

The procedure of provisioning serial SNR-VG

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1. Authors and change log

Content	Date and version	Change by
The main content	Version 1.0, 2014-9-25	porter

2. Introduction

This document is trying to introduce the provsioning feature of AOS 1.7 in SNR-VG series.

The provisioning can be used to:

- 1. Update firmware
- 2. Update configuration
- 3. Update license

The basic procedures of provision are:

- 1. Download the policy file from provisioning server
- 2. Parse the policy file
- 3. Execute the update procedure of firmware, configuration, license according to the policy file

Supported provisioning server:

- 1. http server
- 2. ftp server
- 3. tftp server

3. Prepare provisioning server

In this chapter, we will try to introduce how to prepare the provisioning server. Since VG supports http, ftp, tftp server, we will take ftp server as an example. The other server type may be added in the future.

3.1 Install FTP server on Windows 7

3.1.1 Create a local user for FTP server

In this user is used to login the ftp server to download or upload file. And also you can add allow anonymous to login ftp server to download file. The username and password will be used to configure the VG gateway.

Step1. Right click "Computer", select "Manage" -> "Local users and groups" -> "User"

Step2. Right click in the blank location and select "New User"

New User	
Refresh Export List	
View	•
Arrange Icons	•
Help	

Step3. Enter the User name, password, then disable "User must change password at next logon. Then click "**Create**". See bellow:

lew User		8 ×	
User name:	ftp		
Full name:	ftpuser		
Description: ftpuser			
Password:	•••		
Confirm passwo	ord:		
User must c	hange password at	next logon	
🔲 User cannot	t <mark>chang</mark> e password		
Password n	ever expires		
Account is a	disabled		
~	1		

3.1.2 Create directory for FTP server

Step 1. Create a root directory for FTP server, here is D:FTPStep 2. Create a directory name "18" under the root directory of FTP server, here is D:FTP/18. This directory will be used to save the policy file and configuration file, etc. It's hard coded in VG software, so that directory "18" is required and can't be changed.

3.1.3 Install FTP server

Step 1. Click "start" -> "Control Panel" -> "Turn windows feature on or off" Step 2. Select "Internet Information Services" -> FTP server: "FTP extensibility" and "FTP service"; then select "Web Management Tools" -> "IIS Management Service". Then click OK. See bellow:



3.1.4 Configure FTP server

Step 1. Click "Control panel" -> "System and Security" -> "Administrative Tools" -> "Internet Information Service Manger"

e Edit View Tools	i Help					
Organize 🔻 📧 Ope	an ((田 •	-
🚖 Favorites	Name	Date modified	Туре	Size		
E Desktop	S Component Services	2009/7/14 12:46	Shortcut	2 KB		
Downloads	A Computer Management	2009/7/14 12:41	Shortcut	2 KB		
I Recent Places	Data Sources (ODBC)	2009/7/14 12:41	Shortcut	2 KB		
	W Event Viewer	2009/7/14 12:42	Shortcut	2 KB		
浔 Libraries	internet Information Services (IIS) Manager	2014/9/22 19:18	Shortcut	2 KB		
Documents	G, iSCSI Initiator	2009/7/14 12:41	Shortcut	2 KB		
J Music	Local Security Policy	2011/1/15 6:57	Shortcut	2 KB		
Pictures	S Performance Monitor	2009/7/14 12:41	Shortcut	2 KB		
Videos	🐞 Print Management	2011/1/15 6:57	Shortcut	2 KB		
	Services	2009/7/14 12:41	Shortcut	2 KB		
🐺 Computer	System Configuration	2009/7/14 12:41	Shortcut	2 KB		
🚢 Local Disk (C:)	Task Scheduler	2009/7/14 12:42	Shortcut	2 KB		
👝 Local Disk (D:)	P Windows Firewall with Advanced Security	2009/7/14 12:41	Shortcut	2 KB		
📖 Local Disk (E:)	Windows Memory Diagnostic	2009/7/14 12:41	Shortcut	2 KB		
🖙 Software (F:)	28 Windows PowerShell Modules	2009/7/14 12:52	Shortcut	3 KB		
🗣 Network						

Step 2. Right click "Sites" on the left tree under Connections, then select "**Add FTP site...**", enter the name and select the path for root director of FTP server. Click "**Next**", See bellow:

dd FTP Site	2 ×
Site Information	
ETP site name:	
FTP	
Content Directory	
P <u>h</u> ysical path:	
D:\FTP	
	Drevinus Next Finish Cancel
	Treasers Treas

