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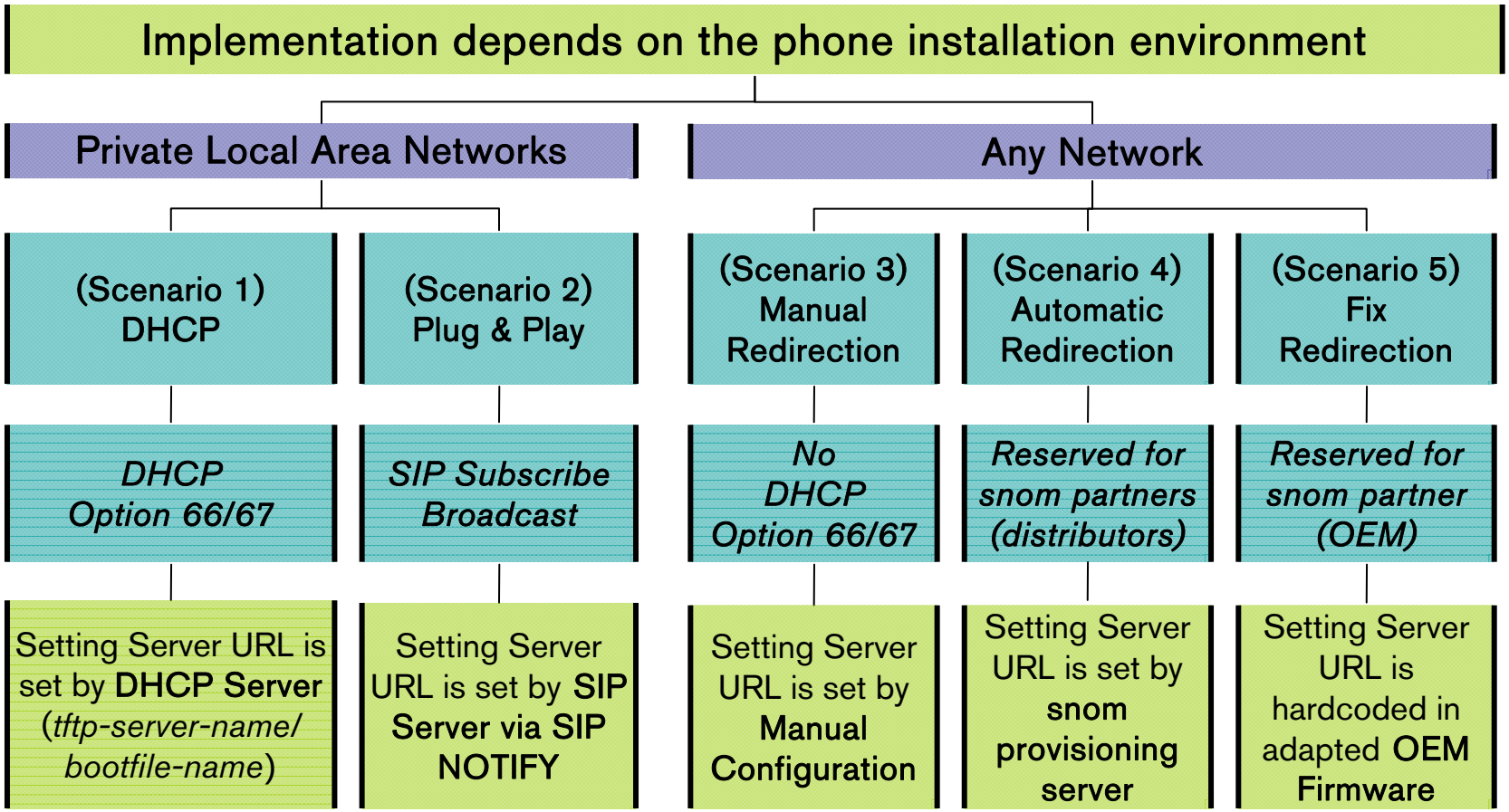
- Mass deployment („Auto Provisioning“) is a feature implemented proprietarily in the standard firmware of all snom 3xx VoIP phones and snom m3
- Mass deployment allows remote administration (configuration and maintenance) of unlimited number of distinct snom phone types (snom3xx, snom m3).
- Mass Deployment is particularly useful for out-of-the-box scenarios in larger phone installations.
- Mass Deployment can be used to provide general and specific configuration parameters ("Settings") to the phones and to manage firmware actualization.

- Mass deployment requires one central provisioning (“setting”) server able to deliver the necessary configuration parameters ("settings") and firmware updates to each snom phone.
- Configuration parameters can be stored in individual setting files (phone type/MAC address based) or can be created at runtime by means of scripts (MAC address based). The location of these files is determined in the setting (provisioning) URL.
- Depending on the phone installation environment five (5) scenarios can be distinguished how to provide the setting (provisioning) URL to the phones:


Implementation depends on the phone installation environment
Private Local Area Networks
Any Network
(Scenario 1) DHCP
(Scenario 2) Plug & Play
(Scenario 3) Manual Redirection
(Scenario 4) Automatic Redirection
(Scenario 5) Fix Redirection
DHCP Option 66/67
SIP Subscribe Broadcast
No DHCP Option 66/67
Reserved for snom partners (distributors)
Reserved for snom partner (OEM)
Setting Server URL is set by DHCP Server (tftp-server-name/ bootfile-name)
Setting Server URL is set by SIP Server via SIP NOTIFY
Setting Server URL is set by Manual Configuration
Setting Server URL is set by snom provisioning server
Setting Server URL is hardcoded in adapted OEM Firmware

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- The „Provisioning Server" stores the configuration parameter („setting") files and firmware image files centrally and provides them on request to the snom phone.

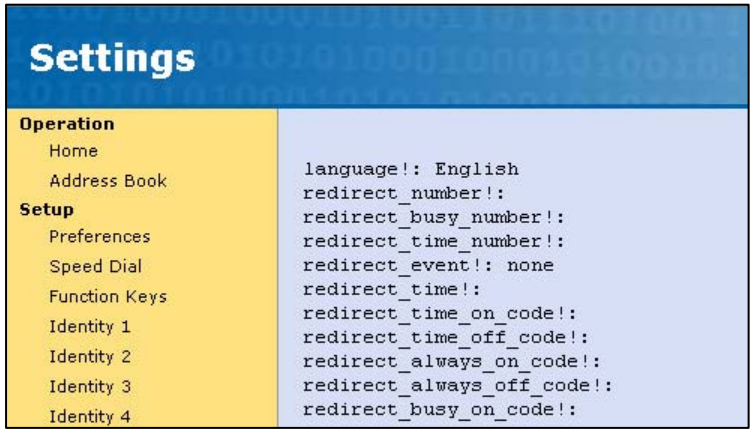
	Provisioning of configuration parameter	Provisioning of firmware images
TFTP	Yes	From V7.2: Yes
HTTP	Yes	Yes
HTTPS	Yes (restricted)	No

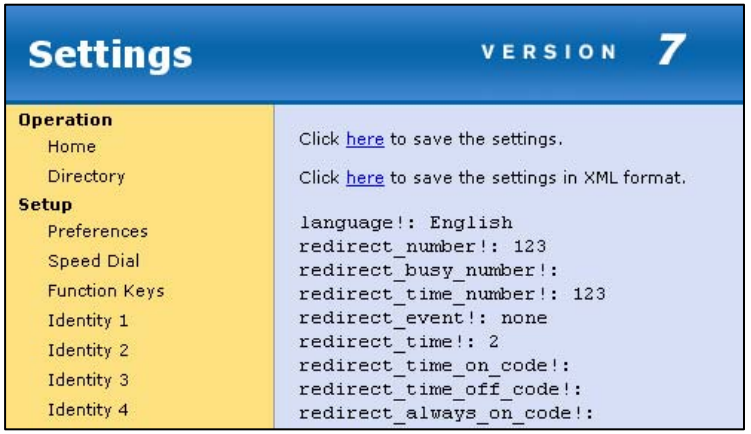
- Provisioning Server can be hosted on private or public servers depending on the mass deployment method

Scenario	1	2	3	4	5
Server	DHCP	Plug & Play	Manual Redirection	Automatic Redirection	Fix Redirection
Private	Yes	Yes	Yes	No	No
Public	No	No	Yes	Yes	Yes

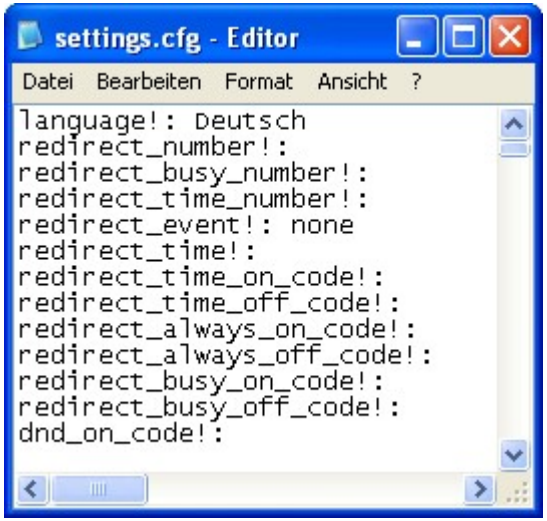
- Input variables for the phone's firmware which determine all functional and operational processes on the phone.
- Configuration parameters can be changed via:
  - Phone user interface (keypad/display)
  - Web User Interface (using an external web client/browser)
  - Mass Deployment
  - NOTE: Configuration changes can only be reverted by factory reset (resets all parameters to their default values)
- Configuration parameters are physically stored on the flash memory of the phone and are loaded on boot-up into the RAM:
  - Before firmware version 7 parameters were stored internally in a dedicated partition using a proprietary format.
  - Since firmware version 7 parameters are stored internally using XML syntax.

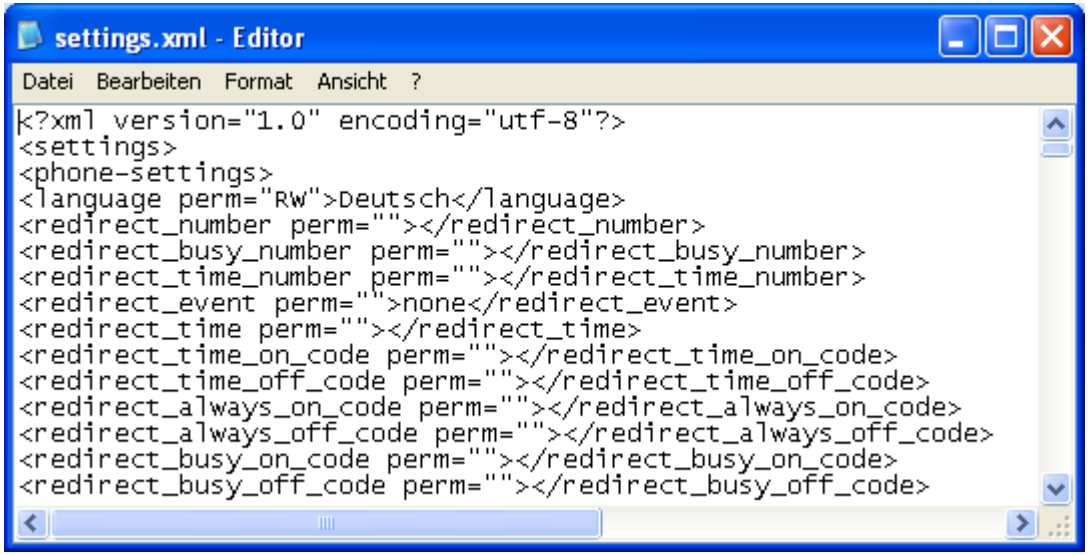
- There are currently more than about 300 configuration parameters available
- Retrieve a complete list from the Web User Interface:
  - Status --> “Settings” page





- In firmware versions 3-6 the complete list of configuration parameters could only be saved by copying and pasting the content from the “Settings” page to a plain text file
- From firmware version 7 onwards the complete list of configuration parameters can be saved either in text or XML format by clicking the appropriate link on the top of the “Settings” page





- (1) Write- protected system parameters
  - are used internally and cannot be changed
  - factory value is marked by „&“ symbol
  - Example: mac&: 0004132YXXXX
- Unprotected system parameters
  - are used internally and can only be changed via mass deployment
  - Example: dst!: 3600 03.05.07 02:00:00 10.05.07 03:00:00
- Free configurable parameters
  - all those parameters changeable via “Web User Interface” (approx. 90 %).
  - Only a part of them is also configurable via “Phone User Interface”
  - Example: dhcp!: on

Configuration Parameters | WIKI (1)

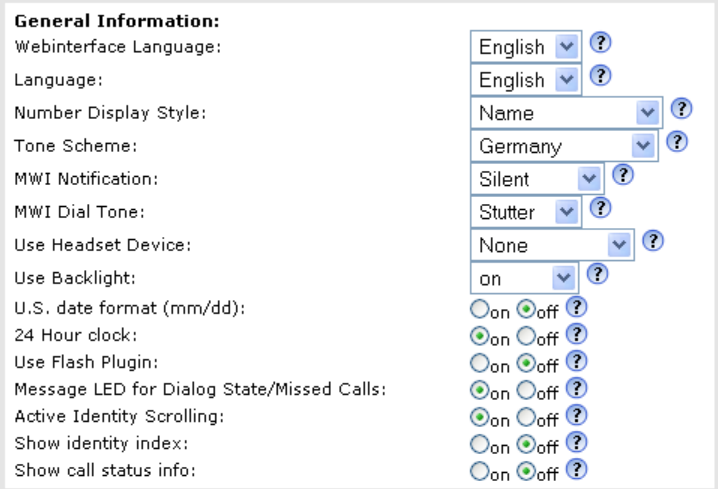
Mass Deployment

- Each free configurable parameter corresponds to exact one Web User Interface Setting.
- The *relationship* in firmware versions 6 or 7 can be figured out by accessing the updated description for each Web User Interface page on snom's WIKI:
  - http://wiki.snom.com/Snom3x0/Web_Interface/V6/Settings
  - http://wiki.snom.com/Snom3x0/Web_Interface/V7/Settings
- "Web User Interface Settings" are listed by their english names and linked to its corresponding configuration parameter.

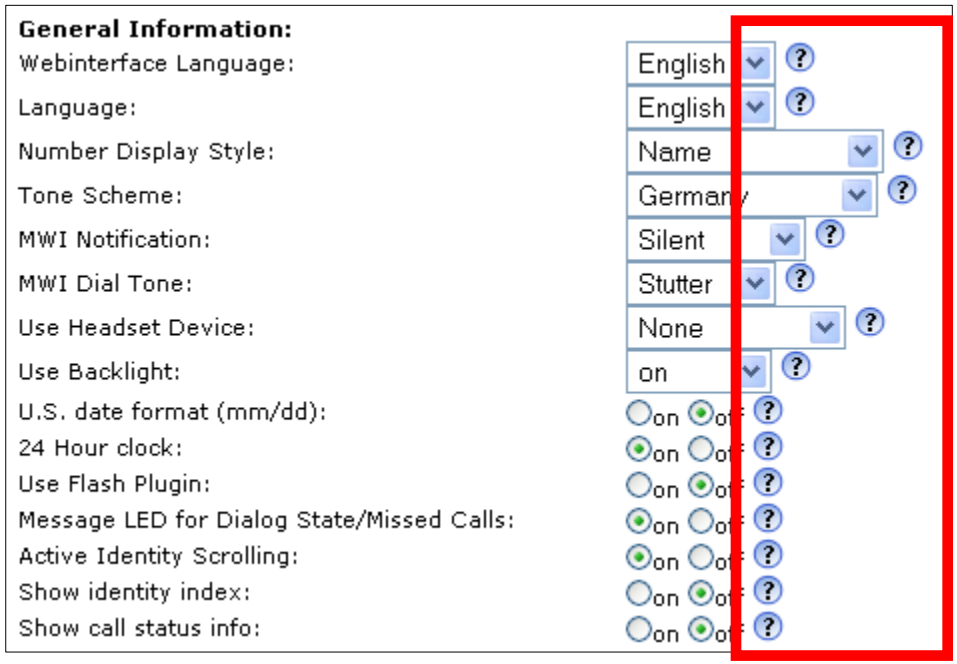
General Information

[edit]

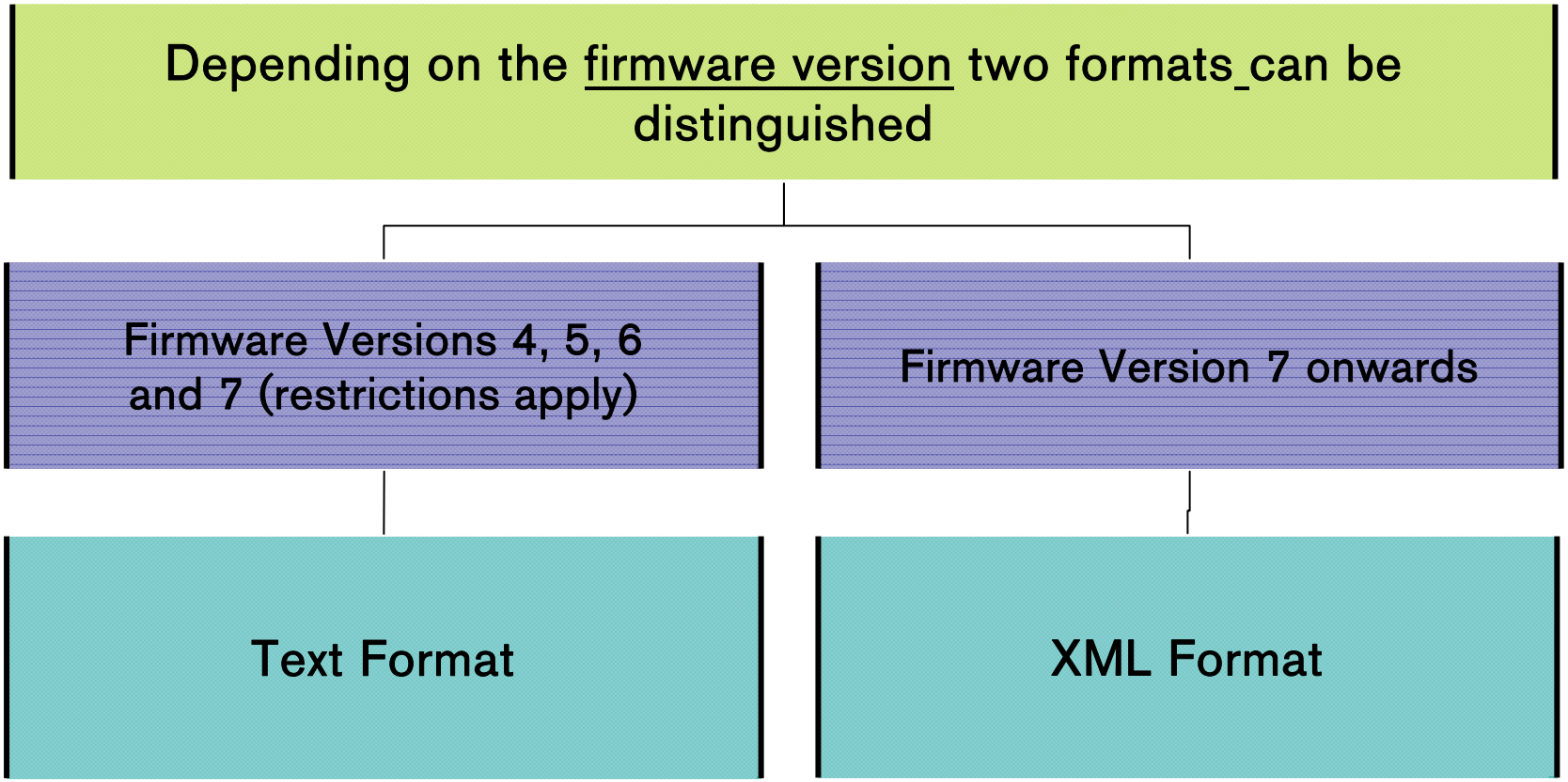
Settings	Screenshot
Webinterface Language	
Language	
Number Display Style	
Tone Scheme	
MWI Notification	
MWI Dial Tone	
Use Headset Device	
U.S. Date Format(mm/dd)	
24 Hour clock	
Use Flash Plugin	
Message LED for Dialog State/Missed Calls	
Outgoing Identity Scrolling on idle	
Show identity index	
(Snom360/370 only) Use Backlight	
(Snom360/370 only) Ringer Animation	
(Snom360/370 only) Redundant Softkeys	

