



Grandstream Networks, Inc.

---

GXP2200

XML Based Downloadable Phonebook Guide

# GXP2200 XML Based Downloadable Phone Book Guide

## Index

<b>INTRODUCTION .....</b>	<b>3</b>
WHAT IS XML.....	3
WHY XML .....	3
XML API ARCHITECTURE .....	3
<b>XML PHONEBOOK CONFIGURATION.....</b>	<b>6</b>
FIRMWARE .....	6
LCD CONFIGURATION.....	6
PROVISIONING .....	9
IMPORT/EXPORT PHONEBOOK .....	9
<b>XML PHONEBOOK SYNTAX.....</b>	<b>14</b>
HEADER.....	14
PHONEBOOK XML STRUCTURE .....	14
PHONEBOOK XML ELEMENT.....	15
<i>ROOT ELEMENT &lt;AddressBook&gt;</i> .....	16
<i>&lt;pbgroup&gt; ELEMENT</i> .....	16
<i>&lt;Contact&gt; ELEMENT</i> .....	17
<i>&lt;Phone&gt; ELEMENT</i> .....	18
<b>XML PHONEBOOK EXAMPLE.....</b>	<b>19</b>

**Table of Figures**  
**GXP2200 XML Based Downloadable Phone Book Guide**

Figure 1: GXP2200 XML API via HTTP.....	4
Figure 2: GXP2200 XML API Structure 1 .....	4
Figure 3: GXP2200 XML API Structure 2 .....	5
Figure 4: Contacts->Options .....	6
Figure 5: XML Phone Book Download .....	7
Figure 6: Import and Export Phone Book XML File .....	10
Figure 7: Import Phone Book XML File: Settings .....	10
Figure 8: Import Phone Book XML File: Choose File .....	11
Figure 9: Import Phone Book XML File: Import .....	11
Figure 10: Export Phone Book XML File: Settings .....	12
Figure 11: Export Phone Book XML File: Choose Directory.....	12
Figure 12: Export Phone Book XML File: Export.....	13

**Table of Tables**  
**GXP2200 XML Based Downloadable Phone Book Guide**

Table 1: <AddressBook> Element.....	16
Table 2: <pbgroup> Element.....	16
Table 3: <Contact> Element.....	17
Table 4: <Phone> Element.....	18

## INTRODUCTION

The Grandstream GXP2200 supports XML based downloadable phone book for users to share and maintain a phone book remotely easily. Besides directly importing vcard/csv format contacts, loading contacts from synced-up accounts and manually editing from LCD, the GXP2200 offers this XML API as a user-friendly download method via the phone's LCD.

For the ease of efficient deployment and management, the XML phone book file could be stored on a web server for the phones to download. There are also applications that require a centralized directory server and have all phones synchronized with the server periodically.

This document specifies the Grandstream XML based downloadable phone book configuration that will be applied to GXP2200 firmware version 1.0.3.2 or newer. An example XML phone book file is provided at the end of this guide. Users could start a phone book by adding contacts to the example file or exporting the existed phone book file from phone's LCD.

## WHAT IS XML

XML (eXtensible Markup Language) is a markup language\* for documents and applications containing structured information. This information contains both content (text, pictures, input box and etc.) and an indication of what role that content plays (e.g. contents in a section header is different from contents in a footnote). Almost all documents are structured.

\*A markup language is a mechanism to identify structures in a document. The XML specification defines a standard way to add markup to documents.

## WHY XML

What benefits does XML provide to SIP endpoints? XML enables our SIP phones to serve as output devices and allows the phones to interact with external applications in a flexible and programmable manner.

## XML API ARCHITECTURE

The XML based phone book downloading for the GXP2200 could use HTTP or TFTP as the transport protocol. The following figure shows how it works via HTTP as an example. First, the GXP2200 initiates the HTTP GET Request to the HTTP server and waits for the response. Once the phone receives the

response with XML content in BODY, it displays the information.

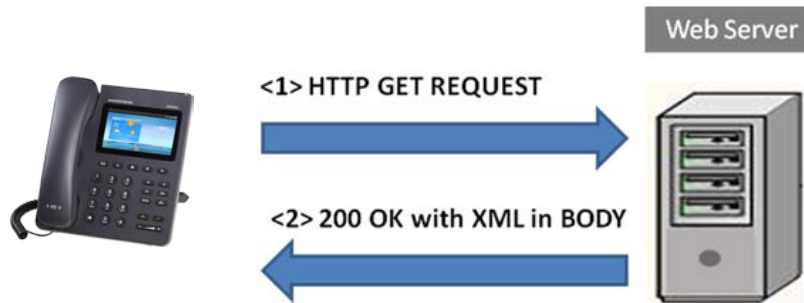


Figure 1: GXP2200 XML API via HTTP

Two types of XML API architecture are introduced below, depending on whether the transaction is via LAN or Internet.

