers are complaining of being misdirected when they select options at the Auto Attendant, then these values might need to be adjusted.

Minimum time: The default setting of 45ms should be adequate for most environments. It may, however, be necessary to lower this value if TalkSwitch appears to have trouble 'hearing' digits when dialed at the auto attendant. It might need to be increased in cases where the system is 'hearing' ghost DTMFs and accidentally misdirecting callers.

Maximum time: The default setting of 65ms should be adequate for most environments. In most problem cases, this value only needs to be bumped up a bit to help the system deal with echoed digits seen from cell phones. For example: calls keep being misdirected to extension 111. This usually indicates that even though the caller may have dialed 113, TalkSwitch sees 1113 because the '1' was echoed by the cell phone network. Once TalkSwitch captures 3 digits, it will ignore the rest, hence the digits '111' will be accepted and the '3' ignored.
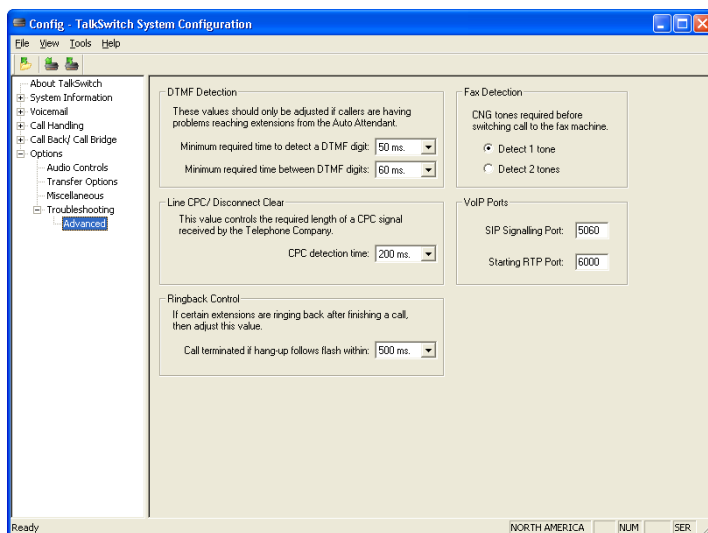
Line CPC/ Disconnect Clear:

If calls are being disconnected accidentally in mid conversation, this usually indicates a problem with the telephone line. TalkSwitch is always looking for a

'hangup' signal from the phone company called a CPC or Disconnect Clear signal. If the line has 'shorts' or the line card at the central office is defective, then CPC signals in the 250ms range might come down the line and cause TalkSwitch to hangup. Try bumping up this value if this seems to be occurring.

Ringback Control:

If an extension seems to ring back as if a caller was on hold, but when answered, no one is there, this could indicate a debounce problem with the phone hookswitch. When someone at the extension hangs up, the handset bounces slightly to cause a flash signal to be seen by TalkSwitch before the hang up. As a result TalkSwitch puts the line on hold. To help with this problem, this value can be increased to the point where it will stop the ringbacks.

Fax Detection:

If fax calls are not being directed properly to the fax machine, then you may need to set this option to detect 1 tone. If it's set to detect 1 tone and people complain they have been accidentally routed to the fax machine, then set this value to detect 2 tones.

VoIP Ports:

The default SIP signalling port is 5060. If you need to choose another port, then enter a value between 1024 and 16556.

The starting RTP port for TalkSwitch is 6000. From this starting point, TalkSwitch needs 4 ports for each TalkSwitch unit. RTP ports are even numbered from the start port. ie. 6000, 6002, 6004 and 6006 are needed for the first TalkSwitch unit on a LAN and 6030, 6032, 6034 and 6036 would be used for the fourth unit.

These are the ports that this TalkSwitch system listens on as opposed to the port it needs to communicate with at the other end. for example if your SIP server at another location uses port 5061 instead of 5060 for signalling, then you would not set this port to 5061, you would need to include the port number in the address specified in the VoIP Configuration section of the software.

Example: Proxy Server Name: 222.234.432.234:5061

Using TalkSwitch

4.1 In the Office — Receiving Calls with or without the Auto Attendant

4.1.1   Receiving calls using the Auto Attendant

If you don't have a receptionist, using the Auto Attendant will help you handle all your inbound calls and help improve your corporate image. Once it has been configured and its messages have been recorded, that's it! The Auto Attendant takes care of the rest. It will follow whatever instructions (configuration) it was given. For details on configuring the Auto Attendants, see section 3.3.2.2. For details on configuring TalkSwitch to answer calls using Auto Attendants, see section 3.3.2.3.

When calls are answered by an Auto Attendant, callers can dial any Local Extension (1xx), Remote Extension (2xx), Extension Ring Group (300 – 309), choose options 0, 1, 2, 3, 4, 5 (if configured to perform specific actions), dial voicemail direct (✱ and mailbox), send faxes, or remain on the line to follow an action programmed for that Auto Attendant. TalkSwitch owners and employees can also access other options at the Auto Attendant, including Call Back (dial 6), Call Bridge (dial 80 – 88, 9), retrieve voicemail (dial ✱ ✱ and mailbox), enter command mode to make system changes (dial #). All of these features can be password-protected to eliminate system tampering from outside users.

4.1.2   Receiving calls without the Auto Attendant

If you choose not to use the Auto Attendant to answer calls, please note that the Call Cascade options for the Local Extensions will not be engaged. In order for calls to go to an extension's mailbox, the Auto Attendant must first answer the call or someone in the office must then transfer the call. For details on configuring TalkSwitch to ring specific extensions during inbound calls, see section 3.3.2.3. Once calls have been answered at a Local Extension, they can be transferred to any extension or voice mailbox. See section 3.2 for more details.

4.2 In the Office — Making and Receiving Calls

4.2.1   Making calls from a Local Extension

Placing Intercom calls from one Local Extension to another Local Extension, Remote Extension or Extension Ring Group:

You can place intercom calls from one Local Extension to another Local Extension, Remote Extension, VoIP Extension or Extension Ring Group by simply picking up your extension's handset and dialing the number of the extension with which you wish to intercom. An Intercom call can be identified by a unique ring cadence (2 short rings) except in the case of a Remote Extension Intercom call, where the phone will ring as usual, or if a Ring Group has a ring cadence other than 'normal'. Intercom calls will follow the cascade settings of the extension dialed if this feature is enabled in the 'Miscellaneous' section of the configuration software.

Placing 'out-of-office' calls from a Local Extension:

To place a call to an out-of-office telephone number from a Local Extension, you must first access an available line by choosing a Hunt Group (9, 81-88) at the internal dial tone. Restrictions to specific Line Hunt Groups can be configured for each extension. Your extension can also be configured to Directly Access a specific line (i.e. when a handset is picked up, you will hear the Telephone Company dial tone and can dial an outside telephone number as usual).

If you have Direct Line Access enabled for a Local Extension, you will need to dial 'Flash' before dialing any system features, such as extensions or voicemail.

4.2.2   Receiving calls at a Local Extension

To receive calls at a Local Extension, simply pick up the extension's handset when the extension rings. If the call went through the Auto Attendant to the extension and it has call screening enabled (configured on the Local extension and Ring Group pages), you have the choice of accepting the call by pressing **#** or, re-routing the call to its 'Answer at ext.' Call Cascade options by pressing ***** or hanging up.

Call Pick Up/Call Grab:

To intercept a call that is ringing on any other Local Extension before or after the Auto Attendant has engaged, pick up your handset and, at the TalkSwitch internal dial tone, dial *****9. This will route the call to your Local Extension.

To "Grab"a call ringing specifically at another extension before or after the Auto Attendant has answered, dial *****7 and the extension number (ie. *****7112 to grab a call ringing at extension 112). If you are in the middle of a call and want to

connect to another incoming caller, press 'flash' to place the first caller on hold, then dial ✱9 or ✱7 and the extension number to connect to the second caller. Once you are finished the second call, or you would like to return to the first caller, press 'flash' '5'.

4.2.3   Placing calls on Hold at a Local Extension

To Place calls on hold:

To place callers on hold, press 'flash'. Follow the same procedure to take callers off immediate hold. If you have multiple callers on hold or in queue at your extension, you can press 'flash' '7' to retrieve callers on a first in / first out basis.

If you use the 'Hold' button on a regular phone, you will not be able to access any of the TalkSwitch features while the caller is on hold. Also, if you have Music-on-hold enabled, the caller will not hear music while they are on hold.

4.2.4   Transferring calls

From a Local Extension to another Local Extension, Remote Extension or Extension Ring Group:

To initiate an Unscreened Transfer – put the caller on hold (by dialing 'flash'), dial the appropriate extension number and hang up. The caller will be taken off hold when the receiving extension is answered. If the transferred call is not answered after the number of rings specified in the No Answer setting for the destination extension or if the extension is busy, one of the following will happen:

Default: The transferred call will be handled according to the destination extension's No Answer or Busy at extension settings.

Option: The call will be transferred back to the transferring extension.

The option is chosen in the Manual Transfer tab in the Options folder.

To announce calls before transferring (Screened Transfer) — put the caller on hold and dial the appropriate extension number. If the person at the receiving extension answers and wishes to take the call, simply hang up or dial 'flash' '4' to complete the transfer and get internal dialtone. The caller will immediately be taken off hold and connected with the receiving extension. If the person at the receiving extension does not wish to take the call, you can press 'Flash' '5' to return to the caller.

If you dial an extension and it is busy or not answered, you can still complete the transfer so that the caller will be directed according to that extensions' Call Cascade settings.

If you tend to handle many calls, you may want to complete or cancel a transfer without hanging up. Flash '4' will complete the transfer and then provide internal dialtone while flash '5' will cancel the transfer and connect you back to the caller.

From a Local Extension to any outside telephone number:

> To initiate an Unscreened Transfer — put the caller on hold, select a Line Hunt Group (dial 80 for Same Line Connect), then dial the outside telephone number then press 'flash' '4' to complete the transfer. You cannot simply hang up to complete the transfer otherwise the calls will be disconnected.

> If the person at the receiving extension does not wish to take the call, you can press 'flash' '5' to return to the caller.

If you have the 3-Way Calling/Conference or Centrex Transfer feature enabled on the current line, you can select the Same Line Connect (80) to make use of these features. Everything proceeds as above on the same line the call came in on.

4.2.5   Call Park — Parking and retrieving callers

Call Park is a useful feature for placing a call on hold and then being able to retrieve it from any other Local Extension. TalkSwitch has 10 Park Orbits in all models.

4.2.5.1   Parking a caller

To place a caller in a Park Orbit, press 'flash' then ✱ and choose a Park Orbit (500 to 509). You will hear a confirmation after parking the caller that indicates the caller has been parked successfully. If the Park Orbit is already occupied, you will hear "I'm sorry, that extension is unavailable at this time." then dialtone. Once again press ✱ and choose a new Park Orbit.

4.2.5.2   Parking a caller using Auto Park

To place a caller in the next available Park Orbit, press 'flash' then 510. You will hear a confirmation that indicates the caller has been parked successfully and into which Park Orbit.

4.2.5.3   Retrieving a parked call

Once the caller is parked, you can retrieve the caller at another Local Extension by pressing ⊛ ⊛ and the appropriate Park Orbit. If Direct Line Access is enabled at the extension, then you must press 'flash' first.

4.2.5.4   Using Call Park with the External Paging option

If you have the External Paging option enabled on TalkSwitch, you may choose to announce over the P.A. system (by pressing ⊛0) that there is a call parked in a specific Park Orbit for a co-worker. For example: "Bob, please pick up 501." – which tells Bob that he can retrieve the parked call from any extension by getting dial tone and pressing ⊛ ⊛501. The caller will now be connected to Bob at that extension. If you have Direct Line Access enabled at your extension, you will need to press 'flash' first before retrieving the parked call.

