



Grandstream Networks, Inc.

XML Based Idle Screen Customization Guide

GXP21xx/GXP14xx IP Phone

Version 1.0.0.3

GXP21xx/GXP14xx XML Idle Screen Customization Guide

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INTRODUCTION

The Grandstream GXP21xx/GXP14xx supports XML based idle screen customization. This XML API allows users to customize the idle screen layout as well as the logo, text or system variables to be displayed. The design of the display and layout depends highly upon personal preferences and requirements.

This document specifies the Grandstream XML Customizable Screen API design that will be used on GXP21xx/GXP14xx firmware version 1.0.4.23.

REVISION HISTORY

This section documents significant changes from previous versions of the guide. Only major new features or major document updates are listed here. Minor updates for corrections or editing are not documented here.

VERSION 1.0.0.1

- Initial version supported on GXP21xx/GXP14xx firmware 1.0.1.110.

VERSION 1.0.0.2

- Supported on GXP21xx/GXP14xx firmware 1.0.4.9/1.0.4.10/1.0.4.13.
- Default XML idle screen file name is changed to gs_idle_screen.xml.
- XML idle screen default templates for each model are updated.
- Added examples to customize logo on each model.
- Added examples to customize account name bar length on GXP1450 and GXP2100.

VERSION 1.0.0.3

- Supported on GXP21xx/GXP14xx firmware 1.0.4.23.
- Default XML idle screen file name is changed to idle_screen.xml.
- Added information for bitmap display. To display base64 encoded image file, the original file needs to be grey level 8 monochrome .bmp format.

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. content in a section header is different from content in a

footnote, or content in a figure caption, or content in a database table, and etc.). Almost all documents have certain kind of structure.

*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 where the phones could interact with external applications in a flexible and programmable manner. Three specific XML API supported by GXP21xx/GXP14xx are XML Custom Screen, XML Phonebook, and XML Application (GXP21xx only).

XML API ARCHITECTURE

The XML idle screen customization API on GXP21xx/GXP14xx could use HTTP/HTTPS or TFTP as the transport protocol. The following figure shows how it works via HTTP as an example. Basically, GXP21xx/GXP14xx 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.

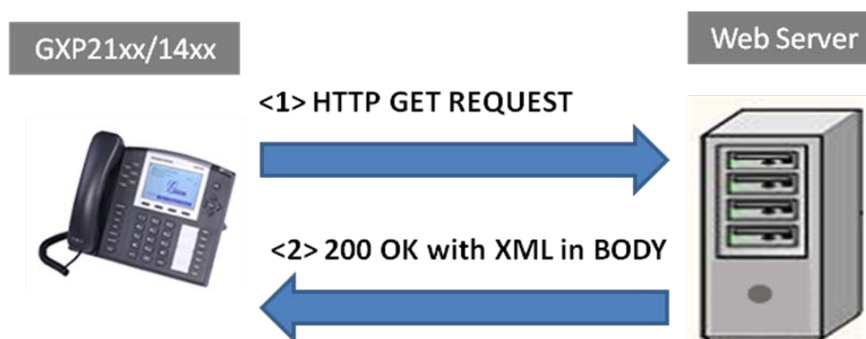


Figure 1: GXP21xx/GXP14xx XML API via HTTP

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

1. An transaction in LAN area may exchange information in the following manner. GXP21xx/GXP14xx sends request and accepts XML contents via HTTP/HTTPS/TFTP, directly communicating with the HTTP/HTTPS/TFTP Server. The Server will then handle the request and response via any protocols with the other application server to get the expected information for the XML idle screen display. The

following figure shows downloading XML idle screen via HTTP within LAN.

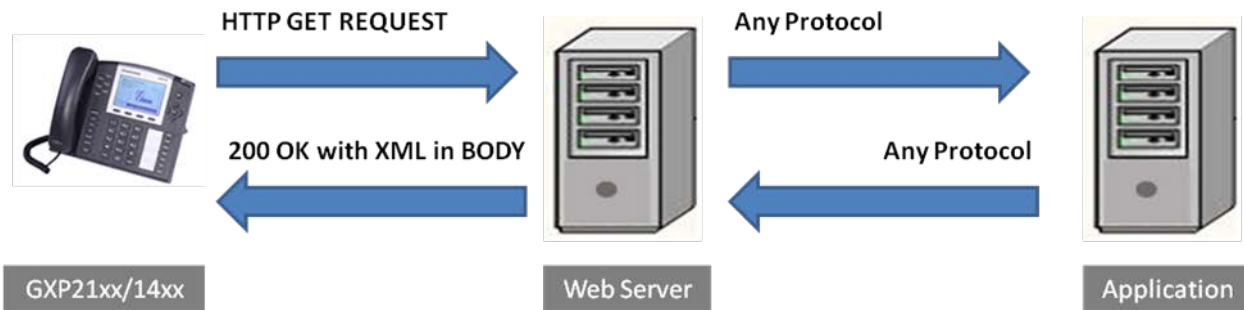


Figure 2: GXP21xx/GXP14xx XML API Structure 1

2. If the above Web Server accesses Internet, it could interact with outside web server and respond real-time content to GXP21xx/GXP14xx.

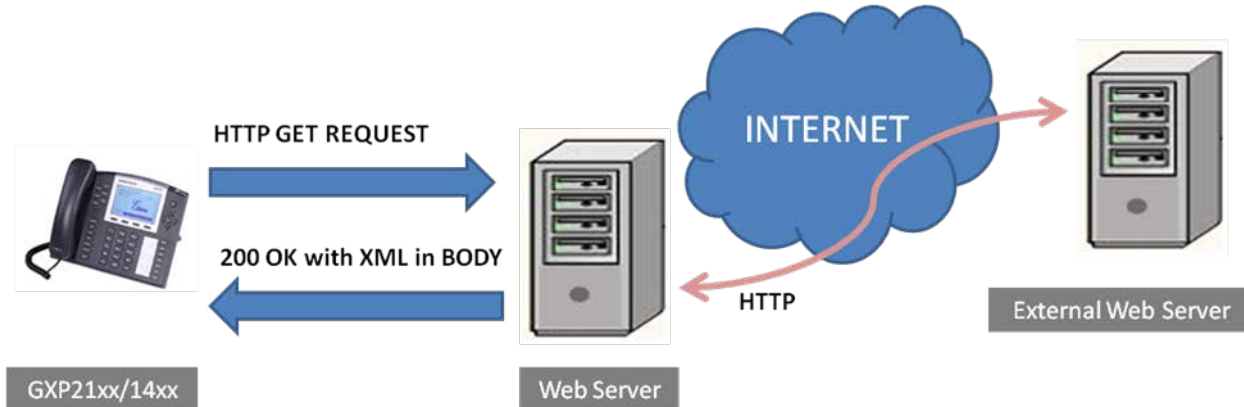


Figure 3: GXP21xx/GXP14xx XML API Structure 2

As illustrated above, all the logic lies within the server side of the architecture. The GXP21xx/GXP14xx phone receives XML document and displays it accordingly.

XML IDLE SCREEN DOWNLOADING CONFIGURATION

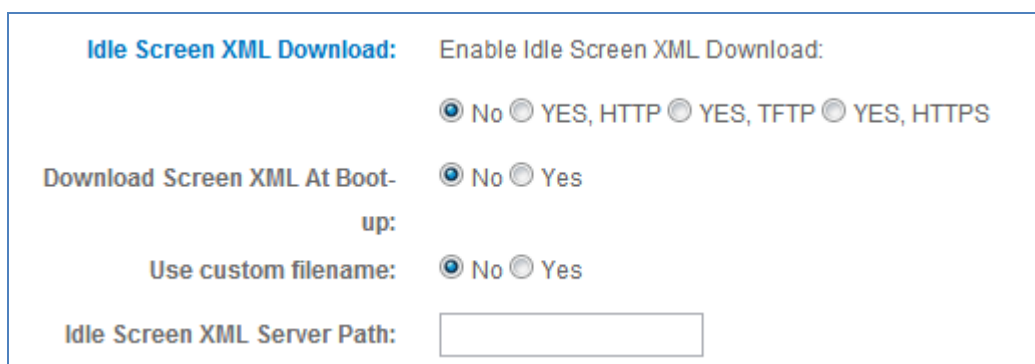
FIRMWARE

Before the XML idle screen customization is used on GXP21xx/GXP14xx, 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>

WEB GUI CONFIGURATION

To download the XML idle screen file to GXP21xx/GXP14xx, firstly enable the Idle Screen XML Download and configure the Server Path under Web GUI->Settings->Advanced Settings page.



The screenshot shows the 'Idle Screen XML Download' configuration section. It includes the following settings:

- Enable Idle Screen XML Download:** Radio buttons for No (selected), YES, HTTP, YES, TFTP, and YES, HTTPS.
- Download Screen XML At Boot-up:** Radio buttons for No (selected) and Yes.
- Use custom filename:** Radio buttons for No (selected) and Yes.
- Idle Screen XML Server Path:** A text input field.

Figure 4: GXP21xx/GXP14xx Web GUI Configuration

- **Enable Idle Screen XML Download**

The idle screen XML file could be downloaded via HTTP, HTTPS or TFTP. By default it's "No". Select "Yes, HTTP", "Yes, TFTP" or "Yes, HTTPS" to enable it.

- **Download Screen XML At Boot-up**

If it's set to "Yes", when the phone boots up, it will send out request to download the XML idle screen file automatically.

If it's set to "No", users would need go to LCD MENU->Preference->Download SCR XML to download the idle screen manually. Users could also erase the current downloaded idle screen by pressing MENU->Preference->Erase Custom SCR. By default, this option is set to "No".

- **Use Custom Filename**

If "Use custom filename" is set to "No", the XML file name must be **idle_screen.xml**. In this case, users only need to specify the folder path in "Idle Screen XML Server Path" where the idle_screen.xml is located (For example, grandstream.com/directory/custfiles).

If "Use custom filename" is set to "Yes", users could name the file as preferred. In this case, the "Idle Screen XML Server Path" has to be specified to the name of the XML file (For example, grandstream.com/directory/custfiles/**gxp2100xmlcust.xml**).

- **Idle Screen XML Server Path**

This specifies the path where the phone is going to download the XML file. Since downloading method is selected as "HTTP", "TFTP", or "HTTPS" already when enabling the XML idle screen download, users shall not specify the protocol in this path anymore. The accepted format are as follows:

IP_address[:port]/dir

IP_address[:port]/dir/filename

Hostname[:port]/dir

Hostname[:port]/dir/filename

Examples:

192.168.40.10/XMLscreendir

192.168.40.10/XMLscreendir/welcome.xml

192.168.40.10:443/XMLscreendir

192.168.40.10:443/XMLscreendir/welcome.xml

mycompany.com/gs_screen_dir

mycompany.com:8080/idlescreen

service.mycompany.com/XML/gxp2110idle.xml

service.mycompany.com:8080/XML/gxp2110idle.xml

Note:

- If "[:port]" is not specified, port 80 will be used as default for HTTP; port 443 will be used as default for HTTPS; port 69 will be used as default for TFTP;
- If "Use custom filename" is set to "No", the Server Path does not necessarily need to contain the destination file name. Users only need specify the directory path where the file is located.