1. A transaction in the LAN may exchange information in the following manner. The GXP2200 sends a request to the web server via HTTP/TFTP and waits for a response with the XML contents. The web server will handle the request and communicate with the application server to get the information for the XML phone book content display. The following figure shows downloading XML phone book file via HTTP within a LAN.

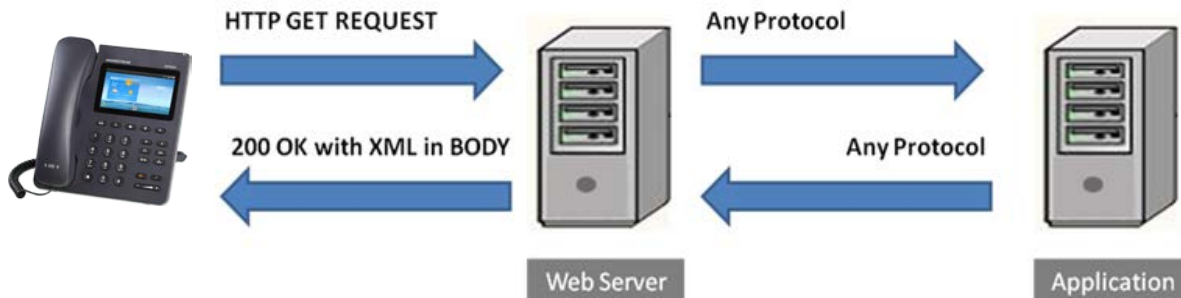


Figure 2: GXP2200 XML API Structure 1

2. If the above Web Server accesses Internet, it could interact with outside web server and respond with real-time content to the GXP2200.

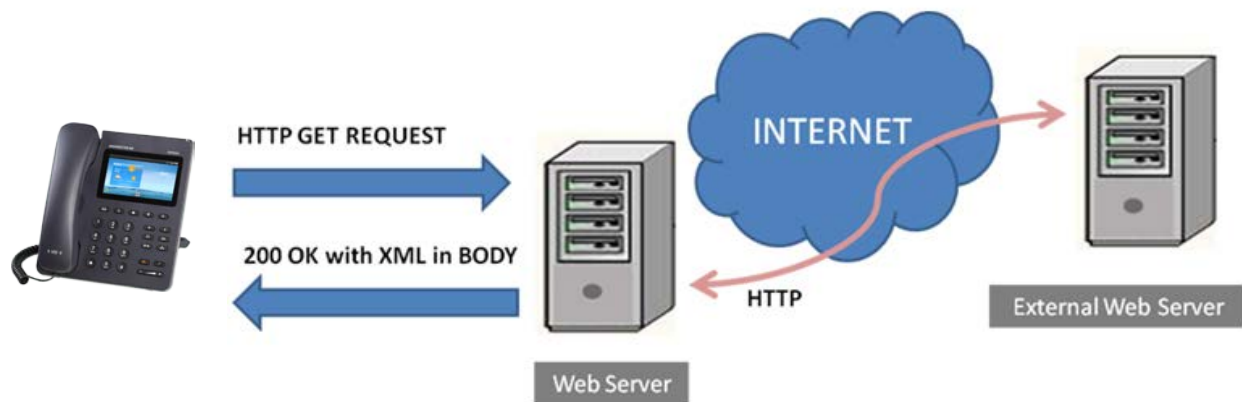


Figure 3: GXP2200 XML API Structure 2

As illustrated above, all the logic lies within the server side of the architecture. The GXP2200 phone just receives the XML documents and displays it accordingly.

# XML PHONEBOOK CONFIGURATION

## FIRMWARE

Before the XML phone book is used on GXP2200, please make sure the firmware on the phone is upgraded to the latest version. Please refer to the following link for firmware upgrading information:

<http://www.grandstream.com/support/firmware>

## LCD CONFIGURATION

To download the XML phone book file to GXP2200, go to LCD Menu->**Contacts** and tap on **Options**->**Download** to open the XML Phone Book download interface.