4.2.6   Call Queue/UCD/Call Waiting — Queuing and retrieving callers

4.2.6.1   Queuing calls to a single extension

Call Queue is a useful feature for placing multiple callers on hold at your extension while you are on an existing call. Call Queue is enabled in the TalkSwitch software's Call Cascade section in the Call Handling folder for Local Extensions and Extension Ring Groups. Callers will get queued at your extension if you set the first level in the 'Busy at extension' Call Cascade to 'queue caller'.

If an extension is currently busy and has 'queue caller' set for the 'Busy at extension' Call Cascade, incoming callers will hear one of the following prompts, followed by music (if enabled) while they are on hold:

If the call came from the Auto Attendant and the extension has a voice mailbox:

"The extension you have reached is currently busy. If you wish to continue holding, please remain on the line. To leave a voicemail message, press 1, and to return to the main menu, press ⊛"

If the call came from the Auto Attendant and the extension has no voice mailbox:

"The extension you have reached is currently busy. If you wish to continue holding, please remain on the line and to return to the main menu, press ⊛."

If the call was transferred from another extension and the extension has a voice mailbox, but there is no Auto Attendant on this line with a main menu to return to:

"The extension you have reached is currently busy. If you wish to continue holding, please remain on the line. To leave a voicemail message, press 1."

If the call was transferred from another extension and the extension has no voice mailbox and there is no Auto Attendant on this line with a main menu to return to:

"The extension you have reached is currently busy. If you wish to continue holding, please remain on the line."

While the caller is on hold at your extension, you will hear a 'Call Waiting' beep every 75 seconds. If you want to rotate through queued callers, dial 'flash' then '7'. The caller you are speaking to will be placed on hold, and the first caller in the queue will be retrieved. If you have multiple callers queued up, pressing 'flash' then '7' will retrieve callers on a first in/first out basis.

If Call Waiting is enabled for the busy action of a Local Extension, they will hear ringing (or music if enabled) while the Local Extension will hear a 'Call Waiting' beep and receive Caller ID for the new call. To connect to the new caller, press 'flash' 7. To have the caller fall through to the next level of the cascade, simply ignore the beep.

4.2.6.2   Queuing callers to an Extension Ring Group

If you want to queue callers for a Ring Group, you can configure this action using an Auto Attendant. This feature is sometimes referred to as Automatic Call Distribution.

Example: Configure Auto Attendant 1 so that if callers press '5' they will be queued to ring group 301 for technical support. Now when a caller presses '5' for tech support, they will immediately enter the queue. Every 60 seconds the caller will hear the following prompt: "Your call is important to us; please remain on the line. To return to the previous menu, press star." Extensions that are part of the ring group and are available will start ringing within 10 seconds of hanging up the phone from a previous call. The delay gives you time to make a new call or activate 'Do not Disturb' as a log out option. After your extension rings 5 times, it will ring once every 16 seconds. When picked up, you have the option to take the queued call or make a new call.

4.2.7   Using the TalkSwitch Call Waiting feature

The Call Waiting feature can be activated as a 'busy' option for the Call Cascade routing for any local extension. When activated, and the extension dialed is in use, the caller will hear ringing or music depending on the music-on-hold settings. The person at the extension will hear the following:

1. If the phone supports Call Waiting Caller ID (Type II signaling), then you will hear a beep followed by a short blip then depending on your phone, you may hear something similar to a modem noise. This is normal. During this

notification, the Caller ID information will be displayed on the phone. The caller will not hear the beep as the phone mutes the other side.

1. If the phone does not support Call Waiting Caller ID, then you will hear a beep.

   When the Call Waiting notification beep is heard, the person at the extension can dial 'flash' 7 to put the current caller on hold, then grab the new caller. They also have the option to terminate the current call and connect to the new caller by dialing 'flash' 5. If the person at the extension does not want to take the new call, they can simply ignore the Call Waiting beeps and then TalkSwitch will direct the caller to the next level of the Call Cascade for that extension (for example send the caller to the associated voice mailbox).

4.2.8   Conference calling with TalkSwitch

2 TalkSwitch Local Extensions and 1 outside caller:

You do not require access to the telephone company's 3-Way Calling/Conference service to use TalkSwitch's conference calling capabilities.

1. Establish a call with an outside party.

2. Place the outside caller on hold by pressing 'flash'. Dial the number of the Local Extension you wish to conference with.

3. When the extension is picked up, you can establish the 3-way call at anytime by pressing 'flash' then '6'.

2 outside callers and 1 Local Extension (eg: Line 1 and Line 2):

You can do this type of conference call using two different methods.

The first method is similar to above, using only TalkSwitch for the conference function.

1. Establish a call with an outside party.

2. Place the outside caller on hold and dial the number of the other outside party you wish to conference with. If you have 'Direct Line Access' enabled at your extension, you will first need to dial '9' or another Hunt Group before dialing the second phone number.

3. When the call is answered, you can establish the 3-way call at anytime by pressing 'flash' '6'.

When using the telephone company's 3-Way Calling/Conference service you can conference by following the instructions below:

1. Establish a call with an outside party.

2. Place the outside caller on hold by pressing 'flash' 80 and then dial the number of the other outside party you wish to conference with.

3. When the call is answered, you can establish the 3-way call at anytime by pressing 'flash' 80.

4.2.9   Making and receiving calls using VoIP

VoIP

TalkSwitch 48-CVA supports inter-branch connectivity via PSTN and VoIP. Once properly configured, calls can be made between locations using VoIP with broadband connections. TalkSwitch has 50 VoIP location codes (250-299) that can be assigned to any VoIP line. These location codes can be dialed from any extension or auto attendant. TalkSwitch automatically hunts the VoIP ports for placing these calls.

Other calls can be made over VoIP by dialing hunt group 88 (first confirm VoIP lines are active in this hunt group). Dialing '88' at internal dialtone tells TalkSwitch to hunt all VoIP lines for an available line. In order to reach a remote location, a VoIP phone number needs to be assigned to the VoIP line you intend to call.

Example:

You have 3 branch locations (New York, Miami, San Jose), all with TalkSwitch 48-CVA units.

Location 1: New York
Phone numbers assigned to 4 VoIP lines: 250-261 (16 phone numbers)

Location 2: Miami
Phone numbers assigned to 4 VoIP lines: 270-273 (4 phone numbers)

Location 3: San Jose
Phone numbers assigned to 4 VoIP lines: 280-283 (4 phone numbers)

If someone in the New York office wants to reach someone in the Miami office, they can dial one of the phone numbers associated to Miami (270-273). TalkSwitch will automatically find an available VoIP line then connect to the Miami location. The TalkSwitch at the Miami location will handle the call according to the configuration in the Call Handling section for the VoIP lines.

4.2.10   Using Phones connected in parallel to TalkSwitch

Phones connected in parallel (not connected to TalkSwitch but connected to the same line) with TalkSwitch will always ring at least once before TalkSwitch starts ringing its extensions or the Auto Attendant answers the call. This occurs because TalkSwitch uses the first ring to identify the incoming ring pattern before passing it on to the extensions or the Auto Attendant (TalkSwitch determines if the call is a Distinctive Ring and detects any Caller ID information). A parallel phone can 'barge in' on any telephone call on any of TalkSwitch's Lines.

Making and receiving calls on phones connected in parallel with TalkSwitch:

Making Calls: Make calls on parallel-connected phones just as you would if TalkSwitch were not sharing the telephone line with them.

Answering Calls: If a call is answered on a parallel-connected phone before the Auto Attendant engages, simply continue with the call as per usual. TalkSwitch will take no further action. If a call is answered on a parallel-connected phone after the Auto Attendant engages, you can turn off the recorded Auto Attendant message by using the phone's touch-tone keypad to dial '✱ ✱ 0'. You may then continue the call on the parallel-connected phone.

Transferring calls on parallel-connected phones:

Calls answered on a parallel connected phone can be transferred to any TalkSwitch extension or voice mailbox. If you want to transfer the caller, simply key in the 'Transfer Prefix ✱ ✱ ', after you hear 2 'beeps' enter the extension or voice mailbox number then hang up. You cannot announce a caller to the transferred extension, but if you do stay on the line, you will be in a 'conference call' state. You can hang up at any time.

If you transfer a call from a parallel connected phone and then hang up, the extension will ring the number of times selected for that extension. If the extension is not answered within the specified number of rings, the call will be handled according to that extension's Call Cascade actions.

When a phone in parallel with TalkSwitch is off-hook, you will notice that the corresponding line light will flicker to indicate the line is occupied. TalkSwitch will not allow extensions to barge in on a call when that line is in use.

You have the ability to change the Transfer Prefix to ✱ # instead of ✱ ✱ . You may need to change the prefix if the default prefix conflicts with another device or service. To change the Transfer Prefix, open the configuration software and change the setting in the Manual Transfer tab under 'Options'.

4.2.11 Modems and telephone line access

If your modem is attached to TalkSwitch as an extension, you can configure it to access your telephone lines in one of two ways:

1. Direct Line Access: You can give the extension to which your modem is attached 'Direct Access' to one of your telephone lines (i.e. you don't have to dial 9, or any other Hunt Group to access an outside line). This can be a useful option if you don't want to change your dial-up options for the modem. See section 2.3.1.4 for more details on configuring Direct Line Access.

2. Hunt Groups: If you have decided to use a telephone and modem on the same extension, Direct Line Access may not be the best solution. TalkSwitch extensions with Direct Line Access immediately connect to one of your lines when you pick up the telephone's handset. Therefore, you are unable to select a specific telephone line or access voicemail, intercom or access other system features without first pressing 'flash'.

To have your modem access a specific line using a Hunt Group:

Change your modem's 'Dial Properties' to include the intended Hunt Group (81-88 or 9) followed by the letter 'w', before the 'Dial up Networking' telephone number (e.g. 9w555-5555). Including the letter 'w' after your 'Dial out Access' number instructs your modem to a) dial the access number 81-88 or 9, b) wait until it detects a dialtone, and then c) dial your 'Dial up Networking' number.

If your modem is having problems dialing out, you may have to use a comma (,), which represents a 2 second pause, instead of the 'w' for 'wait for dialtone'.

Because TalkSwitch CA and CVA are digital systems, modem calls will only operate at a maximum speed of approximately 32 Kbps.

4.3 Out of the Office — Receiving Calls through Call Forwarding

4.3.1   The three ways to forward calls

1. Automatic call forwarding — The Auto Attendant can automatically forward office calls to your call forwarding telephone number(s) (Remote Extensions). This is done by using the Auto Attendant message to prompt callers to select your Remote Extension number(s). (e.g. "To speak to John Doe, press 211.")

2. Manual call forwarding — If someone in your office has answered a call at a Local Extension, the call can be 'transferred' to one of the call forwarding (Remote Extension) numbers. Simply put the call on hold at the Local Extension, dial the Remote Extension number (e.g. 211) to which you want the call forwarded and then hang-up. The call will be handled according to the Call Cascade options of that Remote Extension.

3. Conditional call forwarding — If the Auto Attendant answers a call and the caller selects an extension or Ring Group number that is already busy or is not answered, the Auto Attendant can forward the call to a Remote (out of office) extension number. Conditional call forwarding is configured in the TalkSwitch Software using the Call Cascade's 'No answer' or 'Busy at extension' settings configurable for each Local Extension, Remote Extension and Ring Group.

4.3.2   Transferring calls from a Remote Extension

Remote Extension Call Transfer is a new feature introduced in version 2.39 of the TalkSwitch firmware. Calls forwarded to a Remote Extension (not using Centrex or 3-Way Calling services) can be transferred to any local or remote extension, ring group or voice mailbox. This feature also applies to VoIP Extensions 250-299.

