

imotion

Ximple

Ximple 2.0 Description

Technical Description

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Modification management

Version	Date	Name	Dept.	Modifications	State
0.1	2013-07-30	RAN	SW	Initial version	draft
1.1	2014-03-19	RAN	SW	Added chapter on Ximple Request	draft

Review

Version	Date	Name	Dept.	Remarks
0.1	2013-08-07	WES	SW	Minor updates in the first chapters to match new system architecture.
1.1	2014-03-24	WES	SW	Clarified Ximple Request handling and cleaned up some old chapters.

Release

Version	Date	Name	Dept.	Remarks
1.0	2013-08-07	WES	SW	Initial release matching Infomedia 2.0.1332
2.0	2014-03-24	WES	SW	Added Ximple Request

1 Introduction

1.1 Scope

This document is a technical description of XIMPLE protocol. It gives all the details to communicate with the Gorba TFT Monitors using the XIMPLE protocol.

The goal of this document is to define the protocol used to control the Gorba TFT Monitor.

This document describes XIMPLE version 2.0.0.

1.2 Intended Audience

This document is mainly addressed to software developers due to its technical contents.

2 Product Overview

2.1 Overview

The XIMPLE protocol is used as the means to communicate between an external source of information and the display devices. Protran, which is a Gorba application, creates a XIMPLE based on the information from an external source. This XIMPLE is then sent to the TFT which decodes and shows the information. XIMPLE defines an XML structure (a datagram in which the fields are represented by XML tags) that can encapsulate data.

2.2 Communication between components

The Gorba TFT Monitor implements a server listening on TCP port accept new TCP/IP connections. The default port used is 1598, it can be configured however. After a client, in our case an external system, has established a connection, it can start to send XIMPLE structures to the TFT Monitor. If required, the TFT monitor will send XIMPLE Requests.

It is up to the client system to reestablish the connection in case of disconnection.

After a new connection was accepted by the server, the client should provide the current information immediately. This is necessary to recover after a restart due to an update of the TFT Monitor. If the client doesn't provide this information, Infomedia will start sending XIMPLE Requests (see chapter 4 "Ximple Message Request").

An overview of this scenario is shown with the following example:

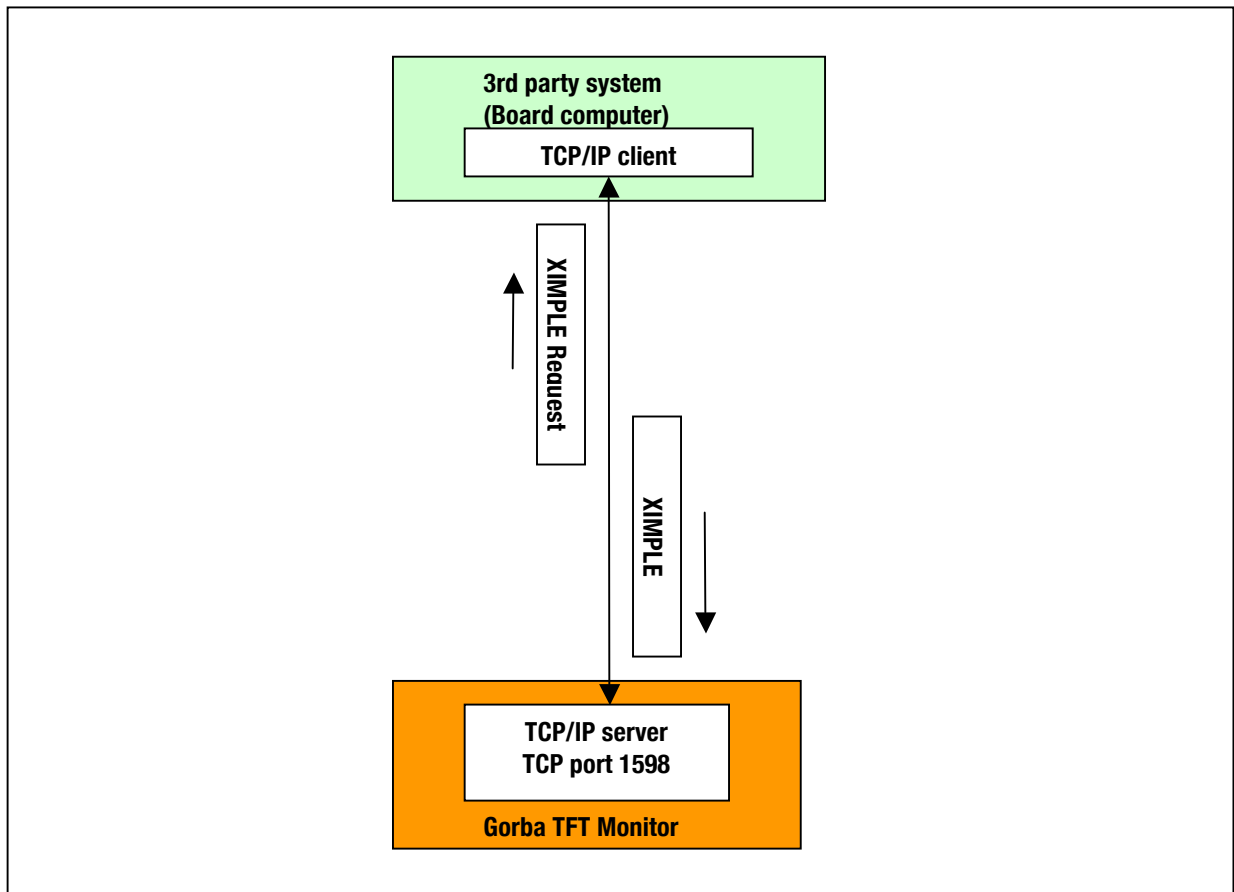


Figure 2-1 Communication chain overview

3 Protocol Description

XIMPLE is a set of XML elements grouped into a unique structure.