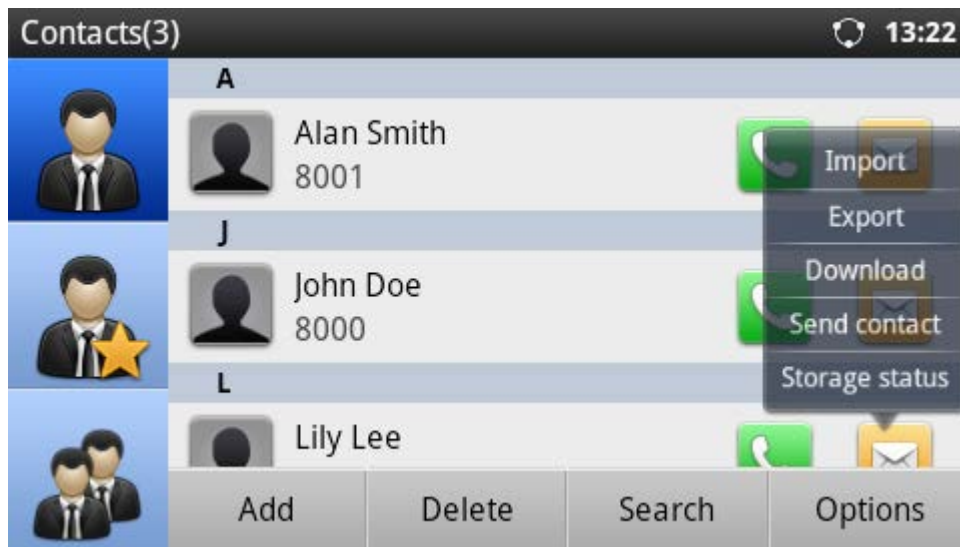


Figure 4: Contacts->Options

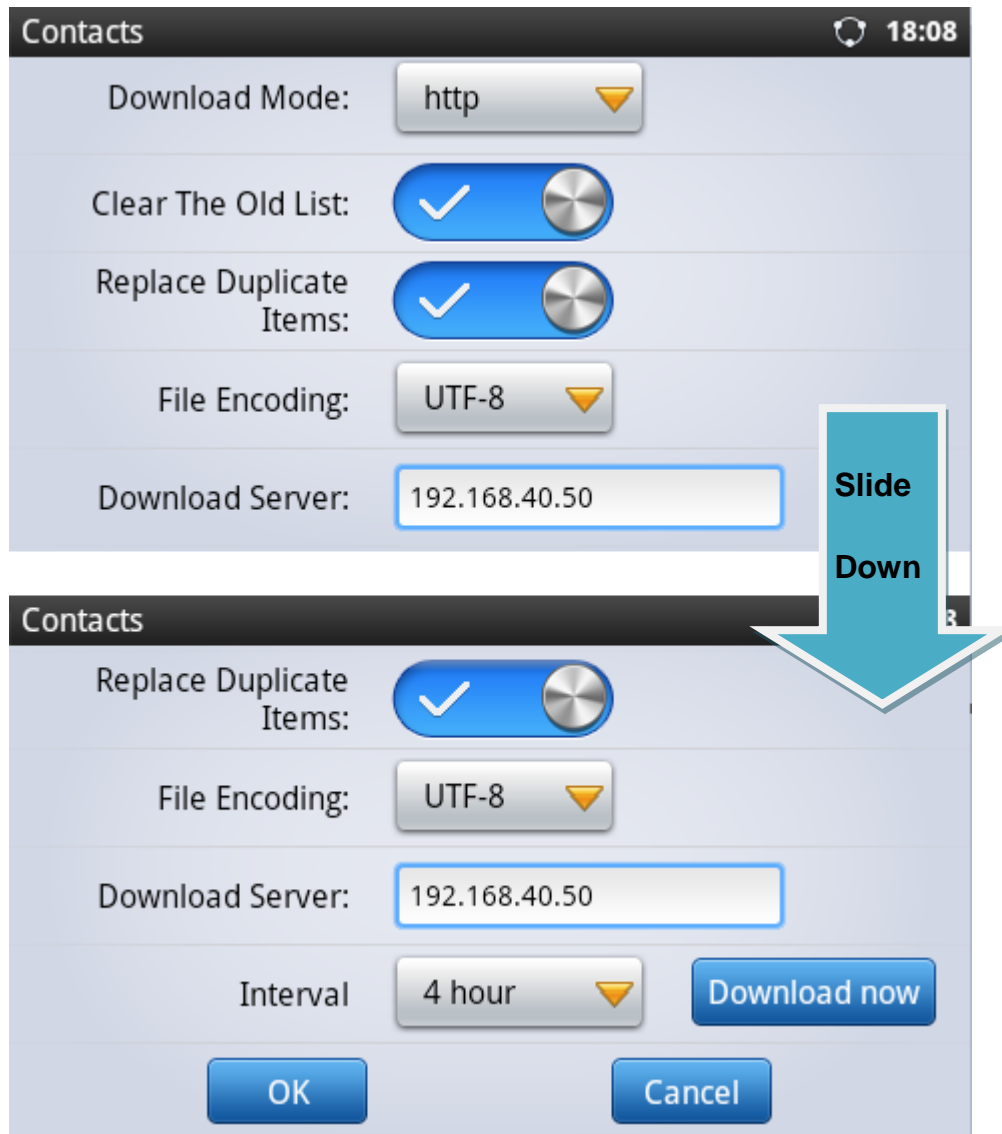


Figure 5: XML Phone Book Download

- **Download Mode**

The phone book XML file could be downloaded via HTTP or TFTP. Users could also set it to "OFF" to disable phone book download.

- **Clear The Old List**

If this option is set to "Yes", all the existed entries in the GXP2200 Contacts will be automatically removed when the XML phone book is downloaded to the phone. The default value is "No".



- **Replace Duplicate Items**

If this option is set to "Yes", the duplicate entries in the Contacts will be automatically replaced with the ones in the downloaded XML phone book. The default value is "No".

- **File Encoding**

The encoding format for the XML phone book file. Users could select "UTF-8" or "GBK" (for Chinese characters). The default value is "UTF-8".

- **Download Server**

This specifies the path where the phone is going to download the XML phone book file. Since download method is already specified in the previous selection, users do not have to provide this information in the server path. The accepted format are as follows:

***IP\_address[:port]/dir***

***Hostname[:port]/dir***

Examples:

***192.168.40.10/XMLphonebookdir***

***192.168.40.10:443/XMLphonebookdir***

***service.mycompany.com/XML/phonebook***

***mycompany.com:8080/phonebook***

**Note:**

1. If "[:port]" is not specified, port 80 will be used as default for HTTP and Port 69 will be used as default for TFTP;
2. The GXP2200 will always look for the phone book file **phonebook.xml** for downloading if no file name is specified in the server path. Users could also change the phone book name if desired. In this case, the file name needs to be specified in the server path (e.g., 192.168.40.10/XML/gxp2200contacts.xml).

- **Interval**

This specifies the phone book automatic download interval (in minutes). The valid value is 0, 120, 240, 360, 480 and 720. If it's set to 0, automatic download will be disabled.