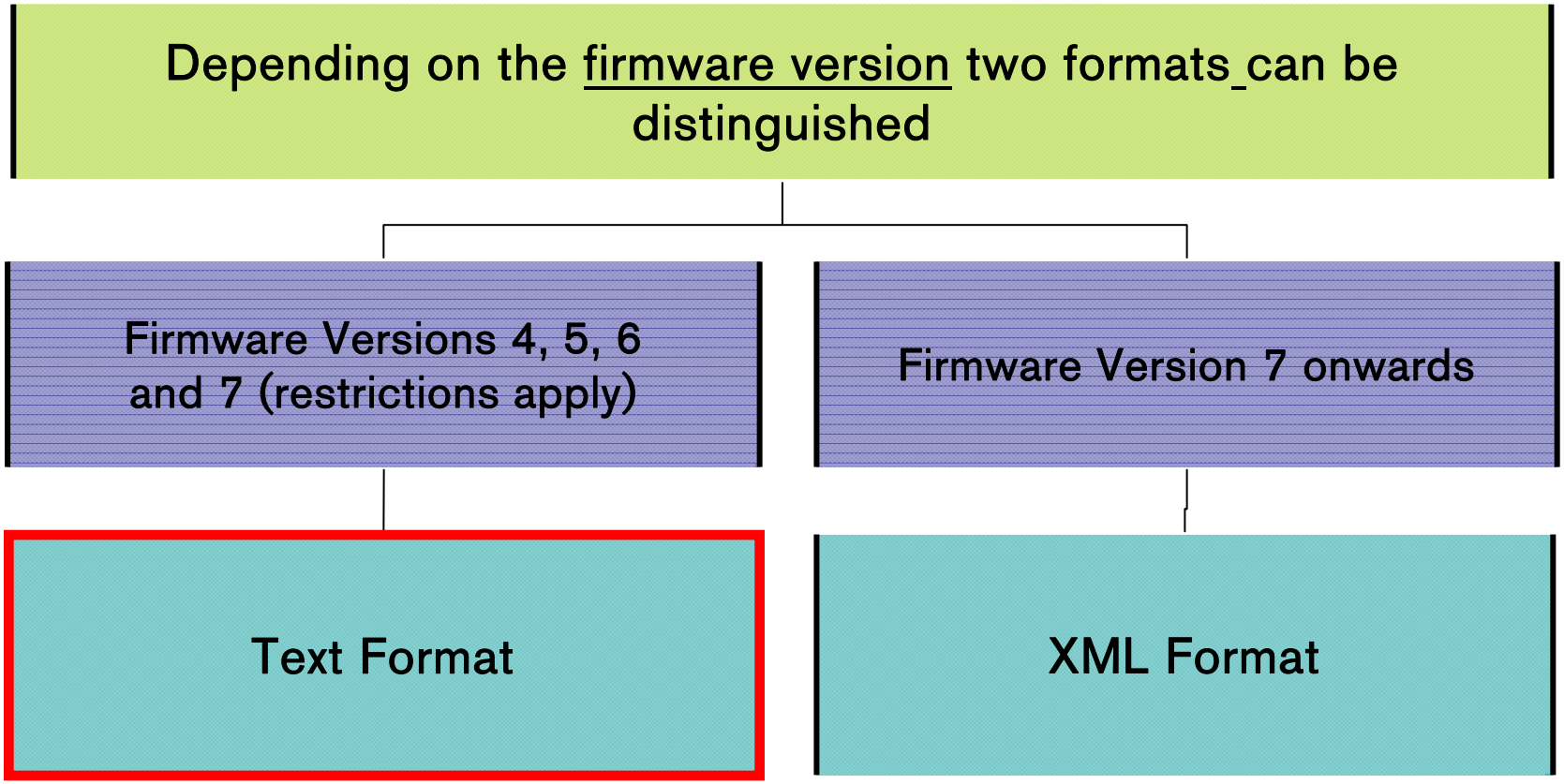


- From firmware version 7 onwards a (configurable) online help button has been added to each “Web User Interface Setting”:
  - By clicking that button the resulting URL ("documentation link" + "configuration parameter name") will be requested and the description page of that configuration parameter will be opened - by default snom's WIKI knowledgebase.
  - http://wiki.snom.com/Settings/configuration_parameter_name



- Setting files are container for a subset of configuration parameters needed to customize and maintain snom phones remotely.
- Do NOT use the complete parameter list as starting point, instead:
  - Delete or uncomment unused configuration parameters from the complete parameter list.
  - Specify only those parameters you really want to change --> Check the meaning of each parameter before usage.
  - Finally your setting file should contain only a few parameters


Depending on the firmware version two formats can be distinguished
Firmware Versions 4, 5, 6 and 7 (restrictions apply)
Firmware Version 7 onwards
Text Format
XML Format


Depending on the firmware version two formats can be distinguished
Firmware Versions 4, 5, 6 and 7 (restrictions apply)
Firmware Version 7 onwards
Text Format
XML Format

- Full provisioning support in firmware versions 4,5,6
- Limited provisioning support in firmware version 7:
  - NO multiple language support
    - Only english phone user/web user interface languages are pre-installed (except snom370)
  - NO script dial plan
  - NO support of formerly used internal directory entries (Name (tn), Number (tu), Contact Type (tc), Outgoing Identity (to))

ASCII coded:

- lines may end with newline or carriage return/newline pairs
- Comments start with "#" or "<"
- The "<" and ">" characters allow easy integration of HTML tags
- Parameter names may consist of the characters a-z, A-Z, 0-9 and _

Description

<*html*> <*pre*> ← The "<" and ">" characters allow easy integration of HTML tags
#comment ← comment start with “#” or “<“
<*parameter(1) name*><*flag*>:<*value*> ← Parameter names can be retrieved from the WIKI
...
<*parameter(n) name*><*flag*>:<*value*> ← Parameter values can be retrieved from the WIKI
</*pre*></*html*>

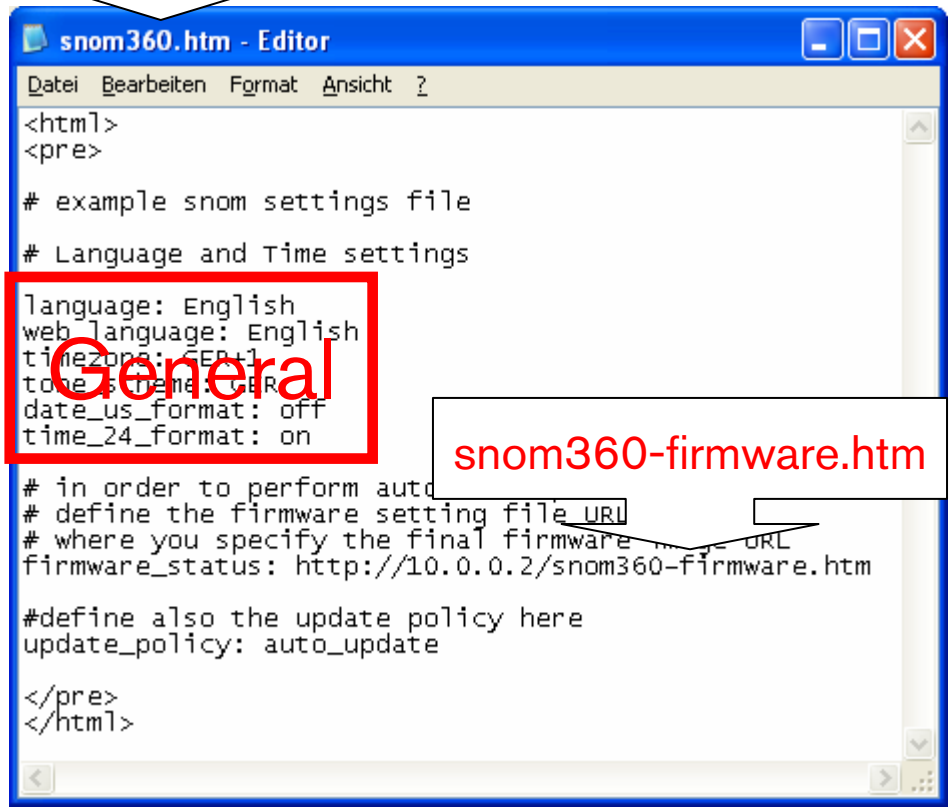
- Parameter names can be followed by one specific character called “flag”:
  - A **parameter** followed by “!” can be changed by the user. However the parameter value will only be stored if that parameter has not been configured yet. Only parameters followed by $ can be overwritten, DO NOT use “!” in that case.
  - A **parameter** followed by “&” or no flag becomes write-protected (read only)
  - A **parameter** followed by “$” can be changed but will be overwritten on reboot. $ will appear on the Settings page as ! (available from firmware version 4.2 onwards)

- One "general setting file" per phone type containing general configuration parameters
  - *<protocol>*": //"*<IP address or domain>*"/"*<phonetype>*".htm" → http://domain/snom360.htm
- One "specific setting file" per phone containing phone specific configuration parameters
  - *<protocol>*": //"*<IP address or domain>*"/"*<phonetype>*"-"<MAC address>".htm" → http://domain/snom360-0004132314A4.htm
- One "firmware setting file" per phone type OR specific phone, containing firmware related configuration parameters in order to perform automated firmware updates
  - Any URL can be defined → http://domain/snom360-firmware.htm

Setting Files | Text Format | Example (1)

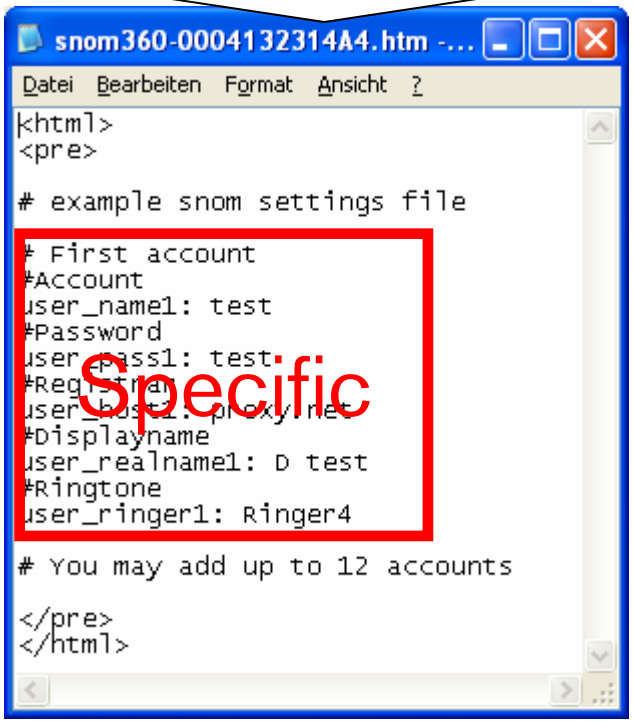
Mass Deployment

snom360.htm



snom360-firmware.htm

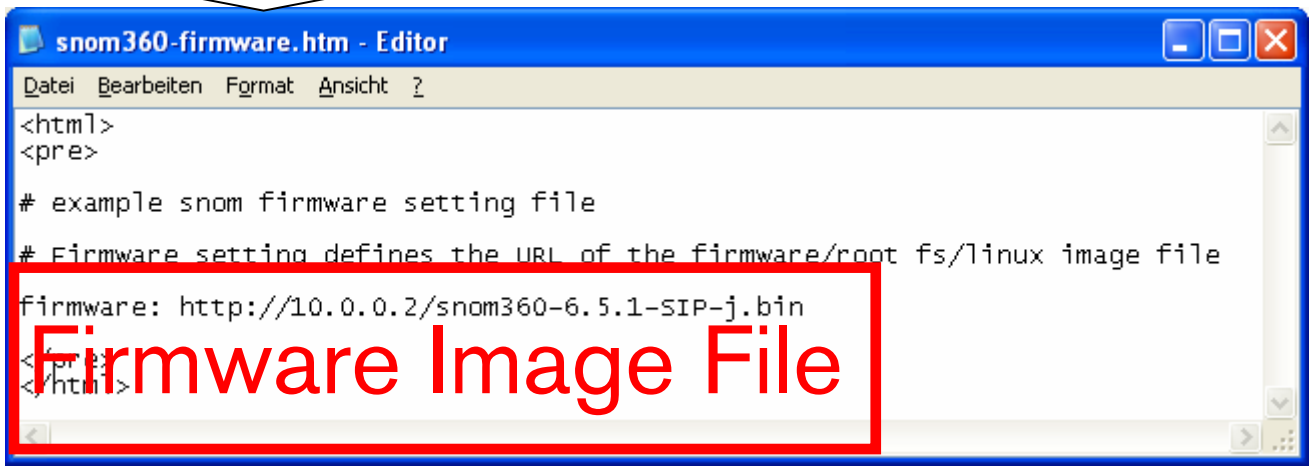
snom360-0004132314A4.htm



Setting Files | Text Format | Example (2)

Mass Deployment

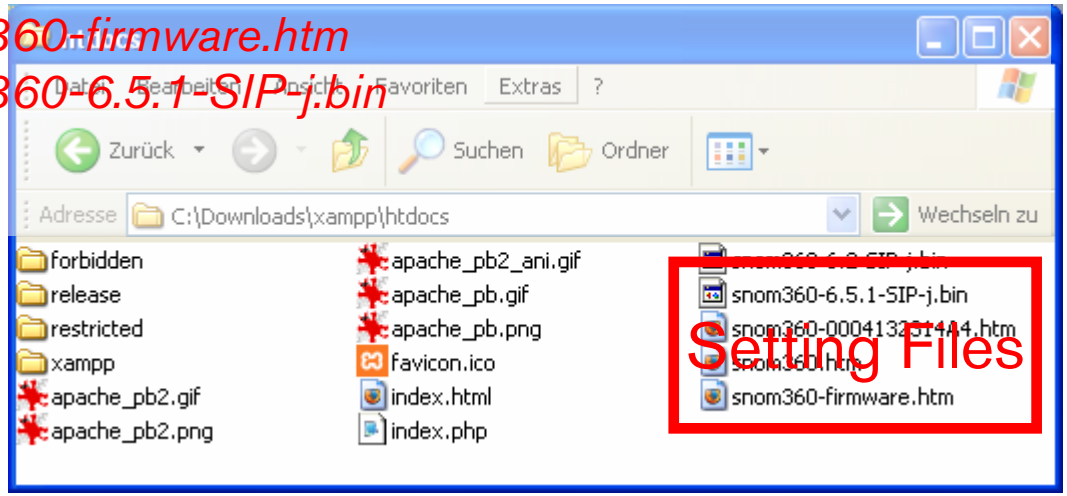
snom360-firmware.htm

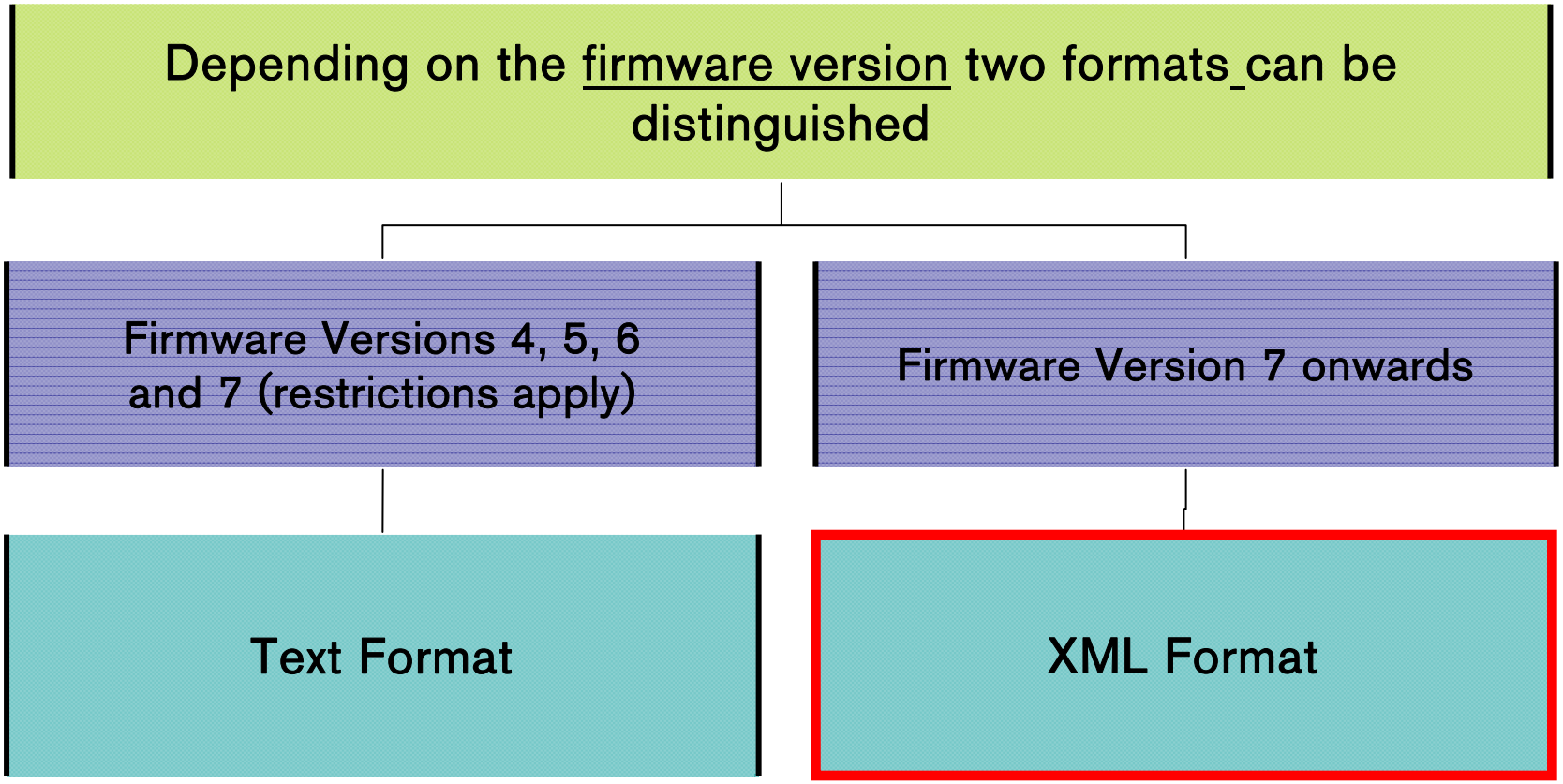


Provisioning server „Apache“

- HTTP protocol

- Copy files into „Apache“ root directory
  - „c:\...\xampp\htdocs“
- Start „Apache“ and access the files from any web browser:
  - *http://domain/snom360.htm*
  - *http://domain/snom360-0004132314A4.htm*
  - *http://domain/snom360-firmware.htm*
  - *http://domain/snom360-6.5.1-SIP-j.bin*




Depending on the firmware version two formats can be distinguished
Firmware Versions 4, 5, 6 and 7 (restrictions apply)
Firmware Version 7 onwards
Text Format
XML Format

- NOT APPLICABLE in firmware versions 4,5,6
- Full provisioning support in firmware version 7:
  - Default **phone configuration support**
  - Automatic **firmware update support**
  - Multiple language support
    - Only applicable to snom300/320/360
  - **Script dial plan** support
  - **Directory provisioning** support

XML tagged UTF-8 coded files

- XML header is required
  - <?xml version="1.0" encoding="utf-8"?>
- The following XML tags are supported
  - <phone-settings>, <functionkeys>, <tbook>, <dialplan>, <firmware-settings>, <setting-files>, <settings>, <gui-languages>, <phrases>, <web-languages>, <w_phrases>

```
<?xml version="1.0" encoding="utf-8"?>
 <phone-settings>
  <language perm="">English</language>
  <redirect_number perm="$">253</redirect_number>
  <setting_server perm="">http://.../snom.php?mac=(mac)</setting_server>
  ...
  <user_rea    e idx="1" perm="">    </user_realname>
  <user_rea    e idx="12" perm="">    /user_realname>
  ...
 </phone-s      s>
```

