i-Page
File Connection
Protocol
Version 1.0

WiPath Communications Ltd

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Introduction

i-Page

Message Dispatch Software for Paging, Text and Email Messaging

i-Page is a communications software for the dispatching of text, SMS or email messages to a variety of wireless messaging devices. It is primarily designed for networked client/server operations.

i-Page utilizes TCP/IP, COM, Web and file interface communications between the server and clients, enabling clients on a local and/or wide area network to send messages to pagers and other text capable wireless devices such as cellular phones, MDTs, etc.

i-Page Server

The i-Page Server software is located on a centralized PC with access to the carriers to which it is to communicate. The server may have any number of carriers of various protocols and communications mediums and which may be local or remote (see Communications protocols).

Every user must have an account created on the server to be able to access the server. Levels of access are controlled by the users' rights, set by the system administrator.

Once they have an account, every user can create their own list of contacts, message templates, schedules and reports. They can also create their own contact groups to allow them to send a single message to multiple contacts in one hit. The group can consist of contacts of different types connected to different carriers.

The system administrator can create contacts, contact groups, message templates, schedules and reports that are visible to all accounts. The user can use those objects in the same way as their own, but they cannot edit or delete them.

All contacts, contact groups, message templates, schedules and reports are stored on the server.

The server provides COM, TCP/IP and file interface connection to enable clients to communicate with it. The user on the client can select a connection type suitable to them.

i-Page Clients

i-Page Server can connect simultaneously to different types of clients: local COM client, TCP/IP client, Web client, file interface client, serial port client and HTTP client. Clients may be located on the same computer as the server or anywhere on the LAN or WAN with normal access to the server. To access the server the client must complete the log on procedure. If the authentication is successful the server sends to the client all application and account settings and all the message objects (contacts, contact groups, message templates, schedules, reports) that are associated with that account. Exceptions are file and serial port clients, because they do not need authentication and cannot download any settings from the server.

i-Page File Client

An i-Page file client application is a type of the client that connects to i-Page Server through the computer file system. It can send paging, SMS and email messages and receive a result by placing and retrieving message files into and from designated folders.

Connection

Unlike other types of i-Page Server connections, the file connection is not initiated by the client. It is started by enabling the file connection on the server.

The client does not need to pass authentication and it is logged on the server as an anonymous file client. Regardless of the number of clients that are using it, the file connection is always counted as one against the server's licensed number of connections.

Unlike in other types of i-Page Server connections, the client is not able to access and download server's settings.

In order for the file connection to work, the client and the server must agree on some common settings. This cannot be done through their communication, but has to be set separately on the client and on the server.

Common Settings

Message In Folder

The client and the server must agree on the folder in which the client will put message files for the server. These files will be retrieved by the server in a regular polling intervals, decoded and sent to the designated carrier as a paging, SMS or email message.

To set that folder on i-Page Server, see "i-Page Server Settings – Send Messages"

The server maintains this folder and all the message files are deleted as soon as they are read by the server.

Result Message Folder

If the client wants to receive the result of the sent messages, the administrator must select the "Return Message Result" option on i-Page Server.

The client and the server must agree on the folder in which the server will put sent message result files. These files can then be retrieved by the client to see the result of the send message.

To set that folder on i-Page Server, see "i-Page Server Settings – Message Result".

This folder is maintained by the client. The server also has an option for the server administrator to delete files in the folder.

Saved Messages Folder

A default server's behaviour is to delete all messages from the 'message in' folder as soon as they

are read. If the client wants to change that behaviour, the administrator must uncheck the "Delete Send Message Files" check box on the server settings.

The client and the server must agree on the folder in which the server will move sent message files, after it reads them from the 'message in folder'.

To set that folder on i-Page Server, see "i-Page Server Settings – Save Sent Messages"

This folder is maintained by the client. The server also has an option for the server administrator to delete files in the folder.

File Encoding

The client and the server must agree on the character encoding they are using to save and read message files.

The server is enabled for 3 types of encoding:

- ASCII
- ANSI – default system code page
- UTF-8

To set the character encoding scheme on the server, see "i-Page Server – File Encoding".

After you set the server's file character encoding, the server expects all the message files that come from the client to use the same encoding.

> **Note:** If the file is formatted using UTF-8, then the **first 3 bytes** on **the first line** are: **0xEF 0xBB 0xBF**.

Message Files

Two types of files are used in the communication between the server and its clients:

- Message In File
- Result Message File

Those files can be stored into three different folders:

- Message In Folder
- Result Message Folder
- Save Sent Message Folder

All files that are used in communication between the server and its clients through the file communication, must follow a pre-defined format. The format and the structure of messages files are defined by this protocol.