After the above configuration, tap on "OK" to save the change. Users could also always tap on "Download Now" to start the downloading process.

## PROVISIONING

Users may also use the config file to provision the phone with the above XML phone book downloading options. In this case, the GXP2200 needs to be rebooted and provisioned. The corresponding P values are as shown below.

- **P330:** Download Mode. Possible values: 1 (HTTP) / 2 (TFTP); other values are ignored. The default value is 0.
- **P1435:** Clear The Old List. Possible values: 0 (No) / 1 (Yes); other values are ignored. The default value is 0.
- **P1436:** Replace Duplicate Items. Possible values: 0 (No) / 1 (Yes); other values are ignored. The default value is 0.
- **P1681:** File Encoding. Possible values: UTF-8 / GBK; other values are ignored. The default value is UTF-8.
- **P331:** Download Server. This is a string for the path to download the phonebook.xml file. It MUST be in the host/path format.
- **P332:** Interval (in minutes). Possible values: 0, 120, 240, 360, 480, and 720; other values are ignored. The default value is 0 (automatic download disabled).

The phone will be set up with the P values when the provisioning routine is completed. It will attempt to download the phone book XML file specified in "Download Server" with configured interval and process it. If the "Interval" is set to a non-zero value, a recurring timer will be activated periodically to check the phone book file in the server and the phone will repeat this process automatically.

### Note:

1. As you may know, it is also possible to enter the XML phone book file server path into a web browser. In this way you'll be able to see the exact XML document on your PC that your phone will be receiving.
2. The downloaded XML phone book file can be displayed but it won't be saved internally on the phone. It is recommended to save the XML phone book file externally on your PC or server for your reference and future use.