Transferring calls:

Calls can be placed on hold at a Remote Extension by dialing ✱✱ anytime during a conversation. You will then hear dialtone as you would hear at a Local Extension. At that time, you can perform any of the following actions:

1. Press ✱✱ again to retrieve the call placed on hold.
2. Dial any Local Extension, Remote Extension or Ring Group.
3. Dial ✱ and mailbox to transfer a caller to a voice mailbox.

If the system is configured in the TalkSwitch software in the Troubleshooting 2 tab to perform blind transfers only, then the system will then play the prompt "Call Transferred. Goodbye." and hang up after the extension or mailbox is dialed.

If the system is configured in the Troubleshooting 2 tab to allow screening of calls, then you need to dial ✱✱ 4 to complete a transfer or ✱✱ 5 to cancel the transfer and return to the caller.

4.3.3   Screening options for forwarded calls

The screening options for Call Forwarding are configured in the TalkSwitch software using the Call Cascade's 'Answer at ext.' options available in the 'Remote Extension' tab. See section 2.3.3.5

Forwarding calls with screening:

When 'play accept/reject prompt' is configured in the 'Answer at ext.' Call Cascade option, TalkSwitch plays a pre-recorded prompt to the caller asking them to hold, and then dials your call forwarding telephone number. When you answer the forwarded call, TalkSwitch plays a pre-recorded prompt to you that identifies the call as having been forwarded ("This is Call Forward"). You then have the choice of accepting the forwarded call by pressing # on your telephone keypad or, re-routing the call to its call screening Call Cascade options by pressing ✱ or hanging up.

When 'play caller's name first' is configured in the 'Answer at ext.' Call Cascade option, TalkSwitch plays a pre-recorded prompt to the caller asking them to record their name at the sound of the tone. TalkSwitch then asks the caller to hold and

dials your call forwarding telephone number. When you answer the forwarded call, TalkSwitch plays a pre-recorded prompt identifying the call as having been forwarded ("This is Call Forward, you have a call from…") and then plays the recording of the callers name. You have the choice of accepting the forwarded call by pressing **#** on your telephone keypad or re-routing the call to its call screening Call Cascade options by pressing ***** or hanging up.

When either screening option is used, and you have music on hold enabled and you are not using the 3-way calling feature (Same Line Connect) to forward calls, the caller will hear music while TalkSwitch is waiting for the Remote Extension to accept the call.

If a forwarded call is not answered or the line is busy, TalkSwitch will perform the following, based upon how the call was originally forwarded:

If the call was automatically forwarded: the call will follow the Remote Extension's 'No answer at ext.' or 'Busy at extension' Call Cascade action.

If the call was manually forwarded: The call will follow the Remote Extension's 'No answer at ext.' or 'Busy at extension' Call Cascade action. This action can be changed to ring the extension back who performed the transfer in the Options>Manual Transfer tab.

If the call was conditionally forwarded: The call will follow the following Call Cascade action in the 'No answer at ext.' or 'Busy at extension' for the original extension chosen.

4.3.4   Calls over VoIP with SIP phones and Gateways

If you have teleworkers connected to the system via a certified compatible SIP device (i.e. gateway or SIP phone), there are several ways that the teleworker can interact with TalkSwitch.

Making calls:

Once the phone or gateway is registered with the TalkSwitch SIP server, then calls can be made as follows.

1. At dialtone, dial a phone number associated to any of the other locations.
2. At dialtone, dial a phone number associated to one of the VoIP lines on TalkSwitch. Ensure an Auto Attendant is programmed to answer this line. Once the Auto Attendant has answered, you can dial any extension, VoIP location or voice mailbox. If you want to place calls through the regular phone lines, then a Call Bridge account must be activated. Regular phone lines can be accessed by dialing '9' then entering the password for Call Bridge.

TalkSwitch currently does not support the ability to place calls on hold or transfer calls when making calls to other locations, since the call does not actually go through TalkSwitch.

Receiving calls:

Once the phone or gateway is registered with the TalkSwitch SIP server, then calls can be received directly from other registered gateways or through the system.

1. If the call is routed via TalkSwitch, then you have the ability to transfer the caller by dialing ✱ ✱ then any extension or voice mailbox.
2. If the call came directly from another SIP gateway or phone, then you can transfer the call if your service provider supports this feature.

4.4 Using the TalkSwitch Voicemail System

Each TalkSwitch unit comes with approximately 30 minutes of voicemail recording capacity (shared with Auto Attendant greetings). This capacity can be increased with the addition of TalkSwitch memory cards. You can add another 1/2, 1, 2 or 4.5 hours of storage to each unit. Contact your TalkSwitch dealer to purchase memory cards. When a TalkSwitch memory card is inserted in the memory slot, the system will automatically configure the card within 20 seconds, making it fully functional.

4.4.1   Activating Voice mailboxes

Voice mailboxes are activated in the TalkSwitch configuration software. There are 3 series of Voice mailboxes that can be activated in the Voicemail section of the configuration:

Local Extension mailboxes:

These mailboxes are generally associated to the Local Extensions. By default, all Local Extensions are activated with a respective mailbox.

Remote Extension mailboxes:

The Remote mailboxes are associated with the Remote Extensions. If you activate a Remote Extension and want a voice mailbox associated with that extension, you can activate that mailbox in the Voicemail tab.

General mailboxes:

These mailboxes are activated in the Voicemail tab. They are not associated to any particular extension.

If you want inbound calls to go straight to a voice mailbox after x number of rings, then you need to program an Auto Attendant to answer first, and then provide a fall through to voicemail. See section 3.3.3.3 for an example of this configuration.

Callers can reach voicemail or announcements via the Auto Attendant, Call Cascade, or they can be transferred from a Local Extension. To leave a message from a local extension, they can pick up a Local Extension and dial **✱** and the mailbox number. To transfer a caller to voicemail, press 'flash' then **✱** and the mailbox number.

When a caller presses **#** after leaving a message, or after 2 minutes has elapsed, TalkSwitch will play a prompt asking callers if they wish to keep the message, listen to the message or record a new message. Callers can also press '0' and the system will direct the call according to the setting of the Auto Attendant that transferred the call originally.

4.4.2   Retrieving Messages/Accessing a Voicemail box

When a new message is left at a Local Extension mailbox, TalkSwitch will play stutter dial tone to that extension when the handset is picked up. It can also light up the message waiting light on the phone if the phone supports FSK Message Waiting Indicator.

To access a mailbox to retrieve messages, or to change mailbox options, dial **✱ ✱ #** from a Local Extension or **✱ ✱** and the mailbox number at the Auto Attendant if dialing from an outside location (or a local extension). Local extensions can also transfer internal calls to voicemail by pressing 'flash' then dialing **✱ ✱** and the mailbox number. If you have Direct Line Access enabled, be sure to press 'flash' before trying to access your mailbox.

If you have a line configured to go straight to voicemail, dial '8' during the greeting to access messages from outside phones.

The first time you access your voicemail, you will be prompted to set up your mailbox by assigning a password (optional), recording a greeting and recording your name for the dial-by-name directory. Since there are no directory listings for the general mailboxes, you will not be prompted to record a name for them. If you wish to have your name in the company directory, you should always use the mailbox associated to its extension, since the directory is related to the extension and its mailbox.

Once your mailbox has been setup and you access it, through prompt instructions you may do the following:

Listen to messages (press 1):

If there are any messages in your mailbox, you can access them by pressing 1. TalkSwitch will always start with new messages before playing back any older messages. You can perform the following actions during or after the message:

Dial 1:	Rewind 10 seconds
Dial 11:	Rewind to beginning of message
Dial 3:	Skip ahead 10 seconds
Dial 33:	Skip to end of message
Dial 5:	Listen to time and date stamp
Dial 6:	Forward the message (with or without a note)
Dial 7:	Delete message
Dial 9:	Save message
Dial ✱ :	Back up one level
Dial # :	Skip to next message – This leaves new messages as new.

Change greeting options (press 2):

This section allows you to record a new personal voicemail greeting. The default greeting is "The extension you have reached is unavailable at this time. Please leave a message after the tone".

Keep in mind while recording your greeting or announcement that callers can press ✱ to return to the previous Auto Attendant (if the call came from the Auto Attendant) while listening to your greeting and can press # when they are done recording for more options. You may want to give your callers these options for their convenience.

Change personal options (press 3):

This section allows you to change your current password, turn auto date and time stamp and phone number on or off and set up or change Pager and Remote Phone Notification for new messages. By default, auto date and time stamp is on and this information is played at the end of each message. If you have Caller ID service, then the phone number is also included with the time and date.

Record name for Dial by Name Directory (press 4):

If you have not already recorded your name for the directory or wish to change the recording, you can do so here. The dial-by-name directory is accessed at the Auto Attendant according to your configuration. Callers are directed to enter the first 3 letters of the employee's last name. The system will find the exact or closest match then play the recorded name and the extension number, then give them the option

to connect to that extension. Note: You must record your name in order for the extension to be included in the dial-by-name directory.

4.4.3 Pager and Cell Phone notification

When a new message is left in a voice mailbox, it can notify a pager, cell phone or any remote number if the mailbox has been configured to do so.

You can configure the system to notify you for every new message or for only the first new message received since the last time new messages were accessed.

If using Remote Phone Notification, you have the option to accept or reject the notification call once you answer. To listen to messages, press #. To put off listening to messages, press *.

For details on configuring Pager and Remote Phone Notification, please see section 3.3.2.

4.5 Music-on-Hold

TalkSwitch can play music to callers when they are on hold, parked or queued. The music played to the callers will be provided by the source you have connected to the MUSIC jack.

If you ENABLE Music-on-Hold and have an audio device plugged into the back of TalkSwitch:

1. When callers are put on hold at an extension, they will hear the music instead of TalkSwitch's default on-hold beeping tone.
2. When the Auto Attendant answers a call and transfers the caller to an extension, the caller will hear a pre-recorded message saying "One moment please", and then hear the music.

If you ENABLE Music-on-Hold and do not have an audio device plugged into the back of TalkSwitch:

1. When callers are put on hold at an extension, TalkSwitch will not play its default on hold beeping tone. The caller will hear silence.
2. When the Auto Attendant answers a call and transfers the caller to an extension, the caller will hear a pre-recorded message saying "One moment please" and then hear silence.

If you DO NOT ENABLE Music-on-Hold and have an audio device plugged into the back of TalkSwitch:

1. When callers are put on hold at an extension, callers will hear TalkSwitch's default on hold beeping tone and your music.

2. When the Auto Attendant answers a call and transfers the caller to an extension, the caller will not hear any pre-recorded message. They will hear your extension ringing and your music.

If you DO NOT ENABLE Music-on-Hold and do not have an audio device plugged into the back of TalkSwitch:

1. When callers are put on hold at an extension, they will hear TalkSwitch's default on-hold beeping tone.

2. When the Auto Attendant answers a call and transfers the caller to an extension, callers will hear your extension ringing.

Music-on-Hold and Call Forwarding to Remote Extensions:

If you are using the telephone company's 3-Way Calling/Conference service (Same Line Connect) to activate TalkSwitch's Call Forwarding, callers will not hear your 'music' when being forwarded to a Remote Extension. When calls are forwarded, the caller is put on hold by the telephone company central office switch rather than at TalkSwitch. Therefore, the caller hears silence while being transferred.

A system prompt will indicate that callers will hear silence while the system tries to locate their party. This prompt helps explain to callers why all of a sudden they may hear silence for an extended period of time before possibly connecting to the Remote Extension. This prompt cannot be disabled.

If you have 2 or more units on a LAN, you will need to supply a music source to each TalkSwitch unit. 1/8" audio splitters are available at most electronics stores.

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4.6 Mode Switching Options

Manual Mode Switching:

You can use telephone keypad commands at either a Local Extension or at the Auto Attendant to have TalkSwitch switch Modes.