Configuration parameter

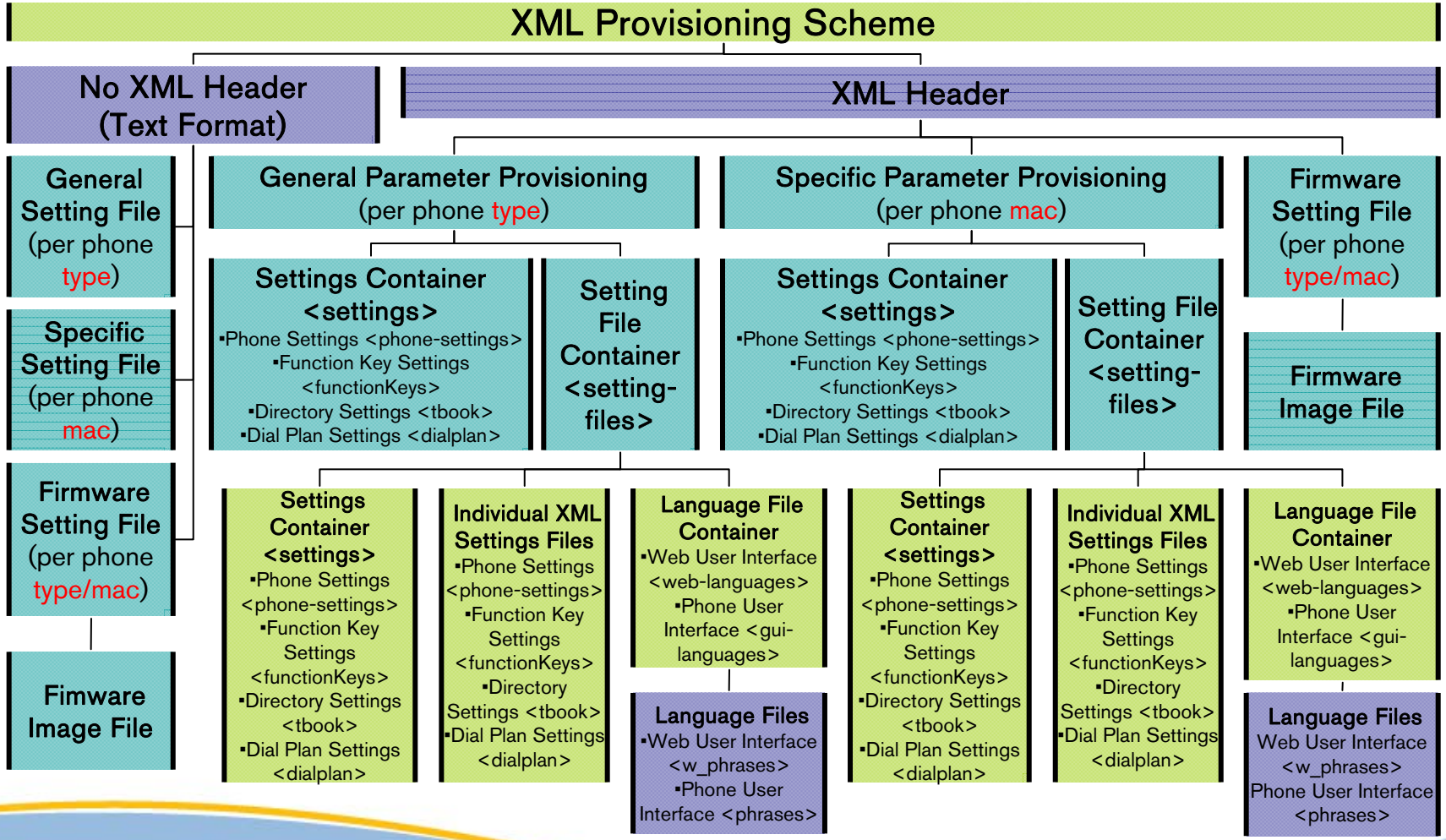
Identity Index

Flag

Value

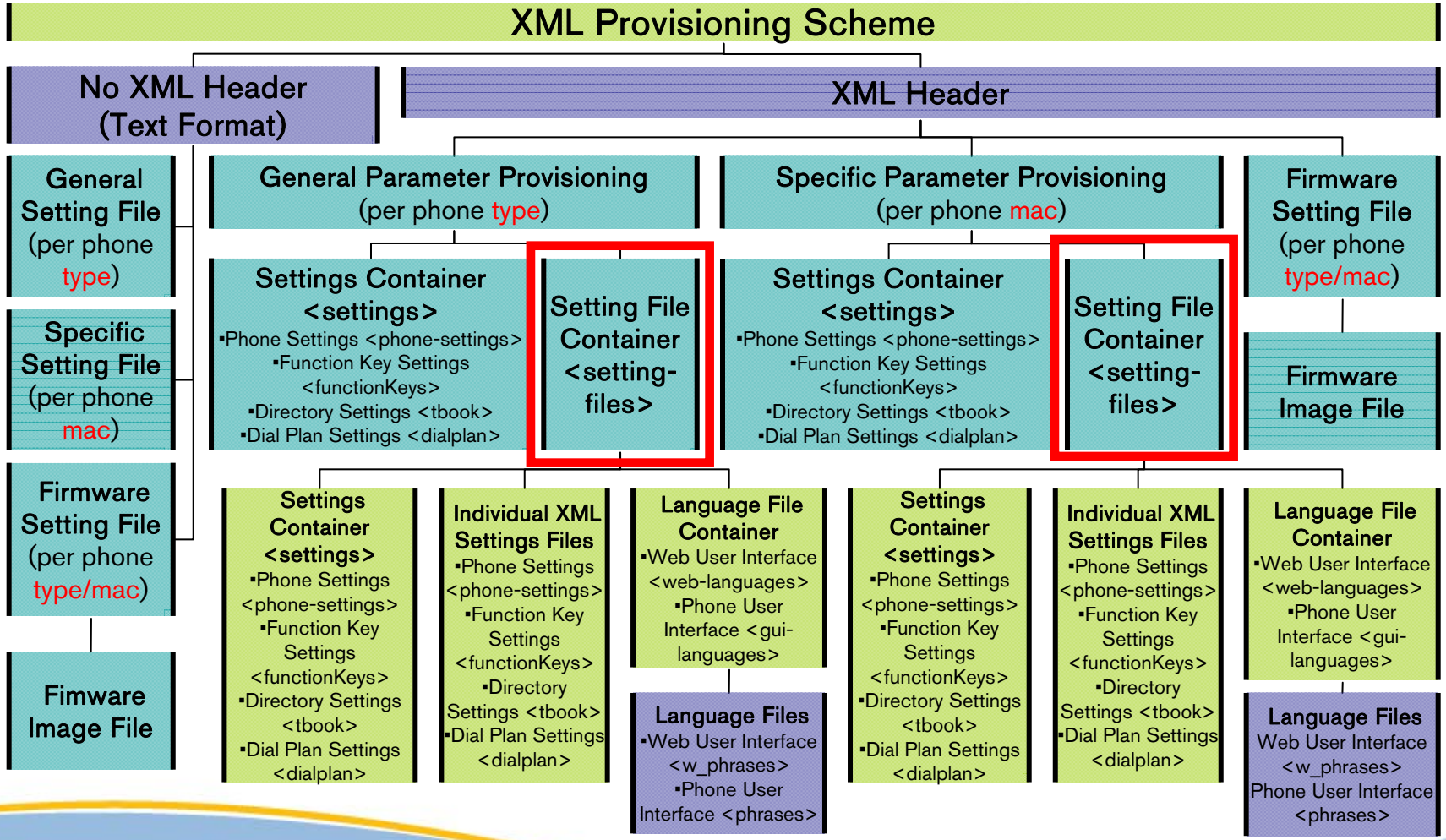
Setting Files | XML | Provisioning Scheme

Mass Deployment



Setting Files | XML | Provisioning Scheme

Mass Deployment



- “Setting File Container” <setting-files> is a file construct which allows to load more then one file type in one go onto the phone
- Should be the first XML file provided to the phone
- Contains URL's to all setting files to be provisioned
- The files are requested in the given order
- Backwards compatibility: Setting files encoded in ASCII text format can be included (restrictions apply)

- One „General setting file container“ per phone type providing a list of setting file URLs
  - *http://domain/snom3x0.htm* (*due to backwards compatibility reasons in mixed phone type environments use „htm“ extension instead of „xml“ for automatic phone type recognition)*
- One “Specific setting file container" per phone, i.e. based on the MAC address, providing a list of setting file URLs:
  - *http://domain/snom3x0-mac.htm* (*the „-mac“ string is automatically appended by the phone)*

Setting Files | XML | Container <setting-files>

Mass Deployment

http://domain/snom3x0.htm

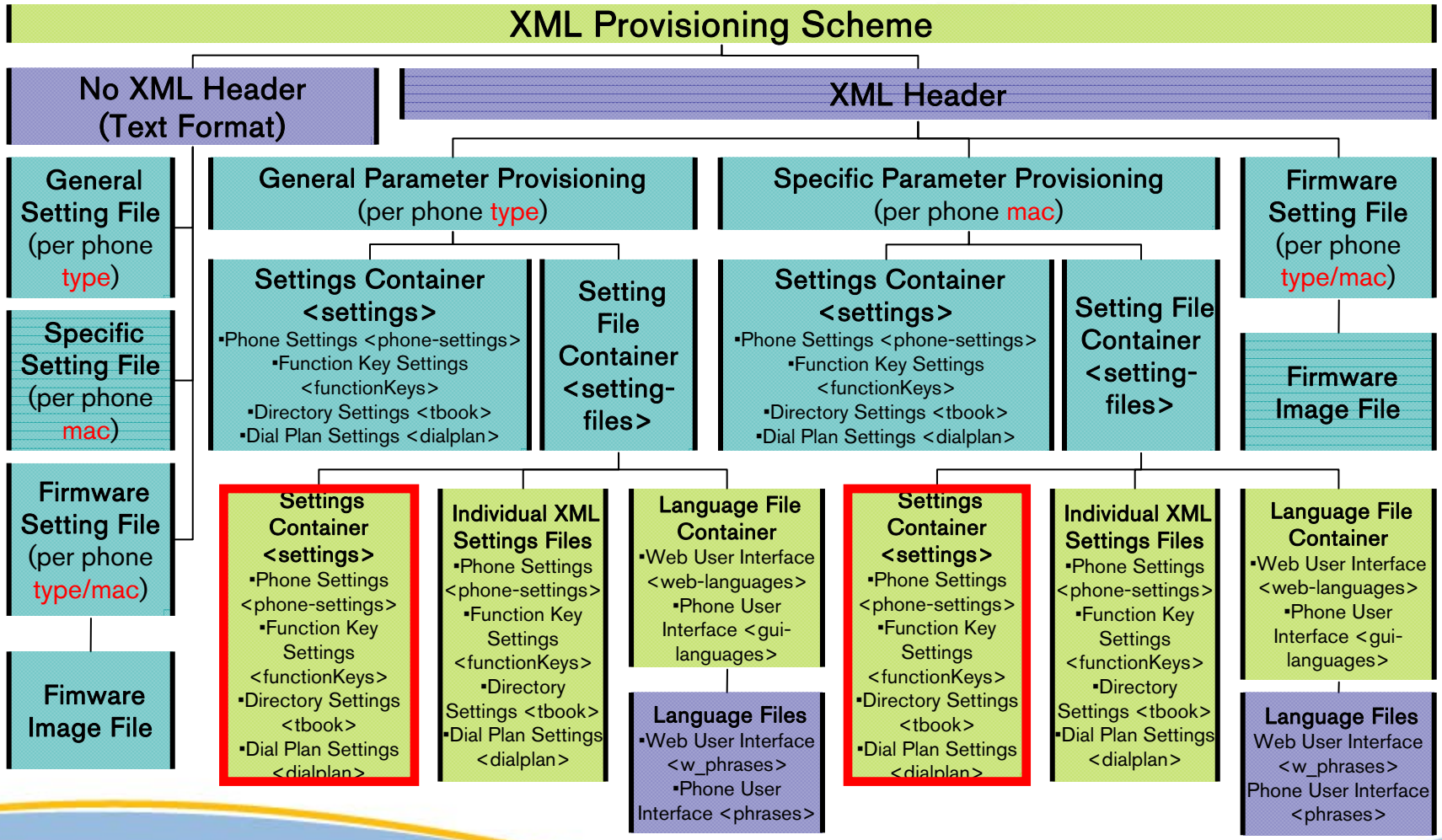
```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>



</setting-files>
```

http://domain/snom3x0-mac.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>



</setting-files>
```

Setting Files | XML | Provisioning Scheme

Mass Deployment



- "Settings Container" <settings>: XML structure to specify a list of XML tags containing configuration parameters:
  - *<phone-settings>, <functionKeys>, <tbook>, <dialplan>*
- One „Settings Container" per phone **type** containing general configuration parameters:
  - *http://domain/3x0/general.xml*
- One „Settings Container" per phone **mac** containing specific configuration parameters:
  - *http://domain/3x0/mac.xml*

Setting Files | XML | Container <setting-files>

Mass Deployment

http://domain/snom3x0.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/general.xml"/>


</setting-files>
```

http://domain/3x0/general.xml

```
<?xml version="1.0" encoding="utf-8" ?>
<settings>
  <phone-settings>…</phone-settings>
  <function-keys>…</function-keys>
  <phone-book>…</phone-book>
  <dial-plan>…</dial-plan>
</settings>
```

http://domain/snom3x0-mac.htm

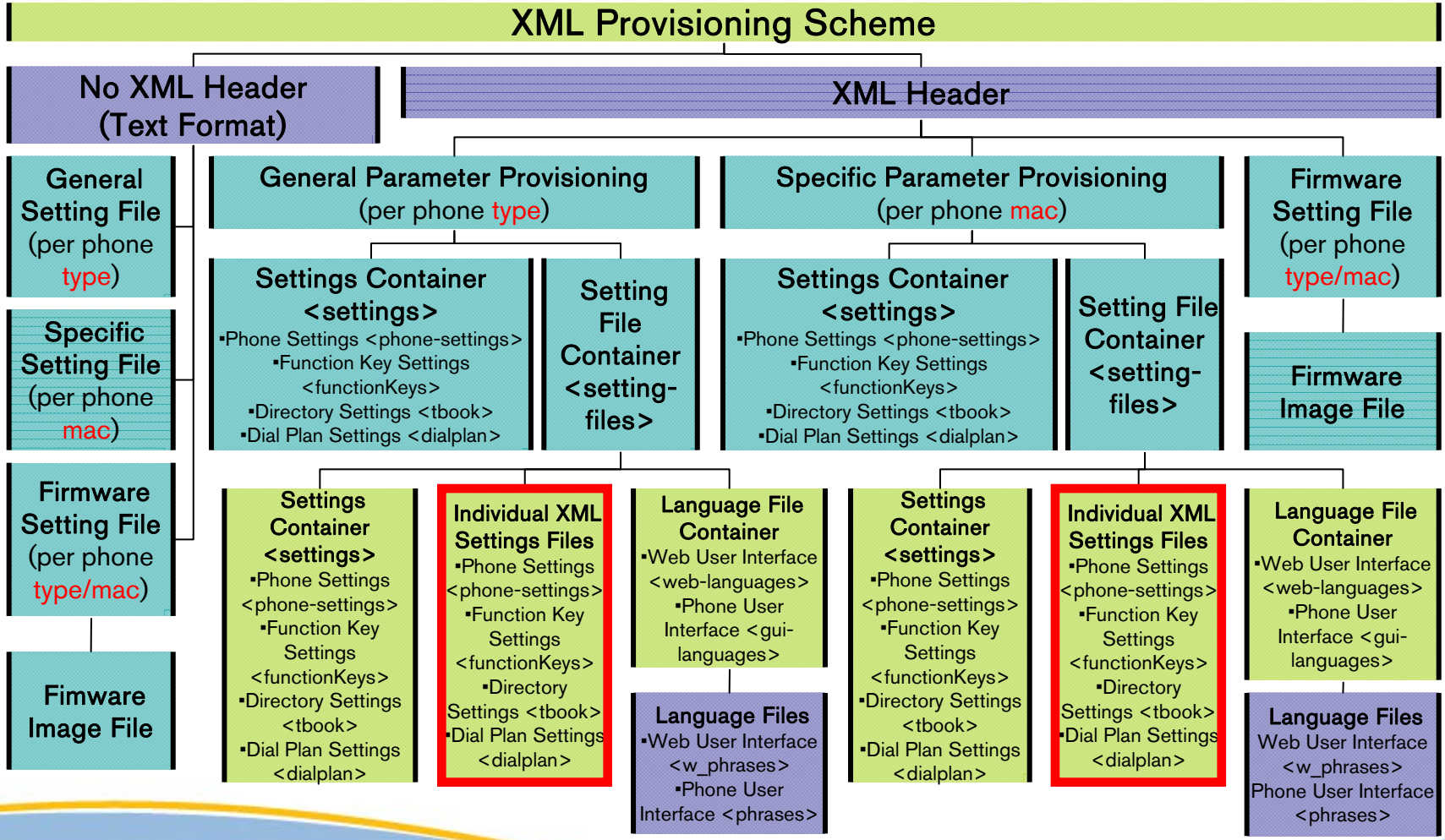
```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/mac.xml"/>


</setting-files>
```

http://domain/3x0/mac.xml

```
<?xml version="1.0" encoding="utf-8" ?>
<settings>
  <phone-settings>…</phone-settings>
  <function-keys>…</function-keys>
  <phone-book>…</phone-book>
  <dial-plan>…</dial-plan>
</settings>
```

Setting Files | XML | Provisioning Scheme

Mass Deployment



Setting Files | XML | Container <setting-files>

Mass Deployment

http://domain/snom3x0.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/phone.xml"/>
  <file url="http://domain/3x0/fkeys.xml"/>
  <file url="http://domain/3x0/tbook.xml"/>
  <file url="http://domain/3x0/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>...</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>...</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>...</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>...</tbook>
```

http://domain/snom3x0-mac.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/mac/phone.xml"/>
  <file url="http://domain/3x0/mac/fkeys.xml"/>
  <file url="http://domain/3x0/mac/tbook.xml"/>
  <file url="http://domain/3x0/mac/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>...</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>...</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>...</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>...</tbook>
```

http://domain/snom3x0.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/phone.xml"/>
  <file url="http://domain/3x0/fkeys.xml"/>
  <file url="http://domain/3x0/tbook.xml"/>
  <file url="http://domain/3x0/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dial-plan>…</dial-plan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-book>…</phone-book>
```

http://domain/snom3x0-mac.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/mac/phone.xml"/>
  <file url="http://domain/3x0/mac/fkeys.xml"/>
  <file url="http://domain/3x0/mac/tbook.xml"/>
  <file url="http://domain/3x0/mac/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dial-plan>…</dial-plan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-book>…</phone-book>
```

- <phone-settings> XML tag contains the main part of general or specific configuration parameters and the URL of the firmware configuration file

```
<?xml version="1.0" encoding="utf-8"?>
    <phone-settings>
        <language perm="!">English</language>
        <redirect_number perm="$">253</redirect_number>
        …
        <user_realname idx="1" perm="&"></user_realname>
        <firmware perm="">http://domain/3x0/firmware.xml</firmware>
    </phone-settings>
```

Value

Configuration parameter

Identity Index

Flag

Setting Files | XML | Function Key Settings

Mass Deployment

http://domain/snom3x0.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/phone.xml"/>
  <file url="http://domain/3x0/fkeys.xml"/>
  <file url="http://domain/3x0/tbook.xml"/>
  <file url="http://domain/3x0/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>…</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>…</tbook>
```

http://domain/snom3x0-mac.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/mac/phone.xml"/>
  <file url="http://domain/3x0/mac/fkeys.xml"/>
  <file url="http://domain/3x0/mac/tbook.xml"/>
  <file url="http://domain/3x0/mac/dplan.xml"/>
</setting-files>
```