Message In

A 'message in' is the message that a client sends to the server to be despatched to carriers as a paging, SMS or email message.

File Fields Definition

The file has 7 fields and they are defined as follows:

Position	Name	Required	Value Required
1	MsgId	Yes	No
2	Address	Yes	Yes
3	Msg	Yes	Yes
4	Carrier	No	No
5	Subject	No	No
6	Priority	No	No
7	Age	No	No

A required field must be present in every message.

A field with required value must have a valid value. Other fields can be empty.

File Fields Content

Name	Content	Values
MsgId	Contains a transaction id, assigned by the sender	**Default**: *0*
Address	Pager id, mobile number or email address of the receiver	Must have a valid value
Msg	Actual paging, SMS or email message text	Cannot be empty
Carrier	System assigned id of a carrier.	**Default**: carrier id set by the administrator
Subject	A subject of an email message	Used only for email messages
Priority	The server's message queue priority	**Default**: *Normal (4)*
Age	Time in minutes that the server will keep an unsent message before it is discarded	**Default**: *120 minutes*

The message id ("MsgId") field is assigned by the client. If the client wants to follow up on the messages it sends, it can used it as a message identifier. The server always returns the same message id in the result message.

Otherwise, it can be empty (must be present) or '0'.

> *Warning:* *Negative numbers cannot be used as message identifiers. It could result in unpredictable behaviour, because the server uses negative numbers for its test messages.*

The message field ("Msg") can contain any character found in the selected encoding character set.

If the message field contains a comma or a double-quote character, it must be enclosed in double-quotes. In that case any double-quote in the message must be duplicated.

If the message contains line breaks characters (**CRLF**), they must be replaced with "*\n*" (without quotes).

Message Types

The server accepts 5 different types of messages:

1. Complete With Header
2. Partial With Header
3. Complete Without Header
4. Partial without Header
5. Basic Message

Complete With Header

File has two lines of text, delimited by line break characters – **CR** (*0xD*; *#13*) **LF**(*0xA*; *#10*)

The first line is a file header, and contains <u>names of the fields</u>, delimited with the comma character ',' (*0x2C, #44*)

All field names must be present

The second line contains <u>fields values</u>, delimited with the comma character ',' (*0x2C, #44*)

All field values must be present, but some of them can contain empty values

Fields can be entered in any order, but the header field names position must correspond to the position of their respective field values

Example

"Subject" field is empty

MsgId,Address,Msg,Carrier,Subject,Priority,Age<CRLF>

456,1234567,"Hello world, from ""WiPath"" and 'kiwi' programmers.",2,,4,120

All fields have values

MsgId,Address,Msg,Carrier,Subject,Priority,Age<CRLF>

456,john@company.com,"Hello world, from ""WiPath"" and 'kiwi' programmers.",4,Hello Message,4,120

Partial With Header

File has two lines of text, delimited by line break characters – **CR** (*0xD*; *#13*) **LF**(*0xA*; *#10*)

The first line is a file header, and contains <u>names of the fields</u>, delimited with the comma character ',' (*0x2C, #44*)

Only required field names must be present and all other are optional and depend on the user's choice

The second line contains <u>fields values</u>, delimited with the comma character ',' (*0x2C, #44*)

All field values, which names appear in the header must be present, but some of them can contain empty values

Fields can be entered in any order, but the header field names position must correspond to the position of their respective field values

Example

> "Subject" and "Age" fields are missing
>
> *MsgId,Address,Msg,Carrier,Priority<CRLF>*
>
> *456,1234567,"Hello world, from ""WiPath"" and 'kiwi' programmers.",2,4*
>
> "Priority" and "Carrier" fields are missing
>
> *MsgId,Address,Msg,Subject,Age<CRLF>*
>
> *456,john@company.com,"Hello world, from ""WiPath"" and 'kiwi' programmers.",Hello Message,120*

Complete Without Header

File has only one line of text.

The line contains fields values, delimited with the comma character ',' (*0x2C, #44*)

All field values must be present, but some of them can contain empty values

Field position must be the same as defined in "File Fields Definition"

Example

> "Subject", "Priority" and "Age" fields are present but they do not have value
> *456,1234567,"Hello world, from ""WiPath"" programmers.",2,,,*
>
> All fields have value
> *456,john@company.com,"Hello world, from ""WiPath"" and 'kiwi' programmers.",4,Hello Message,4,120*

Partial Without Header

File has only one line of text

The line contains fields values, delimited with the comma character ',' (**0x2C - #44**)

Only required field values must be present and all others are optional and depend on the user's choice

Field position must be the same as defined in "File Fields Definition"

If a value for a field is entered, all other fields that precede it must be present (even if empty).