After the above configuration, click on "Update" in the web GUI->Advanced Setting page. The GXP21xx/GXP14xx will display the XML idle screen upon pressing MENU->Preference->Download XML SCR in phone's LCD.

Users may also use config file to provision the phone with the above XML idle screen downloading options. In this case, GXP21xx/GXP14xx needs to be rebooted and provisioned. The corresponding P values are as below.

- **P340:** Enable Idle Screen XML Download. Possible values: 0 (No) / 1 (HTTP) / 2 (TFTP) / 3 (HTTPS), other values are ignored;
- **P1349:** Download Screen XML At Boot-up. Possible values: 0 (No) / 1 (Yes), other values are ignored;
- **P1343:** Use custom filename. Possible values: 0 (No) / 1 (Yes), other values are ignored;
- **P341:** Idle Screen XML Server Path. This is a string up to 128 characters.

Note:

- As you may know, it is also possible to enter the idle screen 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;
- The downloaded XML idle screen file can be displayed but won't be saved internally on the phone. It is recommended to save the XML idle screen file externally on your PC or server for your reference and future use.

GXP21xx/GXP14xx IDLE SCREEN

OVERVIEW

Without XML idle screen customization or other configurations, a GXP2120's default idle screen is like below. Press the SwitchSCR softkey will toggle among the following different idle screens (vary among models):

- Default idle screen when the phone boots up
- Weather Information
- Stock Information
- Currency Information
- IP Address (for GXP140x only)



Figure 5: GXP2120 Default Idle Screen

The idle screens for all models are specified in the table below. Although all the supported idle screens could be modified via the XML idle screen file, normally the idle screen 1 (default idle screen) is the only one users would need to customize for logo display, text display and etc.

Table 1: GXP21xx/GXP14xx Idle Screens Overview

Model	Idle Screen 1	Idle Screen 2	Idle Screen 3	Idle Screen 4
GXP2120	Default	Weather	Stock	Currency
GXP2110	Default	Weather	Stock	Currency
GXP2100	Default	Weather	Stock	Currency
GXP2124	Default	Weather	Stock	Currency
GXP1450	Default	Weather	N/A	N/A
GXP140x	Default	Weather	IP Address	N/A

DEFAULT IDLE SCREEN

As mentioned above, the default idle screen is the one users would need to customize for most of the cases. The GXP2120/GXP2110/GXP2100/GXP2124/GXP1450/GXP140x have different screen size, layout, softkeys in the default idle screen. The LCD size (in pixel) and default layout are described as follows.

Note: Please refer to the actual device for the precise appearance and size.

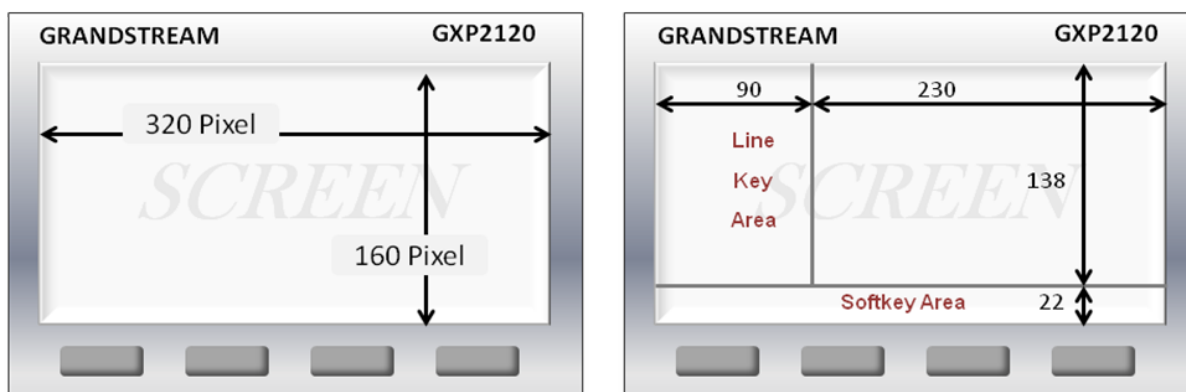


Figure 6: GXP2120 Default Idle Screen Layout

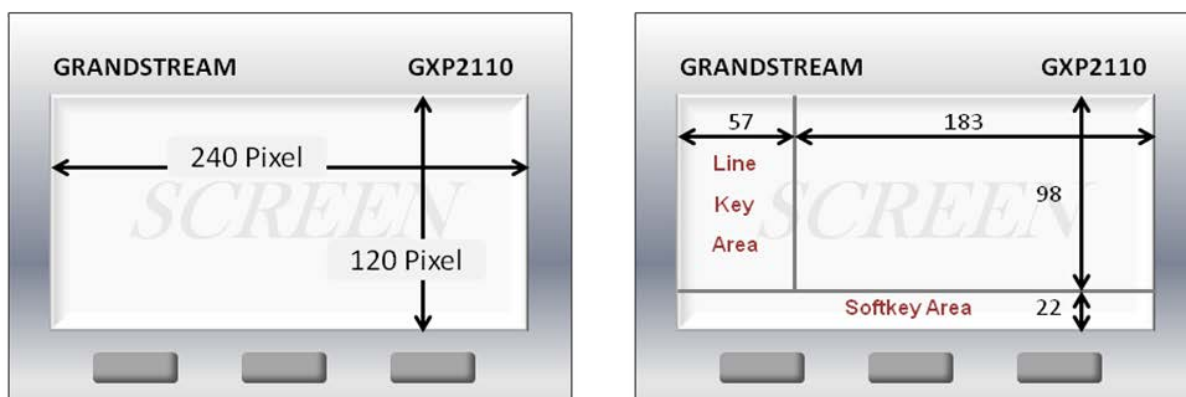


Figure 7: GXP2110 Default Idle Screen Layout

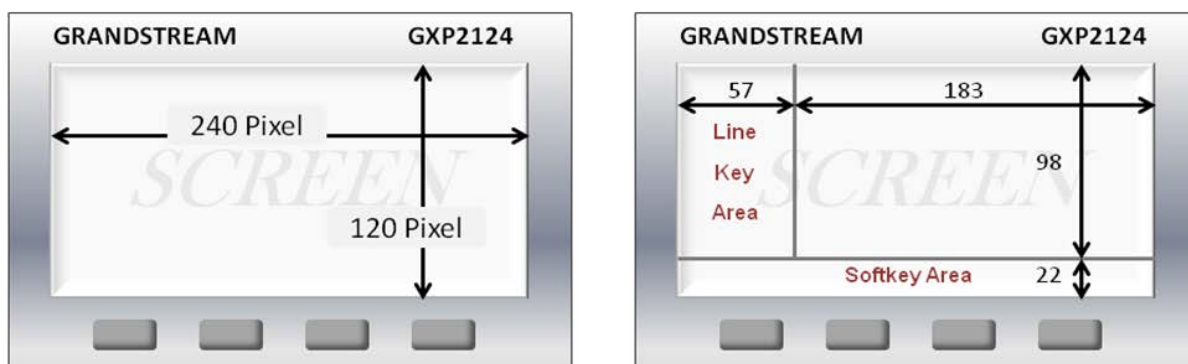


Figure 8: GXP2124 Default Idle Screen Layout

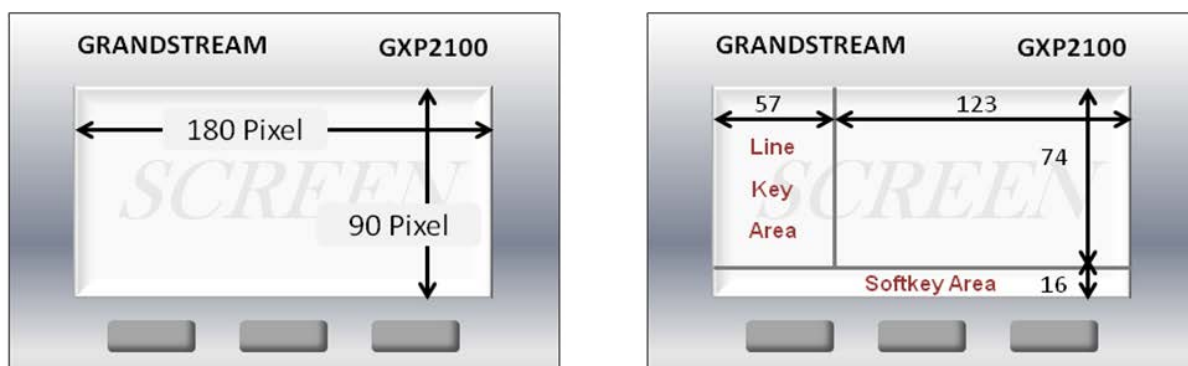


Figure 9: GXP2100 Default Idle Screen Layout

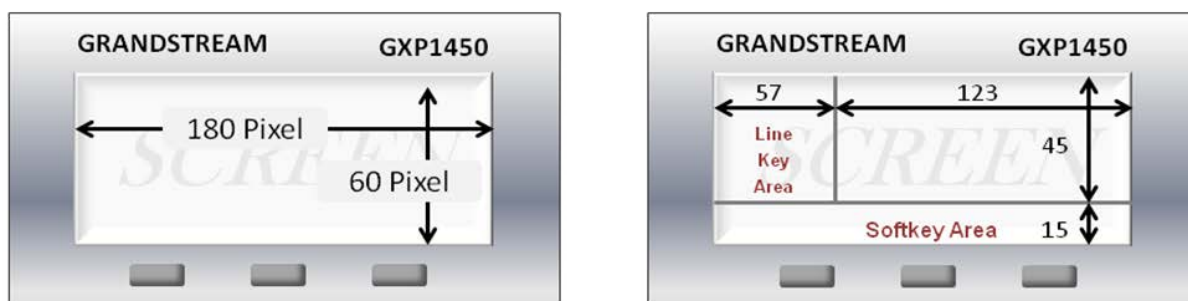


Figure 10: GXP1450 Default Idle Screen Layout

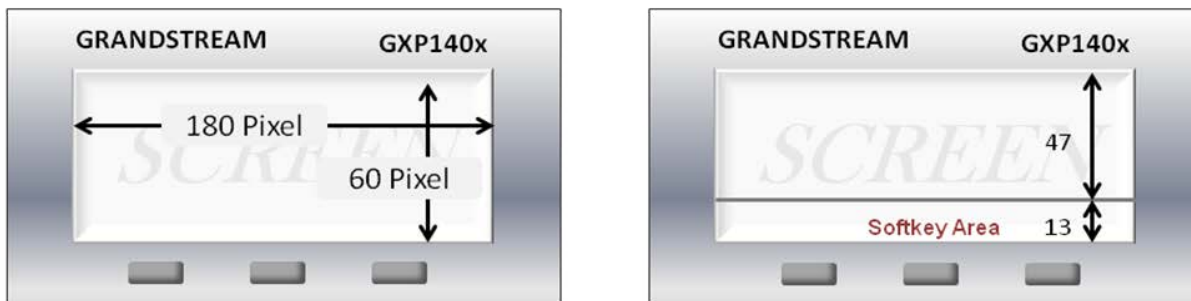


Figure 11: GXP140x Default Idle Screen Layout

XML DOCUMENT FORMAT

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 GXP21xx/GXP14xx, UTF-8 is used as encoding method for correct display.