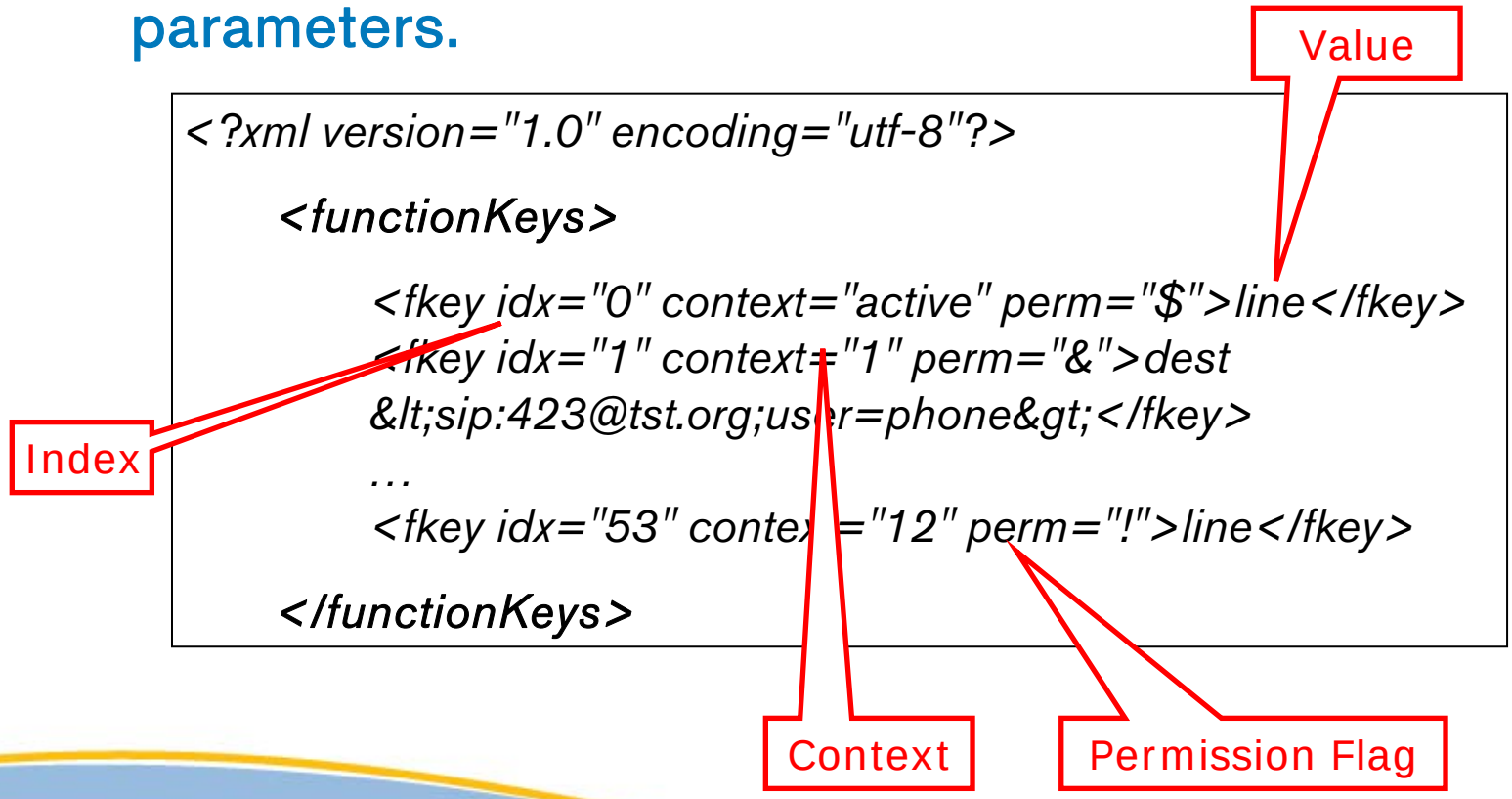
```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>…</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>…</tbook>
```

- <functionKeys> or <function-keys> XML tag contains the “free function key” configuration parameters.



http://domain/snom3x0.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/phone.xml"/>
  <file url="http://domain/3x0/fkeys.xml"/>
  <file url="http://domain/3x0/tbook.xml"/>
  <file url="http://domain/3x0/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>…</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>…</tbook>
```

http://domain/snom3x0-mac.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/mac/phone.xml"/>
  <file url="http://domain/3x0/mac/fkeys.xml"/>
  <file url="http://domain/3x0/mac/tbook.xml"/>
  <file url="http://domain/3x0/mac/dplan.xml"/>
</setting-files>
```

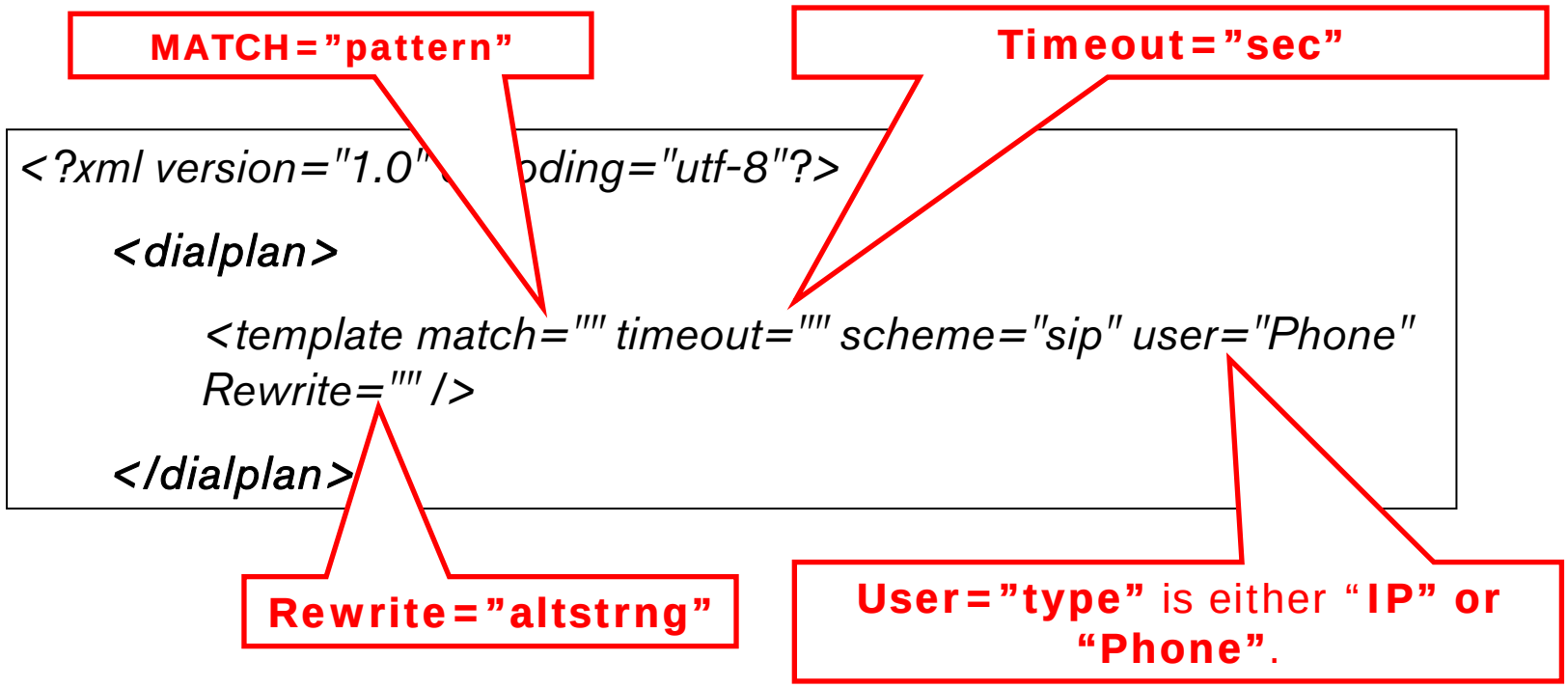
```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>…</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>…</tbook>
```

- <dialplan> or <dial-plan> XML tag define global dial plans



- MATCH="pattern"
  - is the **dial pattern** to match. While entering the pattern: use a period (.) to match any character or use an asterisk (*) to match one or more characters. To have the phone generate a secondary dial tone when the part of the template matches, use a comma (,).
- Timeout="sec"
  - is the **number of seconds before a timeout will occur** and the number will be dialed as entered by the user. To have the number dial immediately, specify 0.
- Rewrite="altstrng"
  - is the alternate **string to be dialed instead of what the user enters**. This field can be left empty.
- User="type"
  - is either IP or Phone. Enter User=phone or User=IP to have the tag automatically added to the dialed number. Currently User=phone is supported.

Setting Files | XML | Directory Settings

Mass Deployment

http://domain/snom3x0.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/phone.xml"/>
  <file url="http://domain/3x0/fkeys.xml"/>
  <file url="http://domain/3x0/tbook.xml"/>
  <file url="http://domain/3x0/dplan.xml"/>
</setting-files>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dial-plan>…</dial-plan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>…</tbook>
```

http://domain/snom3x0-mac.htm

```
<?xml version="1.0" encoding="utf-8" ?>
<setting-files>
  <file url="http://domain/3x0/mac/phone.xml"/>
  <file url="http://domain/3x0/mac/fkeys.xml"/>
  <file url="http://domain/3x0/mac/tbook.xml"/>
  <file url="http://domain/3x0/mac/dplan.xml"/>
</setting-files>
```

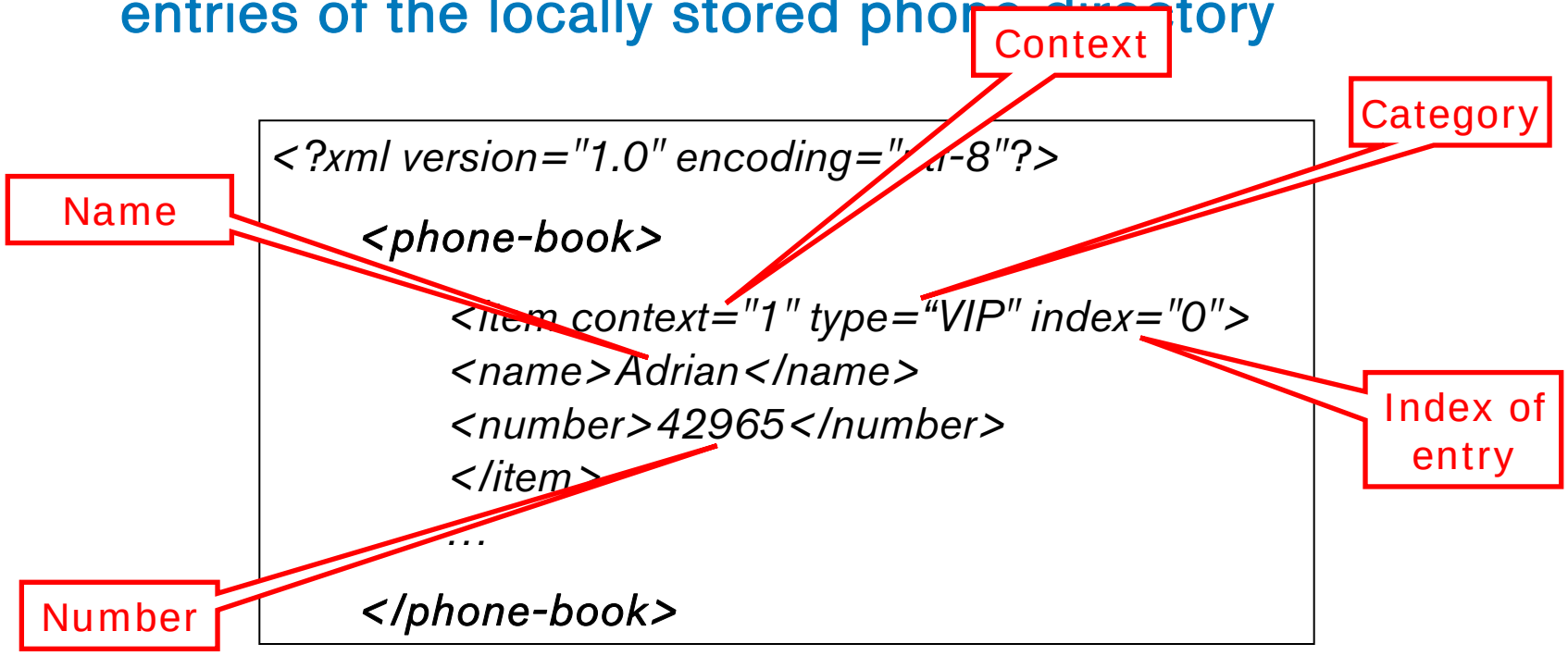
```
<?xml version="1.0" encoding="utf-8" ?>
<phone-settings>…</phone-settings>
```

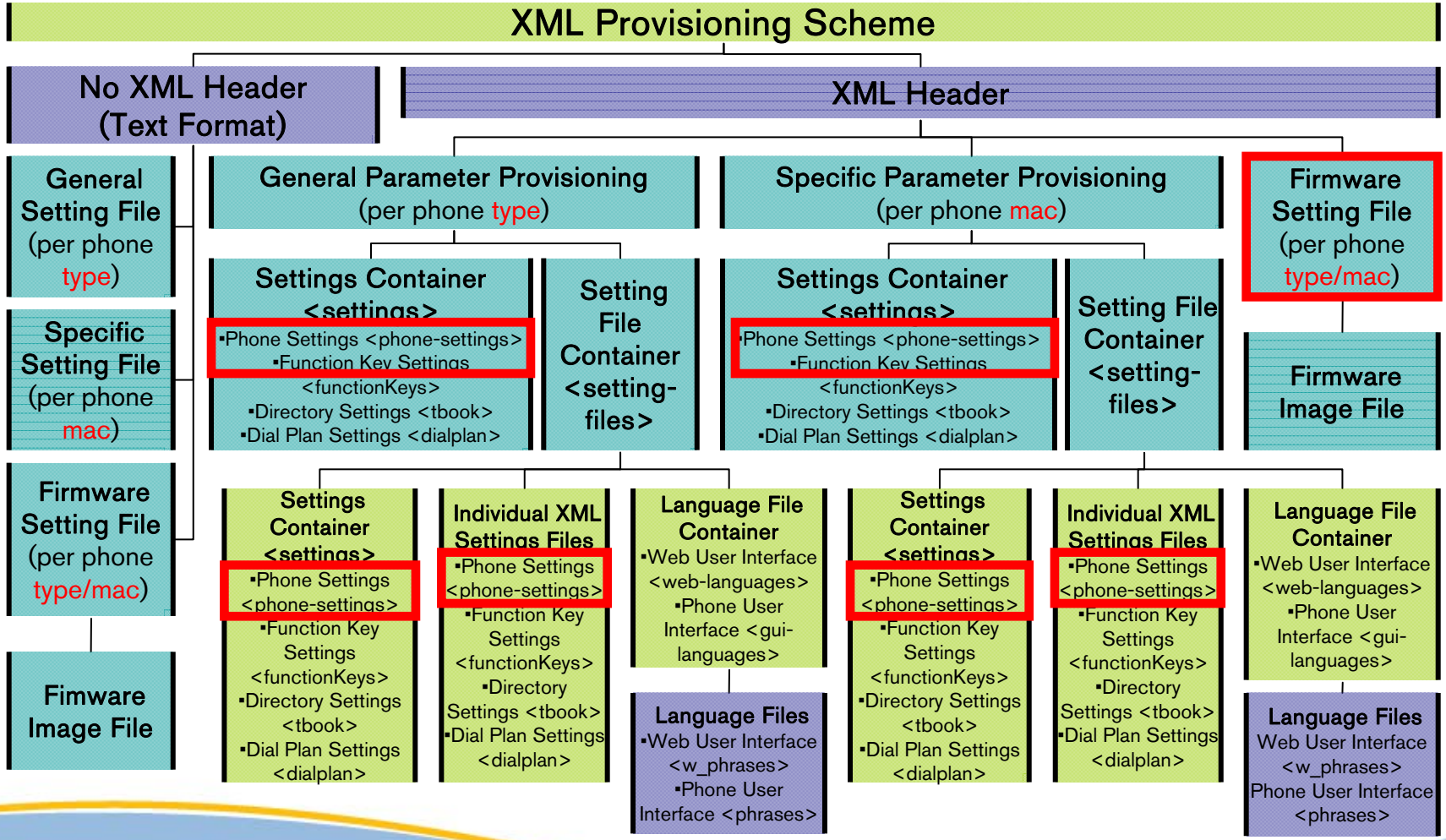
```
<?xml version="1.0" encoding="utf-8" ?>
<functionKeys>…</functionKeys>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<dialplan>…</dialplan>
```

```
<?xml version="1.0" encoding="utf-8" ?>
<tbook>…</tbook>
```

- <tbook> or <phone-book> XML tag defines the entries of the locally stored phone directory

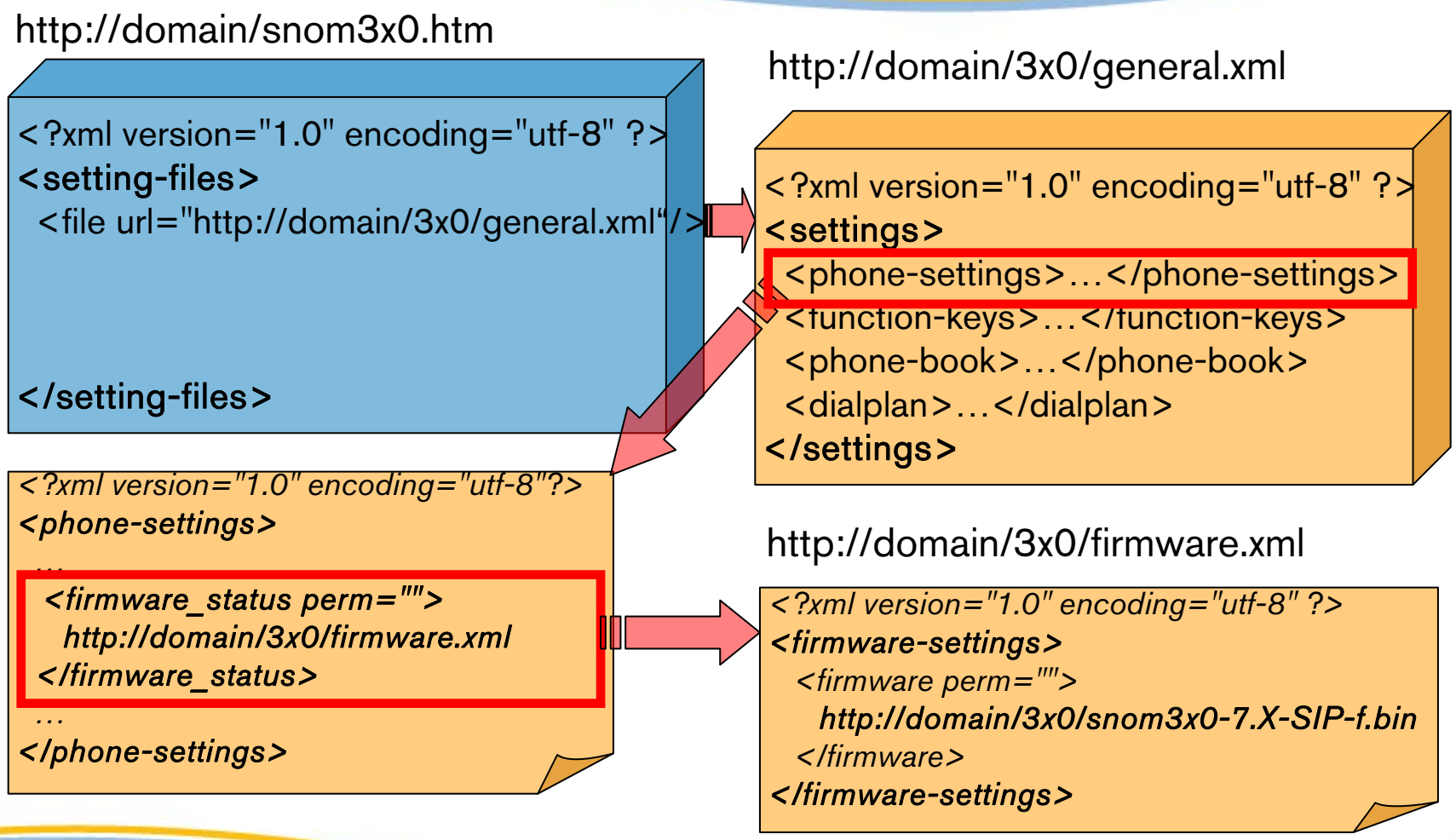



XML Provisioning Scheme
No XML Header (Text Format)
XML Header
General Setting File (per phone type)
Specific Setting File (per phone mac)
Firmware Setting File (per phone type/mac)
Fimware Image File
General Parameter Provisioning (per phone type)
Specific Parameter Provisioning (per phone mac)
Firmware Setting File (per phone type/mac)
Firmware Image File
Settings Container <settings>
▪Phone Settings <phone-settings>
▪Function Key Settings <functionKeys>
▪Directory Settings <tbook>
▪Dial Plan Settings <dialplan>
Setting File Container <setting-files>
Settings Container <settings>
▪Phone Settings <phone-settings>
▪Function Key Settings <functionKeys>
▪Directory Settings <tbook>
▪Dial Plan Settings <dialplan>
Setting File Container <setting-files>
Settings Container <settings>
▪Phone Settings <phone-settings>
▪Function Key Settings <functionKeys>
▪Directory Settings <tbook>
▪Dial Plan Settings <dialplan>
Individual XML Settings Files
▪Phone Settings <phone-settings>
▪Function Key Settings <functionKeys>
▪Directory Settings <tbook>
▪Dial Plan Settings <dialplan>
Language File Container
▪Web User Interface <web-languages>
▪Phone User Interface <gui-languages>
Language Files
▪Web User Interface <w_phrases>
▪Phone User Interface <phrases>
Settings Container <settings>
▪Phone Settings <phone-settings>
▪Function Key Settings <functionKeys>
▪Directory Settings <tbook>
▪Dial Plan Settings <dialplan>
Individual XML Settings Files
▪Phone Settings <phone-settings>
▪Function Key Settings <functionKeys>
▪Directory Settings <tbook>
▪Dial Plan Settings <dialplan>
Language File Container
▪Web User Interface <web-languages>
▪Phone User Interface <gui-languages>
Language Files
Web User Interface <w_phrases>
Phone User Interface <phrases>

- "Firmware setting file" contains a subset of firmware related configuration parameters allowing automated firmware updates
- "Firmware setting file" URL must only be specified in the <phone-settings> tag
- One "Firmware setting file" per phone type / mac address containing „Firmware image file URL":
  - *http://domain/3x0/firmware.xml*
  - *http://domain/3x0/mac/firmware.xml*

Setting Files | XML | Firmware Update Files

Mass Deployment



- This XML file type must not be included in container setting files
- The phone will download the firmware XML file specified in the URL configured under *firmware_status*
- The setting *firmware_status* can ONLY be defined in the settings file of type *<phone-settings>*

