

VoIP Device Provisioning

The Problem:

Voice-over-IP (VoIP) is becoming increasingly popular. From corporations looking to simplify their communications infrastructure, to residential users trying to lower their phone bills, VoIP is making inroads to the telecommunications world.

There are many devices from many manufacturers. There are traditional-looking basic phones, with the familiar numeric keypad and handset, there are feature-rich business phones with video capabilities, and there are innocuous Analog Telephone Adapters (ATAs) which have one or more RJ11 ports to allow the re-use of existing telephones and wiring.

Just as there are a plethora of product choices, there also is an equally vast selection of configuration choices. Configuring these devices can be a pain.

-For the end-user, configuration requires a certain comfort level with technology, that many just do not have, nor should they be expected to.

-For the distributor offering pre-configuration, setting up many such devices going out the door can be a labor-intensive task, where the technician must reiterate the same configuration with minor variations, and get it right every time.

-For the VoIP carrier, dealing with technical support issues can be made easier if the agent has access to the actual information used to configure the device, rather than having to talk the customer through an unfamiliar and possibly uncomfortable discovery process.

The Solution:

Telegence has created a VoIP device-provisioning product that addresses these challenges.

VoIP devices are:

1. Complete phone sets with typical handset, Touchtone dialing pad, and often an LCD display to show the user various data, or
2. ATA devices (Analog Telephone Adaptor) that have one or more RJ jacks to connect analog phones or phone networks, or
3. Combination phone sets with one or more ATA ports.

When the VoIP service provider sells VoIP services, the actual VoIP device that the end-user will be using must be provisioned with numerous parameters (often more than one-hundred parameters) that will allow the device to connect to the providers' switch and operate

in a manner that matches the providers' agreement with the end-user.



Figure 1. A typical VoIP ATA device

The Challenges of VoIP Device Provisioning

VoIP device provisioning inherently causes a number of constant challenges:

1. The front office personnel taking a request for service from a Customer are not usually technically able to understand all of the hundreds of parameters associated with a VoIP device.
2. There are numerous manufacturers of VoIP devices.

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3. There are numerous models from any one manufacturer.
4. There are VoIP firmware changes released by the device manufactures.

Telegence VoIP Device Provisioning Product

Telegence has created a VoIP device-provisioning product that addresses these challenges.

Device Provisioning

VoIP provisioning can be provided as a service from Telegence with the front office personnel simply using Internet Explorer to access the Telegence VoIP device provisioning server and entering a few simple Customer specific parameters, such as device MAC address off the boxes' label, Customer assigned Directory number, etc. The server will create a configuration file specific for the individual device that the end user will use. The file is easily uploaded to the VoIP device if the front office person physically has access to the device, or the end user can upload the configuration when the VoIP device is powered up at the end user's service location.

For multiple unit shipments, the Telegence VoIP Device provisioning product can be used to pre-provision each device, differentiated by MAC address, at the point of shipping.

Units can also be shipped to end-users with only the shipping personnel recording the MAC addresses (bar scan for ease).

If the end user is unknown at the time of shipping, then the Telegence provisioning product can send an e-mail to the end user when the information is known with a URL for the end user to click on to complete the provisioning. (the URL click not available on all ATAs.; some are only tftp.)

There are other variations on the above use-cases that should make the integration of the Telegence VoIP Device provisioning product into a specific operation easy.

The Telegence VoIP device-provisioning product can also be purchased by the service provider for a wholly owned in-house provisioning system. Telegence, in this case, will supply new manufacturer device and model templates on request or as they become available.

See Figure 3 for a typical setup to configure a VoIP device.

Manufacturer Device Variations

The GUI interface of the Telegence VoIP device-provisioning product has intuitive Manufacturer and Model pull down lists so that selection of the correct model is a very easy task. The Telegence VoIP device-provisioning product is easily extensible so that as new device models are released by the various manufactures the specific device templates can be added.