At Local Extension dialtone or at the Auto Attendant, dial **#** to enter command mode, then enter a password if necessary. Next, dial any of the following Quick Commands followed by the **#** sign:

Activate Mode 1:	3 1
Activate Mode 2:	3 2
Check Current Mode:	3 0

Automatic Mode Switching using the Time Scheduler:

Use the configuration software to activate TalkSwitch's Time Scheduler feature. You can configure TalkSwitch to automatically switch between Modes by configuring the times for Mode changes in the 'Modes' tab located under Call Handling in the configuration software.

If at any time you switch modes manually, TalkSwitch will automatically switch to the proper mode during the next scheduled mode change.

4.7 Out of the Office — Making Calls with Call Back and Call Bridge

Working together, Call Back and Call Bridge act as your personal long distance operator. Whether you are across town or around the world, these two features allow you to place calls from your office telephone line(s).

4.7.1   Using Call Bridge

Call Bridge allows you to place calls using your office telephone lines when you are not in the office. You can make a call to TalkSwitch, access a telephone line connected to TalkSwitch and enter the number you want to dial. This is especially useful when you are out of the office with your cell phone and need to dial a long-distance number. To avoid long-distance cell rates, all you need to do is make the local call to TalkSwitch to access Call Bridge, then make the long-distance call — accessing your office savings plan.

How to use Call Bridge:

Dial into one of TalkSwitch's Lines. When the Auto Attendant answers, select a Hunt Group (81 – 88 or 9) or Same Line Connect (80). You will then be asked to supply your Account password to receive dial tone. If you are using Same Line Connect (80), and the line you are on supports the 3-Way Calling/Conference service, you will be prompted to enter the phone number.

When you have completed your call (or if the telephone number dialed was busy), you can do one of the following:

a) Make another call: Press **#** **#**. TalkSwitch will disconnect you from the call in progress and you can dial another number or redial the same number.

b) Activate the Auto Attendant: Press **#** **＊**. TalkSwitch will end the Call Bridge session and activate the Auto Attendant. Once the Auto Attendant message begins playing, you have the following options:

- Dial **#** (and enter a password if applicable) to enter Command Mode.

- Dial '6' to change/enter Call Back settings.

- Dial one of your extension numbers (Local, Remote or Ring Group). This option allows you to contact someone in your office, check your voicemail, etc.

c) End the Call Bridge Session: Simply hang up. This will end your Call Bridge session and disconnect you from TalkSwitch. If you want to guarantee that TalkSwitch disconnects at the end of a Call Bridge session, dial **#** **#**, then hang up.

The Call Bridge telephone number dialed can be any telephone number: local, long distance, toll free (800 and 888) or international. Simply enter the telephone number as you would if you were sitting in your office. For long distance calls, do not forget to include the '1', country code, and area code if applicable.

4.7.2   Using Call Back

The Call Back feature allows you to initiate TalkSwitch to call you at a specified telephone number. This gives you access to any of the following:

- Call Bridge
- Local Extensions, Remote Extensions and Extension Ring Groups
- Voicemail
- Configuration settings

Using Call Back involves 3 easy steps:

1. You call your TalkSwitch telephone number to activate Call Back.

2. You answer and accept the Call Back. (TalkSwitch calls you back within 30 seconds.)

3. At the Auto Attendant you can: choose to perform Call Bridge, dial any extension, access and retrieve voicemail or configure TalkSwitch.

Activating Call Back:

There are two ways to activate Call Back; Prompted and Auto Activation:

1. Using 'Prompted Call Back' Activation: From your out-of-office location, dial a TalkSwitch telephone number. Let the line ring until the Auto Attendant answers your call and then dial 6 on the telephone keypad. If you have enabled password protection you will be asked to supply your password. TalkSwitch will then offer a series of prompts. Now you can either enter 1 and hang up to initiate the Call Back or, if you need to enter a new Prompted Call Back number, enter 2 to access the Prompted Call Back settings, then follow the prompts.

For Prompted Call Back, TalkSwitch always dials the last Prompted Call Back number entered. If you do not have the Auto Attendant set to answer a line, a generic TalkSwitch Auto Attendant will answer after 15 rings and you can then dial 6 to access the Call Back settings.

2. Using 'Auto Call Back' Activation: From your out-of-office location, dial one of the Call Back telephone numbers that has been pre-configured for Auto Call Back activation. Let the line ring at least once, but no more than three times and then hang up before the call is answered. Within 20 seconds, TalkSwitch will call your Auto Call Back number.

It is important to remember that all Call Back settings must be pre-configured before using Auto Call Back. Please be sure that the Auto Attendant for the line using Call Back does not answer before 4 rings.

Accepting the Call Back:

There are two ways to accept a Call Back from TalkSwitch.

1. Call Back is normally accepted by answering the call and pressing **#**, then, if required, entering your password. This option is used when you have a direct line to your Call Back telephone number.

2. The 'Use Announced message' option allows the Call Back from TalkSwitch to reach you even when you are in a hotel or an office where calls are intercepted by a receptionist or switchboard operator. When the Call Back is answered, TalkSwitch will begin playing your pre-recorded message (e.g. "Please forward this call to Jane Doe in room 312"). The message will be played repeatedly for 2 minutes. When the call is forwarded to you, press **#**, then enter your password on the telephone keypad to accept the Call Back. (If the Call Back is not accepted within the initial 2-minute period, TalkSwitch will disconnect the Call Back.) After you accept the call, you will hear the Auto Attendant, and you can now make your selection to check your voicemail, ring an extension, use Call Bridge, or enter command mode.

4.8 Upgrading the TalkSwitch Software and Firmware

We are continually looking for ways to enhance your communications capabilities. When new features are added, we want TalkSwitch users to have immediate access to the update.

TalkSwitch supports firmware updates for adding new features. Because of this ability, you can easily update your TalkSwitch by visiting our website at: www.talkswitch.com/support

Step #1 — Check current version

To identify the appropriate update file, you must first determine your TalkSwitch firmware and software versions. You can find your TalkSwitch version numbers by selecting 'About' from the Help menu in the configuration software.

Write down the software and firmware version numbers and then go to the TalkSwitch website at www.talkswitch.com/support. You will find instructions there to help you to select and download the appropriate upgrade. Follow the instructions on the site, as they will take precedence over any instructions in this manual.

About TalkSwitch

talkswitch®

TalkSwitch Configuration Utility Version 3.21s Build 75

Warning: This computer program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent of the law.

OK

Step #2 — Download new software and firmware

When you select and click on the appropriate version for download, a screen will appear asking you what you would like to name the file you are about to download, and in which folder/directory you would like to save it. We suggest leaving the file name as is (eg. install.exe) and saving it on your Desktop. Once the download is complete, you can begin your upgrade by double clicking on the install file or using the 'Run' option on your Windows 'Start' menu. A series of windows will guide you through the installation process.

This process updates your configuration software to a newer version. You still need to update the firmware to take advantage of new features. The new firmware file will have been placed in the TalkSwitch directory after running the install program.

Step #3 — Updating the firmware

The final step in the upgrade process is to update the firmware. Follow the instructions listed on the website carefully for performing the update.

The actual update process will take approximately 1 to 5 minutes, depending on how many files are needed for the update and how many units are being updated. During the update, the LED lights on TalkSwitch's front panel will show diagnostic indicators for the update.

If you have 2 or more units networked, be sure to update each unit. Units will not operate properly if they are networked together with mismatched firmware versions. To confirm all units are properly loaded, you can select 'View Details' on the 'About TalkSwitch' page in the configuration software. See Below.

In the event the firmware update was unsuccessful, please follow the instructions through the update process again. If you continue to have problems, please contact your reseller or TalkSwitch.

Firmware updates will not alter your system configuration. In the event of a major system update, it may be necessary for the configuration file to be reset to default values. In this case you will need to reconfigure the entire system. In the case of a major system update, TalkSwitch will mention any issues involved with the firmware update.

If you replaced your computer with a new one, please use the software that matches the latest version of firmware running on TalkSwitch. If obtained from our website, you can once again download the install file. All install files found on the website have both the entire software program and the latest firmware.

Appendix A

Help and Troubleshooting

If you are having problems with the configuration or operation of TalkSwitch, please check this section. If you don't find the solution to your problem here, try checking the FAQ section located in the Support area at our website: www.talkswitch.com/support.

If you cannot resolve your problem and require further assistance, you can do one of the following:

1. Contact your TalkSwitch dealer.

2. Contact our Customer Support department by e-mail: support@talkswitch.com.

3. Call a Technical Support Specialist at TalkSwitch:

    1-866-393-9960 (continental North America) or (613) 725-2466 weekdays between 9:00 a.m. and 5:00 p.m. EST.

Please have the following information available when you call:

   a) Your e-mail address and telephone number.

   b) The serial number located on the bottom of TalkSwitch.

   c) Your date of purchase.

   d) The number of telephone lines that you have connected to TalkSwitch.

   e) The telephone company services that you are using with TalkSwitch.

   f) Your PC's operating system (e.g. Windows 95, 98, ME, 2000, XP).

Troubleshooting

This section of the manual is designed to help you quickly resolve problems with TalkSwitch. The problems are organized in the following manner.

1. Problems that can occur when installing the configuration software.

2. Problems that can occur during Configuration.

3. Problems that can occur while using TalkSwitch.

4. Problems that can occur with 2 or more units networked

Before examining the problems, review these common installation checks.

1. Check that your telephone cables are connected to a wall jack at one end and TalkSwitch at the other. Ensure the devices you are using as TalkSwitch extensions (phones, faxes, etc.) are plugged into the extension jacks located on the back panel of TalkSwitch. (Do not plug your extensions directly into a wall jack unless that jack is wired to a TalkSwitch extension jack.)

2. Check the Serial, USB or LAN connection between TalkSwitch and your PC.

3. Ensure that TalkSwitch's power adapter is plugged into a working power outlet and that TalkSwitch is turned on. Please make sure that you are using the power adapter that was provided with TalkSwitch. This is a unique adapter and it cannot be substituted with any other adapter. If your adapter appears to be defective, please contact your TalkSwitch dealer to order the proper replacement adapter.

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4. If networked, ensure that you have the latest firmware loaded on all units. In the TalkSwitch software, select 'Configure', then on the 'About TalkSwitch' page, click on the 'View Details' button in the upper right corner of the screen. All units listed should have the same firmware version.

Diagnostic codes for the lights flashing on the front panel of TalkSwitch

All line lights flashing simultaneously: The Unit ID of this TalkSwitch is in conflict with another TalkSwitch unit on the same LAN. Make sure you assign a different Unit ID to each TalkSwitch unit. See section 2.5.3 for more information on changing a unit ID.

Line 2 and 3 lights flashing simultaneously: There is a file system error. To fix the problem, reboot TalkSwitch. It will do a file system check and fix any problems encountered. If this does not resolve the problem, contact your TalkSwitch dealer.

Line 1 and 4 lights flashing simultaneously: There is a voice mailbox error. To fix the problem, reboot TalkSwitch. It will do a file system check and fix any problems encountered.

Line 3 and 4 lights flashing simultaneously: Firmware not loaded or corrupted. To fix the problem, reload the TalkSwitch firmware. Make sure you update with the last

version you updated with. Do not use an old version off the install CD if you have updated your system.

Line 1 and 4 then Line 2 and 3 lights flashing alternately: System prompts not loaded or corrupted. To fix the problem, reload the TalkSwitch firmware. Make sure you update with the last version you updated with. Do not use an old version off the install CD if you have updated your system.

Problems that may occur during Configuration

Problem: I am not able to "Retrieve settings" from my TalkSwitch.

Solution: Try the following solutions, in order, until the problem is resolved.

