A2.03 AdTran NetVanta 1355/6355 SIP/TDM/IP Appliance

1 Important Notes

- Check the *SIP 3rd Party Validation Website* for current validation status. The *SIP 3rd Part Validation Website* can be viewed at:

- http://testlab.inin.com or http://testlab.vonexus.com

- It is recommended to make basic changes to the Interactive Intelligence supplied .cfg file then utilize the command line interface for further configuration. Not all options are exposed using the web interface.
- As this unit is a critical piece of the SIP infrastructure, it is highly recommended that DHCP not be used. A static IP address is the preferred method and is how the unit was configured during validation.
- While there are TCP options in the command line, they are not recommended for use by AdTran, and were not tested.
- T.38 is supported for 4 concurrent faxes on the Digital span *only*. T.38 is not supported for the FXO spans.
- When using managed phones the name of the phone in IA must match the extension of the phone. This is required because the phone will use the name in its registration message, and in a standalone failover scenario, the registration name is how the AdTran device will be able to contact the other internal stations. If something else is used, internal stations would not be able to dial other internal stations, because the number dialed would not match the registration entries.

2 Vendor Documentation

Documentation can be found on the CD shipped with the AdTran NetVanta 1355/6355, or on the AdTran website http://www.adtran.com.

3 Validated Firmware Version

A2.03.00.SC.E

4 Install

Download the AdTran NetVanta 1355/6355 files from the Interactive Intelligence Testlab website for the AdTran:
http://testlab.inin.com/compatibilityfiles_external/production/documents/AdTranNetVanta.zip

Contained in the zip file will be the validated version of firmware (.biz), as well as any supplemental configuration files, and a set of sample (.cfg) files.

5 Configuration

Methods:

- Manipulation of the supplied .cfg file, then uploading it via the web interface. This method is recommended for a quick start scenario. The Interactive Intelligence supplied .cfg file, with just a few modifications will get a basic setup up and running. Please note, the supplied .cfg file is not meant to be a drop in configuration for every environment, it is provided as reference only.
- Web interface. (This method was not used to configure the unit during validation) There are many advanced options that are not exposed in the web interface. Caution should be exercised and the AdTran documentation should always be referenced when using the web interface configuration option.
- TFTP. This has not been tested.

Initial Setup:

- Unzip the ZIP file containing the AdTran NetVanta 1355/6355 configuration files and firmware.
- Follow the AdTran instructions (on the CD or in the booklet shipped with the NetVanta or in) for getting an IP address assigned to the device.
- Modify the I3 provided .cfg file as appropriate.
- Start a web browser and type in the IP address of the NetVanta.
- The default user name is “admin” and the password is “password”. It is recommended to change the password when possible for security reasons.

Upload Current Firmware (biz file):

- From the main web screen, select the *Utilities* breakout tab from the icons on the left side of the page.
- Select *Firmware* from the expanded options under *Utilities*.
- Where it reads *Select firmware file:* click the browse button, navigate to the appropriate .biz file, click ok, then click the *Upload* button.
- After the validated firmware has been applied the NetVanta will require a restart. Once the restart is complete, return to the web interface. The opening screen should show the uploaded firmware version.

Upload Sample Config File:

- From the main web screen, select the *Utilities* breakout tab from the icons on the left side of the page.
- Select *Configuration* from the expanded options under *Utilities*.
- Where it reads *Upload Config:* click the browse button, navigate to the appropriate .cfg file, click ok, then click the *Upload* button.
- After the configuration has been applied the NetVanta will require a restart.
- Please note that this will put in the configuration from the provided files. Make sure to give it the appropriate IP addresses for the network in question, or the device may get an invalid address.
- This is the only configuration that will be done via the web interface, due to config options that are not exposed except via the command line.

Changing the Configuration:

This section will go through the sample ISDN NI2 PRI User side configuration for managed phone support, and highlight the significant configuration options. All other options can be found in the AdTran User Documentation.

```
! ADTRAN, Inc. OS version A2.03.00.SC.E
```

```
! Boot ROM version 14.02.00
! Platform: NetVanta 6355, part number 1200740E1
! Serial number H15F6449
!
hostname "NV1355"
enable password encrypted 28207f837283dac7c60316194a65e4b3d52a
!
clock timezone -5-Eastern-Time
!
ip subnet-zero
ip classless
ip routing
!
ip domain-name "domain.com"
```
This should be the domain name relative to the business
```
ip domain-proxy
ip name-server 192.168.1.230 192.168.1.231
```
This should be the DNS server
```
!
no auto-config
!
event-history on
no logging forwarding
no logging email
!
service password-encryption
!
username "admin" password encrypted "2720aa4ceca5b57915c1839aa58a7da49d2f"
username "polycomftp" password encrypted
"4048e1bf5bde64becb908f2203161619f745"
!
banner motd #

      Important

Web username/password is configured to admin/password.
Enable and Telnet passwords are configured to "password".
Please change them immediately.

The VLAN 1 interface is enabled with an address of 10.10.10.1
Telnet/SSH access is also enabled.
#
!
!
ip firewall
no ip firewall alg msn
no ip firewall alg h323
!
no dot11ap access-point-control
!
vlan 1
  name "Default"
!
!
interface eth 0/0
```

```
  description Uplink To Outside
  no ip address
  no shutdown
  no lldp send-and-receive
!
!
interface eth 0/1
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/2
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/3
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/4
  no shutdown
  switchport mode trunk
!
!
interface eth 0/5
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/6
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/7
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/8
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/9
  spanning-tree edgeport
```

```
  no shutdown
  switchport mode trunk
!
!
interface eth 0/10
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/11
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/12
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/13
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/14
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/15
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/16
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/17
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/18
  no shutdown
  switchport mode trunk
```

```
!
!
interface eth 0/19
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/20
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/21
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/22
  spanning-tree edgeport
  no shutdown
  switchport mode trunk
!
!
interface eth 0/23
  no shutdown
  switchport mode trunk
!
!
interface eth 0/24
  no shutdown
  switchport mode trunk
!
!
!
interface gigabit-eth 0/1
  no shutdown
  switchport mode trunk
!
!
interface gigabit-eth 0/2
  no shutdown
  switchport mode trunk
!
!
!
!
interface vlan 1
  ip address  192.168.1.5  255.255.0.0
```

This ends up being the IP of the device… please note that this is only using one vlan for testing purposes, business needs may require alternatives (voice vlan, etc…)

```
  media-gateway ip primary
```

```
  no shutdown
!
!
interface t1 1/1
  description NI2 PRI
```
This is the type of ISDN protocol
```
  system-timing primary
```
This has the system clocking being driven by the line
```
  tdm-group 1 timeslots 1-24 speed 64
```
This allots all ISDN channels to use with this port
```
  no shutdown
!
interface t1 2/1
  shutdown
!
!
interface pri 1
  description pri 1
```
This is the description for the PRI interface (which is a logical interface which is linked to the interface t1 1/1 above)
```
  isdn name-delivery setup
  connect t1 1/1 tdm-group 1
```
This is the logic that links the PRI section with the T1 section)
```
  role user
```
This tells the line to be user side (vs. network side)
```
  no shutdown
!
!
interface fxs 0/1
  description "Phone Station"
  no shutdown
!
interface fxs 0/2
  no shutdown
!
!
interface fxo 0/1
  description "715-4223"
  no shutdown
!
interface fxo 0/2
  description "test fxo2"
  no shutdown
!
!
isdn-group 1
!
!
isdn-group 2
  connect pri 1
!
!
!
ip route 0.0.0.0 0.0.0.0 192.168.0.1
```
This is a standard default route

ip route 192.168.1.250 255.255.255.255 null 0
This route is created specifically for the managed phone option, it will allow the phones to register to a route that is known dead, but required for the device to respond
!
no ip tftp server
no ip tftp server overwrite
ip http server
ip http secure-server
no ip snmp agent
no ip ftp server
ip ftp server default-filesystem flash
no ip scp server
no ip sntp server
!
!
!
!
!
!
!
!
!
voice feature-mode network
This needs to be set to network to allow the inbound to FXS station in survivability mode
voice forward-mode network
This needs to be set to network to allow the inbound to FXS station in survivability mode