```
<?xml version="1.0" encoding="utf-8" ?>
    <firmware-settings>
        <firmware perm="">http://.../snom-7.1.9-SIP-f.bin</firmware>
    </firmware-settings>
```

Value = Firmware Image

Do not use any flag

Configuration parameter = firmware

Multiple language support with Version 7

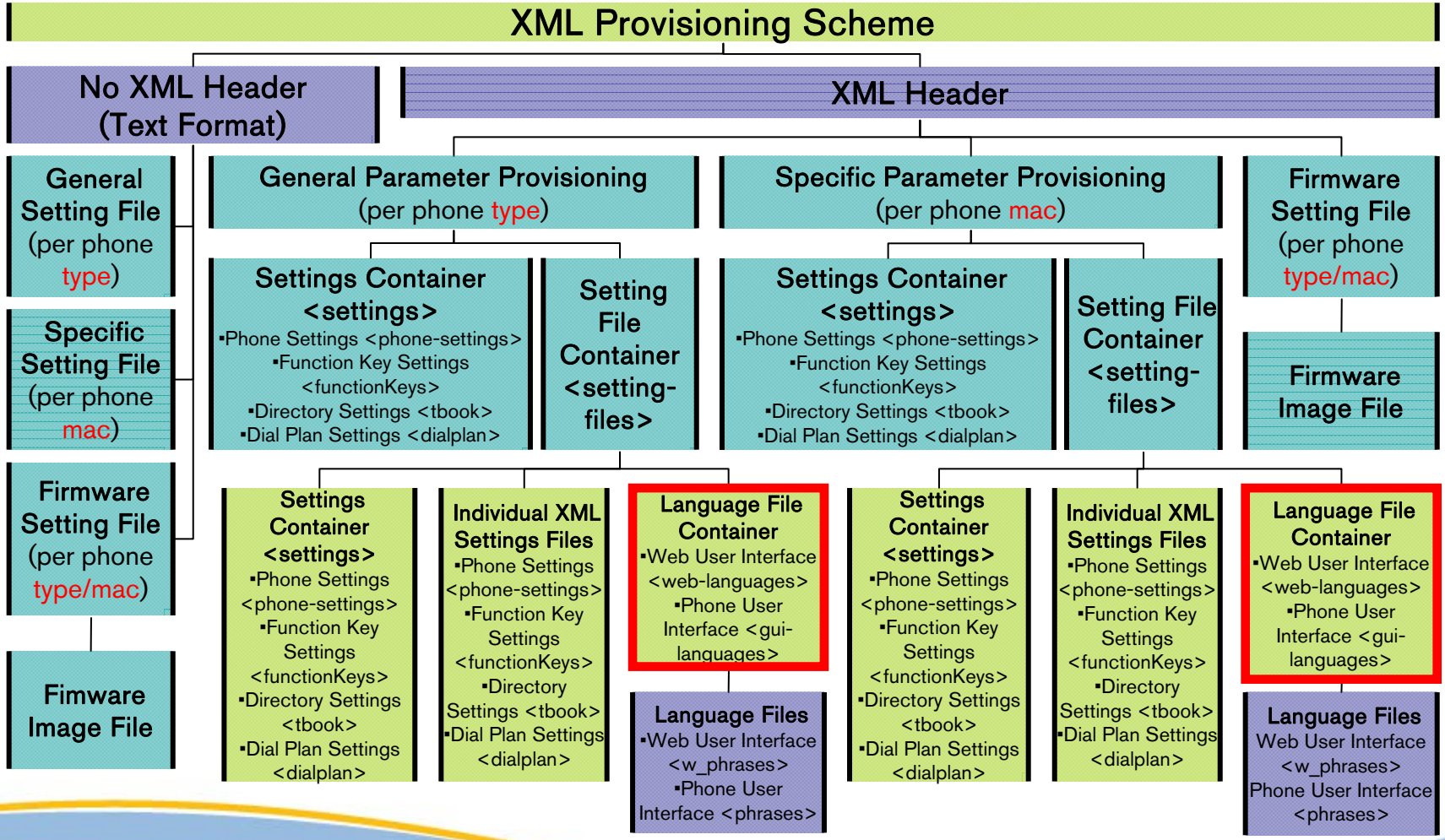
- snom370: *several* languages (default “English”) come pre-installed with the firmware
- snom300, 320, 360: ONLY english language is pre-installed
- multiple languages can ONLY be provided via auto provisioning → the selected language will be loaded on request into the phone’s RAM

Language files must match the phone’s application firmware

- Download always the newest language files from: http://fox.snom.com/config, e.g. http://fox.snom.com/config/snomlang-7.1.33.tgz
- Automatic language provisioning using http://fox.snom.com/config/settings.xml as Setting Server URL

Setting Files | XML | Language File Container

Mass Deployment

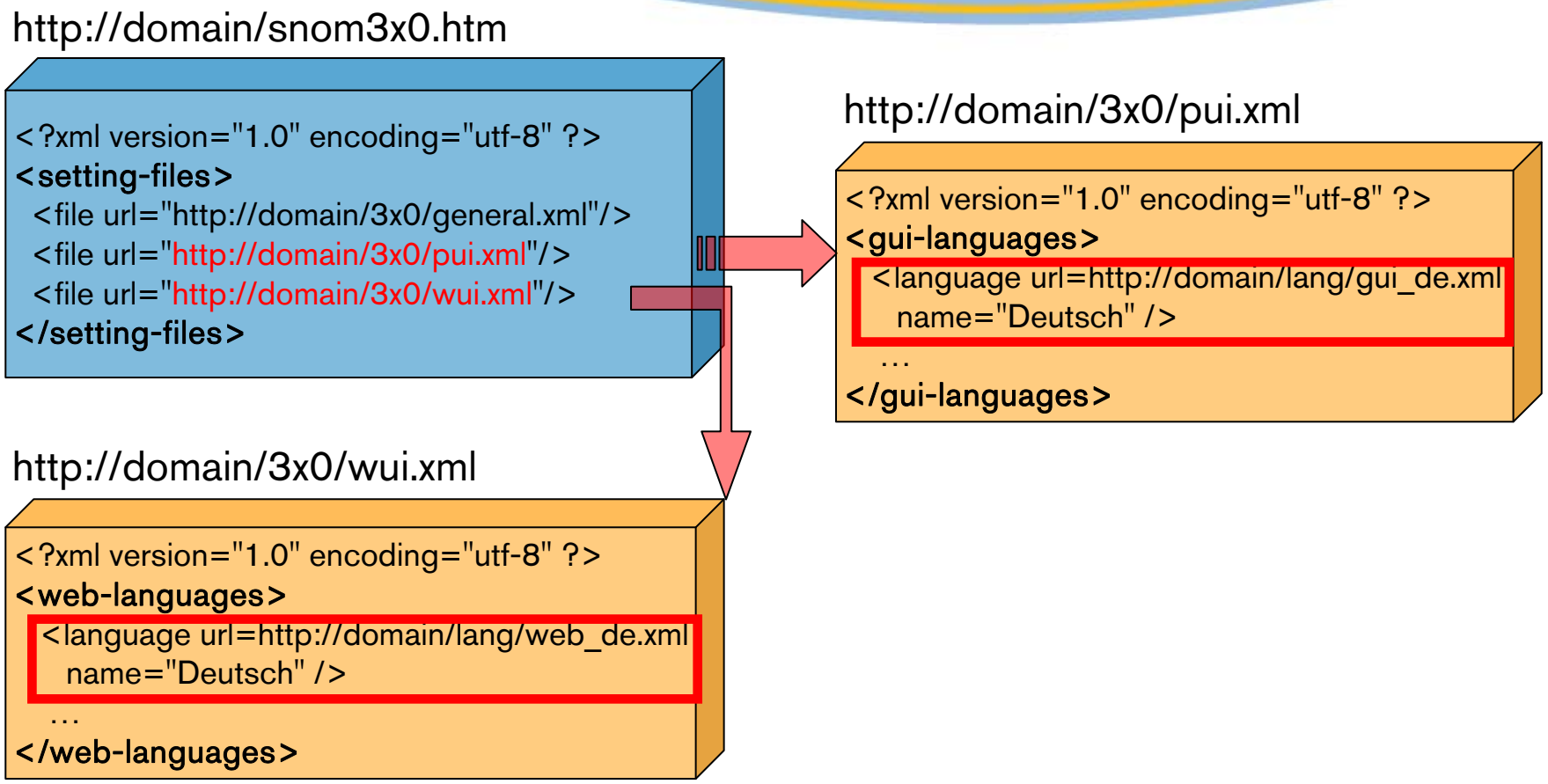


- "Language File Container" are XML files containing a list of language file URLs each one representing a different language:
- Phone User Interface Language File Container (<gui-languages> tag)
- Web User Interface Language File Container (<web-languages> tag)

- One „Language File Container“ per phone type / mac address containing general / specific „phone User Interface Language File URLs“
  - *http://domain/3x0/pui.xml*
  - *http://domain/3x0/mac/pui.xml*
- One „Language File Container“ per phone type / mac address containing general / specific „Web User Interface Language File URLs“
  - *http://domain/3x0/wui.xml*
  - *http://domain/3x0/mac/wui.xml*

Setting Files | XML | Language File Container

Mass Deployment



<gui-languages> / <web-languages>

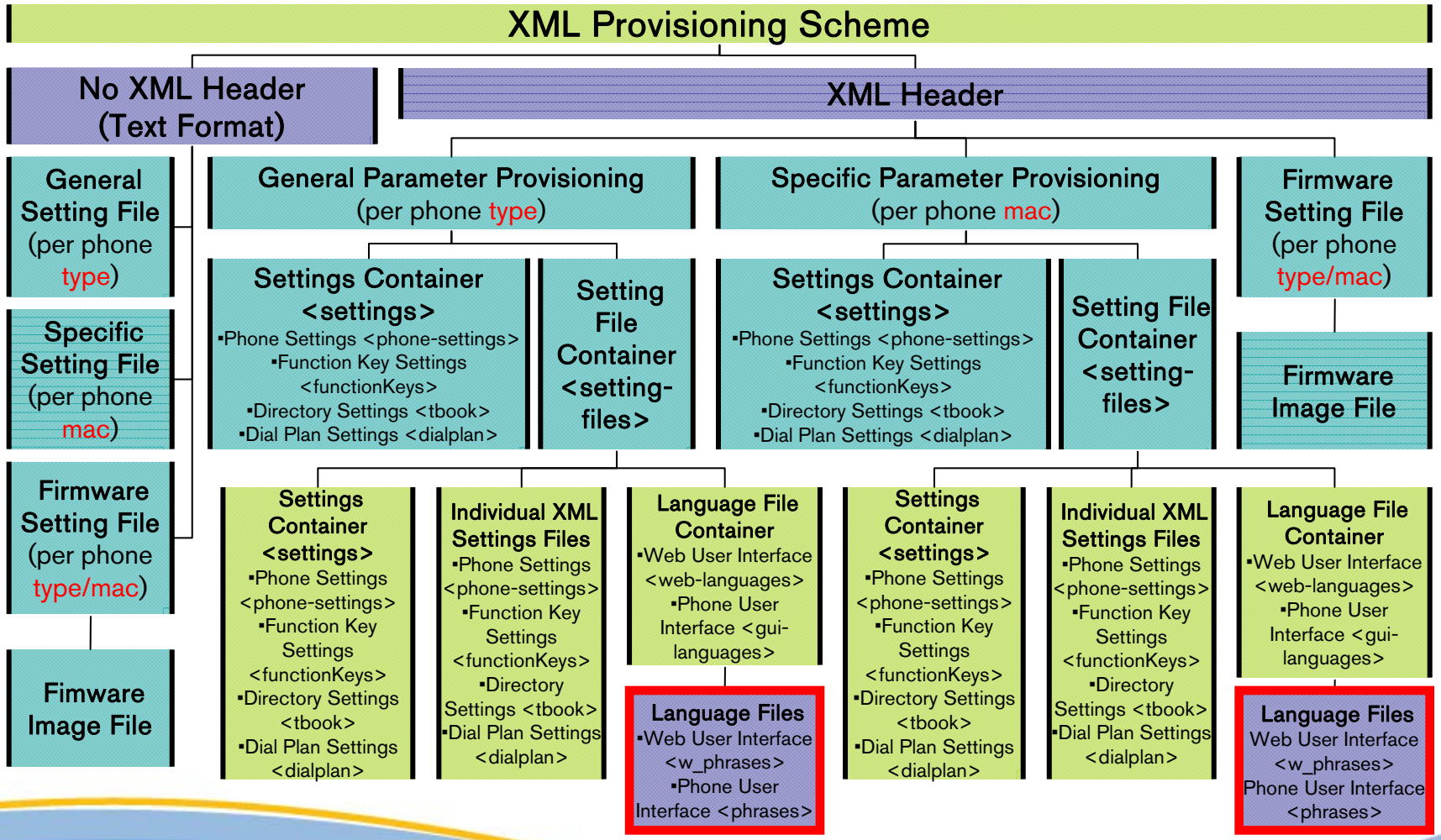
The **URL** specified either links to the **official snom** or to **your own translated** XML language file.