Figure 2. A typical VoIP phone set

Manufacturer Device Firmware

The VoIP (some do and some don't) device periodically checks for new firmware releases by contacting the provisioning server. Any new firmware releases on the provisioning server are uploaded to the VoIP device automatically.

The VoIP service provider has control of which releases are uploaded.

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Provisioning Logs and Activity

The Telegence VoIP device-provisioning product keeps logs of provisioning, re-sync requests, and firmware requests and uploads to the target VoIP devices. The service provider technical personnel or Customer Service personnel for account maintenance can query these logs.

These logs are kept in an SQL database and can be viewed by the VoIP service provider personnel.

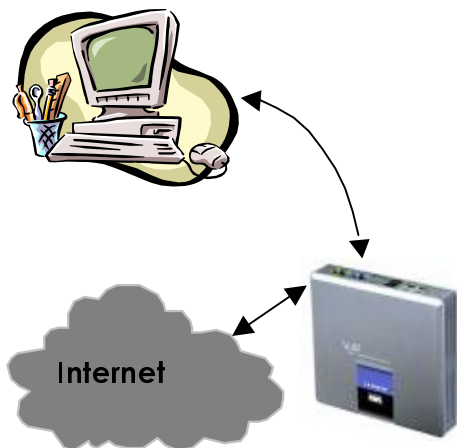


Figure 3. Provisioning setup

Provisioning Use cases

In summary, there are two basic use cases for the provisioning activity:

1. If the VoIP service provider physically ships or has control of the distribution of the devices then all of the provisioning can be done at the point of shipment to the end Customer. Then all the end user has to do is to connect the VoIP device and the unit will work right away.
2. If the VoIP service provider does not have physical access to the VoIP device (e.g. if the Customer has purchased the device), then the provisioning is completed up to the point where the provisioning URL is generated by the provisioning system. This URL can be e-mailed or sent via US Mail to the end user. The end user will connect the VoIP device as in figure 3 and click on the URL. After automatic uploading of the provisioning data the VoIP device the unit will be working right away.

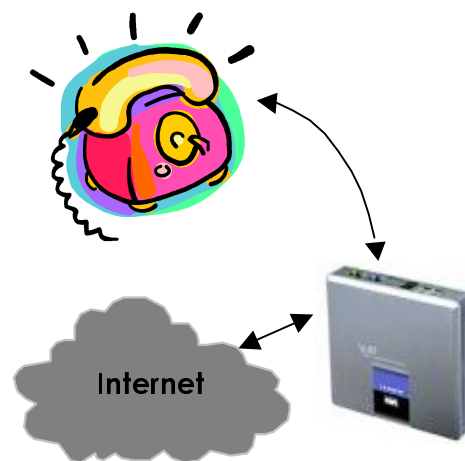


Figure 4 End User Setup

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Provisioning Product Summary

- ❑ Easy to use Interface for initial device provisioning. Designed for the CSR person.
- ❑ Serves periodic provisioning polls from the VoIP device.
- ❑ Serves firmware updates as needed.
- ❑ Logs activity from the VoIP devices for the Customer Service Representative.
- ❑ Provides E911 change of location support.
- ❑ Logs device IP address for security purposes.
- ❑ Provides device disable function that downgrades the VoIP service to only 911 and Customer Service numbers for delinquent accounts.
- ❑ Provides automatic provisioning file generation upon receiving a CSV provisioning file from the switch.
- ❑ Detects and alerts for unexpected device MAC address changes.
- ❑ Detects and alerts for device outages.
- ❑ Contains databases for devices and models from various manufacturers.
- ❑ The Telegence VoIP provisioning product is sold as a hosted solution and as a wholly owned server.

About Telegence Corporation

Telegence provides the telecommunications industry with reliable and proven hardware and software turnkey solutions for CDR/AMA data collection, mediation, soft switch (VoIP) support, processing, and revenue assurance.

Please visit our web site to learn more.
<http://www.telegence.com>

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