!
!
!
!
!
!
!
voice dial-plan 1 local NXX-XXXX
!
!
!
!
voice class-of-service Configured
 default-level
 aa-dnd
 billing-codes
 call-privilege extensions
 call-privilege international
 call-privilege local
 call-privilege long-distance
 call-privilege operator-assisted
 call-privilege specify-carrier
 call-privilege toll-free
 call-privilege 900-number
 camp-on

```
  conference
  dnd
  external-fwd
  forward
  hold
  hotel
  logout-group
  message-waiting
  overhead-paging
  redial
  remote-fwd
  return-last-call
  system-speed
  transfer
!
voice codec-list "7xx Options"
  default
  codec g729
  codec g711ulaw
  codec g711alaw
!
!
!
voice trunk T01 type sip
  description "SIP TRUNK"
  caller-id-override number-inbound 9 if-no-cpn
  sip-server primary 192.168.1.10
```
This sets the primary sip server for incoming calls to be attempted
```
  sip-server secondary 192.168.1.11
```
This sets the secondary sip server for incoming calls to be attempted
This is always done as a primary/secondary option, there is no "parking" method
```
  authentication username "test" password encrypted
"1f1b093b2b136f39041ac568f6e7eec6ada1"
  register range 8001 8002
  check-supported replaces
  codec-group "7xx Options"
```
Associate a codec group with the line
```
  default-ring-cadence internal
!
voice trunk T02 type analog supervision loop-start
  description "FXO"
  caller-id
  caller-id-override number-inbound 1231234 if-no-cpn
  trunk-number 7154223
```
The number associated with the analog line
```
  connect fxo 0/1
  modem-passthrough
  rtp delay-mode adaptive
  codec-group "7xx Options"
!
voice trunk T03 type isdn
  description "NI2 PRI"
  resource-selection circular descending
```
Order of lines selected for outgoing PRI calls

```
  connect isdn-group 2
  modem-passthrough
  t38
```
Allows T.38 faxing
```
  rtp delay-mode adaptive
  codec-group "7xx Options"
!
voice trunk T04 type analog supervision loop-start
  description "FXO2"
  caller-id
  caller-id-override number-inbound 1231234 if-no-cpn
  trunk-number 7154222
  connect fxo 0/2
  modem-passthrough
  rtp delay-mode adaptive
  codec-group "7xx Options"
!
!
voice grouped-trunk "SIP GROUP"
```
This section associates the SIP trunk with its routing and number options
```
  no description
  trunk T01
```
Shows which trunk to associate with the group
```
  accept 6739 cost 0
```
Will accept this number (6739) bound to trunk at route weight cost of 0 (best), should be set to PRI number
```
  accept $ cost 0
```
Will accept any number bound to SIP trunk T01 at weight cost 0, forces all calls to go out SIP trunk first (so station calls go to IC server first)
```
  reject 976-XXXX
  reject 1-900-NXX-XXXX
  reject 1-976-NXX-XXXX
```
Will not allow any 900 or 976 numbers to be dialed or accepted
```
!
!
voice grouped-trunk FXO
  description "FXO Ports"
  trunk T02
  trunk T04
  accept 911 cost 0
```
This forces 911 calls to go out the FXO, rather than the PRI, for emergencies, this may be adjusted according to business needs
```
  accept $ cost 400
```
This assures that calls can use the FXO port to go outbound, but will
```
  accept 7154222 cost 0
```
This routs calls to this number out the FXO port specifically, this may or may not fit the business plan, but can be useful in some circumstances (e.g. fax line)
```
  reject 976-XXXX
  reject 1-900-NXX-XXXX
  reject 1-976-NXX-XXXX
  reject 6739
```
This will cause any calls bound for the PRI not to go through this FXO group
```
!
!
```

```
voice grouped-trunk "NI2 PRI"
  no description
  trunk T03
  accept $ cost 100
```
This causes all calls bound for the PRI to be accepted with weight cost of 100, this sits between the SIP and FXO values to attempt to force all calls to go through IC first (but any sent from IC will go out this trunk because they came in on the SIP one)
```
  reject 976-XXXX
!
!
voice user 8001
  connect fxs 0/1
  first-name "test"
  last-name "fxs"
  password encrypted "2226c76989b7cc49da5ab592196a551b8c23"
  no special-ring-cadences
  coverage external 2222222
  codec-group "7xx Options"
```
This is the setup for a user via the AdTran device (in this case an FXS user) with associated options (this can also be done with an IP phone)
```
!
!
voice user 8002
  connect fxs 0/2
  first-name "Fax"
  last-name "Machine"
  password encrypted "2226c76989b7cc49da5ab592196a551b8c23"
  no special-ring-cadences
  modem-passthrough
  t38
  t38 error-correction redundancy
  codec-group "7xx Options"
!
voice ring-group 1234
```
This defines the survivability inbound calling direction
```
  type linear
  description backup for incoming calls if no IC server
  num-rings 4
  member 8001
  login-member 8001
```
This is the user to which the inbound PRI calls should go in survivability mode
```
  alias 6739
```
This is the incoming number (PRI number) that this section will look for in survivability mode
```
!
!
ip sip
!
!
!
no ip sip registrar authenticate
```
This prevents the device from forcing authentication to be added to the