## IMPORT/EXPORT PHONEBOOK

Besides downloading phone book file from remote server, users could also directly import phonebook.xml to the GXP2200 in the LCD from local storage/USB storage/SD card. If there is an existing phone book in the phone's Contacts already, users may export the file to internal storage/USB storage/SD card as well. The "Import" and "Export" settings are under LCD Menu->**Contacts**->**Options**.

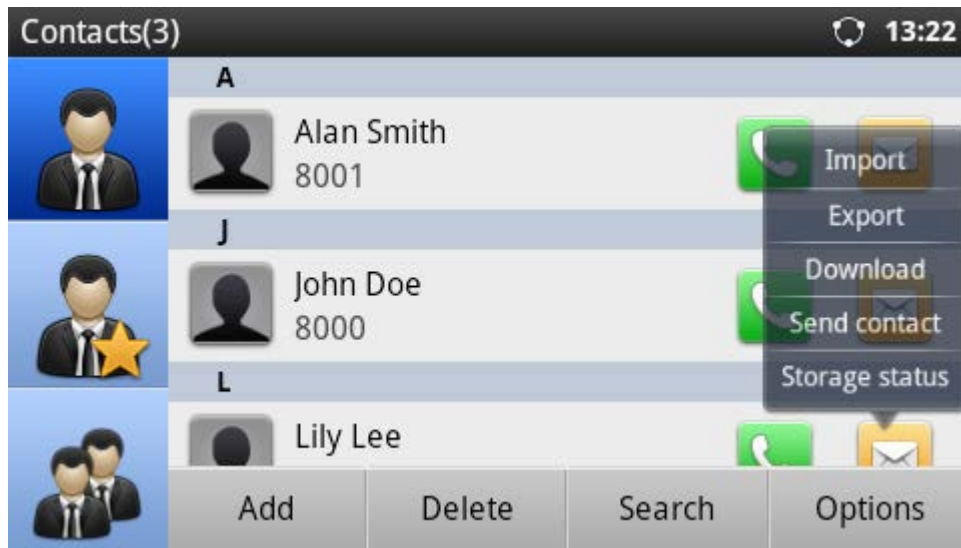


Figure 6: Import and Export Phone Book XML File

- **Import**

Tap on "Import" in **Contacts->Options** and the following figure will show. Configure import options "Clear The Old List", "Replace Duplicate Items", "File Encoding" format (UTF-8 or GBK) and select "File Type" as "xml". Then tap on "Choose file" button to specify the path where the phonebook.xml is located in the internal storage or USB storage/SD card.



Figure 7: Import Phone Book XML File: Settings

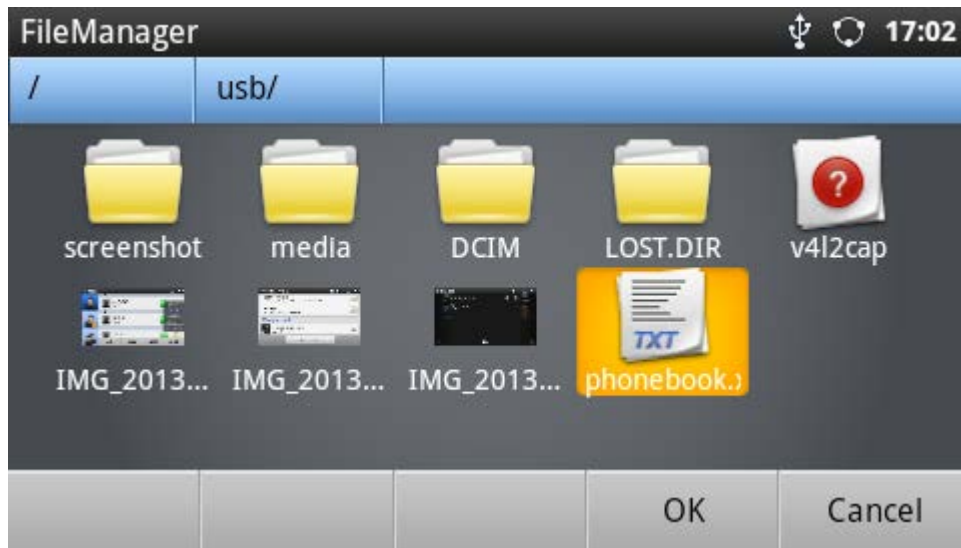


Figure 8: Import Phone Book XML File: Choose File

After selecting the file, tap on "OK" to start importing (see figure below).