```
<?xml version="1.0" encoding="utf-8" ?>
    <gui-languages>
        <language url="http://domain/de/gui.xml" name="Deutsch" />
        ...
    </gui-languages>
```

The **name** specified will appear in the list of available languages

Setting Files | XML | Language Files

Mass Deployment

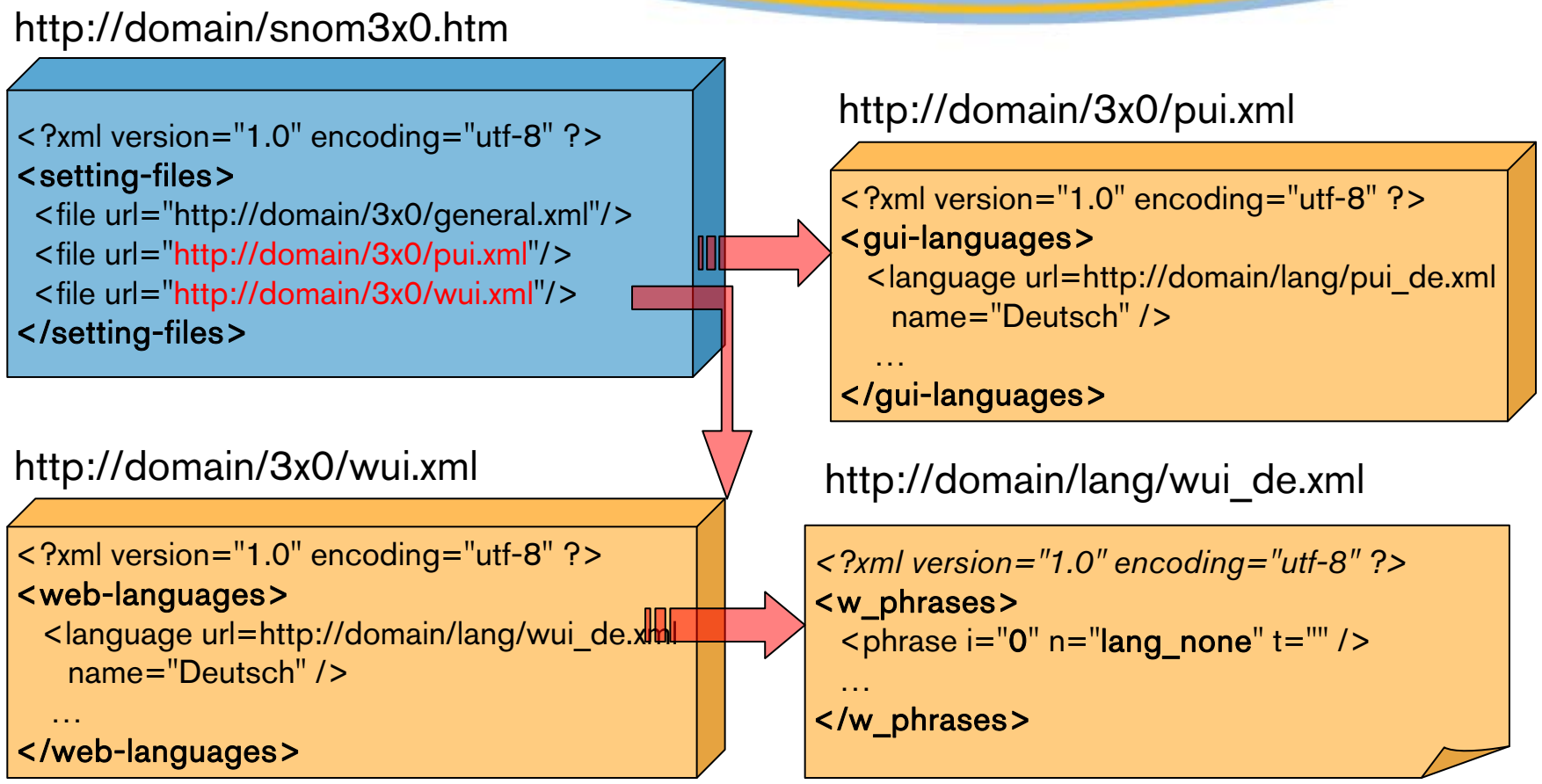


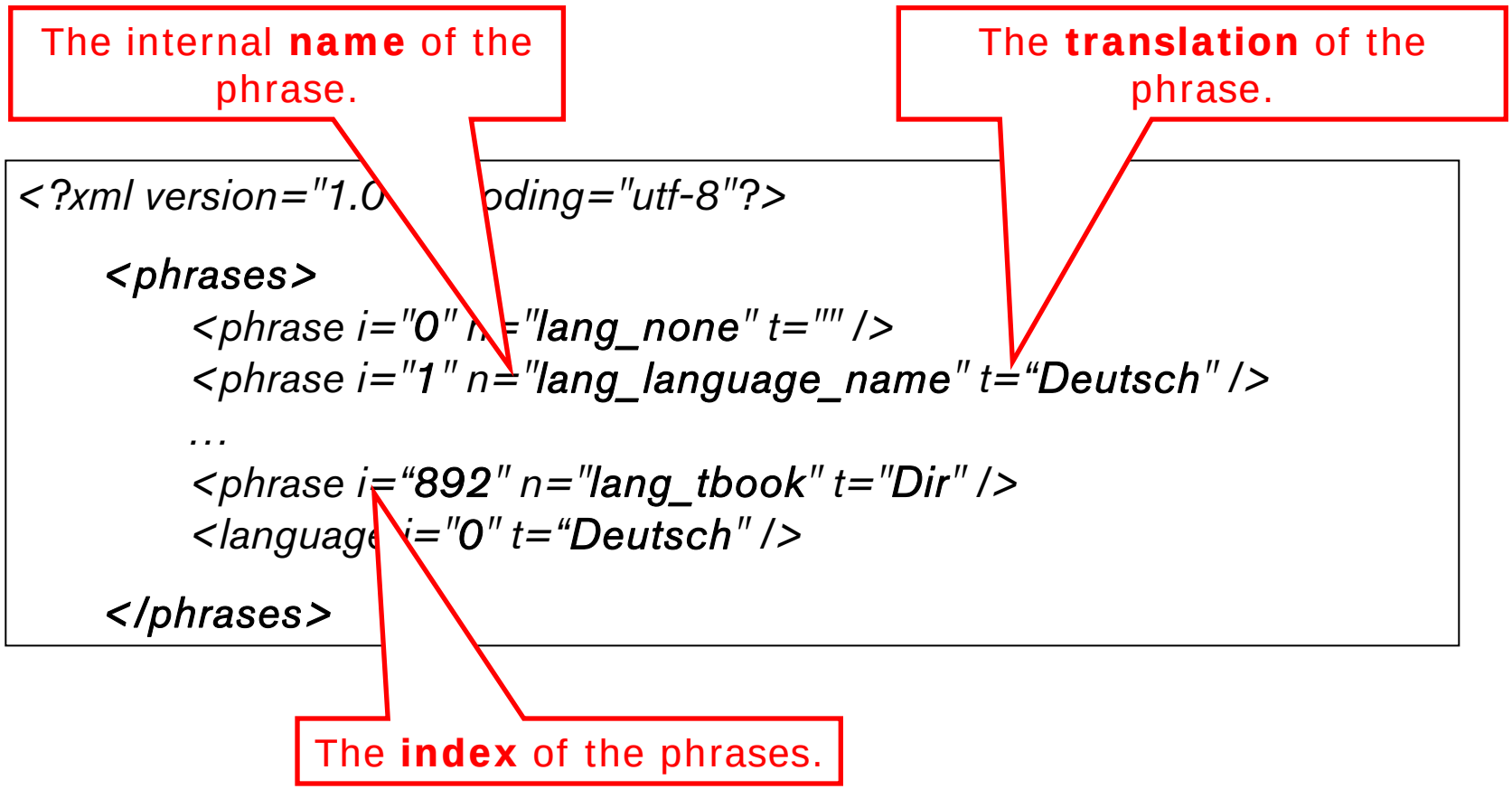
- "Language files" are XML files containing the language phrases:
  - Phone User Interface language files (<phrases> tag)
  - Web User Interface language files (<w_phrases> tag)
- When selecting a new language from the phone or web user interface language list the content of the associated file will be stored in the phone´s RAM.
- Language files depend on the firmware version
  - each file is unique per firmware version
  - language files of the latest release are always backwards compatible

- Several „Language Files“ <phrases> per phone type / mac address contain „Phone User Interface“ languages
  - *http://domain/3x0/lang/pui_de.xml*
  - *http://domain/3x0/mac/lang/pui_de.xml*
- Several „Language Files“ <w_phrases per phone type / mac address contain „Web User Interface“ languages
  - *http://domain/3x0/lang/wui_de.xml*
  - *http://domain/3x0/mac/lang/wui_de.xml*

Setting Files | XML | Language Files

Mass Deployment




The internal **name** of the phrase.
The **translation** of the phrase.
<?xml version="1.0 oding="utf-8"?>
<phrases>
<phrase i="0" n="lang_none" t="" />
<phrase i="1" n="lang_language_name" t="Deutsch" />
...
<phrase i="892" n="lang_tbook" t="Dir" />
<language i="0" t="Deutsch" />
</phrases>
The **index** of the phrases.

- Overview
  - Introduction
  - Requirements
  - Scenarios
- Requirements in Detail
  - Provisioning Server
  - Configuration Parameters
  - Setting Files
- Scenarios in Detail
  - Scenario 1: DHCP
  - Scenario 2: Plug&Play
  - Scenario 3: Manual Redirection
  - Scenario 4: Automatic Redirection
  - Scenario 5: Fix Redirection

Setting Server

- Running TFTP or HTTP(S) Server
- Provide setting files and firmware images

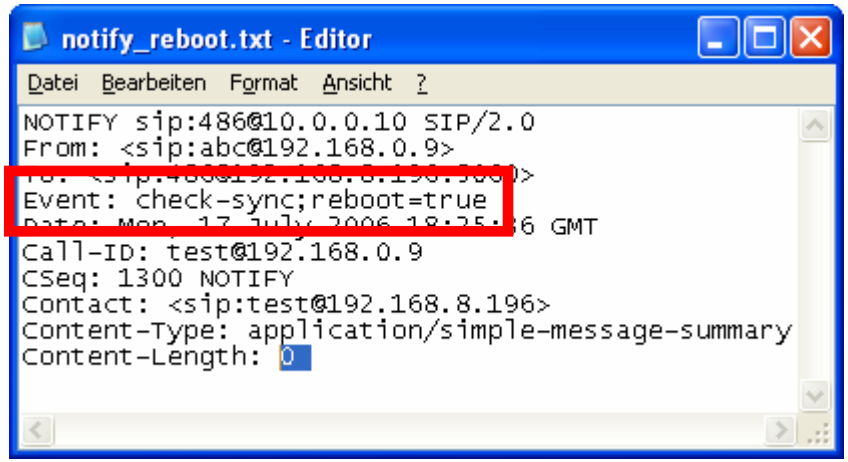
DHCP Server

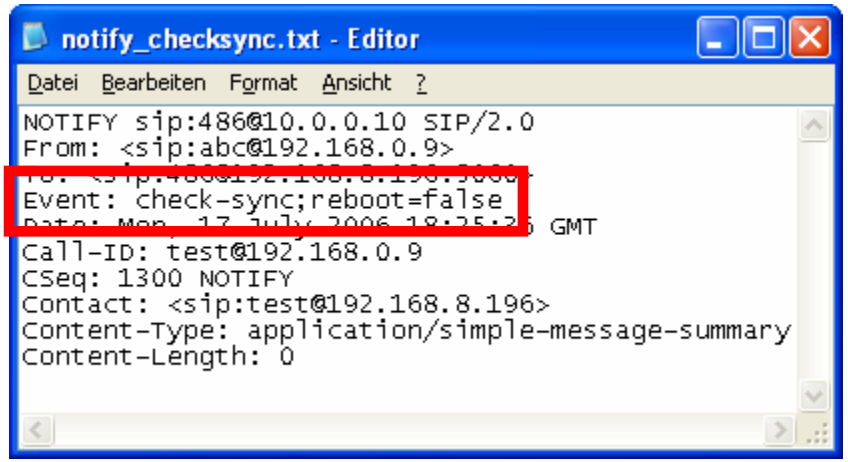
