Teletics Whitepaper

Using the w*intercom with Android, iPhone, and SIP

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Summary

The Teletics w*intercom system is a complete wireless communications system for a drilling rig or portable work camp. It provides wireless intercom/phone, loud ring/public address (PA), and internet access across up to 20 locations at any site, "right out of the box".

The communications industry is rapidly moving towards a communications standard called SIP. The w*intercom system uses the SIP standard, which allows our customers to integrate third party devices, such as the iPhone, Android, or Windows devices in a w*intercom system.

Another key advantage of the Teletics w*intercom system is the ability for the customer to integrate the w*intercom into larger networks. For example, the customer is operating a VSAT network, and wants a more seamless integration with their network phone or video monitoring system. Or, where a third party VoIP provider is providing long distance services to the remote sites. This is called "SIP Trunking", and there is a separate application note for this on the Teletics website, with more technical examples on how to get this working.

Since the phone connections and the public address outputs on any w*intercom system are SIP devices, they can be accessed remotely though a SIP connection from anywhere in the world. This allows anyone with internet access to communicate with the Teletics w*intercom phones or PA systems on the rig site, not just the local phones.

This ability of the w*intercom system to be part of a larger SIP network, and the ability to integrate other devices at the rig site or camp, provides the customer with an almost unlimited number of options and features that they could design in to their w*intercom system and services that they can provide to their customers.

The intent of this whitepaper is to list some of the possible applications that this provides, and give fundamental "high level" technical details on how to do this. However, each individual third party device may require some more detailed technical work.

SIP High Level Overview

SIP is a set of rules that allows communications devices to set up communications sessions between each other. It takes care of how phones call one another. It decides who can access a communications system.

Each time a w*intercom radio is powered on, it connects to its Feature Server using SIP. The telephone port, and the Public Address amplifier output on the w*intercom are simply "SIP devices" on the Feature Server.

Businesses used to buy trunks (a set of phone lines with phone numbers) from the phone company. More recently, businesses typically buy SIP trunks to provide phone service to their businesses.

Some other SIP devices

Android Phones and Tablets, iPhone Phones and Tablets, MS Windows Phones and Tablets, and a staggering array of third party wireless phones offer SIP capabilities. Some interesting ones include:

- Aero Wireless Ruggedized Phones, including Intrinsically Safe Versions, built in barcoding support and other field automation options:
  http://www.airowireless.com/

- Polycom Spectralink wireless phone:
  http://spectralink.polycom.com/wifi_communications/handsets/spectralink_8400_wireless.html

There are thousands of other SIP devices available. These two examples are simply a few that our existing customers have tested.

Android, iPhone, or Windows devices that have wifi capability require a SIP client. There are hundreds of free SIP clients you can download from either the iTunes store, or Androids Play.

Things to Consider with Third Party SIP devices

Most, if not all, Industrial Environments have existing wireless networking equipment. Oil Rigs seem especially loaded up with 2.4 GHz radios. Since the wireless ethernet connection on most Android and iPhone devices uses 2.4 GHz as well, some real world field testing would typically be required to ensure the expected level of performance from any additional wireless devices being integrated into a w*intercom network.

Additionally there are restrictions placed on how much radio power can be emitted by a device that is hand held can emit. Power levels are a consideration for reliability, since the stronger the signal that the device generates, the more likely it will be to deal with distance and possible interference from structures or obstacles.

If you are considering integrating a wireless handset, it is probably a good idea to find one that support 5.8 GHz operation, as well as one with the most available output power in the WiFi radio section.

Using a Smartphone, such as iPhone, or Android

To enable an Android or iPhone to work as a station on a w*intercom system, you need the following:

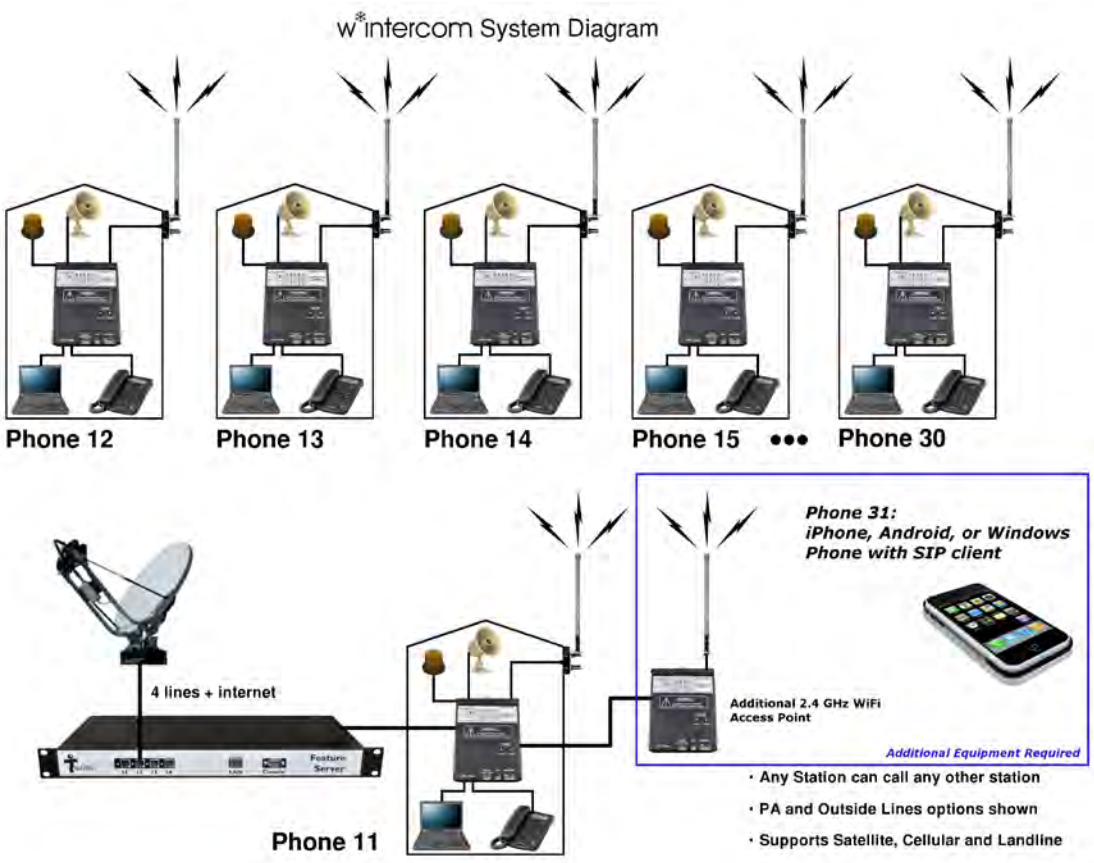
1. On the iPhone or Android device, download a SIP client from either iTunes, or Play Store. There are plenty of these that are free.

2. Most Android and iPhone devices use 2.4 GHz wifi. To provide 2.4 GHz wifi access to the w*intercom system, you require at least one 2.4GHz wifi radio. Teletics can provide a 2.4 GHz wifi radio, if desired, or you can use any other brand.

Once this is set up, the iPhone or Android becomes a two digit extension on the Feature Server, such as 30. The iPhone or Android can do anything any other phone on the system can do, including paging any w*intercom.

Additionally, anyone on the w*intercom system can dial the iPhone or Android using a two digit extension.

Since the Feature Server is a programmable phone system, other system behaviors can be provided, such as having a particular iPhone or Android phone ring if a w*intercom extension is not answered after a certain number of rings. This is called “unattended transfer”.



Remote Access Control or Surveillance

In remote sites where an Ethernet video camera is present, the w*intercom can be used as a remotely accessible loud public address amplifier and phone connection. When used in conjunction with an outdoor speaker phone, the remote security officer can yell at the person on site, or have them contact him via the push button speaker phone at the site. There are also versions that can even remotely close a switch, to allow control of entry to the site via a magnetic gate latch.

There are two manufacturers of these speakerphones we have encountered:

- http://www.pagepac.com/pdfs/stationdoorphone.pdf
- http://www.vikingelectronics.com/products/view_product.php?pid=104

SIP Trunking

The Teletics Feature Server Rackmount version has 4 standard POTS ports designed to plug into the POTS phone lines in a typical VSAT terminal or PBX. These operate on a simple pass through, or one to one basis.

Additionally, both models of Teletics Feature Servers also support SIP trunking.

SIP trunking allows a VoIP service provider to extend phone service using a standard phone number to any phone on the w*intercom system. For example, your VoIP provider can provide phone number (713) 555-1212 to extension 18 at a specific w*intercom system, assuming there is an internet connection at the remote site with this w*intercom.

When someone calls (713) 555-1212, phone 18 on the w*intercom system will ring. If the person at w*intercom 18 picks up his phone and dials 9 at the start of a phone number, the call will route to the VoIP provider and the call will proceed out to the number dialed.

Key advantages of using SIP trunking over analog ports on most satellite systems include reduction of hardware required for outside lines, which improves reliability. Also, any company that desires having outside line capability only needs to provide internet access to the remote site. The Teletics Feature Server is compatible with most wholesale VoIP providers, so voice service is not required from the VSAT provider. Running SIP over satellite will usually require a separate VLAN with some quality of service specification, since voice is much more sensitive to the quality of the data network that is provided to the site.

Next Steps

Customers wishing to obtain information on the integration of SIP trunks are encouraged to download the Teletics Application Note titled “Using the Feature Server with SIP trunks”. This application note is available from the Teletics website, in the support section.

Customers wanting assistance with integrating third party devices with the Teletics w*intercom system may wish to contract Teletics Engineering for assistance. Details on this can be obtained through your Teletics Distributor, or Teletics Sales.