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

SPECIAL CHARACTERS

As followed by the standard XML recommendation, some characters need to be escaped. The following table lists the characters with their escape sequence.

Table 2: Special Characters in XML Document

Characters	Name	Escape Sequence
&	Ampersand	&
"	Quote	"
'	Apostrophe	&apos
<	Left Angle Bracket	<
>	Right Angle Bracket	>

GXP21xx/GXP14xx SCREEN XML STRUCTURE

The XML idle screen templates for each model could be downloaded via the following link.

http://www.grandstream.com/products/gxp_series/general/documents/GXP21xx_14xx_XML_Screen_Customization.zip

The main structure of the template could be represented as below for different models. This provides users an overview of the XML element and screen layout.

For more details on element attribute and text information, please refer to section "GXP21xx/GXP14xx IDLE SCREEN XML ELEMENT".

GXP21xx SCREEN XML MAIN STRUCTURE

```
<Screen>

    <LeftStatusBar>
        <!-- ON THE LEFT SIDE OF SCREEN. FOR ACCOUNT NAME AND STATUS DISPLAY-->
    </LeftStatusBar>

    <SoftkeyBar>
        <!-- ON THE BOTTOM OF SCREEN. FOR SOFTKEY BAR DISPLAY-->
    </SoftkeyBar>

    <IdleScreen>
        <!--MAIN IDLE SCREEN DISPLAY INFORMATION (LOGO, TEXT) HERE-->
    </IdleScreen>

    <IdleScreen>
        <!-- DISPLAY WEATHER SCREEN-->
    </IdleScreen>

    <IdleScreen>
        <!-- DISPLAY STOCK SCREEN-->
    </IdleScreen>

    <IdleScreen>
        <!-- DISPLAY CURRENCY SCREEN-->
    </IdleScreen>

</Screen>
```

GXP1450 SCREEN XML MAIN STRUCTURE

```
<Screen>

    <LeftStatusBar>
        <!-- ON THE LEFT SIDE OF SCREEN. FOR ACCOUNT NAME AND STATUS DISPLAY-->
    </LeftStatusBar>

    <SoftkeyBar>
        <!-- ON THE BOTTOM OF SCREEN. FOR SOFTKEY DISPLAY-->
    </SoftkeyBar>

    <IdleScreen>
        <!--MAIN IDLE SCREEN DISPLAY INFORMATION (LOGO, TEXT) HERE-->
    </IdleScreen>

    <IdleScreen>
        <!-- DISPLAY WEATHER SCREEN-->
    </IdleScreen>

</Screen>
```

GXP140X SCREEN XML MAIN STRUCTURE

```
<Screen>

  <SoftkeyBar>
    <!-- ON THE BOTTOM OF SCREEN. FOR SOFTKEY DISPLAY-->
  </SoftkeyBar>

  <IdleScreen>
    <!--MAIN IDLE SCREEN DISPLAY INFORMATION (LOGO, TEXT) HERE-->
  </IdleScreen>

  <IdleScreen>
    <!-- DISPLAY WEATHER SCREEN-->
  </IdleScreen>

  <IdleScreen>
    <!-- DISPLAY IP ADDRESS-->
  </IdleScreen>

</Screen>
```


GXP21xx/GXP14xx IDLE SCREEN XML ELEMENT

This section describes details of the XML element used in GXP21xx/GXP14xx XML idle screen customization. Please note that the element name is case-sensitive when being used in XML document.

ROOT ELEMENT <Screen>

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

```
<Screen>
  All the information for screen display is here
</Screen>
```

<Screen> ELEMENT DETAILS

The following tables shows child element and attribute for <Screen> element.

Table 3: <Screen> Element

Object	Position	Type	Values	Comments
Screen	Root element	Mandatory	-	Root element of the XML document
LeftStatusBar	Child element	Optional	-	Defines account bar display
SoftkeyBar	Child element	Mandatory	-	Defines softkey bar display
IdleScreen	Child element	Mandatory	-	Main customization area. Normally, only the 1st <IdleScreen> element needs customization for logo, text or variable display. Users usually could leave the other IdleScreen elements as default.

<LeftStatusBar> ELEMENT

The <LeftStatusBar> section is used for displaying the account status and information in idle screen, i.e., the account name, registered or not, the background images for the each bar. This element is optional. Normally it should be used on GXP21xx/GXP1450 so line status could be shown. On GXP140x this element is not used because of the size limitation.

Each model has different width value defined for the LeftStatusBar. The following figure shows the <LeftStatusBar> area for GXP2120.

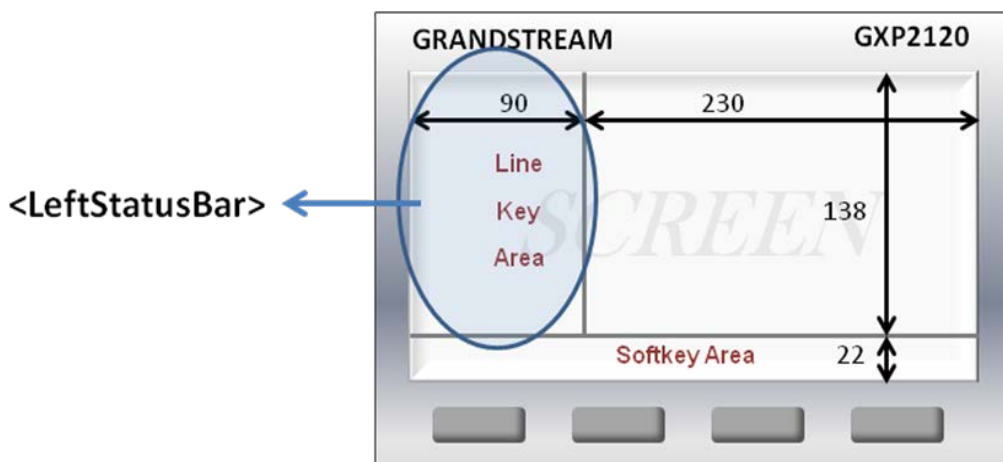


Figure 12: GXP2120 LeftStatusBar Area

```
<LeftStatusBar>
  <Layout width="Width of the background layout">
    <DisplayRectangle x="X location" y="Y location" width="Width" height="Height"
color="Color" bgcolor="Background Color"></DisplayRectangle>
    <DisplayList>
      <X>X location</X>
      <Y>Y location</Y>
    </DisplayList>
    <DisplayBitmap>Image information here</DisplayBitmap>
    <DisplayString>String information here</DisplayString>
  </Layout>
  <Account height="Height of the account display">
    <DisplayElement>
      <DisplayBitmap>Image information here</DisplayBitmap>
    </DisplayElement>
  </Account>
</LeftStatusBar>
```

<LeftStatusBar> ELEMENT DETAILS

Table 4: <LeftStatusBar> Element

Object	Position	Type	Values	Comments
LeftStatusBar	Element	Optional	-	Defines account bar display
Layout	Child element	Mandatory	-	Defines account bar layout
width	<Layout> attribute	Mandatory	int	
Account	Child element	Optional	-	Defines display per account and it applies the same display to each account
height	<Account> attribute	Mandatory	int	

<SoftkeyBar> ELEMENT

The <SoftkeyBar> section defines how the softkey layout is, e.g, softkey bar height, position and button shape. This element is mandatory and it's recommended to keep it as default. Each model might have different height value defined for the Softkey bar. The following figure shows the <SoftkeyBar> area for GXP2120.

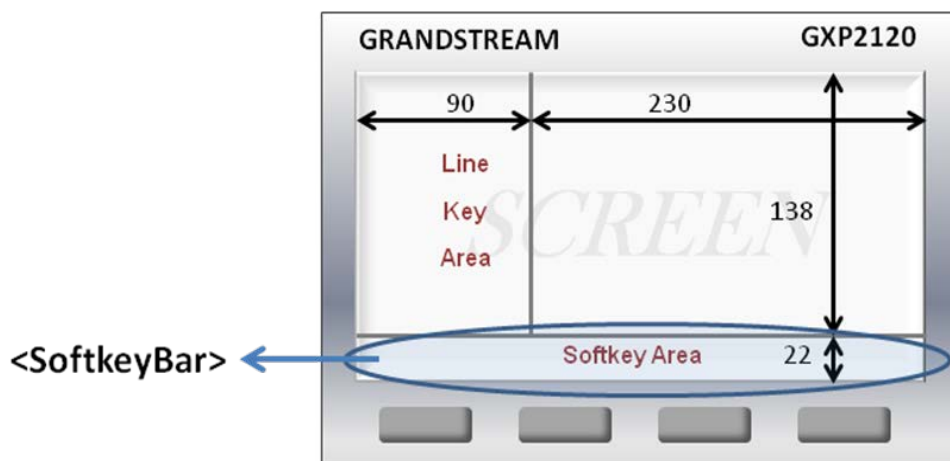


Figure 13: GXP2120 SoftkeyBar Area

```

<SoftkeyBar>
  <Layout height="Height of the softkeyBar" >
    <DisplayBitmap>
      Image information here
    </DisplayBitmap>
    <DisplayList>
      <X>X location</X>
      <Y>Y location </Y>
    </DisplayList>
  </Layout>
  <ButtonShape id="Id number" width="Width of the button" height="Height of the button">
    <DisplayElement>
      DisplayElement information here
    </DisplayElement>
  </ButtonShape>
</SoftkeyBar>

```

<SoftkeyBar> ELEMENT DETAILS

Table 5: <SoftkeyBar> Element

Object	Position	Type	Values	Comments
SoftkeyBar	Element	Mandatory	-	Defines softkey bar display
Layout	Child element	Mandatory	-	Defines softkey bar layout
height	<Layout> Attribute	Mandatory	int	
Buttonshape	Child element	Mandatory	-	Defines display per softkey and it applies the same display to each key
id	<Buttonshape> Attribute	Mandatory	int	A unique ID for softkey template
width	<Buttonshape> Attribute	Mandatory	int	
height	<Buttonshape> Attribute	Mandatory	int	

<IdleScreen> ELEMENT

This is the main customization section for the XML idle screen.


```

<IdleScreen>
  <ScreenShow>weatherShow/stockShow/currencyShow</ScreenShow>
  <ShowStatusLine>true/false</ShowStatusLine>
  <DisplayElement>
    Element display information here
  </DisplayElement>
  <DisplayBitmap isfile="true/false">
  <DisplayString font="unifont">
  </DisplayString>
  <SoftKeys>
    Softkey
  </SoftKeys>
</IdleScreen>