- Configure sname/ option 66 (tftp-server-name) pointing to setting server URL e.g. http://192.168.1.3
- Optional: Configure file / option 67 (*bootfile-name*) containing setting file path, e.g. snom/snom3xx.htm

snom3x0

- Make sure the parameter „Setting Server URL“ has not been changed manually before → Reset to factory values

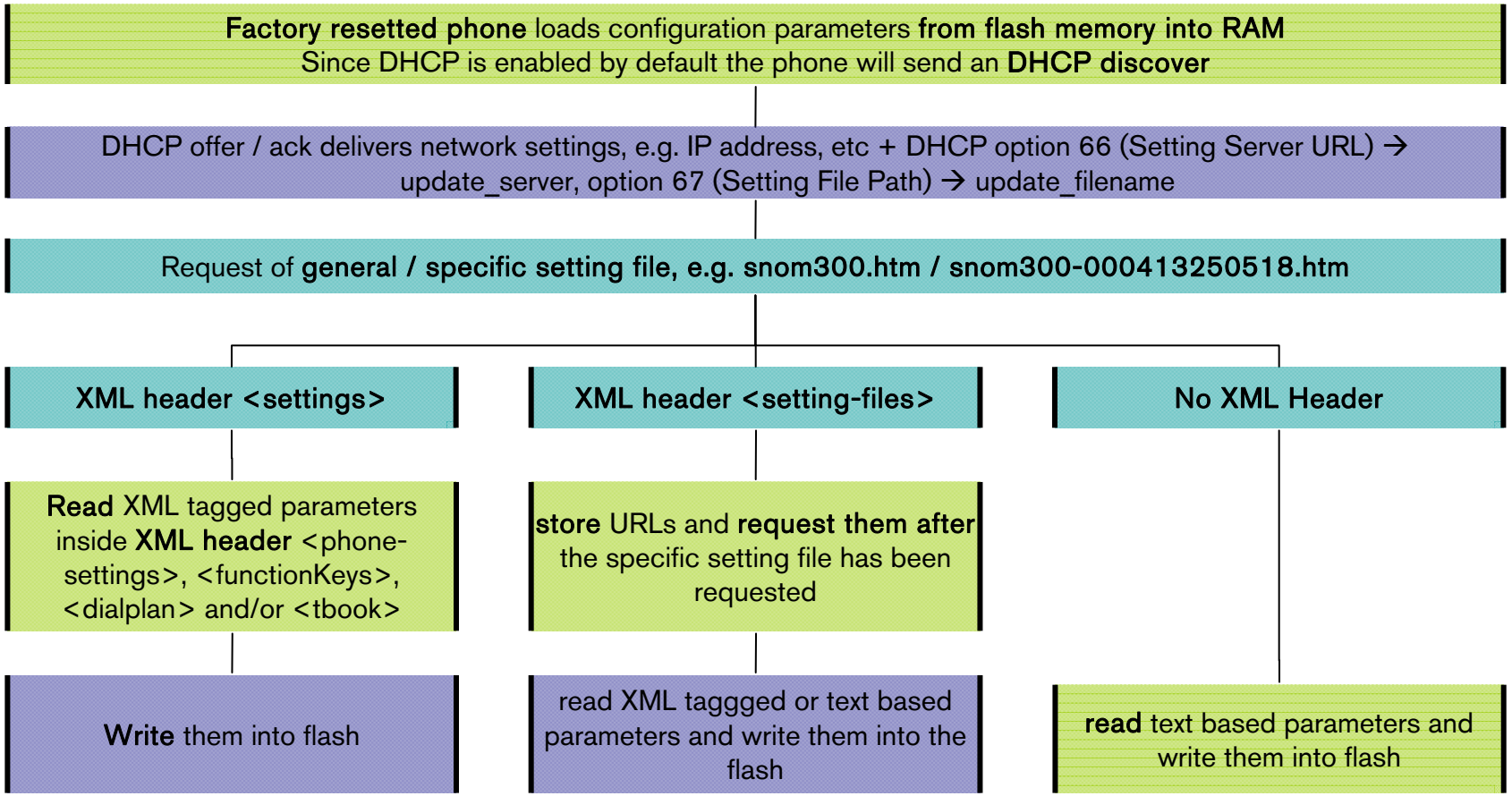
- Out of the box (factory values)/ Factory value reset
- Power up/ Reboot manually or via SIP NOTIFY





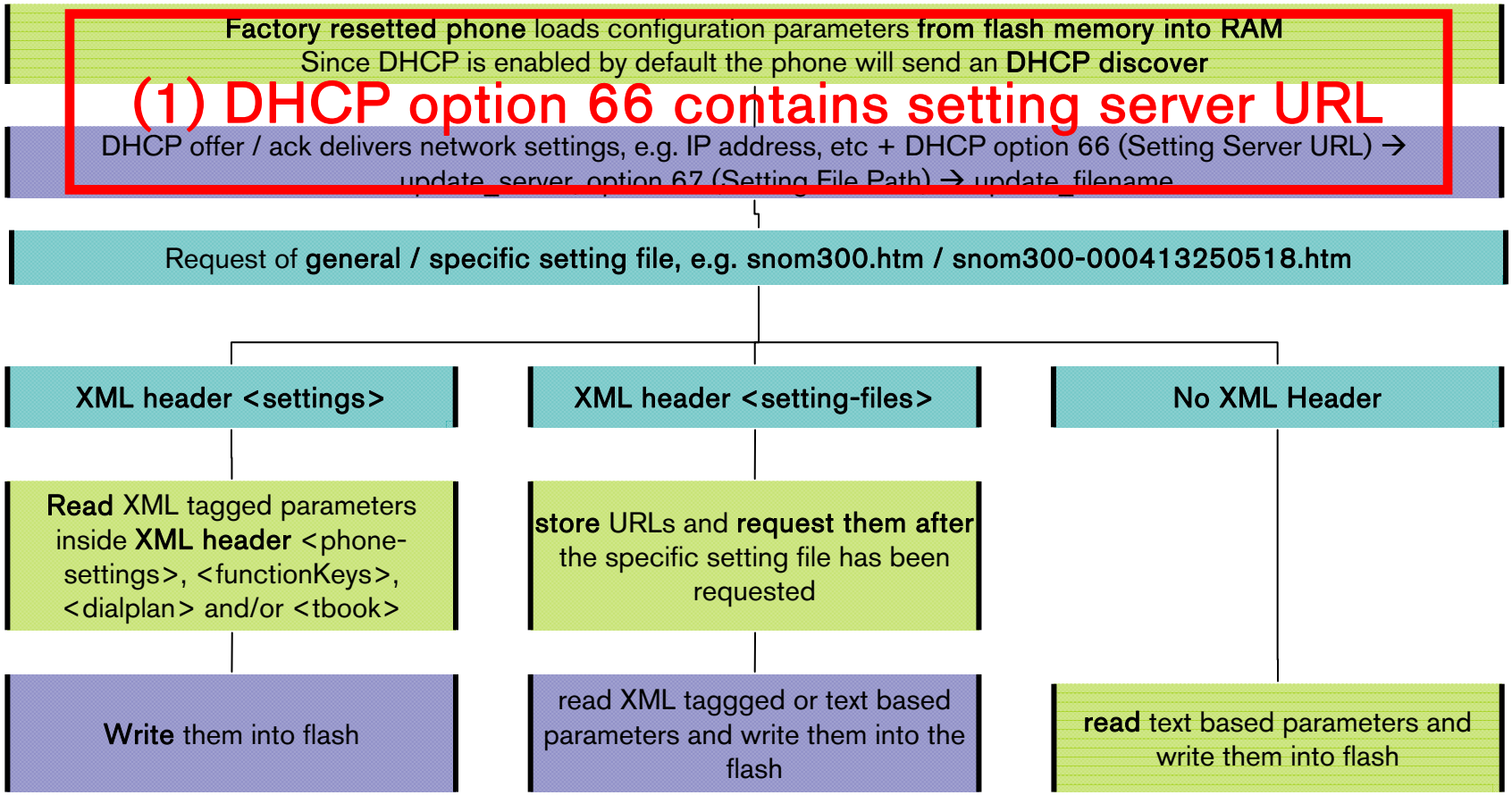
Scenario 1: DHCP | Process Overview

Mass Deployment



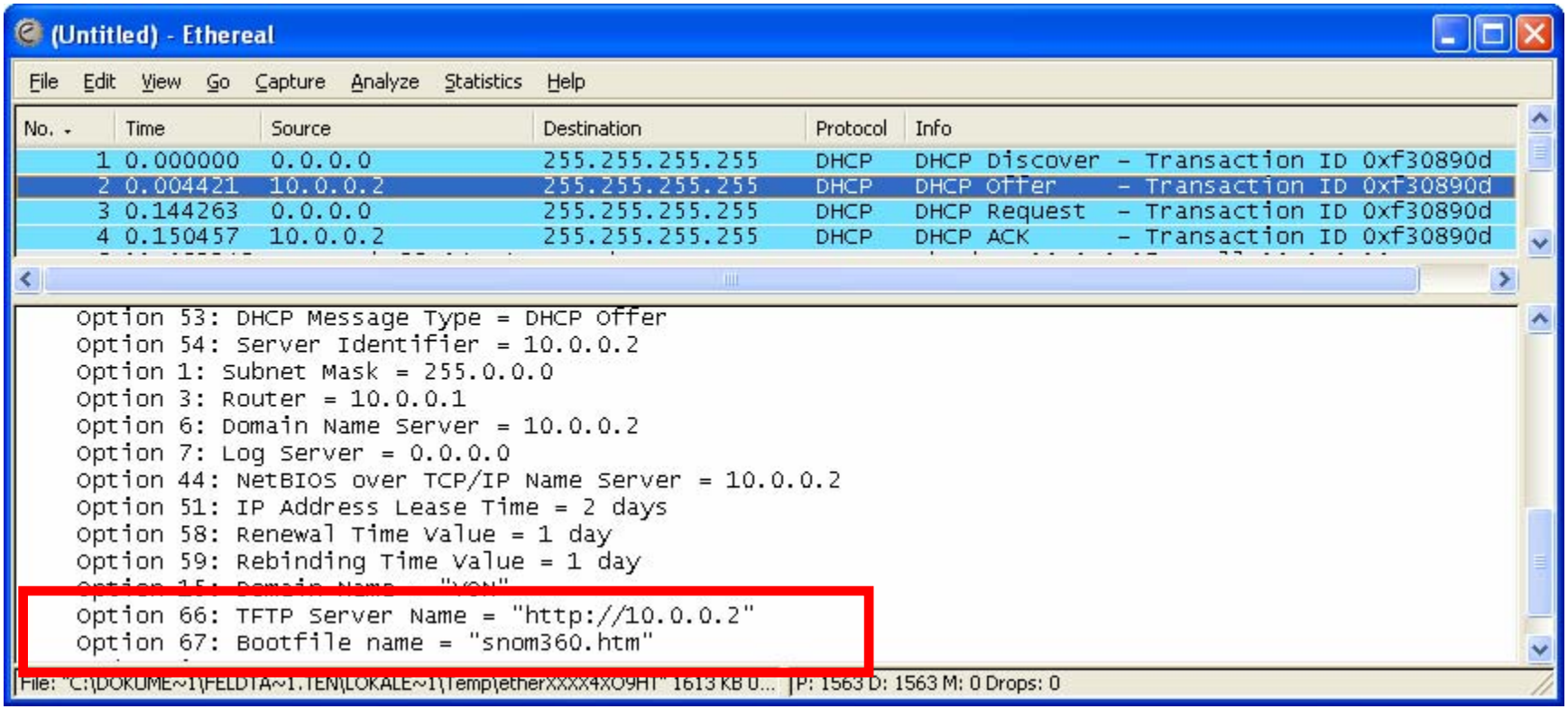
Scenario 1: DHCP | Process Overview

Mass Deployment



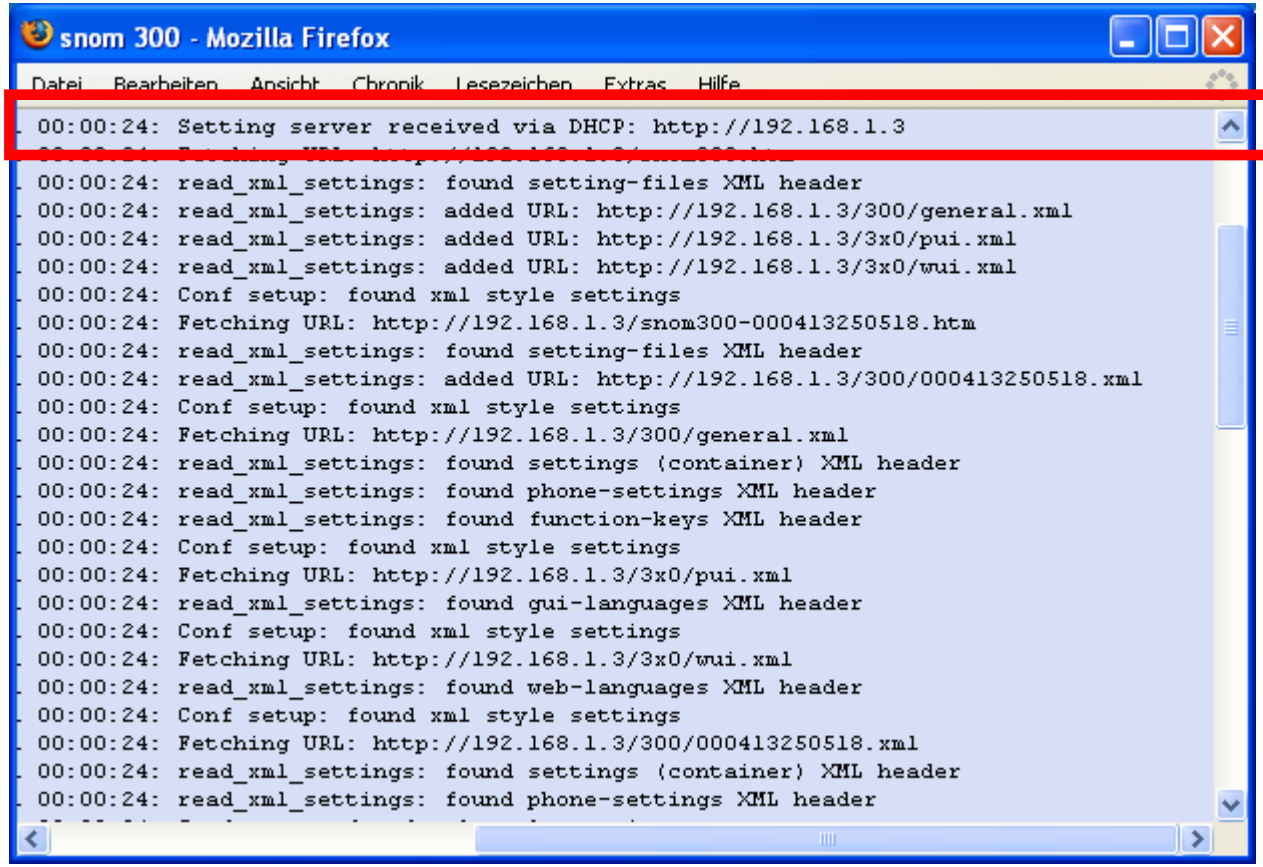
Scenario 1: DHCP | DHCP offer | PCAP

Mass Deployment



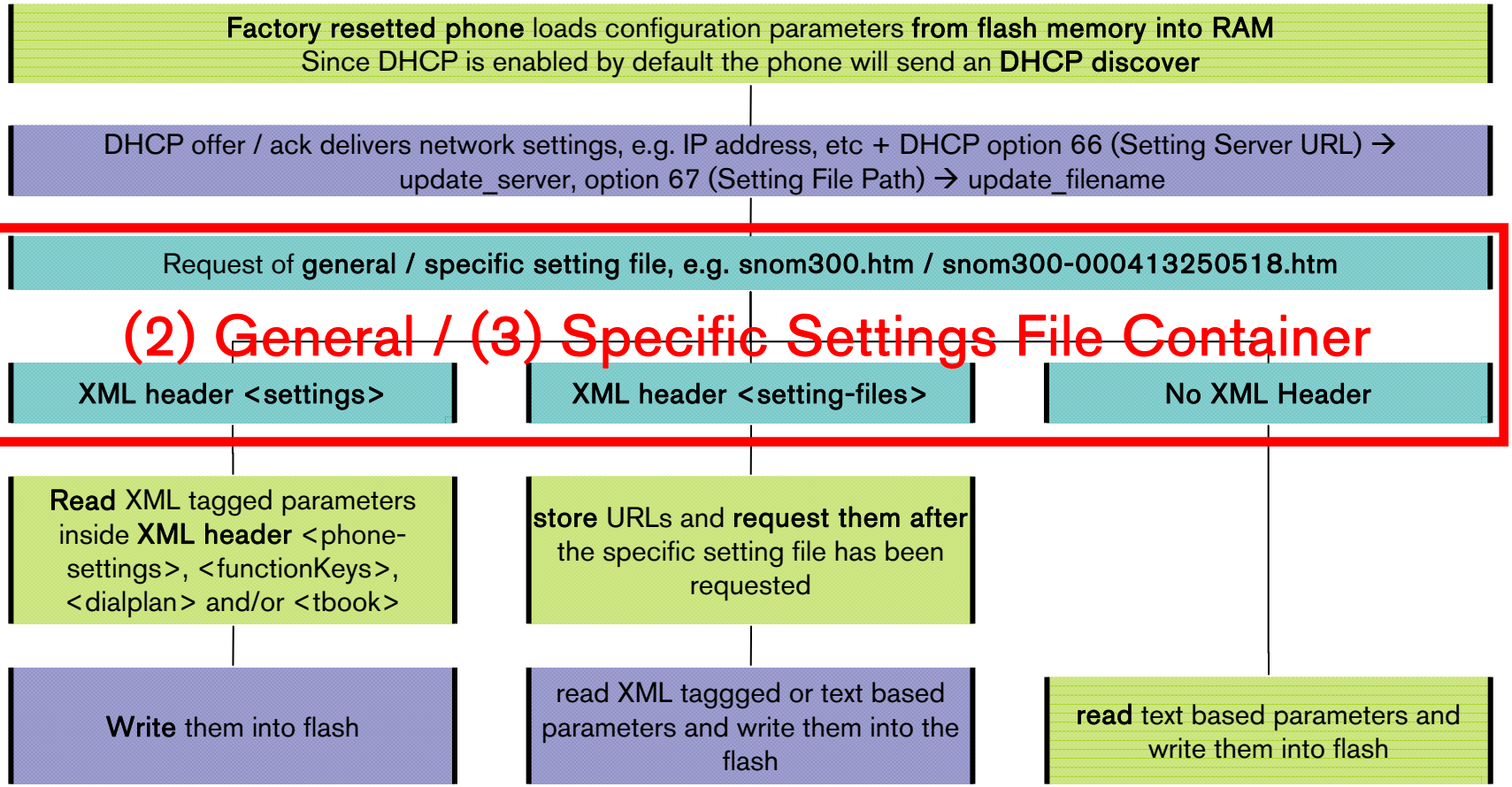
Scenario 1: DHCP | DHCP offer (1) | Log

Mass Deployment

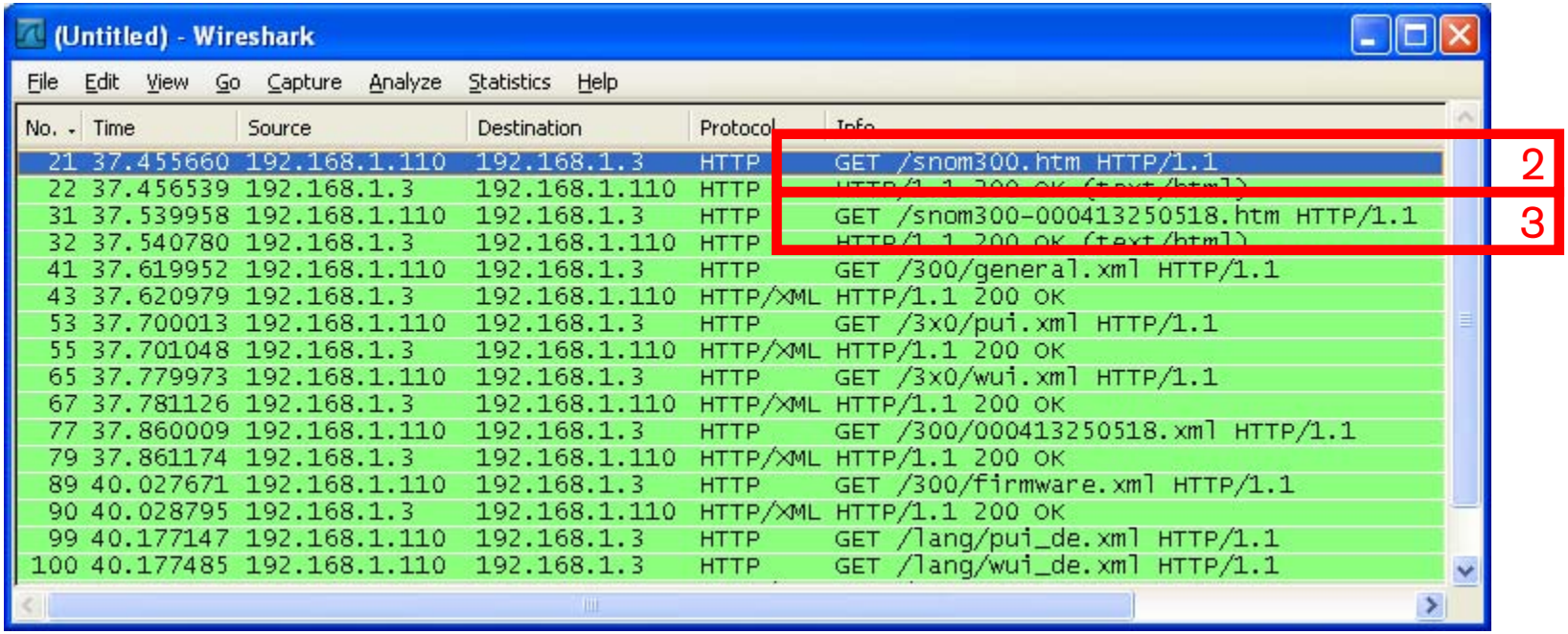


Scenario 1: DHCP | Process Overview

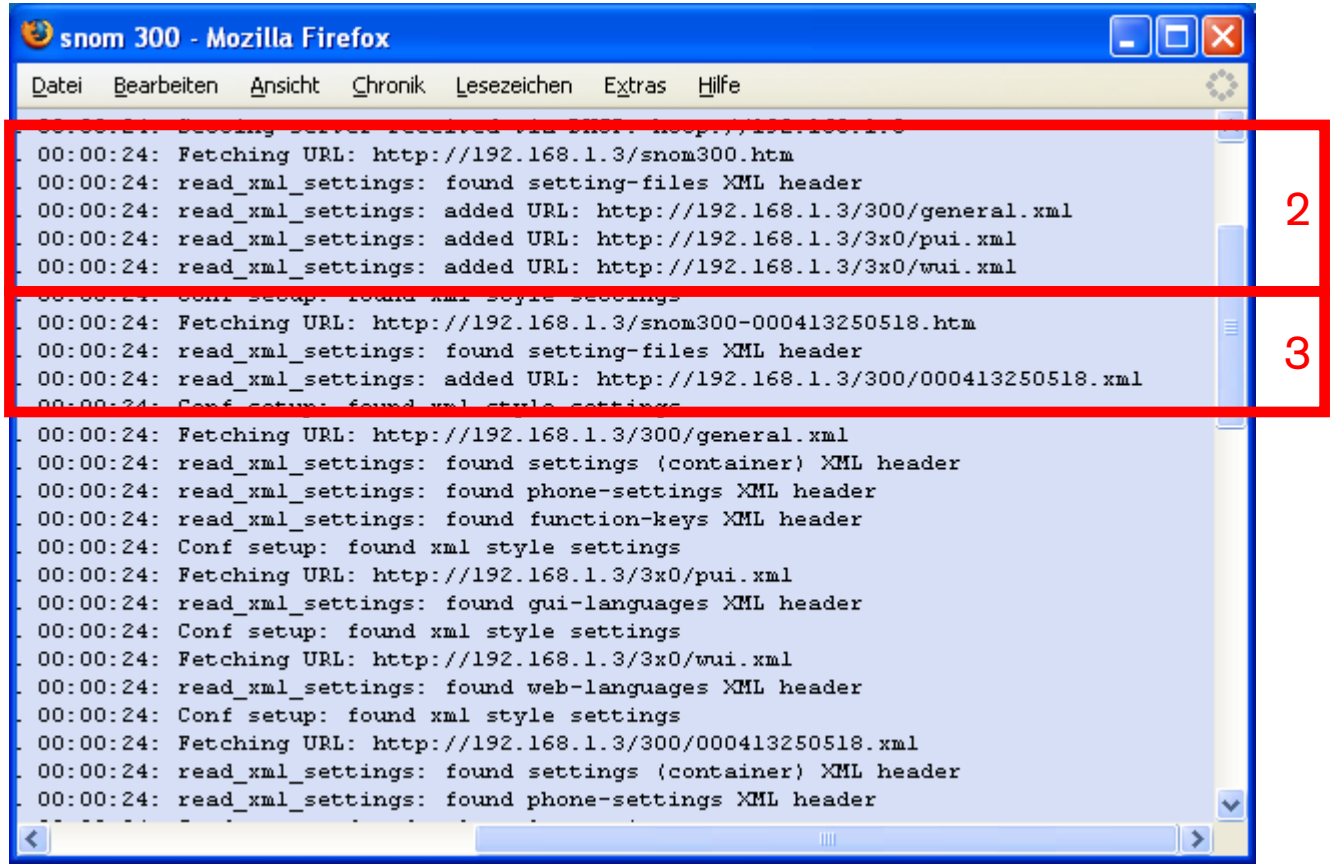
Mass Deployment



(2) General / (3) Specific Settings File Container

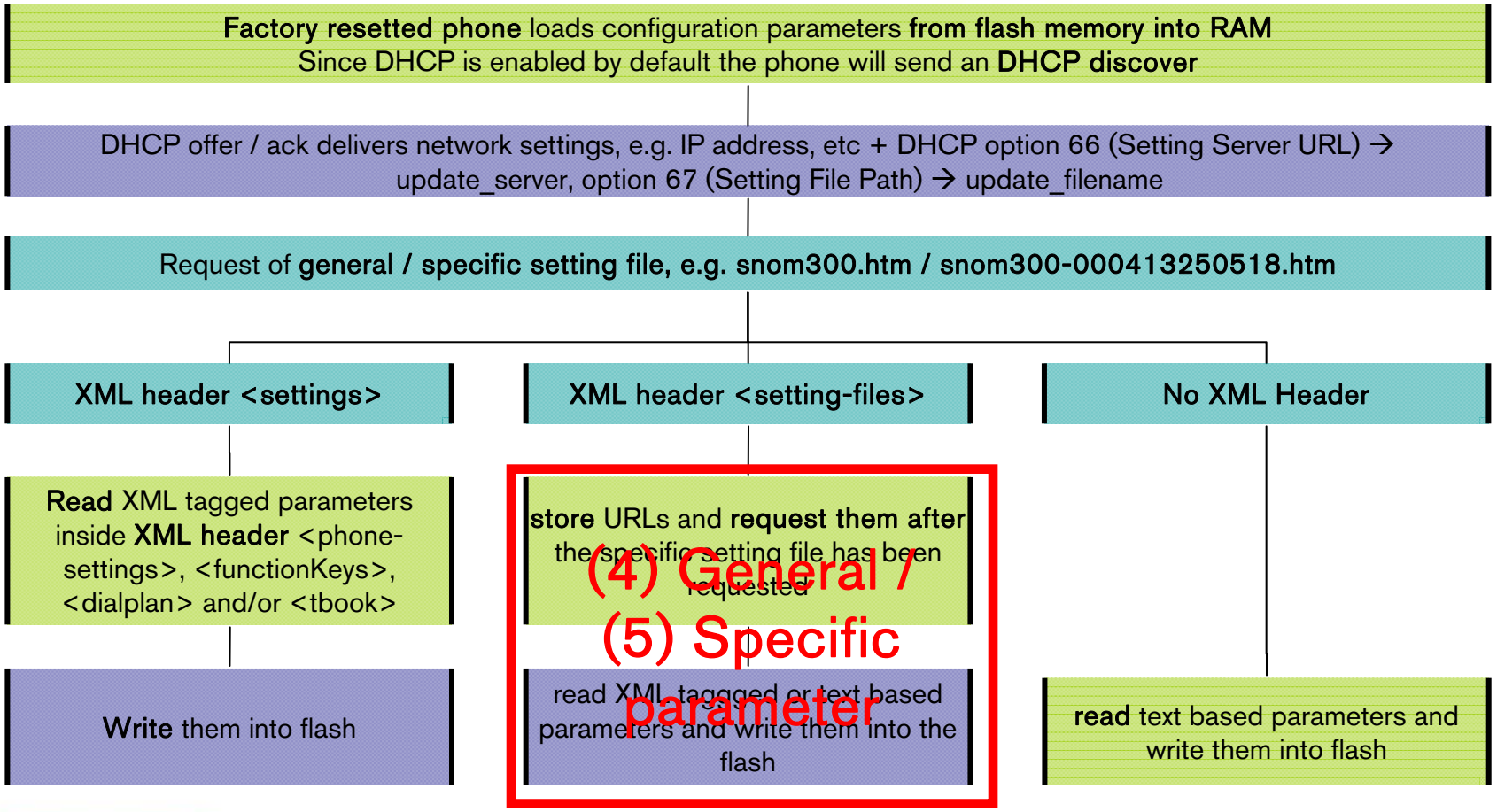


(2) General / (3) Specific Settings File Container

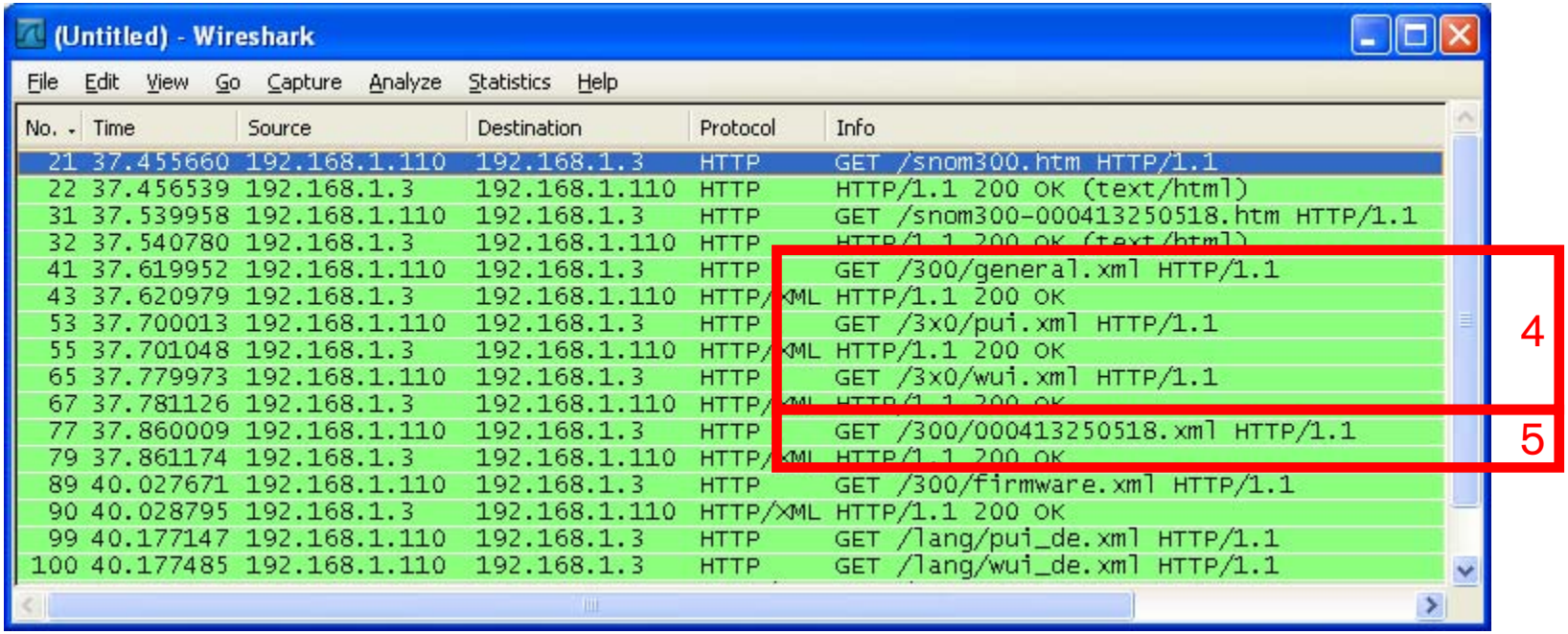


Scenario 1: DHCP | Process Overview

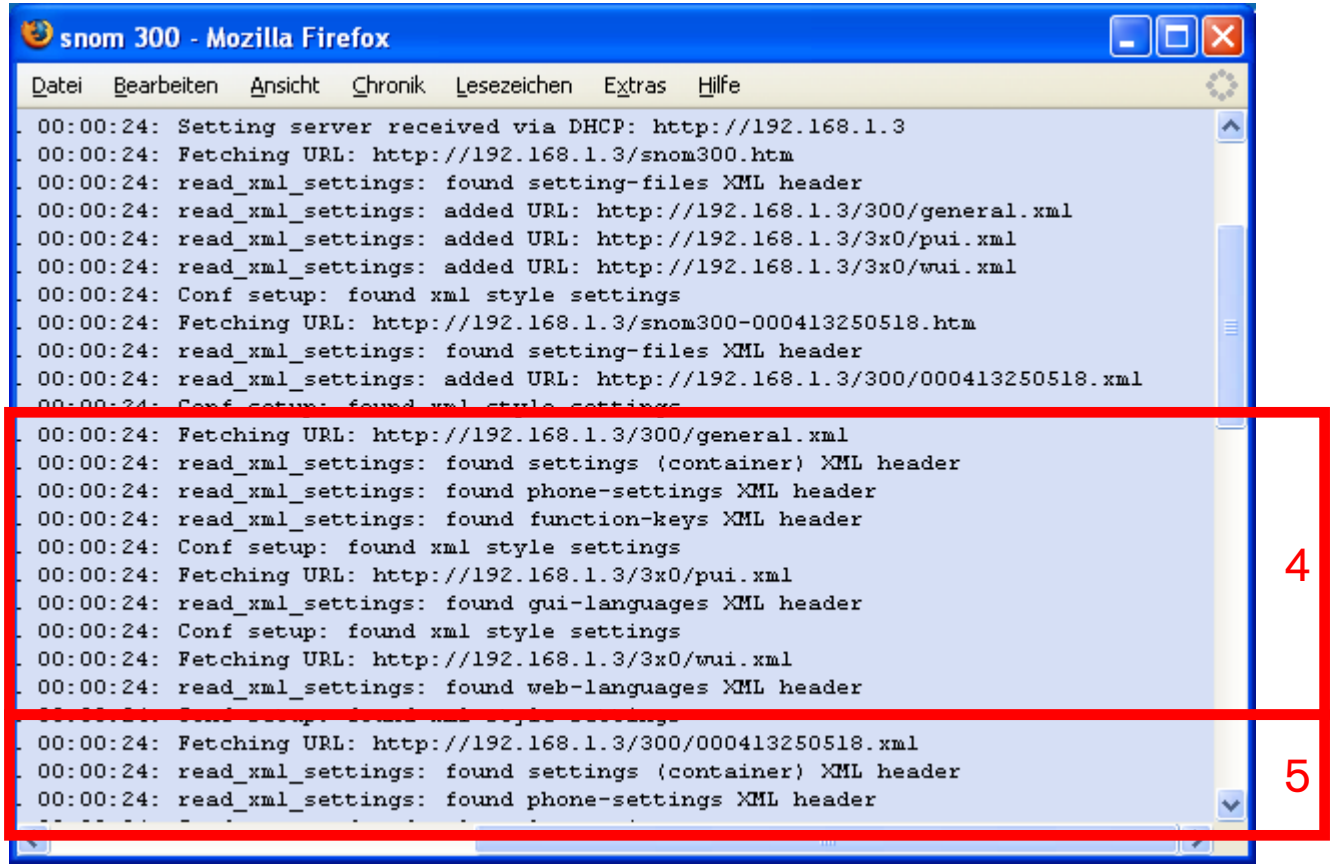
Mass Deployment



(2) General / (3) Specific parameter

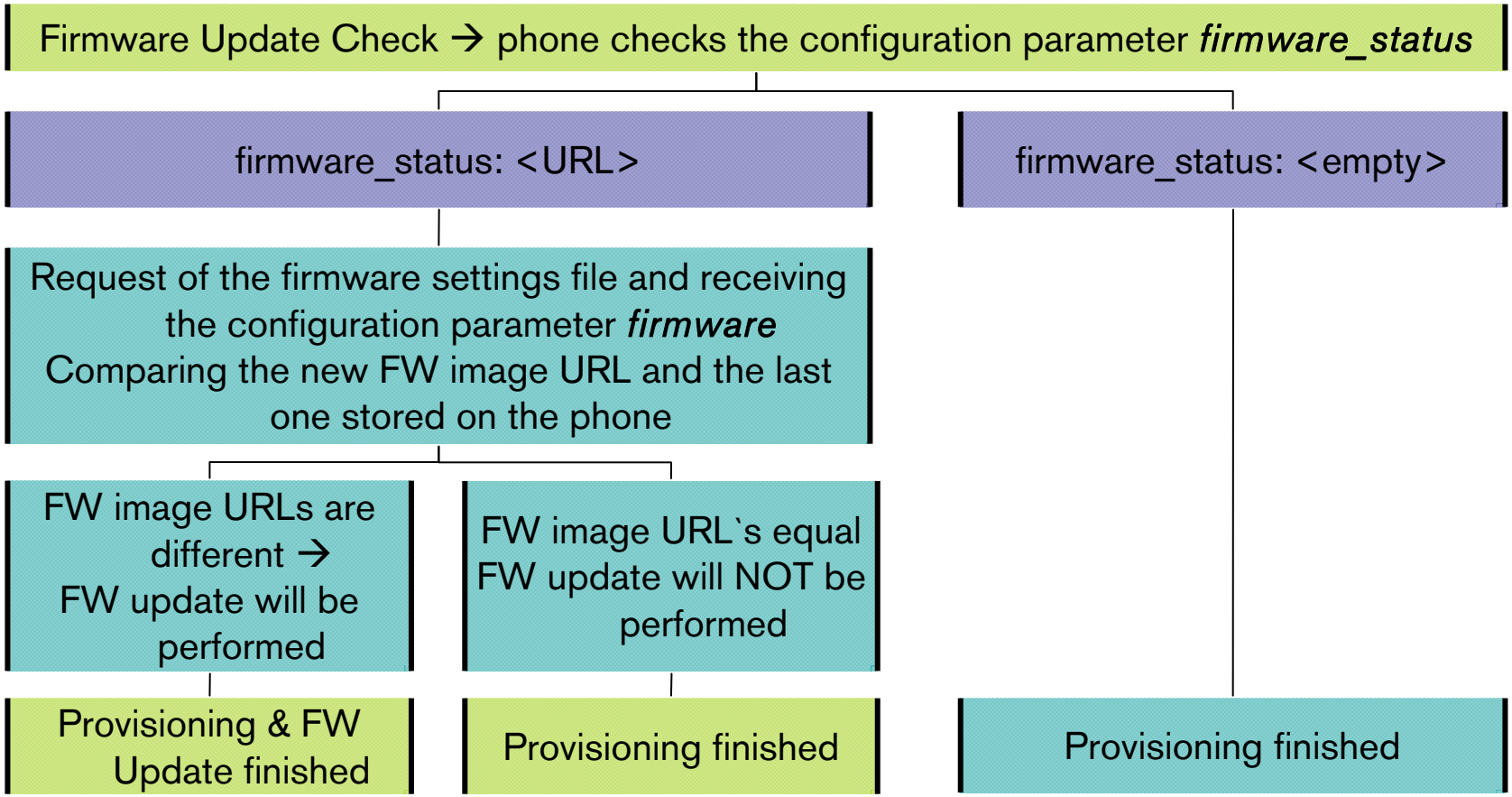


(4) General / (5) Specific parameter

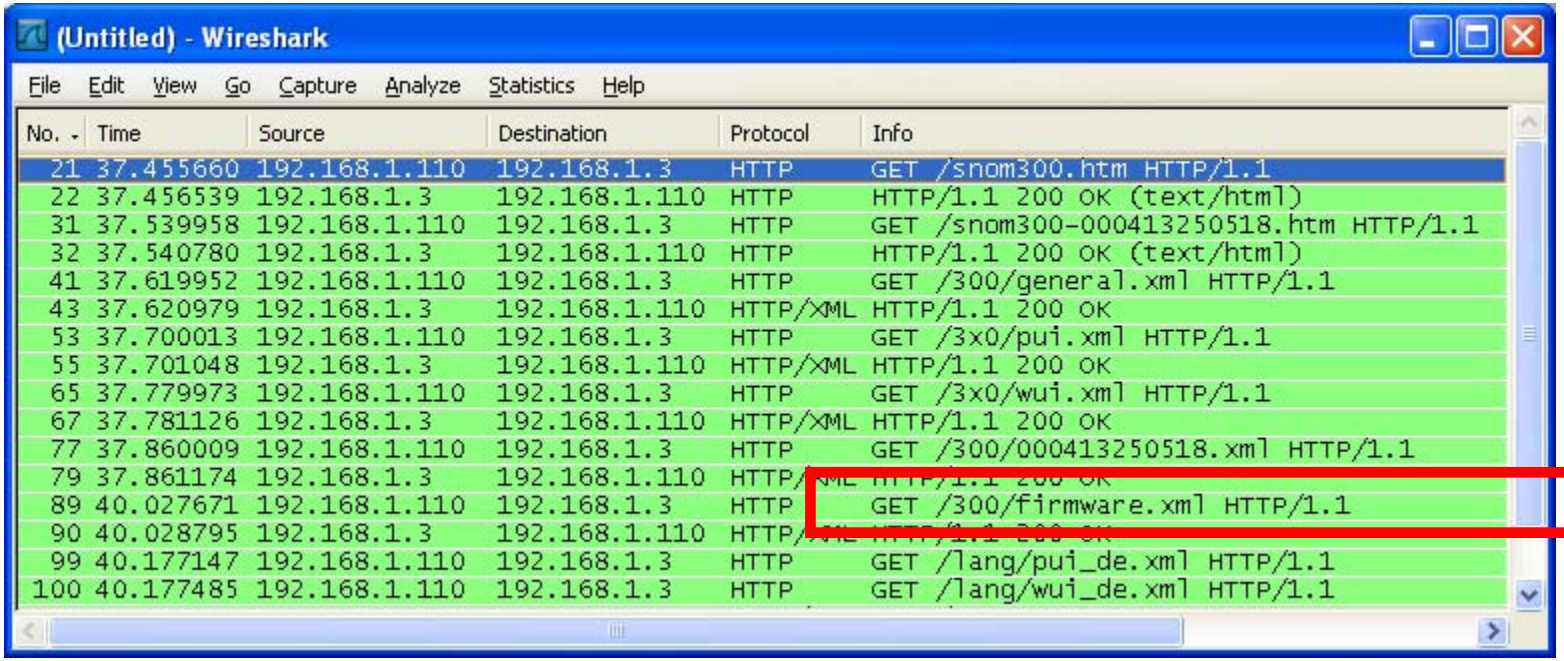


Scenario 1: DHCP | Firmware Update

Mass Deployment



(6) Firmware Settings File

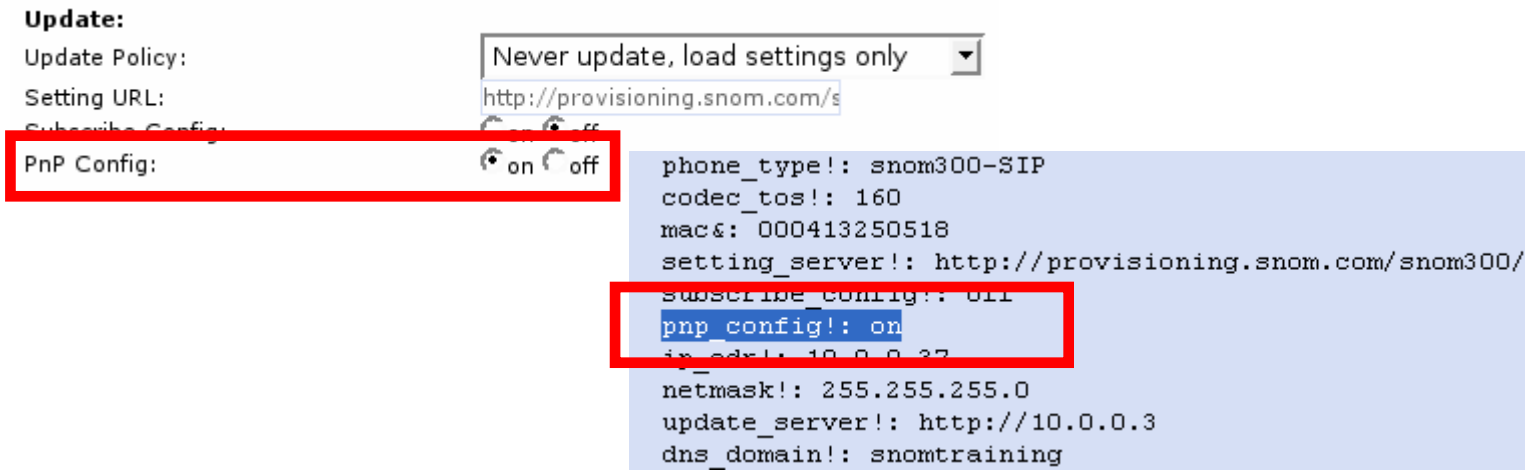


Usage

- This is particularly useful for out of the box setup of devices without using DHCP option 66/ 67

Configuration

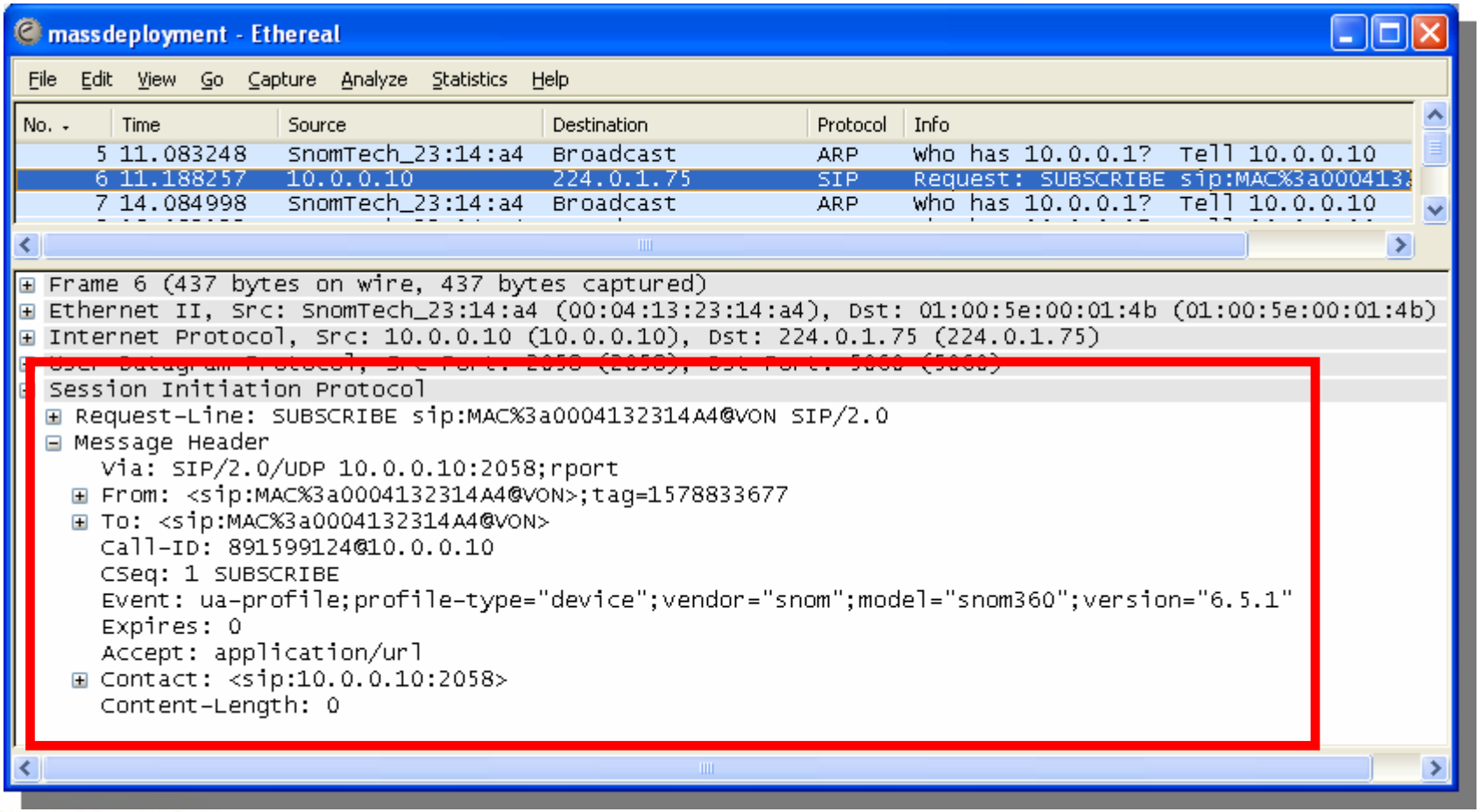
- PnP is enabled by default



- Phone sends a SIP *SUBSCRIBE* message to a multicast address (224.0.1.75)

Scenario 2: Plug & Play | PCAP Trace

Mass Deployment



- SIP servers which have membership to the group can respond to the SUBSCRIBE and send NOTIFY messages with the setting server HTTP URL in the body
- The phone retrieves its settings from the URL specified.

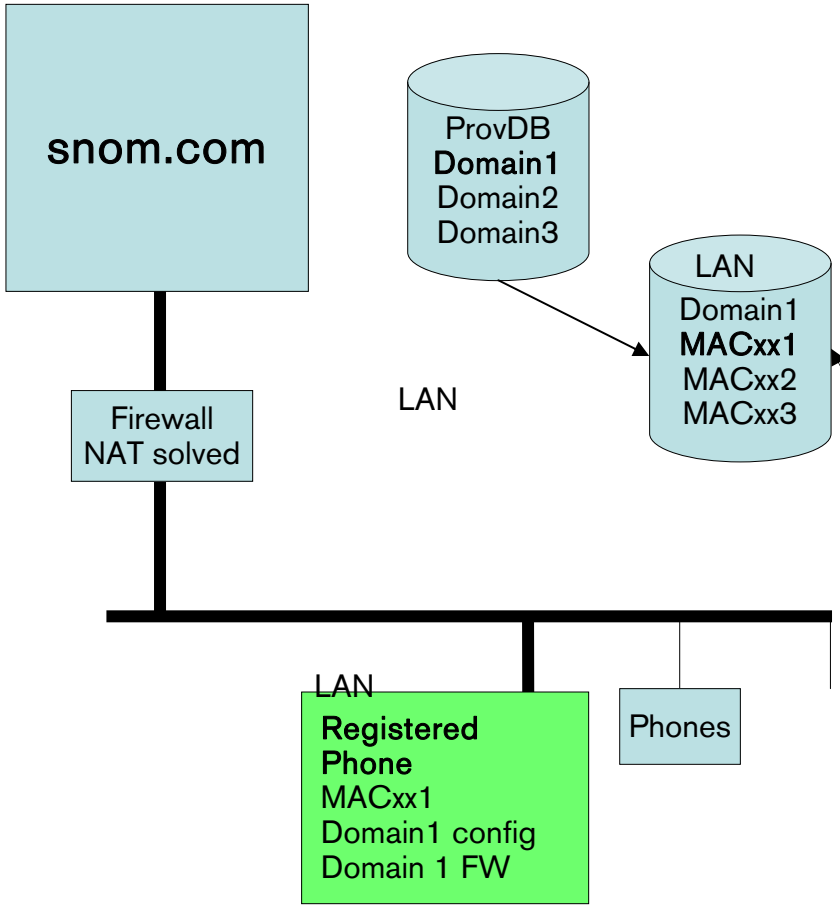
```
Received from udp:192.168.100.10:5060 at 24/12/2001 00:00:19:293 (868 bytes):