Example

"Subject" and "Priority" and "Age" fields are not shown because they do not have value

456,1234567,"Hello world, from ""WiPath"" and 'kiwi' programmers.",2

"Subject" and "Priority" fields do not have a value, but must be present because the "Age" field, which comes after them, has a value

456,john@company.com,"Hello world, from ""WiPath"" and 'kiwi' programmers.",4,,,120

Basic Message

File has only one line of text

The line contains fields values, delimited with the comma character ',' (*0x2C, #44*)

Only required field values are present (**MsgId**, **Address**, **Msg**).

Field position must be the same as defined in "File Fields Definition"

Example

Only required fields are present and have values

456,1234567,"Hello world, from ""WiPath"" and 'kiwi' programmers."

Only required fields are present, but "MsgId" does not have a value

,john@company.com,"Hello world, from ""WiPath"" and 'kiwi' programmers.",4,,,120

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Message Result

A 'message result' is the message that the server returns to a client as a result of the message previously sent by the client.

If the user has selected the option to receive a result of the send message operation, the server creates a file and place it in the designated folder.

File Structure

File has two lines of text, delimited by line break characters – **CR** (*0xD*; *#13*) **LF**(*0xA*; *#10*)

The first line is a file header, and contains names of the fields, delimited with the comma character ',' (*0x2C, #44*)

All field names are present

The second line contains fields values, delimited with the comma character ',' (*0x2C, #44*)

All field values are present, and all of them contain valid values.

Fields are always entered in the defined order, and the header field names position corresponds to the position of their respective field values

File Fields

The file has 7 fields and they are defined as follows:

Position	Name	Field Content
1	MsgId	The same transaction id, that the client has assigned in the message sent to the server
2	Address	Address of the receiver that the message was sent to
3	Msg	Actual paging, SMS or email message text
4	ResultCode	System code for the result of the send operation
5	ResultText	User friendly description of the result of the send operation
6	DateReceived	Date when the server received the message from the client
7	DateSent	Date when the message was sent to a carrier or error was returned to the client

All fields are present in every message and they have valid values.

The message field may contain any character contained in the selected <u>encoding character set</u>.

If the message field contains a comma or a double-quote character, it will be enclosed in double-quotes. In that case any double-quote in the message will be duplicated.

If the message contains line breaks characters (**CRLF**), they are replaced with "**\n**" (without quotes).

i-Page Server Settings

Any client application can connect to i-Page Server through the file system. It can send paging, SMS and email messages and receive a result by placing and retrieving message files into and from designated folders.

To set the file interface connection, right-click on the i-Page Server icon in the system try and form the pop up menu select the "**System | Set System**" item. On the "Edit System" dialog select the "**File Interface**" item on the left-hand side of the dialog.
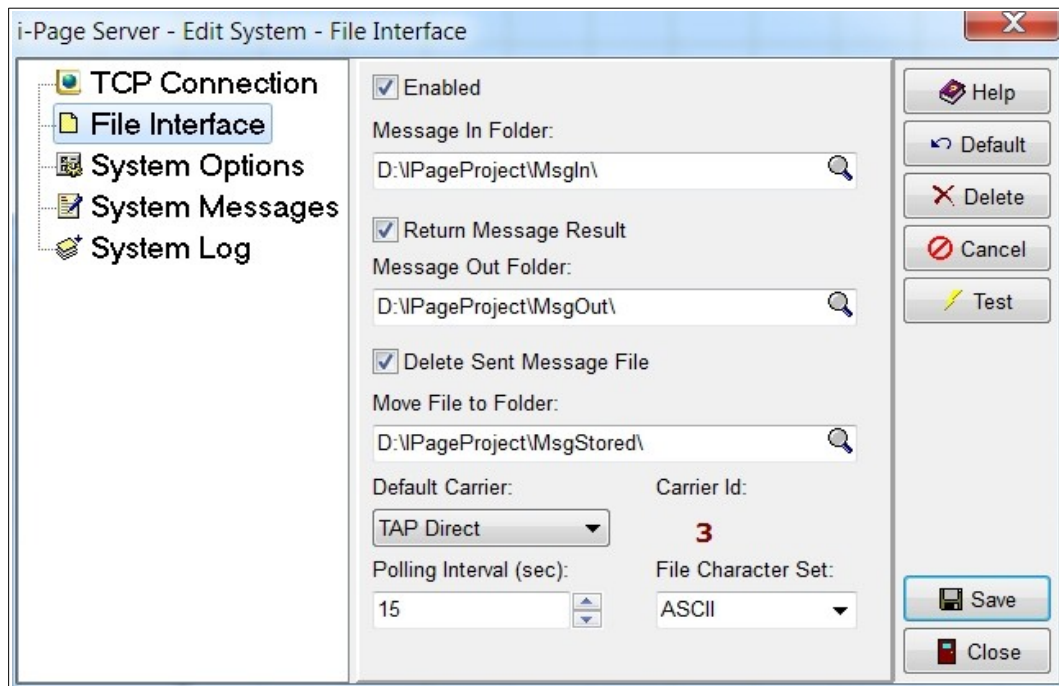
Send Messages