```

<IdleScreen> ELEMENET DETAILS

Table 6: <IdleScreen> Element

Object	Position	Type	Values	Comments
IdleScreen	Element	Mandatory	-	
ScreenShow	Child element	Optional	-	For weather/stock/currency display only. The text could be the "weatherShow", "stockShow" or "currencyShow".
ShowStatusLine	Child element	Mandatory	-	It could use "true" or "false" as its text. "true": the line label on the left side will always display. "false": the line label on the left side will not display. For the 1st <IdleScreen> section (default screen), it should be set to "true".
DisplayElement	Child element	Optional	-	
DisplayBitmap	Child element	Optional	-	
DisplayString	Child element	Optional	-	
DisplaySet	Child element	Optional	-	For weather/stock/currency only by default
Softkeys	Child element	Mandatory	-	

<DisplayElement> ELEMENT

This element contains all the contents to be displayed, i.e., string, picture and rectangle.

```
<DisplayElement>
  <DisplayString>String information</DisplayString>
  <DisplayBitmap>Image information</DisplayBitmap>
  <DisplayRectangle x="X location" y="Y location" width="Width" height="Height"
  bgcolor="Background color"/>
</DisplayElement>
```

<DisplayElement> ELEMENT DETAILS

Table 7: <DisplayElement> Element

Object	Position	Type	Values	Comments
DisplayElement	Element	Mandatory	-	
DisplayString	Child element	Optional	-	Displays string
DisplayBitmap	Child element	Optional	-	Displays bitmap picture
DisplayRectangle	Child element	Optional	-	Displays rectangle

<DisplayString> ELEMENT

This element is used for displaying string information on the screen.

```
<DisplayString font ="unifont/bold" width="width of the string" height="height of the string"
  halign=" center/left/right" color=" color of the string" bgcolor=" color of the background" >
  <X>X location</X>
  <Y>Y location </Y>
  <DisplayStr>Display String</DisplayStr>
</DisplayString>
```

<DisplayString> ELEMENT DETAILS

Table 8: <DisplayString> Element

Object	Position	Type	Values	Comments
DisplayString	Element	Optional	-	
font	<DisplayString> Attribute	Optional	"unifont" /"bold"	Default font type is "unifont"
width	<DisplayString> Attribute	Optional	int	
height	<DisplayString> Attribute	Optional	int	
halign	<DisplayString> Attribute	Optional	string	Default value is "left"
color	<DisplayString> Attribute	Optional	string	Default value is "Black"
bgcolor	<DisplayString> Attribute	Optional	string	Default value is "White"
X	Child element	Mandatory	int	Displays the string from X
Y	Child element	Mandatory	int	Displays the string from Y
DisplayStr	Child element	Mandatory	string	The string to be displayed. System variables can be used here
displayCondition	Child element	Optional	-	The string will be displayed under certain condition. If not specified it's always displayed

<DisplayBitmap> ELEMENT

This element is to display a bitmap picture in the screen, for example, to customize the logo. Inside the <Bitmap> tag, the picture must be encoded in base 64 format already. If you search "Base 64 Encoder" online, there are plenty of online tools as base 64 encoder to encode the .bmp picture.

```
<DisplayBitmap isfile="true/false" isflash="true/false">
  <Bitmap>Bitmap file encoded in base64 format</Bitmap>
  <X>X location</X>
  <Y>Y location</Y>
</DisplayBitmap>
```

<DisplayBitmap> ELEMENT DETAILS

Table 9: <DisplayBitmap> Element

Object	Position	Type	Values	Comments
DisplayBitmap	Element	Optional	-	
isfile	<DisplayBitmap> Attribute	Optional	"true"/ "false"	"true": to display the picture embedded in the firmware. Users won't be able to directly use it for customized pictures. "false": to display the picture customized in <Bitmap> tag. Default is false.
isflash	<DisplayBitmap> Attribute	Optional	"true"/ "false"	Default value is "false".
X	Child element	Mandatory	int	Displays the picture from X
Y	Child element	Mandatory	int	Displays the picture from Y
Bitmap	Child element	Mandatory	string	The base-64 encoded .bmp file

To create .bmp and display it on the phone:

- Firstly, make sure the picture is in .bmp format and not exceed the LCD size of the phone. GXP21xx support .bmp file with monochrome grey level 8 to be displayed.
- Use a base-64 encoder to encode the picture.
- Copy and paste and encoded result inside <Bitmap> tag.
- Make sure the isfile attribute is set to "false" in <DisplayBitmap> element.

Example:

```
<DisplayBitmap isfile="false">
  <Bitmap>Qk3GAgAAAAAAAAAD4AAAAoAAAAqgAAABsAAAABAAEAAAAAAAAIgCAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAP///wD//////////////////AAAD//////////////////AAAD//////////////////
AAAD+D/wf/wAAwAfgAB8B/wPw/wA+AAHAAAD+B/wH8AAAAAAAAAAH4DwPgAAAABAAAD+A/w
D4H//wPwH//g4D4BwDgfgf//AAAD+A/wB4H//wHwP//B8D4AwBgPg//AAAD+AfwB4H//wHwP//B8B8AY
AwPg//AAAD/APwB4D4HwHwHx/A8B8CAEAPgPAfAAAD/AHwA8D4H4D4Hgfg8B+BgCAHgPAfAAA
D/ADwA8B8H4D4DgfgD+BwDgHgHgAAAD/ABwEfgAP4B/AAfwAAAA8D4H8AA/AAAD/AgwEPwA/8
B/wB/+AAAA/D8H/AD/AAAD/AwQGP///8B//////////////////AAAD/A4QGH///8B//////////////////AAAD/AcAGD///+B
//////////////////AAAD/geAHB///+B//////////////////AAAD/geAHh///+A//////////////////AAAD/gfgHw///A//////////////////AAA
D/gfgHw///A//////////////////AAAAAfwH4f//gf//////////////////AAACAAfwH4P//gf//////////////////AAADAA/4H8P////////
//////////////////AAADgB/8H+P//////////////////AAAD//////////////////AAAD//////////////////AAAD//////////////////
////////AAAA= </Bitmap>
  <X>0</X>
  <Y>7</Y>
</DisplayBitmap>
```

The above example will render the following picture to be displayed on the default logo area (X: 40, Y: 50) of the GXP2120 screen.

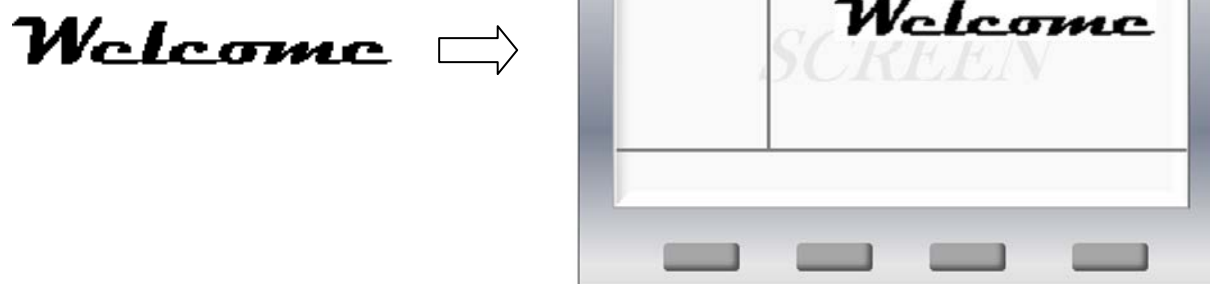


Figure 14: GXP2120 <DisplayBitmap> Example - Base64 Encoded Logo

<DisplayRectangle> ELEMENT

This element is to render rectangle display. It could be used as a frame or background bar.

```
<DisplayRectangle x="X location" y="Y location" width="Width" height="Height"
bgcolor="Background color" border-color="Rectangle border color"/>
```

<DisplayRectangle> ELEMENT DETAILS

Table 10: <DisplayRectangle> Element

Object	Position	Type	Values	Comments
DisplayRectangle	Element	Optional	-	Displays rectangle
x	<DisplayRectangle> Attribute	Optional	int	Default value is 0
y	<DisplayRectangle> Attribute	Optional	int	Default value is 0
width	<DisplayRectangle> Attribute	Mandatory	int	
height	<DisplayRectangle> Attribute	Mandatory	int	
bgcolor	<DisplayRectangle> Attribute	Optional	string	Default value is Black
border-color	<DisplayRectangle> Attribute	Optional	string	Default value is None

<SoftKeys> ELEMENT

This element is the parent element for <SoftKey> element. The purpose is to set up the softkey display and action. This element is mandatory.

```
<SoftKeys>
  <SoftKey useshapeid="buttonshapeid here">
    Softkey information here
  </SoftKey>
</SoftKeys>
```

<SoftKeys> ELEMENET DETAILS

Table 11: <Softkeys> Element

Object	Position	Type	Values	Comments
SoftKeys	Element	Mandatory	-	
softkey	Child element	Mandatory	-	Defines each softkey' s display and action

<SoftKey> ELEMENT

This element defines each softkey's label and action. This element is mandatory. The text for <Action> and <conditionType> are pre-defined in the firmware already so it's recommended to keep this section by default.

```
<SoftKey useshapeid="buttonshapeid here">
  <Icon>Icon information here</Icon>
  <Action>
    Pre-defined softkey actions here
  </Action>
  <displayCondition>
    <conditionType>Pre-defined condition Type here</conditionType>
  </displayCondition>
</SoftKey>
```

<SoftKey> ELEMENT DETAILS

Table 12: <SoftKey> Element

Object	Position	Type	Values	Comments
SoftKey	Element	Mandatory	-	
useshapeid	<SoftKey>Attribute	Optional	int	By default, it will use the first defined <ButtonsShape>. Otherwise, specify id
Icon	Child Element	Optional	-	By default it's only for SwitchSCR
Action	Child Element	Mandatory	-	Softkey Action (pre-defined)
displayCondition	Child Element	Mandatory	-	Softkey display condition (pre-defined)

Lists of the pre-defined softkey <Action> and <ConditionType> contents are described below. Please refer to full ConditionType listed in section "XML Idle Screen Display Condition Type".