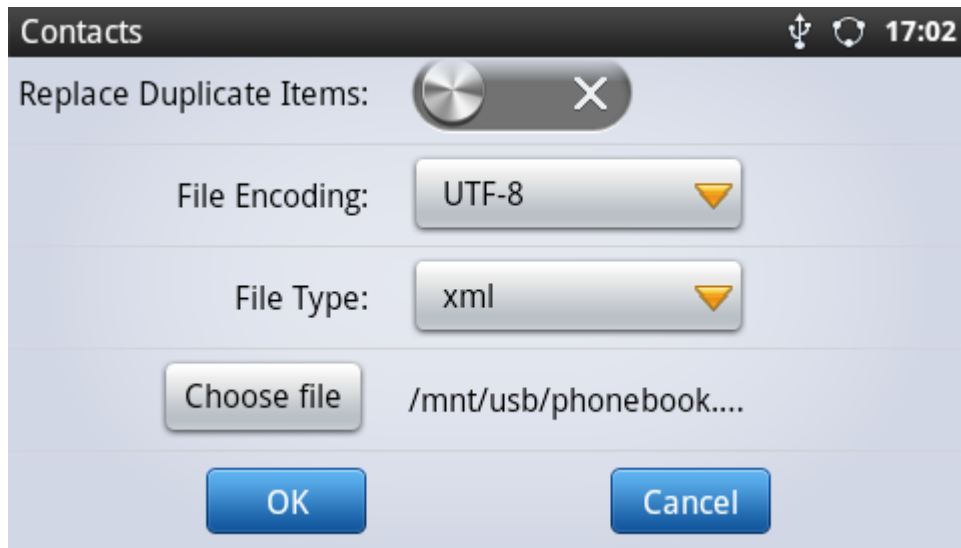


Figure 9: Import Phone Book XML File: Import

- **Export**

Tap on "Export" in **Contacts->Options** and the following figure will show. Select "File Encoding" format (UTF-8 or GBK) and "File Type" as "xml". Then tap on "Choose Directory" to specify the path where the phonebook.xml will be saved.



Figure 10: Export Phone Book XML File: Settings



Figure 11: Export Phone Book XML File: Choose Directory

After specifying the path, tap on "OK" to start exporting (see figure below).