To send a message, place a file with the message into the "Message In Folder". For the format of the message file, see "Message Files – Message In"

To set the folder, either type the full path to the folder into the "Message In Folder" control or click on the 'find' icon 🔍 inside the control and find the folder through the usual "Browse For Folder" dialog.

Message Result

If you want to receive a file with the send message result, check the "Return Message Result" check box. For the format of the result message file, see "Message Files – Message Result"

To set the folder in which files with result messages will be placed, either type the full path to the folder into the "Message Out Folder" control or click on the 'find' icon 🔍 inside the control and find the folder through the usual "Browse For Folder" dialog.

Save Sent Messages

After the server reads a message from the 'message in folder', the message file is automatically deleted.

If you want to save the sent message file, UNCHECK the "Delete Sent Message File" check box and select a folder to store the sent messages in.

To set the folder, either type the full path to the folder into the "Move File to Folder" control or click on the 'find' icon 🔍 inside the control and find the folder through the usual "Browse For Folder" dialog.

If you do NOT want to save sent messages, check the "Delete Sent Message File" check box (default).

Default Carrier

The carrier field in the message file is an optional field. If the user does not enter a value for the message carrier, the system will use the default carrier.

To set the default carrier, select a carrier from the "Default Carrier" control.

File Encoding

To set a character encoding of the message file, select between the options in the "File Character Set" control.

File Encoding Options	Description
ASCII	Uses characters from the basic 7-bit ASCII encoding set
ANSI	Uses characters from the extended 8-bit ASCII set, defined as the current computer's code page
UTF-8	Uses UTF-8 Unicode character encoding

If the file is formatted using UTF-8, then the **first 3 bytes** on the **first line** are: **0xEF 0xBB 0xBF**. It is required by many text processing and spreadsheet applications in order to recognise UTF-8 format.

Polling Interval

To set the interval in which i-Page Server will check the message in folder for new messages, enter a number of **seconds** into the "Polling Interval" control.

Min: *5 seconds*

Max: *600 seconds (10 minutes)*

Default: *10 seconds*

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Enable File Connection

To enable the file connection, check the "Enabled" check box. As soon as the file connection is enabled, the server will start checking the message in folder for new messages on every polling interval.

Warning:

- *The system will not allow you to save the enabled file connection if any of the 3 folders (message in, message result, saved messages) have the same value.*

- *The value of the message result folder is not checked if the the "Return Message Result" is not selected.*

- *The value of the saved messages folder is not checked if the "Delete Sent Messages" is selected.*

Test File Interface

i-Page Server includes a tool for a complete test of the file connection. During the testing, a message file is created and stored into a 'message in' folder. It is then retrieved, decoded and processed. An actual message is sent, through the selected carrier to the selected address. A result message is created and stored into the 'result message' folder.

To test the file connection, press the "Test" button on the right-hand side of the "Edit File Interface" dialog. The "Message File Interface Test" dialog pops up.

Enter the receiver's address of the message you want to send into the "Enter Address" control.

Select a message format. There are five [message type](#) options to choose from:

- Complete with header
- Partial with header
- Complete without header
- Partial without header
- Basic message

If you select any of the partial options, the "Use Message Fields" control becomes enabled.

Select fields you want to include into the message.

> *Note: [Required message fields](#) are always selected and you cannot deselect them.*

Select a carrier from the "Select Carrier" control.

Type a message into the "Message" window. The message can include any printable character. It can also include quotations and you can insert one or more line breaks.

To see the actual formatted message, press the "Show" button.

To send the message to the selected address through the file interface, press the "Send" message.