Table 13: Pre-defined Softkey <Action> and <ConditionType>

Softkey	Action	ConditionType	Description
SwitchSCR	<SwitchSCR/>	SubScreen	To switch among default idle screen, weather, stock, currency screen
XML Service	<XmlService/>	XmlApp	For XML Application softkey
SignIn	<SignIn/>	signIn	Displayed when call queue feature is used with GXE5028
SignOut	<SignOut/>	signOut	
BackSpace	<BackSpace/>	backSpace	Displayed in onhook dialing state when number is entered
Cancel	<CANCEL/>	backSpace	
MissedCalls	<MissedCalls/>	missCall	Displayed when there is new missed call
FwdAll	<FwdedCalls/>	hasFowardedCallLog	Displayed when account1 is registered and "Enable Call Feature" is set to "Yes"
CnclFw	<CancelFwd/>	callFwded	Displayed when account1 has Call Forward All activated
Redial	<Redial/>	hasDialedCalllog	Displayed when there is dialed call

RefreshStock	<RefreshStock/>	By default it's not specified and it will be always displayed.	Displayed in stock idle screen
RefreshCurrency	<RefreshCurrency/>		Displayed in currency idle screen
ReverseCurrency	<ReverseCurrency/>		
VMsg	<VoiceMail/>	By default it's not specified and it will be always displayed. It could use "hasVoiceMail" so it will be displayed only when there is new voicemail	To display Voicemail softkey. This is a default softkey for GXP140x only.

XML IDLE SCREEN ELEMENT ATTRIBUTE

The following tables list the values for frequently used element attribute.

ATTRIBUTE **color/bgcolor/border-color**

- For "color" attribute, the default value is "Black";
- For "bgcolor" attribute, the default value is "White";
- For "border-color" attribute, the default value is "None".

Table 14: Attribute color/bgcolor/border-color

color/bgcolor/border-color	Details
None	
Black	
Dark6	
Dark5	
Dark4	
Dark3	
Dark2	
Dark1	
Gray	
LightGray	
Light1	
Light2	
Light3	
Light4	
Light5	
Light6	
White	

ATTRIBUTE **halign**

Attribute halign is used for <DisplayString> element. The default value is "left".

Table 15: Attribute halign

halign	Details
center	GXP21xx XML Application
left	GXP21xx XML Application
right	GXP21xx XML Application

SYSTEM VARIABLES IN STRING DISPLAY

In <DisplayString> element, the following system variables could be used to display the pre-defined values in XML customized idle screen.

Table 16: System Variables for XML Idle Screen

\$String			
\$a	This variable is replaced with the configured account name	\$A	This variable is replaced with configured softkey label
\$b	N/A	\$B	This variable is replaced with the current day of month with leading zero, possible values: 01, 02, ..., 31
\$c	This variable is replaced with Missed Call string along with missed call count.	\$C	This variable is replaced with DND (Do-Not-Disturb) label when DND is enabled
\$d	This variable is replaced with the current day of month with leading zero, possible values: 1, 2, ..., 31	\$D	This variable is replaced with the current day of month with leading zero, possible values: 01, 02, ..., 31
\$e	This variable is replaced with the onhook dialing number	\$E	N/A
\$f	This variable is replaced with the Month-week-date format based on the configuration	\$F	N/A
\$g	This variable is replaced with the country name for weather information	\$G	This variable is replaced with the number of the Missed Call
\$h	This variable is replaced with the current hour of day in 12-hour format with leading zero, possible values: 01, 02, ..., 12	\$H	This variable is replaced with the current hour of day in 24-hour representation with leading zero, possible values: 00, 02, ..., 23
\$i	This variable is replaced with the system IPV6 Address	\$I	This variable is replaced with the system IPV4 Address
\$j	This variable is replaced with Forwarded Call string along with forwarded calls count	\$J	N/A
\$l	N/A	\$L	This variable is replaced with the city name for weather information
\$m	This variable is replaced with the current minute of hour with leading zero, possible	\$M	This variable is replaced with the current month in English, possible values: January,

	values: 01, 02, ..., 59		February, ..., December
\$n	This variable is replaced with the current month in number with leading zero, possible values: 1, 2, ..., 12	\$N	This variable is replaced with the configured SIP Display Name or account name
\$o	This variable is replaced with the current month in number with leading zero, possible values: 01, 02, ..., 12	\$O	N/A
\$p	N/A	\$P	This variable is replaced with the current AM/PM status in upper case, possible values: AM, PM
\$r	This variable is replaced with the volume level	\$R	N/A
\$s	This variable is replaced with the current second of minute with leading zero, possible values: 01, 02, ..., 59	\$S	This variable is replaced with the state name of the weather information
\$t	N/A	\$T	This variable is replaced with the current hour:minute (am/pm) of the day, in which ":" will flash per second. Depending on user's configuration, it will be displayed as 12 hour or 24 hour format. Possible values: 1:00pm, 13:00
\$v	This variable is replaced with 5V power usage alert message when incorrect power is used	\$V	This variable is replaced with the configured Account SIP Server host
\$w	This variable is replaced with the temperature of the weather information	\$W	This variable is replaced with the current day of week and has the following possible values: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
\$x	This variable is replaced with the humidity of the weather information	\$X	This variable is replaced with the configured Account SIP User ID
\$y	This variable is replaced with the current year in 2-digit number, for example: 06, 07	\$Y	This variable is replaced with the current year in 4-digit number, for example: 2006, 2007 ...

Note:

To display "\$", please use "\$\$" escape sequence.

XML IDLE SCREEN DISPLAY CONDITION TYPE

The following tables list all the available <ConditionType> in XML idle screen. They could be used for softkey display or string display.

Table 17: ConditionType for XML Idle Screen

ConditionType	Description for softkey/string display
SubScreen	Displayed on idle screen, weather, stock, currency screen, IP address screen (for GXP140x)
XmlApp	When XML Application is launched
signIn	Displayed when call queue feature is used with GXE5028
signOut	
backSpace	Displayed in onhook dialing state when number is entered
missCall	Displayed when there is new missed call
hasFowardedCallLog	Displayed when account1 is registered and "Enable Call Feature" is set to "Yes"
callFwded	Displayed when account1 has Call Forward All activated
hasDialedCallog	Displayed when there is dialed call
hasVoiceMail	Displayed when there is new voicemail. Usually only used on GXP140x for Voicemail softkey display.

GXP21xx/GXP14xx SCREEN/LOGO SIZE

The following table specifies the screen size, logo size and logo area for each model.

Table 18: GXP21xx/GXP14xx Screen and Logo Size

Model	Screen Size	Default gs_logo size (pixel)	Default logo zone size (pixel)
GXP2120	320 x 160	136 x 66	230 x 85
GXP2110	240 x 120	89 x 46	165 x 50
GXP2100	180 x 90	72 x 35	123 x 58
GXP2124	240 x 120	89 x 46	165 x 50
GXP1450	180 x 60	Default string: Grandstream	About 20 characters (EN)
GXP140x	180 x 60	Default string: Grandstream	About 26 characters (EN)

XML IDLE SCREEN EXAMPLES

CUSTOMIZE LOGO ON GXP2120

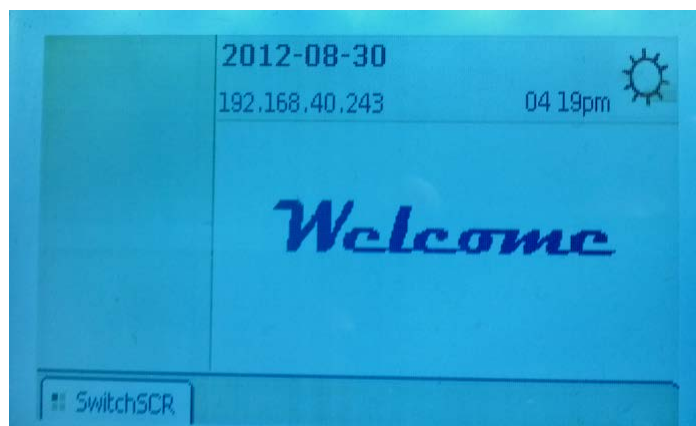


Figure 15: GXP2120 Logo Customization

To customize logo in GXP2120 as above, firstly find the following section in the GXP2120 default idle screen template.

```
<!--COMPANY LOGO-->
<DisplayElement>
  <DisplayBitmap isfile="true">
    <Bitmap>/app/resource/logo/gs_logo.bmp</Bitmap>
    <X>40</X>
    <Y>50</Y>
  </DisplayBitmap>
</DisplayElement>
```

Then modify the following places and get the modified version as below:

- Set *DisplayBitmap isfile="false"*;
- Copy and paste the base64-encoded bmp file in <Bitmap> element
<Bitmap>base64-encoded bmp information here</Bitmap>
- Adjust *<X>X location</X>* to fit the image in logo area horizontally;
- Adjust *<Y>Y location</Y>* to fit the image in logo area vertically.

```
<DisplayElement>
  <DisplayBitmap isfile="false">
    <Bitmap>Qk3GAgAAAAAAD4AAAAoAAAAqgAAABsAAAAABAAEAAAAAAIgCAAAAAAAAAAAAAA
    AAAAAAAAAAAAAAP///wD//////////////////AAAD//////////////////AAAD//////////////////AAAD+D/wf/wAA
    wAfgAB8B/wPw/wA+AAHAAAD+B/wH8AAAAAAAAAAAH4DwPgAAAABAAAD+A/wD4H//wPwH//g4D4BwDgfg
    f//AAAD+A/wB4H//wHwP//B8D4AwBgPg//AAAD+AfwB4H//wHwP//B8B8AYAwPg//AAAD/APwB4D4HwHwHx/
    A8B8CAEAPgPAfAAAD/AHwA8D4H4D4Hgfg8B+BgCAHgPAfAAAD/ADwA8B8H4D4DgfgD+BwDgHgHgHfAAA
    D/ABwEfgAP4B/AAfwAAAA8D4H8AA/AAAD/AgwEPwA/8B/wB/+AAAA/D8H/AD/AAAD/AwQGP///8B////////////////
    AAAD/A4QGH///8B//////////////////AAAD/AcAGD///+B//////////////////AAAD/geAHB///+B//////////////////AAAD/geAHh///+A/////
    //////////AAAD/gfgHw///A//////////AAAD/gfgHwf///A//////////AAAAAAfwH4f///gf//////////AAACAAfwH4P///gf
    //////////AAADAA/4H8P//////////AAADgB/8H+P//////////AAAD//////////AAAD//////////
    //////////AAAD//////////AAAA=</Bitmap>
    <X>30</X>
    <Y>65</Y>
  </DisplayBitmap>
</DisplayElement>
```

CUSTOMIZE LOGO ON GXP2110/GXP2124

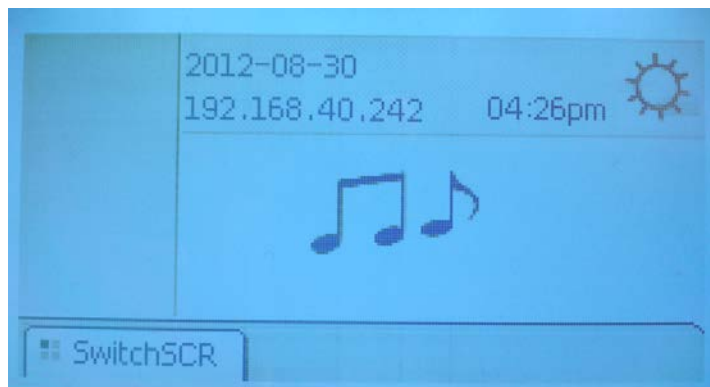


Figure 16: GXP2110/GXP2124 Logo Customization

To customize the logo in GXP2110/GXP2124 as above (GXP2110/GXP2124 has the same logo area size), firstly find the section in the GXP2110/GXP2124 default idle screen template.


```
<!-- COMPANY LOGO -->  
  <DisplayBitmap isfile="true">  
    <Bitmap>/app/resource/logo/gs_logo.bmp</Bitmap>  
    <X>42</X>  
    <Y>40</Y>  
  </DisplayBitmap>
```