Figure 12: Export Phone Book XML File: Export

# XML PHONEBOOK SYNTAX

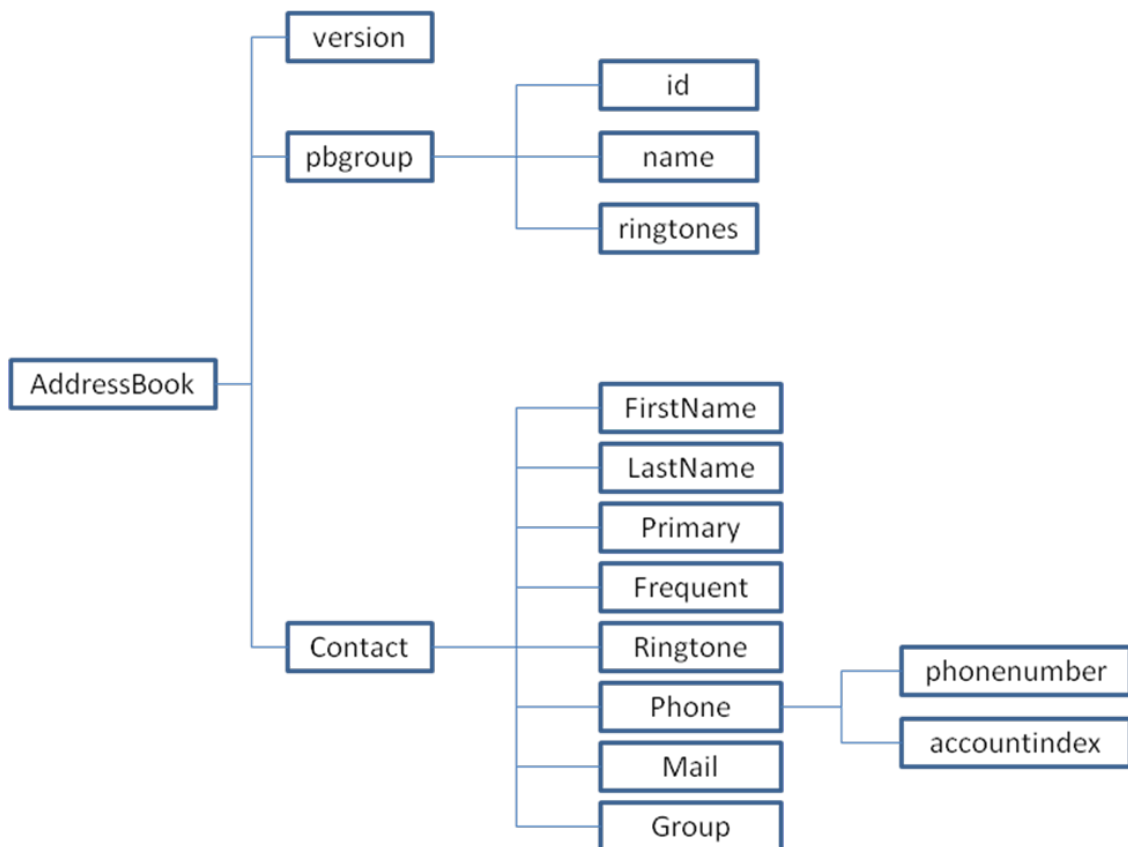
## HEADER

In the first line of the XML document, the following header can be set as XML declaration. It defines the XML version and encoding. On the GXP2200, UTF-8 and GBK can be used as encoding method for correct display. Example:

```
<?xml version="1.0" encoding="UTF-8"?>
```

## PHONEBOOK XML STRUCTURE

An XML phone book example for GXP2200 can be found in the last section of this document. The main structure is represented as below.



```

<AddressBook>
  <version>Enter version number here. Usually 1</version>
  <pbgroup>
    <id>Enter group id here</id>
    <name>Enter group name here</name>
    <ringtones>Enter ring tone URL for the group</ringtones>
  </pbgroup>
  <pbgroup>
    <!-- Enter another group information here, same format as above -->
  </pbgroup>
  <Contact>
    <FirstName>Enter first name here</FirstName>
    <LastName>Enter last name here</LastName>
    <Primary>Primary number or not</Primary>
    <Frequent>Favorite contact or not</Frequent>
    <Ringtone>Enter ring tone URL here</Ringtone>
    <Phone type="Specify phone type here">
      <phonenumber>Enter phone number here</phonenumber>
      <accountindex>Enter account index here</accountindex>
    </Phone>
    <Mail type="Specify phone type here">Enter Email address here</Mail>
    <Group>Enter group ID here</Group>
  </Contact>
  <Contact>
    <!-- Enter another contact information here, same format as above -->
  </Contact>
</AddressBook>

```

## PHONEBOOK XML ELEMENT

This section describes details of the XML element used in GXP2200 XML phone book file. Please note that the element name is case-sensitive when being used in XML document.



## ROOT ELEMENT <AddressBook>

<AddressBook> is the root element of the XML document. This element is mandatory.

```
<AddressBook>
  <!-- Enter phone book information here -->
</AddressBook>
```

Table 1: <AddressBook> Element

Object	Position	Type	Values	Comments
<b>AddressBook</b>	<b>Root element</b>	<b>Mandatory</b>	-	<b>Root element of the XML document</b>
version	Child element	Optional	Number	XML format version number. Usually 1.
pbgroup	Child element	Optional	-	Define groups.
Contact	Child element	Mandatory	-	Each contact is a phone book entry.

## <pbgroup> ELEMENT

```
<pbgroup>
  <id>Enter group id here</id>
  <name>Enter group name here</name>
  <ringtones>Enter ring tone URL for the group</ringtones>
</pbgroup>
```

Table 2: <pbgroup> Element

Object	Position	Type	Values	Comments
<b>pbgroup</b>	<b>Element</b>	<b>Optional</b>	-	<b>Each pbgroup is a group. More than 1 group can be defined</b>
id	Child element	Optional	Number	To specify group ID.
name	Child element	Mandatory	String	Group name.
ringtones	Child element	Optional	String	The directory/path to the ring tone file stored in the GXP2200.

## <Contact> ELEMENT

```

<Contact>
  <FirstName>Enter first name here</FirstName>
  <LastName>Enter last name here</LastName>
  <Primary>Primary number or not</Primary>
  <Frequent>Favorite contact or not</Frequent>
  <Ringtone>Enter ring tone URL here</Ringtone>
  <Phone type="Specify phone type here">
    <phonenumber>Enter phone number here</phonenumber>
    <accountindex>Enter account index here</accountindex>
  </Phone>
  <Mail type="Specify mail type here">Enter Email address here</Mail>
  <Group>Enter group ID here</Group>
</Contact>