- Ensure TalkSwitch is turned on and plugged into a working power outlet. Then select "Retrieve settings", under the File menu in the configuration software.
- Make sure the serial or USB cable connecting TalkSwitch and your PC is securely attached to the ports. Select "Connect", under the TalkSwitch configuration window.
- From the Control Center section of the TalkSwitch software, choose 'PC Connection' and then select COM Port. Ensure that the configuration software is using the correct port to communicate with TalkSwitch. Then select"Retrieve settings", under the File menu in the configuration software.
- Try rebooting TalkSwitch (turn the power off and then back on). Then select "Retrieve settings", under the File menu in the configuration software. This will often correct any miscommunication that may have occurred between TalkSwitch and your PC.
- Make sure you do not have any communications programs running at the same time you want to use the TalkSwitch configuration software. These can include Palm Pilot, Hot Sync, TalkWorks, digital camera software or others. These programs tend to hold on to COM ports, making them unavailable for other programs.

Problem: I am unable to configure TalkSwitch using a touch-tone phone and the Keypad Commands.

Solution: Try the following solutions, in order, until the problem is resolved.

- TalkSwitch cannot be configured using a phone that is sharing a line with it.
- If you are trying to configure TalkSwitch using an Out-of-Office phone, you must first enter Command Mode. Dial **#** at the auto attendant If you have enabled password protection, you must also first enter the correct password.
- If you are trying to configure TalkSwitch using a Local Extension, make sure the extension has not been given 'Direct Access' to your telephone lines. If so, you will have to dial 'Flash' to receive internal dialtone.
- If the TalkSwitch configuration software is open, you cannot configure TalkSwitch using touch-tone keypad commands. If the software is closed and you continue to get the prompt "I'm sorry, TalkSwitch is currently being configured." Try rebooting TalkSwitch (turn the power off and then back on).

Problems that may occur while using TalkSwitch's features

The Auto Attendant:
Problem: The Auto Attendant does not play when calls come in.

- Make sure you have recorded the Auto Attendant message.
- Check your Call Handling settings for the 'Auto Attendant answers' number of rings. It may be that the number of rings is set too high.
- Check the mode TalkSwitch is currently running. It is possible that you are in Mode 2 and have not configured TalkSwitch properly for this mode. Check what you have programmed for Mode 2 in the Telephone Lines section of the TalkSwitch software under 'Call Handling'.
- The line is not connected properly to TalkSwitch. Check to see that the line light associated to the line is flickering. If not, try replacing the phone cord.

Problem: The Auto Attendant message is broken up or very faint.

- Adjust the Line Controls volume setting located in the Audio Controls tab in the Options folder of the configuration software.
- The quality of the microphone in the telephone handset that you are using to record your Auto Attendant also affects the quality of your recording. Try recording the Auto Attendant using another extension/telephone.

Problem: The Auto Attendant answers calls before any of the extensions ring.

This is a problem for those TalkSwitch users who wish to have their Local Extensions ring before the Auto Attendant picks up incoming calls.

- Check the 'Extensions to ring' column in the Telephone Lines tab in the 'Call Handling' folder. The number of rings may be set too low.

Problem: The Auto Attendant is transferring calls to the wrong extension.

- Verify the extension jacks your devices (phones, faxes) are attached to.

Problem: The Auto Attendant answers calls, but does not transfer them to the extensions.

- Make sure your extensions are plugged into the extension jacks on the back panel of TalkSwitch (instead of your telephone wall jacks).
- Check your settings in the Auto Attendant page. Are the options pointing to the correct extensions?

Music-on-Hold:
Problem: Callers hear the 'One moment please' message and then total silence when the Auto Attendant transfers their call to an extension.

- You have enabled the Music-on-Hold feature, but have not attached an audio device to the MUSIC jack on TalkSwitch.
- There is a problem with the music source. Check all connections and power.

Problem: Callers hear only silence when put on hold at an extension.

- You have enabled the Music-on-Hold feature, but have not attached an audio device to the MUSIC jack on TalkSwitch.
- Make sure you use the 'Flash' or 'Link' button to put callers on hold. If you use the 'Hold' button on a regular phone, callers will be placed on hold at the phone itself, and not through TalkSwitch.

Problem: Sometimes callers do not hear Music-on-Hold.

- Make sure you have a music source connected to the MUSIC jack at the back of each TalkSwitch unit connected to the LAN.

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Call Routing with Local Extensions and Home Phones (Transfer and Intercom):

Problem: Callers are disconnected when transferring calls from one extension to another.

- It is possible that if you are using the hookswitch to put callers on hold rather than a Flash button, you may be holding the hookswitch down too long, and, as a result, are actually hanging up on the caller.

Problem: I can't use my Conference/3-Way Calling feature from the phone company.

- You need to make sure you have checked the box indicating that you have 3-Way Calling or Transfer and clear on the appropriate lines. This option is located on the Telephone Lines page in the 'System Information' folder of the configuration software.

Problem: Unable to place intercom calls from a Local Extension.

- If the Local Extension has been configured for Direct Access to your telephone lines, you need to press 'Flash' before intercom calling.

Answering and Fax Machines:

Problem: The answering machine and/or fax machine picks up calls before they can be answered by telephone extensions.

- Check your settings in the Telephone Lines tab in the 'Call Handling' section in the configuration software. The problem may be that your fax machine and/or answering machine extension is set to answer calls at the same time as your telephone extensions. To fix this problem, remove the fax or answering machine extension from the list of extensions to ring on an incoming call.

Problem: Incoming faxes are not automatically detected and routed to the fax machine.

- On the Auto Attendant tab of the configuration software, check to ensure that you have chosen the appropriate extension for the field labeled 'if a fax call is detected'.
- Not all fax machines emit a CNG tone that TalkSwitch can detect and route. Therefore, it is wise to consider incorporating an additional method of fax routing. This may include the use of a distinctive ring number or giving the caller the option to select the fax extension. See section 3.3.1.7.
- Many fax machines/modems will 'time out' or disconnect after 25 seconds, on average, if they have not connected with another fax machine/modem. If you are using the 'User does not make a selection' option to route incoming faxes, the fax call may 'time out' before it reaches your fax extension. If your Auto Attendant is lengthy, you may want to shorten it or use another fax routing option.
- The level of the Auto Attendant is too loud and as a result is overpowering the CNG tone, affecting detection. You may want to lower the volume level of the Auto Attendant.

Other Possible Local Extension Problems:
Problem: I am unable to access TalkSwitch Lines with a Local Extension.

- Check your 'Direct Line Access' settings on the Local Extension page under 'System Information' of the configuration software. If a Local Extension has not been given 'Direct Access' to your telephone lines, you must dial 81-88 or 9 to access a line.

Problem: My PC (Internal or External) Modem cannot dial out.

- If the extension to which your Modem is attached has not been given 'Direct Access' to telephone lines, you will have to include a Line Hunt Group prefix (81-88 or 9) before the number you are dialing.

Problem: One of the Local Extensions (telephones) does not ring.

- Some telephones require more voltage in order to ring. These phones are usually the older 'Bell' phones that have mechanical ringers. These phones are too much of a load for TalkSwitch and should not be used as an extension.
- Make sure the telephone cord you are using between the phone and TalkSwitch is working properly.
- Check to make sure the ringer is turned on for your phone.

Problem: Extension(s) ring, but there is no caller.

- This can occur when a caller hangs up after the Auto Attendant has begun to play. In some areas, the Telephone Company's 'disconnect/clear' signal is weak. This is the reason the Auto Attendant may not pick up the disconnect signal right away when a caller hangs up. Because the Auto Attendant will receive no response after playing its message, the call will fall through to your settings for the 'User does not make a selection' option associated with that Auto Attendant.

Problem: When I try to access voicemail, I hear a busy tone.

• Check your 'Direct Line Access' settings on the Local Extensions screen under 'System Information' of the configuration software. If a Local Extension has been given 'Direct Access' to your telephone lines, you must first dial 'Flash' before dialing the mailbox. The same applies for dialing other extensions to initiate intercom calls.

Problems that may occur with 2 or more TalkSwitch units connected to the same LAN.

Problem: I can't reach an extension across the LAN

• Make sure the other unit is connected to the LAN and powered on.
• Pick up a Local Extension belonging to the other unit. If there is dialtone, then check your LAN connections. On the rear panel, the top LED of the 3 LEDs next to the LAN port should be on. If there is no dialtone, then make sure the unit is powered on.

Problem: The configuration does not show the other TalkSwitch unit(s)

• Check your LAN connections. Are you able to communicate with another extension on the other unit?
• Check the Unit ID of each unit. If the lights on one or more units are flashing, then there is a conflict with the Unit ID numbers assigned to each TalkSwitch unit. Connect a phone to each TalkSwitch unit and lift the handset. It will tell you immediately if a Unit ID number needs to assigned. Follow the instructions accordingly. You can dial **#** 00 **#** at any time to check the Unit ID of the unit you are connected to. See section 2.5 for more information.

Problem: After recording an Auto Attendant greeting, I can't play it back.

• After recording an Auto Attendant on one of the TalkSwitch units, it will then copy it to other TalkSwitch units on the LAN. During this process, you cannot listen to that particular Auto Attendant. Try again in a few minutes.

Problem: Calls are not always reaching my voicemail.

• In extreme cases, when the system is in high use, all channels across the LAN might be in use so calls cannot be transferred to extensions or voicemail. If this situation appears to be happening frequently, you may want to consider optimizing the way the system uses lines. In the Line Hunt Groups section of the software, we recommend that you enable the 'Hunt lines on same unit first' option. Also, ensure that frequently used extensions are connected to units with ample lines out, to reduce LAN traffic.

  Example: You have 2 TalkSwitch units, 6 lines and 12 employees. The 6 lines have the Hunt/Rollover service from the phone company.

Suggested setup:

Plug the 4 highest traffic lines into unit 1. Also connect the 8 highest phone usage employee extensions to unit 1. Next, connect the remaining lines and extensions to unit 2. Make sure you leave the 'Hunt lines on same unit first' option enabled in the Line Hunt Group section of the software. This arrangement keeps most of the traffic on unit 1 and any outbound calls made from any extension will usually go out on the same unit the extension is connected to. The same will apply for inbound calls forwarded to Remote Extensions. The call will be forwarded out on a line belonging to the same unit that the call came in on. Only if a line on that unit is unavailable will the call be forwarded out on a line on the other TalkSwitch unit.

Problem: Calls across the LAN are lower in volume

• Check the line gain levels on the Audio Controls page located in the 'Options' folder in the TalkSwitch configuration software. You may need to boost the Line gain levels on one or more lines to compensate for high loss lines. Take note that if these controls are set improperly and your lines are problematic, you may hear an echo when calls are made across the LAN.

Problems that may occur with VoIP

Problem: I hear re-order tone when I try to dial a VoIP location.

• Confirm the number dialed is actually part of the VoIP group (i.e. registered with the same Proxy/Registrar server as your TalkSwitch CVA, SIP gateway or SIP phone is registered with.
• Check that TalkSwitch has all proper settings in the IP Configuration and VoIP Configuration pages
• Contact TalkSwitch for help at 888.332.9322

Problem: Callers complain the sound is distorted or choppy.

• Your broadband connection may not have enough upstream bandwidth to support many simultaneous VoIP calls. In the 'Options' section under 'Audio Controls', you may need to disable the G.711 and G.726 codecs and only use G.729.
• You may have too much data traffic on your Internet connection at the same time you are trying to make voice calls. We suggest that you use a router that supports QoS (Quality of Service) for VoIP.

Problem: When I call someone or they call me, voice is only heard in one direction

• The cause of this problem is usually a result of a router being misconfigured with respect to port mappings. Ensure all required VoIP ports are mapped to your TalkSwitch unit. Also, ensure you use a static private IP address when connected to your router as this can also affect port mappings from the firewall/router.

For more VoIP information, visit our support section at www.talkswitch.com/support.

Appendix B

Using TalkSwitch with Telephone Company Calling Services

Many of the calling services offered by your local telephone company are compatible with and enhanced by TalkSwitch's capabilities.