proxy list (this will allow managed phones to register to the device for standalone survivability)
NOTE: This turns off the device authentication, so any compatible device that directly points to it can make outbound calls
!
!
ip sip proxy
!
ip sip proxy domain "qfun.com"
!
ip sip proxy sip-server primary 192.168.1.250 tcp
This is the proxy server address for the device, which was set to the null route above
!
!
ip sip proxy emergency-call-routing accept $
This allows calls to be made in survivability mode
!
ip sip proxy failover accept-registrations
This allows the device to accept phone registrations for survivability mode
!
!
no ip sip grammar supported 100rel
!
!
!
ip rtp symmetric-filter
This allows failover with the FXS stations to the secondary SIP proxy
!
!
ip rtp quality-monitoring
ip rtp quality-monitoring sip
!
line con 0
 no login
!
line telnet 0 4
 login
 password encrypted 171f5669b452a522d8189e510076754304ae
 line-timeout 0
 no shutdown
line ssh 0 4
 login local-userlist
 no shutdown
!
sntp server 192.168.1.2 version 3
!
!
end

There are also a few variants from the above configuration for certain other options.

For ISDN network side, replace the interface section for "pri 1" with the following.

```
interface pri 1
  description pri 1
  isdn name-delivery setup
  connect t1 1/1 tdm-group 1
  role network b-channel-restarts disable
  no shutdown
```

For T1 CAS, replace the interface section for "t1 x/x" with the following

```
interface t1 1/1
  description NI2 PRI
  clock source internal
  system-timing primary
  tdm-group 1 timeslots 1 speed 64
  tdm-group 2 timeslots 2 speed 64
  tdm-group 3 timeslots 3 speed 64
  tdm-group 4 timeslots 4 speed 64
  tdm-group 5 timeslots 5 speed 64
  tdm-group 6 timeslots 6 speed 64
  tdm-group 7 timeslots 7 speed 64
  tdm-group 8 timeslots 8 speed 64
  tdm-group 9 timeslots 9 speed 64
  tdm-group 10 timeslots 10 speed 64
  tdm-group 11 timeslots 11 speed 64
  tdm-group 12 timeslots 12 speed 64
  tdm-group 13 timeslots 13 speed 64
  tdm-group 14 timeslots 14 speed 64
  tdm-group 15 timeslots 15 speed 64
  tdm-group 16 timeslots 16 speed 64
  tdm-group 17 timeslots 17 speed 64
  tdm-group 18 timeslots 18 speed 64
  tdm-group 19 timeslots 19 speed 64
  tdm-group 20 timeslots 20 speed 64
  tdm-group 21 timeslots 21 speed 64
  tdm-group 22 timeslots 22 speed 64
  tdm-group 23 timeslots 23 speed 64
  tdm-group 24 timeslots 24 speed 64
  no shutdown
```

and replace the PRI voice trunk with the following

```
voice trunk T04 type t1-rbs supervision wink role network
  description "CAS"
  connect t1 1/1 tdm-group 1
  connect t1 1/1 tdm-group 2
  connect t1 1/1 tdm-group 3
  connect t1 1/1 tdm-group 4
  connect t1 1/1 tdm-group 5
  connect t1 1/1 tdm-group 6
  connect t1 1/1 tdm-group 7
  connect t1 1/1 tdm-group 8
  connect t1 1/1 tdm-group 9
  connect t1 1/1 tdm-group 10
```

```
connect t1 1/1 tdm-group 11
connect t1 1/1 tdm-group 12
connect t1 1/1 tdm-group 13
connect t1 1/1 tdm-group 14
connect t1 1/1 tdm-group 15
connect t1 1/1 tdm-group 16
connect t1 1/1 tdm-group 17
connect t1 1/1 tdm-group 18
connect t1 1/1 tdm-group 19
connect t1 1/1 tdm-group 20
connect t1 1/1 tdm-group 21
connect t1 1/1 tdm-group 22
connect t1 1/1 tdm-group 23
connect t1 1/1 tdm-group 24
rtp delay-mode adaptive
```

In each case, please verify that the voice grouped trunks contain the proper references for the new interface identifiers.

Samples for NI2 user, NI2 network, and T1 CAS will be provided in the firmware files zip archive. Other ISDN protocols are available, just not as a sample. Check the AdTran documentation for details.

It is also possible when not using managed phones to manually assign a user to each phone on the device for standalone failover options. This will allow the failover to happen more efficiently, but will require an entry both on the IC server, and the AdTran device for *every* phone being used.

6 Putback Transfer

Putback transfer is not supported by AdTran for this device at this time.

7 Security

TLS/SRTP is not supported by AdTran for this device at this time.