```

Table 3: <Contact> Element

Object	Position	Type	Values	Comments
<b>Contact</b>	<b>Element</b>	<b>Mandatory</b>	<b>-</b>	<b>Each contact is an entry</b>
FirstName	Child element	Optional	String	Specify first name and last name. At least one of them has to be specified.
LastName	Child element	Optional	String	
Primary	Child element	Optional	Number	Specify the default phone number. For example, the contact has 3 different phone numbers saved. If <Primary> value is 0, the first number will be used as default when dialing out. If <Primary> value is 1, the second number will be used as default when dialing out.
Frequent	Child element	Optional	Number	0: Default 1: Mark this contact as frequent/favorite
Ringtone	Child element	Optional	String	The directory/path to the ring tone file stored in the GXP2200.
Phone	Child element	Optional	-	Phone number information
Mail	Child element	Optional	String	Specify Email address. It has attribute "type". type: Work/Home/Others
Group	Child element	Optional	number	Specify group ID for this contact.

## <Phone> ELEMENT

```
<Phone type="Specify phone type here">  
  <phonenumber>Enter phone number here</phonenumber>  
  <accountindex>Enter account index here</accountindex>  
</Phone>
```

Table 4: <Phone> Element

Object	Position	Type	Values	Comments
Phone	Element	Mandatory	-	It has attribute "type". type: Work/Home/Mobile/Fax/Other
phonenumber	Child element	Mandatory	Number	Phone number
accountindex	Child element	Mandatory	Number	From 0 to 5 for account 1 to account 6

## XML PHONEBOOK EXAMPLE

```
<?xml version="1.0" encoding="UTF-8"?>
<AddressBook>
  <version>1</version>
  <pbgroup>
    <id>1</id>
    <name>Blacklist</name>
    <ringtones/>
  </pbgroup>
  <pbgroup>
    <id>2</id>
    <name>Work</name>
    <ringtones/>
  </pbgroup>
  <pbgroup>
    <id>3</id>
    <name>Friend</name>
    <ringtones>/app/ringtone/brokenglass.mp3</ringtones>
  </pbgroup>
  <Contact>
    <FirstName>John</FirstName>
    <LastName>Doe</LastName>
    <Primary>0</Primary>
    <Frequent>0</Frequent>
    <Ringtone>/system/media/audio/ringtones/Backroad.ogg</Ringtone>
    <Phone type="Work">
      <phonenumber>8001</phonenumber>
      <accountindex>1</accountindex>
    </Phone>
    <Phone type="Home">
      <phonenumber>3000001</phonenumber>
      <accountindex>0</accountindex>
    </Phone>
    <Phone type="Mobile">
      <phonenumber>1234567890</phonenumber>
      <accountindex>0</accountindex>
    </Phone>
    <Mail type="Home">JohnDoe@mycompany.com</Mail>
    <Group>1</Group>
  </Contact>
</AddressBook>
```

```

</Contact>
<Contact>
  <FirstName>Michael</FirstName>
  <LastName>Tsai</LastName>
  <Primary>2</Primary>
  <Frequent>0</Frequent>
  <Phone type="Work">
    <phonenumber>8002</phonenumber>
    <accountindex>1</accountindex>
  </Phone>
  <Phone type="Home">
    <phonenumber>3000002</phonenumber>
    <accountindex>0</accountindex>
  </Phone>
  <Phone type="Mobile">
    <phonenumber>1234567889</phonenumber>
    <accountindex>0</accountindex>
  </Phone>
  <Mail type="Other">MichaelTsai@mywebsite.com</Mail>
  <Group>2</Group>
</Contact>
<Contact>
  <FirstName>Alex</FirstName>
  <LastName>Smith</LastName>
  <Primary>0</Primary>
  <Frequent>1</Frequent>
  <Ringtone>/system/media/audio/ringtones/bellcore-dr1.ogg</Ringtone>
  <Phone type="Work">
    <phonenumber>8003</phonenumber>
    <accountindex>0</accountindex>
  </Phone>
  <Phone type="Home">
    <phonenumber>3000002</phonenumber>
    <accountindex>0</accountindex>
  </Phone>
  <Phone type="Mobile">
    <phonenumber>2345678888</phonenumber>
    <accountindex>0</accountindex>
  </Phone>
  <Mail type="Work">AlexSmith@myserver.com</Mail>
  <Group>3</Group>

```

```
</Contact>  
</AddressBook>
```

**Note:**

The maximum number of contacts supported on GXP2200 is 1000. Users could open Contacts->Options->Storage status to check the number of contacts.