Caller ID (Call Display) — Displays the telephone number and name associated with an incoming call.

> TalkSwitch is capable of regenerating the Caller ID and passing the information to its Local Extensions when incoming calls are transferred by the Auto Attendant. TalkSwitch regenerates the Caller ID and passes it only to the selected Local Extension. If a Local Extension is configured to ring at least twice before the Auto Attendant answers, TalkSwitch will pass the Caller ID information to that extension. If a call is transferred from one extension to another, the Caller ID information will also be passed. TalkSwitch can also use the Caller ID's time stamp to set its internal clock.

Distinctive Ring—- The ability to have more than one telephone number that callers can dial to reach the same telephone line. (Distinctive Ring is also referred to as: Ident-A-Ring; Ident-A-Call; Ring Master; Teen Service; Double Number; Personal Ringing; Ring Plus; Smart Ring Service; Special Ring; or Customized Ringing.)

> TalkSwitch can detect Distinctive Ring telephone numbers and use them to route incoming calls automatically. TalkSwitch gives you the ability to use two Distinctive Ring telephone numbers on all lines. Distinctive Ring numbers on TalkSwitch's Lines also have access to the Auto Attendant and all of TalkSwitch's other call routing features.

> TalkSwitch's Distinctive Ring call routing features can be used a number of ways. Routing fax/modem calls, routing voice messaging, separating home/office calls, and making use of TalkSwitch's Auto Call Back feature. Each Distinctive Ring number has a distinctive ring cadence or ring sequence that allows you to identify the number that was dialed.

Voicemail (Call Answer) — A service which gives callers the opportunity to leave a message when your phone line is busy or unanswered.

TalkSwitch can work in conjunction with your telephone company's Voicemail Service.

Call Waiting — If you are already on the phone, the Call Waiting service will emit a soft beeping sound to let you know you have another call waiting to be answered.

To talk to the other caller when you hear a Call Waiting beep, press the Flash button twice. To return to the other caller, you will need to press the Flash button twice again. This service is not recommended, since TalkSwitch cannot answer the second call while the first call is already being routed by the Auto Attendant.

3-Way Calling/Conference — The 3-Way Calling/Conference service allows you to add a third party to a call already in progress.

The 3-Way Calling/Conference service enhances TalkSwitch's capabilities whether you have 1 or more telephone lines. Using 3-Way Calling/Conference service gives you access to TalkSwitch's Call Forwarding, Call Back and Call Bridge features.

Centrex/Plexar Transfer — The Centrex Transfer service is similar in function to the 3-Way Calling/Conference service. The primary difference is that two external parties can still remain in conversation even after you hang up. TalkSwitch can disconnect after the transfer if you have this service and have enabled the 'Transfer and clear' option on the Miscellaneous page located under 'Options' in the TalkSwitch software.

Using one telephone line with Centrex Transfer service gives you access to TalkSwitch's Call Forwarding, Call Back and Call Bridge features.

Hunt or Rollover — When using two or more lines, calls coming in on a busy line can be "rolled over" to an available line in a "hunt" pattern that you can set. There are two types of hunting — Sequential and Circular. Sequential hunting starts at the number dialed and ends in the last number in the assigned group. Circular hunting hunts all the lines in the hunting group, regardless of the starting point. (It will only circle once through the Hunt Group).

TalkSwitch has the same functionality available on all lines and can work in conjunction with the Hunt and Rollover services.

Call Hold and Flash

TalkSwitch uses Flash to put calls on hold. A Flash signal is produced by pressing the Flash or Link button on your telephone (Link is another name for Flash). If you do not have these buttons on your telephone, you can produce a Flash signal by quickly depressing and releasing the telephone's hangup hook or hook switch.

Single Flash — is pressing the Flash or Link button once. You can also depress and release the telephone's hangup hook or hook switch once.

Double Flash —is pressing the Flash or Link button twice. You can also depress and release the telephone's hangup hook or hook switch twice. When using your telephone's hangup hook to initiate a 'Double Flash', do not try to initiate the second Flash too quickly or you may disconnect your caller. Press and release the hangup hook once, count to 2, then initiate the second Flash.

When would you use double flash?

1. If TalkSwitch is connected to any other system/service that uses Flash to activate its features (e.g. a Key Telephone System, PBX, or telephone line with the Centrex service from your phone company).

2. If you are using any of your local telephone company services that are activated with Flash (e.g. Call Waiting, 3-Way Calling/Conference, etc.).

What does Single and Double Flash do?

TalkSwitch and the above-mentioned systems/services use Flash to activate their calling features. TalkSwitch therefore needs a way to tell which (or whose) features you want to access when you press the Flash button.

Using a 'Single Flash': places the caller on hold. (The Flash is not passed to the CO line, solving problems associated with Flash causing a hang-up at some COs).

Using a 'Double Flash': the first Flash places the caller on hold, and the second Flash (if pressed within 2 seconds) tells TalkSwitch to pass a Flash to the CO line to activate the intended CO or PBX feature.

Appendix C

Quick Commands and Touch-Tone Functions

These Touch-Tone Quick Commands can be dialed from a Local Extension or an outside telephone at the Auto Attendant. To enter Command mode, dial **#** at a Local Extension or at the Auto Attendant. If you are requested to enter a password, enter the Administrator password. Next, enter any command followed by the **#** sign.

Command	Action
00	TalkSwitch tells you the Unit ID of the unit you are connected to.
0x	Assign Unit ID 1 - 4 to TalkSwitch (x = 1 to 4)
30	TalkSwitch tells you which mode it is currently using.
3x	Switch Modes (x = 1 or 2)
4x	Record Auto Attendant (x = 1 to 9)
04x	Erase Auto Attendant messages (x = 1 to 9)
5x	Playback Auto Attendant messages (x = 1 to 9)
61 - 64	Record Auto Call Back Announced Messages 1 - 4
65	Record Prompted Call Back Announced Message
061 - 064	Erase Call Back Announced Messages 1 - 4
065	Erase Prompted Call Back Announced Message
71 - 74	Playback Auto Call Back Announced Messages 1 - 4
75	Playback Prompted Call Back Announced Message
90	Set to Serial connection mode (default)
91	Set to USB connection mode
2xx 8<phone number>	Enter Remote ext. (2xx) phone number
2xx 980 0	Enter Remote ext. (2xx) Turn off "Same Line Connect"
2xx 980 1	Enter Remote ext. (2xx) Turn on "Same Line Connect"
2xx 9 <Hunt Group>	Enter Remote ext. (2xx) "Connect using:" Hunt Group (Hunt Group = 9, 81-88)
1xx 61	Enable 'Do not Disturb' at the Local Extension
1xx 60	Disable 'Do not Disturb' at the Local Extension

Networked

Touch-tone features dialed from a Local Extension

Command	Function performed	Notes
1x1-1x8	Intercoms a Local Extension	x represents the Unit ID [Networked]
2x1-2x8	Dials a Remote Extension (associated with an external phone number).	x represents the Unit ID [Networked]
250-299	Speed dial for VoIP calls. TalkSwitch will hunt the VoIP ports, go off hook then dial the digits entered.	
300-309	Dials an Extension Ring Group. 10 in total for the entire system. Mapped to local extension(s), with specific fall through options.	
<flash> if connected to a caller	Puts caller on hold.	After putting a caller on hold, you receive internal dialtone
<flash> at internal dialtone	It retrieves the most recent caller put on hold.	To retrieve the caller on hold for the most time, dial 7 at internal dialtone.
<flash> at external dialtone	Switches to internal dialtone. Used mainly when an extension has Direct Line Access enabled.	
*1x1-1x8 *2x1-2x8 *4x0-4x9	Dials into a local ext. voice mailbox. Dials into a remote ext. voice mailbox. Dials into a general ext. voice mailbox.	To transfer a caller to a mailbox, press 'flash' to place a call on hold, then *1x1-1x8, *2x1-2x8, or *4x0-4x9 and hang up. x represents the unit ID [Networked]
**1x1-1x8 **2x1-2x8 **4x0-4x9 **#	Internal voicemail retrieval/access. **# accesses the mailbox associated to that extension.	To retrieve voicemail. x represents the Unit ID [Networked]
<flash>4	Completes a transfer and returns to internal dialtone.	Action performed after putting a caller on Hold then dialing an intended destination.
*0	External P.A. Access	To make an announcement through the attached external P.A. system.

<flash>5	Disconnects current caller and reconnects immediately to the last caller put on hold.	
(*)500-509	Call Parking Spots — 10 in total for the entire system.	Press 'flash' to place a call on hold, then assign a parking space (*)500-509.
(*)510	Auto Park a call.	Press 'flash', then (*)510 to place a caller in the next available parking spot (park orbit).
(*)(*)500-509	Parked Call Retrieval	To pick up a parked call.
<flash>6	Conference Call for 3 parties	Press 'flash' to put the first caller on hold, dial another extension or external number, then press 'flash' 6.
(*)60 (*)61/62	Disables/Enables/Toggles. Enables/Disables 'Do Not Disturb' at the current extension.	User will hear confirmation. Reminder is played every time the extension is picked up when enabled.
(*)7 and 1xx	Call Pick up — Extension Specific	To pick up a call ringing at another extension at anytime including after the Auto Attendant answers.
<flash>7	Hold Retrieve — used for retrieving any calls placed on hold at that extension.	Or press 'flash', then 7 to cycle through on a first in / first out basis.
80	Accesses Same Line Connect when transferring an outside caller to another outside number.	Put the caller on Hold, dial 80, and then dial the outside number. Hang up to complete the transfer. Can only be used when the line has 3-Way Calling/Conference or Transfer (Centrex/Plexar) service.
81-88, 9	Line Hunt Groups used to access a line.	
(*)80	Play music source through PA output.	To toggle on or off music through the PA port. Useful for office background music.
(*)9	Call Pick up	To pick up a call ringing at any other extension.
(#)	Enters command mode.	

If you have Direct Line Access enabled at your Local Extension, then you must first press 'flash' before using most of the functions listed.

Touch-tone features dialed at the Auto Attendant message from outside phones

Digit dialed	Function performed
0	User Defined — An Extension, Ring Group, Auto Attendant, Voice mailbox, Announcement or perform no action.
1x1-1x4 1x1-1x8	Dials Local Extensions. x represents the Unit ID number.
2x1-2x8	Dials Remote Extensions associated with an external phone number. x represents the Unit ID number (1-4).
250-299	Speed dial for VoIP calls. TalkSwitch will hunt the VoIP ports, go off hook, then dial the digits entered.
300-309	Dials Extension Ring Groups — 10 in total for the entire system. Mapped to Local Extension(s), with specific fall through options.
1,2,3,4,5	User Defined — An extension, Ring Group, Auto Attendant, Voice mailbox, Announcement or Perform no action.
6	Enters Call Back configuration.
7(xxx…)	PBX Transfer — A flash hook transfer with disconnect after dialed. Usually used only in systems connected to another PBX.
81-88, 9	Access to line Hunt Groups for Call Bridge — Password protected at the Auto Attendant.
80	Call Bridge using Same Line Connect. Requires 3-Way Calling/ Conference on the line.
✱1x1-1x8 ✱2x1-2x8 ✱4x0-4x9 4x0-4x9	Enter Internal voicemail to leave a message or listen to an announcement. If you press 8 during the greeting, you can access messages. x represents the Unit ID number. Callers can directly also dial 400 series mailboxes.
✱✱1x1-1x8 ✱✱2x1-2x8 ✱✱4x0-4x9	Internal voicemail retrieval/access. x represents the Unit ID number.

Appendix D # Safety Precautions and Regulatory Information

Safety Precautions

Before using TalkSwitch, please review and ensure the following safety instructions are adhered to:

1. Read, Follow and Retain Instructions — all safety and operating instructions should be read, followed and retained for future reference before operating the equipment.