Step 3. Bind FTP server to all ethernet, and select "No SSL", click "Next". See bellow:

Participation -			
IP Address:	Port:		
 All Unassigned	- 21		
Enable Virtual Host Names:			
Virtual Host (example: ftp.contoso.com):			
Start FTP site automatically			
SSL			
No SSL			
Allow SSL			
 Allow SSL Require SSL 			
 Allow SSL Bequire SSL 			

Step 4. Select "Anonymous" and "Basic"; Allow access to: All users; permissions:

Read; click "finish". See bellow:

I FTP Site		<u>୍</u> ଷ <mark> </mark>
Authentication and Authori	zation Information	
Authentication		
Anonymous		
☑ <u>B</u> asic		
Authorization		
Allow agcess to:		
All users	•	
Permissions		
🔽 Rea <u>d</u>		
	Previous	Cancel Cancel

3.1.5 Test FTP server

Step 1. Create a file under root directory of FTP server (D:FTP).

Tools	; Help			
Include	in library Share with N	ew folder		
_	Name	Date modified	Туре	Size
	18	2014/9/25 10:56	File folder	
5	test.txt	2014/9/25 14:24	Text Document	1 KB

Step 2. Use windows ftp command to download the test.txt file.

Administrator: Command Prompt - ftp 172.16.173.107	
Microsoft Windows [Version 6.1.7601]	-
Copyright <c> 2009 Microsoft Corporation. All rights reserved.</c>	=
C:\Users\Administrator>ftp 172.16.173.107	
Connected to 172.16.173.107.	
220 Microsoft FTP Service	
User (172.16.173.107:(none)): anonymous	
331 Anonymous access allowed, send identity (e-mail name) as passwor	d.
Password:	
230 User logged in.	
ftp> get test.txt	
200 PORT command successful.	
125 Data connection already open; Transfer starting.	
226 Transfer complete.	
ftp: 20 bytes received in 0.00Seconds 20000.00Kbytes/sec.	
ftp>	

Download success.

3.2 Prepare the required file

3.2.1 Policy xml file

There are two types of policy file, one is named as \$(SN).xml, another is named as default.xml. Once the VG gateway is configured with provision, gateway will try to download policy \$(SN).xml file first, if failed, will try to download default policy file: default.xml.

You can check the \$(SN) on the web of gateway:

Device ID	0172-0016-0053-0022		
MAC Address	F8-A0-3D-20-0E-22		
Network Mode	Bridge		
IP Address	172 16.53.22	255.255.0.0	Static
	172.16.1.8		
DNS Server	172.16.1.1		
Cloud Register Status	Not Registered		

Then we create a file 0172-0016-0053-0022.xml for this gateway.

The format of policy xml file will be introduce in chapter 4.

3.2.2 Firmware file

After the policy file download success, VG gateway will try to parse the policy xml file and then execute the firmware update procedure according to the policy configuration. So that we need to prepare the firmware files.

3.2.3 Configuration file

If configuration file is configured in policy file, configuration file is required for each VG gateway. The configuration file can be named as:

\$(MAC).cfg 00:1F:D6:6A:EF:AC.cfg \$(MA).cfg 001FD66AEFAC.cfg \$(SN).cfg 0172-0016-0053-0022.cfg

Note: 00:1F:D6:6A:EF:AC.txt file type can't be used in windows sytem. It is only apply for linux based system.

3.2.4 License file

Provision is also can be used to update license of gateway. The license file can be named as:

\$(MAE).txt	00-1F-D6-6A-EF-AC.txt
\$(MAC).txt	00:1F:D6:6A:EF:AC.txt
\$(MA).txt	001FD66AEFAC.txt
\$(SN).txt	0172-0016-0053-0022.txt

3.3 Copy the required file to the right directory

No matter what types of your provisioning server, VG will try to download the file from root/18 directoty. Where root is the root directory of your provisioning server. In the document example, root directory is D:\FTP. So that we create a directory 18 and copy all files to this directory. See bellow:

Tools	Help			
Include	in library	der		
	Name	Date modified	Туре	Size
	00-1F-D6-6A-EF-AC.cfg	2014/9/25 11:06	CFG File	95 KB
é.	001FD66AEFAC .cfg	2014/9/25 11:06	CFG File	95 KB
es	0172-0016-0053-0022.cfg	2014/9/25 11:06	CFG File	95 KB
	172-0016-0053-0022.xml	2014/9/25 11:00	XML Document	1 KB
	0172-0016-0099-0148.cfg	2014/9/25 15:13	CFG File	101 KB
5	2 0172-0016-0099-0148.xml	2014/9/25 11:00	XML Document	1 KB
	02180206.tar.gz	2014/7/22 17:33	GZ File	3,816 KB
	02180207.tar.gz	2014/7/9 17:59	GZ File	3,750 KB
	02180208.tar.gz	2014/7/17 12:36	GZ File	3,751 KB
	config_default.xml	2014/9/18 20:40	XML Document	131 KB
	📄 default.xml	2014/9/25 11:00	XML Document	1 KB
(C:)	F8-A0-3D-20-0E-22.cfg	2014/9/25 15:13	CFG File	101 KB
(D:)	F8A03D200E22.cfg	2014/9/25 15:13	CFG File	101 KB

4. Introduce the policy xml file format

The policy is writed in xml format. XML stands for Extensible Markup Language, and was designed to describe data.

4.1 Root element

The first line is the XML declaration. It defines the XML version. Now we open the policy file



In this xml file, it's encoded in "UTF-8". The root element is: <provision version="1.0"> </provision>

And one atribute version is defined to stands for the version of provision. Now the value can be 1.0 and 2.0. attribute's value MUST be quoted.

Attribute	value	description
Version	1.0	Provision version 1
Version	2.0	Provision version 2

The provision version's feature and their difference will be added in the future.

4.2 Product element

All elements can have sub elements (child elements). And product element is the child element of root element, There can be more than one product elements under root elemet. Product element is used to define a class of product with its attributes. And product element supports the bellow attributes:

Attributes	Value	description
id	18	Stands for AOS1.7
url	Valid http,ftp,tftp url	Example: ftp://172.16.173.107/
force	True or false	Force to upgrade the firmware when firmware version is lower than current version
snfilter	Valid sn	Used to filter the device ID, only device ID match in this field will execute the procedure in this child element
macfilter	Valid MAC	Used to filter the MAC addr, only MAC addr match in this field will execute the procedure in this child element
model	Valid model name, example:4S 8S	This field describe the model of gateway
langauge	En or cn	Gateway's language
dmsno	DMS version no	Uboot_kernel_dsp_filesystem, Exmample:8_11_0_1.0.13
oemid	1 or 2	1 stands for normal version

lowver	Valid version	Lowest version
high	Valid version	Highest version

The un-used attributes can be removed from the xml policy file. Bellow is an example of xml policy file of product element

<product id="18" snfilter="" url="ftp://172.16.173.107/" force="false"> </product>

4.3 Package element

Package element was designed to be a child element of product element. And it is used to describe the firmware upgrade data. Package element supports these attributes:

Attributes	Value	description
Ver	Valid firmware	Describe the firmware version

	version	
Rely	Valid firmware version	The dependency version
Name	File name	Package file name, this field is used to search in the url directory
Buildtime	Time format	The software build time
Туре	Undefined	Undefined yet

Here is an example package element:

<package ver="02180206" rely="" buildtime="" name="02180206.tar.gz"/>

4.4 Config file element

Config file element was designed to be a child element of product element. And it is used to describe the config file update data. Config file element supports these attributes:

Attributes	Value	description
Ver	Valid firmware version	Describe the firmware version
Rely	Valid firmware version	The dependency version
Name	File name	Package file name, this field is used to search in the url directory
Buildtime	Time format	The software build time
Туре	Undefined	Undefined yet

Here is an example config file element:

<ConfigFile name=" 00-1F-D6-6A-EF-AC.cfg"> </ConfigFile>

4.5 License file element

License file element was designed to be a child element of product element. And it is used to describe the config file update data. License file element supports these attributes:

Attributes	Value	description
Ver	Valid firmware version	Describe the firmware version
Rely	Valid firmware version	The dependency version
Name	File name	Package file name, this field is used to search in the url directory
Buildtime	Time format	The software build time
Туре	Undefined	Undefined yet

Here is an example license file element:

<LicenseFile name=" 0172-0016-0053-0022.txt">

<License>