Then modify the following places and get the modified version below:

- Set *DisplayBitmap isfile="false"*;
- Copy and paste the base64-encoded bmp file in <Bitmap> element
<Bitmap>base64-encoded bmp information here</Bitmap>
- Adjust *<X>X location</X>* to fit the image in logo area horizontally;
- Adjust *<Y>Y location</Y>* to fit the image in logo area vertically.

```
<DisplayBitmap isfile="false">
  <Bitmap>Qk0oEQAAAAAADYEAAAoAAAAARgAAAC4AAAAABAAgAAAAAAPIMAAASCwAAEEgsAAA
  AAAAAAAAAAAAAAAAAAEBACACAgIAAwMDAAQEBAAFBQUABgYGAACHBwAICAgACQkJAAoKCGALCwsAD
  AwMAA0NDQAODg4ADw8PABAQEAAAREAEHISABMTEwAUFBQAFRUvABYWFgAXFxcAGBgYABkZGQA
  aGhoAGxsbABwcHAAdHR0AHh4eAB8fHwAgICAAlSEhACIilgAjlyMAJCQkACUIJQAmJiYAJycnACgoKAApKS
  kAKioqACsrKwAsLCwALS0tAC4uLgAvLy8AMDawADExMQAyMjIAMzMzADQ0NAA1NTUANjY2AdC3NwA4O
  DgAOTk5ADo6OgA7OzsAPDw8AD09PQA+Pj4APz8/AEBAQABBQUEAQkJCAENDQwBEREQARUUVFAEZGR
  gBHR0cASEhIAEIJSQBKSkOAS0tLAExMTABNTU0ATk5OAE9PTwBQUFAAUUVFRAFJSUgBTU1MAVFRUAFV
  VVQBWWVIYAV1dXAFhYWABZWVvKAWlpAFTbWwBcXfWAXV1dAF5eXgBfX18AYGBgAGFhYQBiyMIAy2NjAG
  RkZABIZWUAZmZmAGdnZwBoaGgAaWlpAGpqqgBra2sAbGxsAG1tbQBubm4Ab29vAHBwcABxcXEAcnJyAH
  NzcwB0dHQAdXV1AHZ2dgB3d3cAeHh4AHl5eQB6enoAe3t7AHx8fAB9fX0Afn5+AH9/fwCAglAAgYGBAICgg
  CDg4MAHISEAIWFhQCGhoYAh4eHALiliACJiYkAioqKAluLiwCMjlwAjY2NAI6OjgCPj48AkJCQAJGRkQCSkplA
  k5OTAJSUIACVIZUALpaWAJeXlwCYmJgAmZmZAJqamgCbm5sAnJycAJ2dnQCenp4An5+fAKCgoAchoaEAOq
  KiAKOjowCkpKQApawIAKampgCnp6cAqKioAKmpqQCqqoAq6urAKysrACtra0Arq6uAK+vrwCwsLAAsbGxAL
  KysgCzs7MATLS0ALW1tQC2trYA7e3ALi4uAC5ubkAurq6ALu7uwC8vLwAvb29AL6+vgC/v78AwMDAAMHBwQ
  DCwslAw8PDAMTEwADfxcUAXsbGAMfHxwDlyMgAycnJAMrKygdLy8sAzMzMAM3NzQDOzs4Az8/PANDQ0A
  DR0dEA0tLSANPT0wDU1NQA1dXVANbW1gDX19cA2NjYANnZ2QDa2toA29vbANzc3ADd3d0A3t7eAN/f3wDg
  4OAA4eHhAOLi4gDj4+MA5OTkAOXl5QDm5uYA5+fnAOjo6ADp6ekA6urqAOvr6wDs7OwA7e3tAO7u7gDv7+8
  A8PDwAPHx8QDy8vIA8/PzAPT09AD19fUA9vb2APf39wD4+PgA+fn5APr6+gD7+/sA/Pz8AP39/QD+/v4A///AP/
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  P////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8vV2aKz////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////pQAAAAAAAAADnG////////////////////////////////8A
  AP////////////////////////////////SwAAAAAAAAAGov////////////////////////////////8AAP////////////////////////////////mQAAAAAAAAAAABuT////////////////////////////////
  //////////////////////////////////ycTjNUcsn////////////////////////////////8AAP////////////////////////////////3sAAAAAAAAAAALf////////////////////////////////28AAAAAAAAA2wP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////DSwAAAAAAAAALT////////////////////////////////yQAAAAAAAAAA6v////////////////////////////////8AAP//
  //////////////////////////////////96ceJOughT////////////////////////////////3sAAAAAAAAAAAAA/2////////////////////////////////5Kt1e5nJ////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////x
  mAAAAAAAAAAADS////////////////////////////////97AAAAAAAAAAHoH2////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////wEsAAAAAAAAADS////////////////////////////////
  /8VAAAAAAAAAAAn0v////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////hvZmZz1rS////////////////////////////////+NAAAAAAAAAAAAALf////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////wCQAAAAAAAAAAAP////////////////////////////////8AAP////////////////////////////////h7T/
  //////////////////////////////////1rS////////////////////////////////+6YDMGAAZLDP////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////H
  v////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////3XY////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////
  //////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////NC+f////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////+E
  n////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////JPP////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////
  //////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////MCf////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////+KFf////////////////////////////////8
  AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////+EScv////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1r
  S////////////////////////////////Hv////////////////////////////////3iQ28P////////////////////////////////8AAP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////Hv////////////////////////////////CHCTPw////////////////////////////////8A
  AP////////////////////////////////h7T////////////////////////////////1rS////////////////////////////////HrQUwAcvb////////////////////////////////8AAP////////////////////////////////hwATSGaTrsz5////////////////////////////////
  //////////////////////////////////1rS////////////////////////////////HgAAABu9////////////////////////////////8AAP////////////////////////////////hwAAAAAAAAAAFTNje5nJ4f////////////////////////////////1rS////////////////////////////////Hg
  AAWvD////////////////////////////////8AAP////////////////////////////////1ZlvVDMJAAAAAAAAAAAAAAAwS2aWsUjS////////////////////////////////HgCB////////////////////////////////8
  AAP////////////////////////////////8MyimY/JAAAAAAAAAAAAAADS////////////////////////////////Hkv////////////////////////////////8AAP////////////////////////////////8
  /YwJlyWjMPAADS////////////////////////////////HrT////////////////////////////////8AAP////////////////////////////////88z2////////////////////////////////S/D////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////8AAP////////////////////////////////
  //////////////////////////////////8AAAAA</Bitmap>
    <X>40</X>
    <Y>40</Y>
  </DisplayBitmap>
```

CUSTOMIZE LOGO ON GXP2100



Figure 17: GXP2100 Logo Customization

To customize the logo in GXP2100 as above, firstly find the section in the GXP2100 default idle screen template.

```
<!-- COMPANY LOGO -->
<DisplayBitmap isfile="true">
  <Bitmap>/app/resource/logo/gs_logo.bmp</Bitmap>
  <X>17</X>
  <Y>26</Y>
</DisplayBitmap>
```

Then modify the following places and get the modified version below:

- Set *DisplayBitmap isfile="false"*;
- Copy and paste the base64-encoded bmp file in <Bitmap> element
<Bitmap>base64-encoded bmp information here</Bitmap>
- Adjust *<X>X location</X>* to fit the image in logo area horizontally;
- Adjust *<Y>Y location</Y>* to fit the image in logo area vertically.

```
<DisplayBitmap isfile="false">
    <Bitmap>Qk1eAwAAAAAAD4AAAAoAAAAewAAADIAAAABAAEAAAAACADAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAP///wD//////////g//////////4P//////////+D//////////g//////////4P//////////
////+D//////////g//////////4P//////////+D//////////g//////////4P//////////+D//////////g////
//////////4P//////////+D//////////g///z4N/ggA/gfB4OD///4P//+cDc4IP/4HjkhB///+D///yB+MCD/+Bw/wQf///g
///+AfBBg/gcAYEH///4P///wPgAYP/4HCEDB///+D///4H4AGD/+BwjBwf///g///+A+DDg/gelwkH///4P///Anx44P/4H
weCA///+D///gc8+OD/+B///wf///g///wHn//g/8AH///H///4P//////////+D//////////g//////////4P//////////+
D//////////g//////////4P//////////+D//////////g//////////4P//////////+D//////////g//////////
////////4P//////////+D//////////g//////////4P//////////+D//////////g//////////4P//////////+D/
//////////g//////////4P//////////+D//////////g//////////4A==</Bitmap>

    <X>5</X>
    <Y>17</Y>
</DisplayBitmap>
```

CUSTOMIZE LOGO ON GXP1450

Example 1: using string as logo on GXP1450.

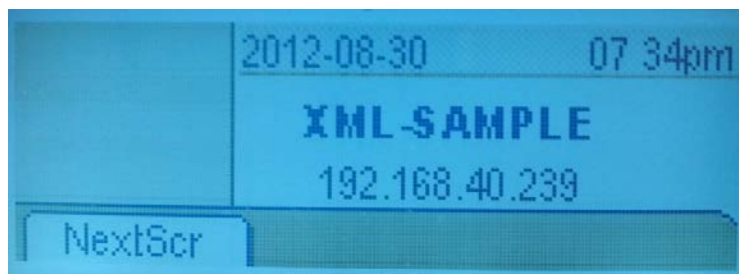


Figure 18: GXP1450 Logo Customization - String

To customize the string in GXP1450 as above, firstly find the section in the GXP1450 default idle screen template.

```
<!-- COMPANY LOGO -->
<DisplayString font = "bold" halign="center" width="105">
    <DisplayStr>$b</DisplayStr>
    <X>0</X>
    <Y>18</Y>
</DisplayString>
```

Then modify the following places and get the modified version below:

- In the following line, replace \$b with the string you would like to show up on the screen
`<DisplayStr>$b</DisplayStr>`
- Adjust `<X>X location</X>` to fit the string in logo area horizontally;
- Adjust `<Y>Y location</Y>` to fit the string in logo area vertically.

```
<DisplayString font = "bold" halign="center" width="105">
  <DisplayStr>XML-SAMPLE</DisplayStr>
  <X>0</X>
  <Y>18</Y>
</DisplayString>
```

Example 2: On GXP1450 you could also use .bmp file as logo with limited size.