2. Heed Warnings — all warnings on the equipment and in the operating instructions should be adhered to.

3. Do not operate in environments where the temperature is below 0 degrees Celsius or 32 degrees Fahrenheit. If the product was shipped in cold weather, please let the system warm up at room temperature for at least 2 hours before plugging it in to a power outlet.

4. Moisture — Do not place TalkSwitch in a high-humidity environment.

5. Heat — Never place TalkSwitch near heat sources such as radiators, floor registers or in direct sunlight.

6. Power Supply — The equipment should only be connected to an approved power supply of the type described in the operating instructions or marked on the equipment. Use only the power adapter supplied with TalkSwitch.

7. Damage requiring service — Do not attempt to service the TalkSwitch yourself. Unplug TalkSwitch and refer servicing to a licensed technician when:

    • The plug or power cord has been damaged.

    • TalkSwitch has been exposed to moisture.

    • TalkSwitch does not appear to be operating properly or exhibits a marked change in performance.

Important Notices

FCC and IC Warnings

This equipment complies with ACTA TIA/EIA/IS-968A and Part 68 of the Federal Communications Commission (FCC) rules in the United States. It also complies with regulations RSS210 and CS-03 of Industry Canada and Science Canada. This equipment also complies with Part 15 of the FCC Rules, as well as ICES003 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

FCC Part 15:

NOTE: This equipment has been tested and found to comply with the limits for a "CLASS B" Digital Device pursuant to Part 15 of the FCC rules. These limits are designed to provide a reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different to that which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

► This CLASS B Digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

► Changes or modifications not expressly approved by TalkSwitch could void the user's authority to operate the equipment.

ACTA TIA/EIA/IS-968A, FCC Part 68 and IC CS-03:

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee that the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local Telecommunications Company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure, for their own protection, that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

► Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

A label is located on the underside of the base unit containing both the FCC registration number and Ringer Equivalency Number (REN) or the IC registration number and Load Number. You must, upon request, provide this information to your local telephone company.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company.

► This equipment is compatible with inductively coupled hearing aids.

Service

Should you experience trouble with this telephone equipment, Model: CT-TS01, for repair or warranty information please contact your reseller. See Appendix E, "TalkSwitch One Year Limited Warranty", for more information.

If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is corrected.

This equipment cannot be used on public coin telephone services provide by the telephone company. Connection to party line service is subject to state tariffs.

The FCC requires that you connect your cordless telephone to the nation-wide telephone network through a modular telephone jack (USOC, RF11C, RJ11W, or RJ14).

Your telephone company may discontinue your service if your equipment causes harm to the telephone network. They will notify you in advance of disconnection, if possible. During notification, you will be informed of your right to file a complaint to the FCC.

Occasionally, your telephone company may make changes in its facilities, equipment, operation, or procedures that could affect the operation of your equipment. If so, you will be given advance notice of the change to give you an opportunity to maintain uninterrupted service.

Fax Branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or any other electronic device, including Fax machines and Fax modems, to send any message unless such message clearly contains a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

Appendix E

TalkSwitch One-Year Warranty

The Original end-user customer acknowledges that he or she has read the limited One-Year Warranty and Warranty Disclaimers and understands the same and agrees to be bound by its terms and conditions.

TalkSwitch, a division of Centrepoint Technologies Inc. ("TalkSwitch") warrants to the original end-user customer ("Customer") that each new TalkSwitch product shall be substantially free from defects in materials and workmanship under normal use for a period of one (1) year from the date of the original purchase (proof of purchase required). The exclusive remedy and entire liability under this warranty will be for repair or replacement on a like-for-like basis at TalkSwitch's option.

The above warranty shall not apply to product defects resulting from (a) improper maintenance or installation; (b) misuse, neglect or accident; (c) damage from moisture or corrosive environments; (d) use of the power adapter with supply voltages other than that for which it is specified; (e) static discharges; (f) high voltage surges; (g) electrostatic discharges; (g) operation outside the product's specification; or (h) failure to follow product instructions.

The warranty is void where (a) the serial number has been altered, removed or effaced; or (b) the product has been used in an application, country, region, locality, or connected to any network, other than those for which the product was intended to operate.

TalkSwitch shall not have any obligation to repair or replace product until the Customer returns defective product to TalkSwitch. Any replacement product may be either new or like-new, and may contain remanufactured parts, equivalent to new in performance.

EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH ABOVE, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE PRODUCTS AND STORAGE MEDIA ARE SUPPLIED ON AN "AS IS" BASIS AND THERE ARE NO WARRANTIES, REPRESENTATIONS OR CONDITIONS WHETHER EXPRESSED OR IMPLIED, WRITTEN OR ORAL, ARISING BY STATUTE, OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE, WITH RESPECT TO THE PRODUCT. TALKSWITCH SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, DURABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT.

IN NO EVENT SHALL TALKSWITCH BE LIABLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT OR SIMILAR DAMAGES, INCLUDING ANY LOST PROFITS, LOST DATA, OR OTHER INCIDENTAL OR CONSEQUENTIAL OR PUNITIVE DAMAGES, WHETHER BASED ON CONTRACT, TORT (INCLUDING WITHOUT LIMITATION, NEGLIGENCE), OR ANY OTHER LEGAL THEORY, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR WHETHER SUCH DAMAGES ARE FORSEEABLE. IN ANY EVENT, THE TOTAL AGGREGATE LIABILITY OF TALKSWITCH FOR DIRECT DAMAGES SHALL NOT EXCEED THE PURCHASE PRICE OF THE PRODUCT.

This warranty gives specific rights, and Customer may have other rights subject to jurisdiction. To the extent any part of this limited warranty statement is inconsistent with such local law, that part shall be deemed modified to be consistent with such local law.

DOC Compliance

This digital apparatus does not exceed the Class B limits for radio noise emissions for digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

The FCC Statement is located in Appendix D, "Safety Precautions and Regulatory Information".

Warranty Service

To be eligible to obtain warranty service you must retain proof of purchase and contact your reseller for warranty details. If you fail to provide proof of purchase, your reseller and TalkSwitch, a division of Centrepoint Technologies Inc. ("TalkSwitch") will not be able to provide you with any kind of warranty service.

To obtain warranty service, products must be sent to your reseller or a service facility designated by TalkSwitch. The original end-user purchaser shall pay all shipping charges, duties and taxes for products sent to TalkSwitch for warranty service. TalkSwitch shall pay for return of the product to the end-user purchaser.

To obtain Warranty service:

If purchased from a reseller:
Contact your reseller and obtain a Warranty Return Authorization (WRA) number if required.

If purchased from TalkSwitch:
Please contact the Technical Support department at TalkSwitch to obtain an WRA number — (866) 393-9960 toll free in continental North America or (613) 725-2466. Please have your model and serial number available when you call.

If the product is being shipped from outside of Canada, the following statement must be included on the package. '**Canadian Goods Being Returned to Canada**'.

Failure to obtain a WRA number and include the necessary information will result in the package being refused.

Return Policy

Products purchased from a reseller:

Check with your reseller on the specific details regarding their return policy.

Products purchased directly from TalkSwitch:

Contact TalkSwitch, a division of Centrepoint Technologies Inc. ("TalkSwitch") for details regarding the return policy. TalkSwitch will provide you with a Return Merchandise Authorization (RMA) number and all the necessary instructions for returning the product.

TalkSwitchwill not accept product returns outside of its return policy.

If the product is being shipped from outside of Canada, the following statement must be included on the package. '**Canadian Goods Being Returned to Canada**'.

Failure to obtain an RMA number from TalkSwitch and include the necessary information will result in the package being refused.

▶ Important: The TalkSwitch Return Policy applies only for products purchased directly from TalkSwitch. The Return Policy for products purchased from an authorized TalkSwitch dealer is determined by the dealer (the retail outlet where the product was purchased). Please contact your retailer for information regarding their return policy; do not return the product directly to TalkSwitch.

For information regarding product servicing, please refer to the TalkSwitch Warranty in Appendix E.

Appendix G # Specifications

Extension Interface

Loop range	0 to 600 ohms
On hook voltage	35 volts
Off hook loop voltage source	35 volts
Off hook loop current	27 to 40 mA
Ringing voltage	90 volts RMS
Ringing frequency	20 Hz - True Sine wave
Total supported ringing load	5 REN
Trunk type	Loop start
Connector type	RJ-11, 2 pin
Interface impedance	600 ohms
Dial tone level	-2.4 dBm
Signaling type	DTMF only
Flash hook supported	Yes

C.O. Interface

Interface impedance	configurable -
	900 ohms + 2uF
	900 ohms
	600 ohms + 2uF
	600 ohms
Trunk type	Loop start
Connector type	RJ-11, 4-pin
Ringing impedance	3,900 ohms
Ringing sensitivity	45 volts RMS @ 20Hz
REN	0.7

Longitudinal balance	69 dB
Signal level	- 10 dB
Caller ID support	All lines
Distinctive ring supported	Yes

System

C.O. interfaces	4
Extension interfaces	8
RS-232, 9 pin interface	1
USB interface	1
LAN interface	Ethernet (10BaseT)
Memory expansion	TalkSwitch Memory Cards

System

Music input	Phono jack (mono)
P.A. output	Phono jack (mono)
Power source	AC wall adapter
	120VAC, 60Hz/16VAC 1.5 amp
Power switch	Push Button
DTMF detectors	12 @ -3dBm to -30dBm
Dial tone generators	12
Ring detectors	4
Power-failure pass through	Extension 4 connects to Line 1
Dimensions	(H) 51.6mm x (W) 203.2mm x (L) 213.4mm
Weight	.860 kg
Approvals	ACTA TIA/EIA/IS-968A and FCC Part 68
	Industry Canada CS-03
	FCC Part 15B
	Industry Canada ICES003
	Power Adapter complies with UL and CSA

Appendix H

TalkSwitch and Power Interruptions

TalkSwitch settings and configurations:

In the event of a power failure, your TalkSwitch settings and configurations will not be lost.

TalkSwitch's feature settings (configuration) are stored in an EEPROM. An EEPROM is a form of non-volatile memory. Non-volatile memory means that your feature settings (configurations) remain in TalkSwitch's memory despite interruptions in the power supply.

Calling Features:

In the event of a power failure, no TalkSwitch features or capabilities (including VoIP) will be available other than:

• Local Extension, 114, 124, 134 and 144 can make or receive calls on Line 1 of their respective units.

In the event of a power return, all TalkSwitch features and capabilities will be re-established.

Mode Scheduling and Power Interruptions:

When the power supply to TalkSwitch has been interrupted, TalkSwitch's internal clock will continue to run for up to 12 hours. If you have enabled TalkSwitch's Automatic Mode Scheduling feature and it has been longer than 12 hours, TalkSwitch will not function properly until the internal clock is reset via a Caller ID call or with the TalkSwitch configuration software. When power is restored to TalkSwitch, TalkSwitch will check the time and determine the mode it should be in according to the configuration and set itself to that mode.

To check the current mode of operation, dial **#** at a Local Extension to enter command mode, then enter a password if required. Next, dial 30 then **#**. TalkSwitch will report the current mode.

Glossary

* (Star/Asterisk Sign)

The character on the bottom left of your touch-tone telephone keypad.

(Pound Sign)

The character on the bottom right of your touch-tone telephone keypad. It is also commonly called the number sign.

3-Way Calling/Conference

A service provided by telephone companies which allows you to connect parties on three different telephone lines together for one conversation.

3-Way Conference Call

Connecting three parties together for one telephone conversation. TalkSwitch offers its own 3-Way Conference feature and also allows you to use the 3-Way Conference (Calling) service provided by local telephone companies.

Analog

All sound actually begins in the form of sine waves and must be in this form to be heard by the human ear. Analog devices (phones, answering machines,

etc.) transmit and receive sound in the form of 'sine waves'. The telephone lines in your home are also designed to carry analog signals (sine waves). TalkSwitch is an analog device and will work with any other analog device or telephone system.