NOTIFY sip:192.168.10.67:5060 SIP/2.0
…
To: <sip:MAC%3a00135E874B49@intern.snom.de>;tag=658512961
From: <sip:MAC%3a00135E874B49@intern.snom.de>;tag=91955270
Call-ID: 1930770594@192.168.10.67
CSeq: 3 NOTIFY
Content-Type: application/url
Subscription-State: terminated;reason=timeout
…

http://192.168.100.10/sipphone/sipphoneconfig.xml?mac={mac}
```

- Environments with few phones or without DHCP Server option 66 / 67 available
- Change the Setting URL field manually via the web or phone user interface

- Snom phones contact snom provisioning server first (hardcoded in FW):
  - *http://provisioning.snom.com/snom3x0/snom3x0.php?mac={mac}*
  - Settings script does not deliver any settings back to the phone
- Snom partner may request SSH accounts to redirect the setting server URL to their own setting server
- Redirection is based on MAC address, registered MAC addresses will be redirected

Scenario 4: Automatic Redirection | Overview

Mass Deployment



Customer SSH account

```
Welcome, account! Type help for help.
==> help
Welcome to the snom configuration tool.
You may use the following commands:

SHOW <mac>      : Show the status of a phone.
REGISTER <mac>  : Register a phone.
REG <mac>       : Same as REGISTER.
DEREGISTER <mac>: Deregister a phone.
LIST            : List all phones assigned.
BYE             : Leave this tool.

A MAC address may be entered as 3 to 6 digit
 hexadecimal number, case does not matter
 (e.g. 2e4 --> 0004132202E4)

==> list
000413101214 00041310123C
```

- Setting URL can be hardcoded for large scale OEM projects
- Assures full control over the phone since each factory reset will point to the designated OEM setting server