Figure 19: GXP1450 Logo Customization - BMP File

To customize the logo in GXP1450 as above, firstly find the section in the GXP1450 default idle screen template.

```
<!-- COMPANY LOGO -->
<DisplayString font = "bold" halign="center" width="105">
  <DisplayStr>$b</DisplayStr>
  <X>0</X>
  <Y>18</Y>
</DisplayString>
```

Then modify it as follows,

```
<DisplayBitmap isfile="false">
  <Bitmap>Qk3yAAAAAAAAAD4AAAAoAAAAWgAAAA8AAAABAAEAAAAALQAAAAAAAAAAAAA
  AAAAAAAAAAAAAAAP///wD////////8D//4/Px+Px/H///8D//4cPwYPwCH///8D//4APwAPwAH///8D//4AP4Af4AP//
  /8D//8Af4Af4AP///8D//4cPw8P4cP///8D//gcDA8DwcD///8D//AIAAYBacB///8D//AAAAAIA///8D//gADAACAAA//
  8D///B//B//B///8D///h//D//B///8D///j//D//B///8D///3//n//j///8A=</Bitmap>
  <X>10</X>
  <Y>16</Y>
</DisplayBitmap>
```

Similar to customizing logo in GXP21xx, in the above code,

- Copy and paste the base64-encoded bmp file in <Bitmap> element
<Bitmap>base64-encoded bmp information here</Bitmap>
- Adjust **<X>X location</X>** to fit the image in logo area horizontally;
- Adjust **<Y>Y location</Y>** to fit the image in logo area vertically.

CUSTOMIZE LOGO ON GXP140x



Figure 20: GXP140x Logo Customization

To customize the string in GXP140x as above, firstly find the section in the GXP140x default idle screen template.

```
<!-- COMPANY NAME -->
<DisplayString font="unifont" halign="center" width="128" bgcolor="White">
  <DisplayStr>$b</DisplayStr>
  <X>0</X>
  <Y>12</Y>
</DisplayString>
```

Then modify the following places and get the modified version below:

- In the following line, replace \$b with the string you would like to show up on the screen,
`<DisplayStr>$b</DisplayStr>`
- Adjust `<X>X location</X>` to fit the string in logo area horizontally
- Adjust `<Y>Y location</Y>` to fit the string in logo area vertically

```
<DisplayString font="unifont" halign="center" width="128" bgcolor="White">
  <DisplayStr>XML-GXP1400</DisplayStr>
  <X>0</X>
  <Y>12</Y>
</DisplayString>
```

DISABLE `<FwdAll>` `<CnclFw>` SOFTKEY ON GXP140x

When account is registered on GXP140x, FwdAll softkey or CancelFwd softkey will display by default. To hide the `<FwdAll>` `<CnclFw>` softkeys, find the following section and remove it from the default template.

```
<SoftKey>
  <Action>
    <FwdAll/>
  </Action>
  <displayCondition>
    <conditionType>callFwdCancelled</conditionType>
  </displayCondition>
</SoftKey>

<SoftKey>
  <Action>
    <CancelFwd/>
  </Action>
  <displayCondition>
    <conditionType>callFwded</conditionType>
  </displayCondition>
</SoftKey>
```

EXTEND ACCOUNT LABEL LENGTH ON GXP1450



Figure 21: Extend Account Label Length for GXP140x

Users could customize account label length so it could fit longer account name on the GXP1450 screen. To customize the screen as above, the account bar length needs to be adjusted and the logos used to display on that area needs to be repositioned. The following table lists all the changes to be made on the GXP1450 default template.

Table 19: Changes to Extend Account Label on GXP1450

Original Code in Template	Modified Code
<pre><Screen> <LeftStatusBar> <Layout width="57"> <DisplayBitmap isfile="true"> <Bitmap>/app/resource/etc/account_s_bg.bmp</Bit map></pre>	<pre><Screen> <LeftStatusBar> <Layout width="90"> <DisplayBitmap isfile="false"> <Bitmap>/app/resource/etc/account_s_bg.bmp</Bit map></pre>
<pre><Account height="21"> <DisplayElement> <DisplayBitmap isfile="true"> <Bitmap>/app/resource/etc/account_line_bg.bmp</ Bitmap> <X>4</X> <Y>0</Y> </DisplayBitmap> <DisplayRectangle x="1" y="0" width="4" height="19" bgcolor="Light6"> </DisplayRectangle></pre>	<pre><Account height="21"> <DisplayElement> <DisplayBitmap isfile="false"> <Bitmap>/app/resource/etc/account_line_bg.bmp</ Bitmap> <X>4</X> <Y>0</Y> </DisplayBitmap> <DisplayRectangle x="1" y="0" width="87" height="18" bgcolor="Light1"> </DisplayRectangle></pre>
<pre><DisplayElement> <DisplayString font="unifont" color="Black" bgcolor="Light5" height="16" width="48" renew-rate="second"> <DisplayStr>\$a</DisplayStr></pre>	<pre><DisplayElement> <DisplayString font="unifont" color="Black" bgcolor="Light5" height="16" width="81" renew-rate="second"> <DisplayStr>\$a</DisplayStr></pre>

<DisplayString font="unifont" width="48" height="16" color="Light2" bgcolor="Light5" shadow-color="White" renew-rate="second"> <DisplayStr>\$a</DisplayStr> <X>6</X> <Y>1</Y>	<DisplayString font="unifont" width="81" height="16" color="Light2" bgcolor="Light5" shadow-color="White" renew-rate="second"> <DisplayStr>\$a</DisplayStr> <X>6</X> <Y>1</Y>
<DisplayBitmap isfile="true" bgcolor="Light6" renew-rate="minute"> <Bitmap>/app/resource/icon/vm1.bmp</Bitmap> <X>39</X> <Y>1</Y>	<DisplayBitmap isfile="true" bgcolor="Light6" renew-rate="minute"> <Bitmap>/app/resource/icon/vm1.bmp</Bitmap> <X>72</X> <Y>1</Y>
<DisplayBitmap isfile="true" isflash="true" bgcolor="None" renew-rate="minute"> <Bitmap>/app/resource/icon/vm2.bmp</Bitmap> <X>39</X> <Y>1</Y>	<DisplayBitmap isfile="true" isflash="true" bgcolor="None" renew-rate="minute"> <Bitmap>/app/resource/icon/vm2.bmp</Bitmap> <X>72</X> <Y>1</Y>
<DisplayBitmap isfile="true" bgcolor="Light5" > <Bitmap>/app/resource/icon/im1.bmp</Bitmap> <X>39</X> <Y>1</Y>	<DisplayBitmap isfile="true" bgcolor="Light5" > <Bitmap>/app/resource/icon/im1.bmp</Bitmap> <X>72</X> <Y>1</Y>
<DisplayBitmap isfile="true" isflash="true" bgcolor="None" > <Bitmap>/app/resource/icon/im2.bmp</Bitmap> <X>39</X> <Y>1</Y>	<DisplayBitmap isfile="true" isflash="true" bgcolor="None" > <Bitmap>/app/resource/icon/im2.bmp</Bitmap> <X>72</X> <Y>1</Y>
<DisplayBitmap isfile="true" bgcolor="Light5" > <Bitmap>/app/resource/icon/im_vm1.bmp</Bitmap> > <X>39</X> <Y>1</Y>	<DisplayBitmap isfile="true" bgcolor="Light5" > <Bitmap>/app/resource/icon/im_vm1.bmp</Bitmap> > <X>72</X> <Y>1</Y>
<DisplayBitmap isfile="true" isflash="true" bgcolor="None" > <Bitmap>/app/resource/icon/im_vm2.bmp</Bitmap> > <X>39</X> <Y>1</Y>	<DisplayBitmap isfile="true" isflash="true" bgcolor="None" > <Bitmap>/app/resource/icon/im_vm2.bmp</Bitmap> > <X>72</X> <Y>1</Y>
<DisplayString font="unifont" halign="right" width="50" bgcolor="White" fgcolor="Light6" height="12"> <DisplayStr>\$T</DisplayStr>	<DisplayString font="unifont" halign="right" width="37" bgcolor="White" fgcolor="Light6" height="12"> <DisplayStr>\$T</DisplayStr>

<X>72</X> <Y>-1</Y>	<X>52</X> <Y>-1</Y>
<DisplayString font = "bold" halign="center" width="105"> <DisplayStr>\$b</DisplayStr> <X>0</X> <Y>18</Y> </DisplayString>	<DisplayString font = "bold" halign="left" width="105"> <DisplayStr>\$b</DisplayStr> <X>0</X> <Y>18</Y> </DisplayString>
<DisplayString font="numberfont" halign="center" width="105" color="Dark3"> <DisplayStr>\$I</DisplayStr> <X>0</X> <Y>34</Y>	<DisplayString font="numberfont" halign="left" width="105" color="Dark3"> <DisplayStr>\$I</DisplayStr> <X>0</X> <Y>34</Y>
<DisplayString font="unifont" color="Dark3" halign="center" width="105" bgcolor="White"> <DisplayStr>\$I</DisplayStr> <X>0</X> <Y>30</Y>	<DisplayString font="unifont" color="Dark3" halign="left" width="105" bgcolor="White"> <DisplayStr>\$I</DisplayStr> <X>0</X> <Y>30</Y>
<DisplayString font="unifont" color="Dark3" width="105" halign="center" bgcolor="White"> <DisplayStr>\$c</DisplayStr> <X>0</X> <Y>30</Y>	<DisplayString font="unifont" color="Dark3" width="105" halign="left" bgcolor="White"> <DisplayStr>\$G Miss Calls</DisplayStr> <X>0</X> <Y>30</Y>
<DisplayString font="unifont" halign="center" color="Dark3" width="105" bgcolor="White"> <DisplayStr>\$v</DisplayStr> <X>0</X> <Y>30</Y>	<DisplayString font="unifont" halign="center" color="Dark3" width="105" bgcolor="White"> <DisplayStr>Wrong Power!</DisplayStr> <X>0</X> <Y>30</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/icon_save.bmp</Bitmap> ap> <X>107</X> <Y>12</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/icon_save.bmp</Bitmap> ap> <X>73</X> <Y>12</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/dnd2.bmp</Bitmap> <X>107</X> <Y>12</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/dnd2.bmp</Bitmap> <X>73</X> <Y>12</Y>
<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/dnd.bmp</Bitmap> <X>107</X>	<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/dnd.bmp</Bitmap> <X>73</X>