Auto Attendant Message

TalkSwitch's electronic attendant. A self-recorded message that greets and directs callers to select an extension number based on information provided in the message.

Auto Call Back

Allows you to activate Call Back by dialing one of TalkSwitch's telephone numbers, letting the call ring at least once and then hanging up.

Call Back

A TalkSwitch feature which, once activated, instructs TalkSwitch to call you back at a preset Out-of-Office telephone number. You can then access TalkSwitch's Call Bridge feature. TalkSwitch offers two ways to activate Call Back — Prompted and Auto.

Call Bridge

A TalkSwitch feature which 'bridges' together calls from two different remote locations. Call Bridge allows you to place long distance calls from your office telephone lines even when you are out of the office.

Call Forward

A TalkSwitch feature which forwards calls to one of 8 or more Remote Extensions.

Caller ID

A service provided by telephone companies which transmits information about incoming calls (callers name and telephone number). The Caller ID information is transmitted between the first and second ring.

Call Waiting

A service provided by telephone companies which allows you to accept a second incoming call on a telephone line that is already in use. Call Waiting allows you to 'toggle' from one caller to the other.

Centrex/Plexar

Central Office Exchange Service. A type of PBX service offered by the telephone company on a 'pay per service' basis. All call switching occurs at a local telephone station instead of a company's premises.

CNG

A 'chirping' tone emitted by fax modems and most fax machines to initiate contact with another fax machine/modem.

CO

Central Office.

COM Port

Communications Port. Internal virtual pathways used to transmit data to and from a PC's exterior Serial Port and software running on the PC. The majority of PCs have four Com Ports: COM1, COM2, COM3, and COM4. Most software programs gain access to the COM Ports via system interrupts (IRQs) and only two IRQs are reserved for the four ports. If you have two devices using COM Ports that share an IRQ, you cannot use the devices simultaneously. Typically, COM1 and COM3 use IRQ4, while COM2 and COM4 use IRQ3.

Communications Software

Software that makes it possible to send and receive data over telephone lines via modems.

Compression (Data)

Storing information in a format that requires less space than usual. Compression saves transmission time, capacity and storage space.

Computer Telephony Integration

Refers to systems that enable a computer to act as a call center, accepting incoming calls and routing them to the appropriate device or person. Today's CTI systems, like TalkSwitch, are quite sophisticated and can handle all sorts of incoming and outgoing communications, including phone calls, faxes, and Internet messages.

Conference Call

Connecting three or more parties together for one conversation.

Configuration

The way a system is setup. For TalkSwitch the configuration is the collection of values or options you have chosen for each of TalkSwitch's features. Together, the settings for each of these features (The configuration) determine what TalkSwitch will do. TalkSwitch can be configured using the Configuration software or Telephone Keypad Commands.

Connector

The part of a cable that plugs into a port or interface to connect one device to another. Most connectors are either male or female.

CTI

Computer Telephony Integration.

Dialtone

A tone used by the telephone company to indicate to the user that the line is 'free' and available for making calls.

Digit

Any whole number from 0 to 9. The numbers on your telephone keypad can also be referred to as digits.

Digital

Digital devices (phones, answering machines, etc.) convert analog sine waves into digital signals (a combination of zeroes and ones) for storage and/or transmission over digital lines. The digital signal is then converted back to analog sine waves, that can be heard by human ears.

Digitize

To translate into a digital form. For example, optical scanners digitize images by translating them into bit maps. It is also possible to digitize sound, video, and any type of movement. In all these cases, digitization is performed by sampling at discrete intervals. To digitize sound, for example, a device measures a sound wave's amplitude many times per second. These numeric values can then be recorded digitally.

Distinctive Ring

The ability to have more than one telephone number that callers can dial to reach the same telephone line. Each Distinctive Ring number has a distinctive ring cadence or ring sequence. TalkSwitch recognizes Distinctive Ring 1 as 2 short rings. Distinctive Ring 2 is identified as 3 short rings. (Distinctive Ring is also referred to as: Ident-A-Ring, Ident-A-Call, Ring Master, Teen Service, Double Number, Personal Ringing, Ring Plus, Smart Ring Service, Special Ring or Customized Ringing).

Driver

A program that controls a device. Every device, whether it is a printer, disk drive, or keyboard, must have a driver program. A driver acts like a translator between the device and programs that use the device.

DTMF

Dual Tone Multi-frequency. The system used by touch-tone telephones. DTMF assigns a specific frequency, or tone, to each key so that it can easily be identified by a microprocessor.

Extension (Local)

A Local Extension is any telephone or analog device (answering machine, fax, etc.) that is plugged into one of the 'Extensions' jacks located on the back panel of your TalkSwitch.

Extension (Remote)

A call forwarding number that can be any telephone number, in any location.

FCC

Federal Communications Commission. The FCC is the United States federal regulatory agency responsible for the regulation of interstate and international communications by radio, television, wire, satellite and cable.

Firmware

Firmware is a combination of software and hardware. More precisely, it is software (programs or data) that has been written onto hardware (micro-chips). Micro-chips (ROMs, PROMs and EPROMs) that have data or programs recorded on them are called firmware.

Flash button

A button on your telephone. Pressing the Flash button has the same effect as pressing the Link button or depressing and releasing the 'hang up' (switch) hook on a telephone. All of these actions will send a signal to TalkSwitch to put calls on or off hold.

Home phone

A home phone is any telephone using the same telephone line as one of TalkSwitch's Lines, but is not plugged directly into the back of TalkSwitch as an extension.

Icon

A small picture that represents a program, action or feature in the configuration software. When you click on an icon, that program, action or feature is activated.

Intercom

A dedicated voice service within a specified user environment. TalkSwitch offers intercom capabilities between its Local Extensions.

Interface

Something that connects two separate entities. A user interface is the part of a program that connects the computer with a human operator (user).

Internet

A global network connecting millions of computers. Unlike online service networks (.com, .ca, .net, etc.) which are centrally controlled, the Internet is decentralized by design. Each Internet computer, called a host, is independent.

Keypad Commands

Combinations of digits that are used to configure TalkSwitch from a touch-tone telephone.

Keypad (Telephone)

The push buttons on a telephone.

Key Telephone System

With Key Telephone Systems, access to telephone lines and calling features is controlled internally within each telephone unit. Users can gain direct access to telephone lines, etc. by pressing a key (or button) on their telephone.

LED

Light Emitting Diode. An electronic device that lights up when electricity is passed through it. LEDs are used in displays on electronic devices such as computers. TalkSwitch has five LEDs on its front panel. They show which telephone is in use, whether data is being transferred to or received from an attached PC, and which Mode setting is in use.

Link button

On most telephones, pressing the Link button has the same effect as pressing the Flash button or depressing and releasing the 'hang up' (switch) hook. However, on some telephones, the function of the Link button is internal to the telephone and pressing it will have no effect on TalkSwitch.

Modem

Acronym for MODulator-DEModulator. A modem is a device or program that converts digital information stored on a Computer into analog signals for transmission over telephone lines and, in reverse, converts analog signals into digital.

Modes

A TalkSwitch feature which allows you to store two distinct incoming call handling configurations (Mode 1 and Mode 2).

Monitor (TalkSwitch Monitor)

A feature included with the Software Configuration package. The Monitor provides a graphical representation of telephone traffic as it flows through the TalkSwitch system.

Network

A group of two or more computer systems linked together.

PBX

Private Branch Exchange. A PBX is a private telephone network used within an Enterprise. Access to telephone lines and services are controlled by the PBX. A PBX allows many users (extensions) to share a smaller number of telephone lines and have access to additional call handling benefits (call hold, intercom calling, etc.). TalkSwitch is a 'mini' or 'micro' PBX.

Phone Load

See Ringing Equivalency.

Prompt

Recorded instructions delivered by voice processing units. TalkSwitch provides prompts for you when using such features as Call Back, Call Bridge and Selective Call Forward. Prompts are also provided when configuring TalkSwitch using a telephone Keypad and for callers being put 'on hold'.

Registered Jacks

Telephone and data plugs registered with the FCC.

Ringing Equivalency

(Ringer Equivalency Number [REN]) A number, determined in accordance with the US Code of Federal Regulations, which represents the ringer loading effect on a line. A ringer equivalency number of 1 represents the loading effect of a traditional telephone set ringing circuit.

RJ-11

Registered Jacks 11 is the most common modular jack in the world. It is usually used to connect 'single line' telephonic devices such as telephones, fax machines and modems. It supports 2 conductors.

RJ-14

Registered Jacks 14 is a technical term for a telephone jack that looks similar to the standard RJ-11. However, the RJ-14 is usually used to connect 'two line' telephonic devices. It supports 4 conductors.

RJ-45

Registered Jacks 45 is a technical term for a telephone jack that supports 8 conductors and is used generally for Networking applications.

Prompted Call Back

Allows you to activate Call Back by dialing one of TalkSwitch's telephone numbers, letting the Auto Attendant answer and then entering the Call Back settings.

Routing

Determining the path that a message or call is to take over circuits. TalkSwitch offers 'routing' of incoming calls using DSP technology.

Serial Communication

A type of electronic communication that, unlike parallel communication, requires that data bits be sent one after the other. Modems rely on serial communication to send data over telephone lines.

Shortcut Key

A special key combination that causes a specific command to be executed. Typically, shortcut keys combine the Ctrl or Alt keys with some other keys. In Windows environments, for example, Ctrl and C is used as the shortcut key to copy. On PCs, the function keys are also often used as shortcut keys.

SIP

Session Initiation Protocol (SIP). Developed by the Internet Engineering Task Force (IETF), this is a signaling protocol designed to be much more simple and flexible than the H.323 protocol. SIP uses the existing Internet and HTML structures to provide VoIP transmissions. In addition, SIP is more scalable, allowing applications to grow in scope without any concern for the existing architecture. SIP gives network managers the flexibility to select any type of architecture, from a heavily centralized network controlled extensively by a server, to a less concentrated network where intelligence is found at the endpoints that communicate directly with each other.

Serial Port

Serial Ports are physical 'plug-ins'. They allow two devices to exchange information or data. A Serial Cable is used to connect the two Serial Ports together.

SOHO

Acronym for Small Office/Home Office. It's a burgeoning market comprised of solo professionals, part-time work-at-homes, telecommuters and small businesses.

Tel Lines 1, 2, 3, or 4

A jack or plug-in on the back panel of TalkSwitch which can accept a RJ-11 plug from either a telephone line or PBX system. A single line telephone cable can be plugged into this jack and will become a usable TalkSwitch Line.

Telephone Keypad

The collection of push buttons on a touch-tone telephone.

Telephone Wall Jack

A wall outlet for a standard telephone jack.

Terminal Adapter

A device that allows analog devices to be used on ISDN (digital) lines. Terminal Adapters are somewhat similar to modems.

Touch-tone telephone

A push-button telephone which emits distinctive (DTMF) tones as different buttons on the keypad are pressed.

Two Line Telephone

A telephone which allows you to make and receive calls on two separate telephone lines.

TX/RX

An acronym for transmit and receive.

USB

Short for Universal Serial Bus, the USB connection supports more bandwidth than a serial or parallel connection.

Virtual Extension

A telephone or other communications device not physically connected to TalkSwitch as an extension, but which provides the same functionality. In general, the term 'virtual' distinguishes something that is merely conceptual from something that has physical reality. TalkSwitch's Remote Extensions are virtual extensions.

Voicemail (Call Answer)

A service provided by TalkSwitch or telephone companies which gives callers the opportunity to leave a message when your extension or telephone line is busy or unanswered.

VoIP

Voice over IP is a term used to describe the technology of taking voice and then applying algorithms to digitize, compress and carry the data over an IP connection.