In order to be compliant with the XML standard, XIMPLE has to contain all its information in a unique root element and contain an XML header. In general XML attributes are not used. The only exception is the root element (`<Ximple>`) with the version information.

3.1 Ximple root

This root element is shown as follows:

```
<Ximple xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" Version="2.0.0">
```

The “Version” attribute represents the version of the XIMPLE structure itself. Any device must check the Version and present an error if the version of received XIMPLE frames does not match with the implemented protocol version.

3.2 XML Header

The header for each XIMPLE structure is:

```
<?xml version="1.0"?>
```

The “version” attribute represents the version of XML standard and the “encoding” attribute represents the character set used to write the XIMPLE structure.

UTF-8 encoding is recommended to be used. If the “encoding” attribute is missing, will be used the default value: “UTF-8”.

See <http://www.w3.org/TR/REC-xml/#sec-prolog-dtd> for more details.

3.3 Ximple body

The Ximple body is under the tag `<Cells>`. Each element has to be written in “camel case” (see <http://en.wikipedia.org/wiki/CamelCase>)

The following is an example of a Ximple structure.

```
<?xml version="1.0"?>
<Ximple xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema" Version="2.0.0">
  <Cells>
    <Cell Language="0" Table="12" Column="0" Row="17" />
    <Cell Language="0" Table="12" Column="0" Row="0">Marly-Cité</Cell>
  </Cells>
</Ximple>
```

Each cell is parsed to get the relevant information with a 3D structure of Table, Column and Row for a Language. The mapping is based on dictionary.xml.

3.3.1 `<Cells>`

This element represents the list of cells belonging to the TFT Monitor’s generic view.

Tag name	Sub-tags allowed	Attributes allowed
<code>Cells</code>	<ul style="list-style-type: none"><code>Cell</code>	None.

Table 3-1 Cells content

3.3.2 `<Cell>`

This is a container of information that represents a specific cell inside a specific table belonging to the generic view. The value of the cell is a string (an empty string is allowed). The string can contain numbers or other alphanumeric values.

Default value is an empty string.

Tag name	Sub-tags allowed	Attributes allowed
<code>Cell</code>	None.	<ul style="list-style-type: none"><code>Language</code> is the index of the language in the generic view<code>Table</code> The index of the table containing the specific cell belonging to a language<code>Column</code> The index of the column belonging to a table

		<ul style="list-style-type: none"> • Row The index of the row belonging to a table
--	--	--

Table 3-2 Cell content

3.4 BBCode Formats

BBCode can be inserted in the value of the cell. The BBCode tags allowed within the value of the cell are as follows:

BBCode Tag	Description
[b]text[/b]	Text to be shown in bold
[i]text[/i]	Text to be shown in italic
[bl]text[/bl]	Text to be shown blinking
[color=xxx]text[/color]	Text to be shown in color xxx
[face=FaceName]text[/face]	Text to be shown with specific face "FaceName"
[br]	Indicates that a newline must be inserted here
[size=xxx]text[/size]	Text to be shown in font size xxx
[time=format]	Current system time to be shown in specified format (see below)
[a]alt-1[[]alt-2[[]...[[]alt-n[/a]	Alternating text. The block is shown as alt-1, alt-2 or alt- <i>n</i> at a reasonable interval
[img=Imagepath]	Inserts an image found at the specified path*
[vid=Videopath]	Inserts a video found at the specified path*

* Paths have to be absolute paths when sent to Infomedia.

BBCode tags can be nested, but have to be balanced (for the tags with an end tag)

3.4.1 [time] Tag

The [time] tag takes as an argument the format with which the current system time will be formatted to display.

All .NET time and date formats are allowed, here a few examples:

Format	Output on Sunday, 22.09.2013 at 14:23:56
dd.MM.yyyy	22.09.2013
M/d/yyyy	9/22/2013
dddd, MMMM d, yyyy	Sunday, September 22, 2013
HH:mm	14:23
HH:mm:ss	14:23:56
h:mm tt	2:23 PM
ddd, dd.MM.yyyy HH:mm	Sun, 22.09.2013 14:23

A complete list of possible formats is available under <http://msdn.microsoft.com/en-us/library/8kb3ddd4.aspx> (it is strongly suggested, not to use the "fff" or "FFF" formats since they would be re-rendered with each frame and would not produce a good visual presentation).

4 Ximple Message Request

To ensure that Infomedia always contains the latest Ximple data from its source (the application that is sending Ximple to Infomedia) Infomedia requests the current Ximple information at start-up.

4.1 Ximple Message Request Structure

The Ximple Message Request is broadcast by the Infomedia Application upon start-up every 10 seconds until a Ximple is received from a source. Once a Ximple is received from a source, the Ximple Message Request is not sent again until a restart of Infomedia occurs.

The structure of the Ximple Message Request is as follows:

```
<?xml version="1.0"?>
<XimpleMessageRequest xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" />
```

The Ximple Message Request is an empty object sent by Infomedia to the Ximple source.

4.2 Expected Behavior of Ximple Source

When the Ximple source receives a Ximple Message Request, it must send a Ximple with the structure defined in chapter 3. This Ximple object must contain all the cells with their current values as it is known by the Ximple source. Once a valid Ximple is sent to Infomedia by the source, Infomedia stops sending the Ximple Message Request until it is restarted.