<Y>12</Y>	<Y>12</Y>
<DisplayBitmap isfile="true" > <Bitmap>/app/resource/icon/network_down2.bmp</Bitmap> <X>107</X> <Y>12</Y>	<DisplayBitmap isfile="true" > <Bitmap>/app/resource/icon/network_down2.bmp</Bitmap> <X>73</X> <Y>12</Y>
<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/network_down.bmp</Bitmap> <X>107</X> <Y>12</Y>	<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/network_down.bmp</Bitmap> <X>73</X> <Y>12</Y>
<Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>107</X> <Y>12</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>	<Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>73</X> <Y>12</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_noanswer.bmp</Bitmap> <X>107</X> <Y>28</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_noanswer.bmp</Bitmap> <X>73</X> <Y>28</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy.bmp</Bitmap> <X>107</X> <Y>28</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy.bmp</Bitmap> <X>73</X> <Y>28</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy_noanswer.bmp</Bitmap> <X>107</X> <Y>28</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy_noanswer.bmp</Bitmap> <X>73</X> <Y>28</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_all.bmp</Bitmap> <X>107</X> <Y>28</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_all.bmp</Bitmap> <X>73</X> <Y>28</Y>
<Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>107</X> <Y>28</Y> <displayCondition>	<Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>73</X> <Y>28</Y> <displayCondition>

<conditionType>keypadLock</conditionType> </displayCondition>	<conditionType>keypadLock</conditionType> </displayCondition></Y>
<DisplayBitmap isfile="true" > <Bitmap>/app/resource/icon/headset.bmp</Bitmap> > <X>91</X> <Y>12</Y>	<DisplayBitmap isfile="true" > <Bitmap>/app/resource/icon/headset.bmp</Bitmap> > <X>73</X> <Y>28</Y>
<Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>91</X> <Y>12</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>	<Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>73</X> <Y>28</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/coredump.bmp</Bitmap> > <X>107</X> <Y>28</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/coredump.bmp</Bitmap> > <X>73</X> <Y>28</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/lock_g.bmp</Bitmap> <X>107</X> <Y>28</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/lock_g.bmp</Bitmap> <X>73</X> <Y>28</Y>

EXTEND ACCOUNT LABEL LENGTH ON GXP2100

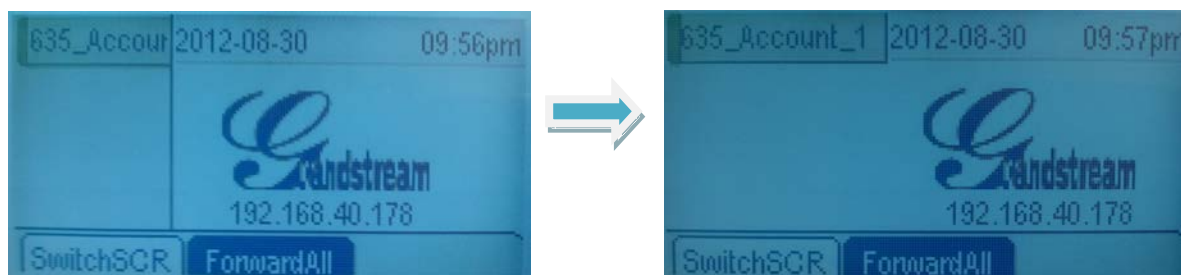


Figure 22: Extend Account Label Length for GXP2100

Users could customize account label length so it could fit longer account name on the GXP2100 screen. To customize the screen as above, the account bar length needs to be adjusted and the logos used to display on that area needs to be repositioned. The following table lists all the changes to be made on the GXP2100 default template.

Table 20: Changes to Extend Account Label on GXP2100

Original Code in Template	Modified Code
<Screen> <LeftStatusBar> <Layout width="57"> <DisplayBitmap isfile="true"> <Bitmap>/app/resource/etc/account_s_bg.bmp</Bitmap> </Layout>	<Screen> <LeftStatusBar> <Layout width="77"> <DisplayBitmap isfile="false"> <Bitmap>/app/resource/etc/account_s_bg.bmp</Bitmap> </Layout>
<DisplayElement> <DisplayBitmap isfile="true"> <Bitmap>/app/resource/etc/account_line_bg.bmp</Bitmap> </DisplayElement>	<DisplayElement> <DisplayBitmap isfile="false"> <Bitmap>/app/resource/etc/account_line_bg.bmp</Bitmap> </DisplayElement>
<DisplayRectangle x="1" y="0" width="4" height="19" bgcolor="Light6"></DisplayRectangle> <DisplayBitmap isfile="true" renew-rate="second" isrenew="true"> <Bitmap>/app/resource/etc/account_r.bmp</Bitmap> </DisplayElement>	<DisplayRectangle x="1" y="1" width="75" height="17" bgcolor="Dark3"></DisplayRectangle> <DisplayBitmap isfile="true" renew-rate="second" isrenew="true"> <Bitmap>/app/resource/etc/account_r.bmp</Bitmap> </DisplayElement>
<DisplayElement> <DisplayString font="unifont" color="Black" bgcolor="Light5" height="16" width="48" renew-rate="second"> <DisplayStr>\$a</DisplayStr> <X>6</X> <Y>1</Y>	<DisplayElement> <DisplayString font="unifont" color="Black" bgcolor="Light5" height="16" width="69" renew-rate="second"> <DisplayStr>\$a</DisplayStr> <X>6</X> <Y>1</Y>
<DisplayString font="unifont" width="48" height="16" color="Light2" bgcolor="Light5" shadow-color="White" renew-rate="second"> <DisplayStr>\$a</DisplayStr> <X>6</X> <Y>1</Y>	<DisplayString font="unifont" width="69" height="16" color="Light2" bgcolor="Light5" shadow-color="White" renew-rate="second"> <DisplayStr>\$a</DisplayStr> <X>6</X> <Y>1</Y>
<Bitmap>/app/resource/icon/vm2.bmp</Bitmap> <X>39</X> <Y>1</Y>	<Bitmap>/app/resource/icon/vm2.bmp</Bitmap> <X>59</X> <Y>1</Y>
<Bitmap>/app/resource/icon/vm1.bmp</Bitmap> <X>39</X> <Y>1</Y>	<Bitmap>/app/resource/icon/vm1.bmp</Bitmap> <X>59</X> <Y>1</Y>
<Bitmap>/app/resource/icon/im1.bmp</Bitmap>	<Bitmap>/app/resource/icon/im1.bmp</Bitmap>

<X>39</X> <Y>1</Y>	<X>59</X> <Y>1</Y>
<Bitmap>/app/resource/icon/im2.bmp</Bitmap> <X>39</X> <Y>1</Y>	<Bitmap>/app/resource/icon/im2.bmp</Bitmap> <X>59</X> <Y>1</Y>
<Bitmap>/app/resource/icon/im_vm1.bmp</Bitmap> > <X>39</X> <Y>1</Y>	<Bitmap>/app/resource/icon/im_vm1.bmp</Bitmap> > <X>59</X> <Y>1</Y>
<Bitmap>/app/resource/icon/im_vm2.bmp</Bitmap> > <X>39</X> <Y>1</Y>	<Bitmap>/app/resource/icon/im_vm2.bmp</Bitmap> > <X>59</X> <Y>1</Y>
<DisplayString font="unifont" haligh="right" width="50" bgcolor="White" fgcolor="Light6"> <DisplayStr>\$T</DisplayStr> <X>72</X> <Y>1</Y>	<DisplayString font="unifont" haligh="right" width="50" bgcolor="White" fgcolor="Light6"> <DisplayStr>\$T</DisplayStr> <X>52</X> <Y>1</Y>
<Bitmap>/app/resource/logo/gs_logo.bmp</Bitmap> > <X>17</X> <Y>26</Y> </DisplayBitmap>	<Bitmap>/app/resource/logo/gs_logo.bmp</Bitmap> > <X>12</X> <Y>26</Y> </DisplayBitmap>
<DisplayString font="unifont" color="Dark3" width="105" haligh="center" bgcolor="White"> <DisplayStr>\$c</DisplayStr> <X>0</X> <Y>60</Y>	<DisplayString font="unifont" color="Dark3" width="105" haligh="center" bgcolor="White"> <DisplayStr>\$G Miss Calls</DisplayStr> <X>0</X> <Y>60</Y>
<DisplayString font="unifont" haligh="center" color="Dark3" width="105" bgcolor="White"> <DisplayStr>\$v</DisplayStr> <X>0</X> <Y>60</Y>	<DisplayString font="unifont" haligh="center" color="Dark3" width="105" bgcolor="White"> <DisplayStr>Use 5V Power</DisplayStr> <X>0</X> <Y>60</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/dnd2.bmp</Bitmap> <X>107</X> <Y>19</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/dnd2.bmp</Bitmap> <X>87</X> <Y>19</Y>
<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/dnd.bmp</Bitmap> <X>107</X>	<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/dnd.bmp</Bitmap> <X>87</X>

<Y>19</Y>	<Y>19</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/icon_save.bmp</Bitmap> <X>107</X> <Y>19</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/icon_save.bmp</Bitmap> <X>87</X> <Y>19</Y>
<DisplayBitmap isfile="true" > <Bitmap>/app/resource/icon/network_down2.bmp</Bitmap> <X>107</X> <Y>19</Y>	<DisplayBitmap isfile="true" > <Bitmap>/app/resource/icon/network_down2.bmp</Bitmap> <X>87</X> <Y>19</Y>
<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/network_down.bmp</Bitmap> <X>107</X> <Y>19</Y>	<DisplayBitmap isfile="true" isflash="true"> <Bitmap>/app/resource/icon/network_down.bmp</Bitmap> <X>87</X> <Y>19</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>107</X> <Y>19</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/empty.bmp</Bitmap> <X>87</X> <Y>19</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_noanswer.bmp</Bitmap> <X>107</X> <Y>37</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_noanswer.bmp</Bitmap> <X>87</X> <Y>37</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy.bmp</Bitmap> <X>107</X> <Y>37</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy.bmp</Bitmap> <X>87</X> <Y>37</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy_noanswer.bmp</Bitmap> <X>107</X> <Y>37</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_busy_noanswer.bmp</Bitmap> <X>87</X> <Y>37</Y>
<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_all.bmp</Bitmap> <X>107</X> <Y>37</Y>	<DisplayBitmap isfile="true"> <Bitmap>/app/resource/icon/fwd_all.bmp</Bitmap> <X>87</X> <Y>37</Y>
<X>107</X>	<X>87</X>

<Y>37</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>	<Y>37</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>
<Bitmap>/app/resource/icon/headset.bmp</Bitmap> > <X>107</X> <Y>55</Y> <displayCondition> <conditionType>headsetMode</conditionType> </displayCondition>	<Bitmap>/app/resource/icon/headset.bmp</Bitmap> > <X>87</X> <Y>55</Y> <displayCondition> <conditionType>headsetMode</conditionType> </displayCondition>
<Bitmap>/app/resource/icon/lock_g.bmp</Bitmap> <X>107</X> <Y>55</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>	<Bitmap>/app/resource/icon/lock_g.bmp</Bitmap> <X>87</X> <Y>55</Y> <displayCondition> <conditionType>keypadLock</conditionType> </displayCondition>

DISABLE IDLE SCREENS

Users could disable the weather/currency/stock screen on the phone without using XML idle screen customization. Please refer to the FAQ in the link below:

<http://www.grandstream.com/support/faq/gxp-enterprise-phone-series#faqGXP11>

Once the application is turned off, the corresponding screen will disappear.