



Provato Server Guide

*Enabling Mobile Messaging in J2EE
and .NET Applications*

(Version 1.2.3.a)

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Introduction

Scope

This is the administration guide for NCL's Provato Server. This guide is intended for both developers and administrators of the Provato Server.

This guide covers:

- Requirements – what you need before you get started
- Installation – takes you through the process of installing the software
- Configuration – configure the software and send test messages
- Manual – applications, routers and gateways

Provato Server

The Provato Server implements a mobile messaging service for applications, and manages and shares messaging resources across multiple applications.

The application interfaces, or APIs, to this service are via Web Services (SOAP/XML) or over JMS - Java Messaging Service.

NCL's Provato Server operates as a standalone UNIX or Windows NT/2000 background process or as a message layer within existing application servers such as JBOSS and BEA.

Provato Interfaces

A Provato provides a number of client interfaces

- SOAP/XML – for .NET, C/C++, Java, Perl
- JMS Interface – for higher volume message throughput from Java applications
- BEA WebLogic Workshop – special XML/queue interface for Web-Logic Workshop.

The Provato Interfaces or APIs are discussed in more detail in NCL's *Provato Programmers Guide*.

Vivato

Provato was previously called Vivato. Vivato is now a trademark of Vivato Inc, USA. Provato is a trademark of NCL Technologies Ltd.

Requirements

Hardware and Software Requirements

The Provato Server distribution is available from www.nclt.com in the download section of the website.

Provato Server is shipped in 4 installations packages

- **Windows Standalone** – shipped with application server, Java and embedded database. Provato Server can be installed as an NT service or run from the command line.
- **Linux Standalone** – shipped with application server, Java and database.
- **BEA Adaptor** – downloadable EAR file for BEA WebLogic 8.1. It is required that BEA WebLogic 8.1 is already installed. Java 1.4 is required.
- **JBOSS Adaptor** – downloadable EAR for JBOSS 3.2.3. It is required that Java and Jboss 3.2.3 are already be installed. Java 1.4 is required.

The recommended minimum configuration for Intel platforms (Windows or Linux) running the Provato server is a 2 GHz CPU, 256Mb, 80Gb space hard-disk space.

SMS Requirements

To send and receive SMS you will require one of the following:

- **Mobile Network Operator SMSC Access** – Typically used for very high volume messaging (up to 50 per second), this is an account set-up on the SMSC or Short Message Service Centre of a mobile/cellular network operator. The SMSC must support the SMPP 3.3 or 3.4, UCP 4.0 or CIMD 2.0 wire protocol and TCP/IP access to the SMSC is required.
- **SMS Service Provider Account** – Typically used for medium-volume messaging (1 to 10 a second), this requires an account set-up with an aggregator. An aggregator is an SMS service provider that typically sits in front of all national mobile/cellular network operators. This is generally a lower cost solution than going direct to the mobile network operator. The Service Provider must support the SMPP 3.3 or 3.4, UCP 4.0 or CIMD 2.0 wire protocol and TCP/IP access to the SMSC is required.
- **Cellular Device** – Typically used for low-volume messaging (up to 10 messages per minute), a cellular device contains a SIM card and is connected to the platform over a serial/RS232 port. NCL recommends the use of Siemens cellular modems such as the TC35.

NOTE: The Provato Server can connect and route messages to multiple SMSC connections, Service Providers and Cellular Devices concurrently.

MMS Requirements

Transmit

To send MMS you will require one of the following:

- **Mobile Network Operator MMSC Access** – Typically used for very high volume messaging (up to 50 per second), this is an account set-up on the MMSC or Multimedia Message Service Centre of a mobile/cellular network operator. The MMSC is a store and forward message centre. The MMSC must support MM7 and TCP/IP access to the MMSC is required.
- **Cellular Device** – Typically used for low volume messaging (up to 10 messages per minute), a cellular device contains a SIM card and is connected to the platform over a serial/RS232 port. NCL recommends the use of Siemens cellular modems such as the TC35.

Note that sending media content using a Cellular Device will require that the recipient collect the message by establishing a GPRS connection (WAP Push notifications are sent to the recipient).

Receive

To receive MMS you will require Mobile Network Operator MMSC Access as above.

Installation

This is the first step to getting the Provato Server up and running. You need to decide at this point which of the following installations you require:

- **Windows Standalone** – Quick install that will run Provato Server as an NT service or from the command line.
- **Linux Standalone** – Quick install that will run Provato Server as UNIX process
- **BEA Adaptor** – Run Provato within your existing BEA WebLogic 8.1 application server.
- **JBOSS Adaptor** – Run Provato within your existing Jboss 3.2.3 application server.

Windows Standalone Installation

The Windows Download is a self-extracting executable (.exe).

Download and run this executable. Follow the simple installation steps. The executable will add **Provato Server** option to the Windows Start Menu.

The Provato Service can be started from the command-line with menu option *Start Service* or it can be run as an NT Service using the menu option *Install NT Service*.

Starting the Provato Server as an NT Service will run the software as a background process, and automatically restart every time Windows is restarted.

To test that the server has been installed and run correctly, from the menu option select *Console* or enter the web address

<http://localhost:8080/provato-console>

in a browser. This will bring up the Console of the Provato Server in the web browser. To access the Provato console remotely, enter the address:

<http://myHost:8080/provato-console>

where *myHost* is the machine on which Provato has been started.

NOTE: that the server may take a minute to complete initialisation.

Please read the *Trouble Shooting Installation* for more information if the console does not appear in the browser.

Once the console is displayed in the browser, you have successfully installed the Provato Server. The next step is to configure the server. See *Configuration* for more details.

Linux Standalone Installation

The Linux Download is a compressed tar (.tar.gz) file.

Download this file from the www.nclt.com and copy into the directory where you want it installed. Uncompress the file using

```
$ tar -xvzf provato.version-jboss3.2.3.tar.gz
```

Once the files and directory structure have been extracted, change in to the directory

```
$ cd provato.version/jboss-3.2.3/bin
```

and then run the server from the command line using

```
$ ./provato.sh
```

To test that the server has been installed and run correctly, start a browser (Mozilla, Netscape, Internet Explorer) and enter the address

```
http://localhost:8080/provato-console
```

in a browser. This will bring up the administration console of the Provato Server in the web browser. To access the Provato console remotely, enter the address:

```
http://myHost:8080/provato-console
```

where *myHost* is the machine on which Provato has been started.

NOTE: that the server may take a minute to complete initialisation.

Please read the *Trouble Shooting Installation* for more information if the console does not appear in the browser.

Once the console is displayed in the browser, you have successfully installed the Provato Server. The next step is to configure the server. See *Configuration* for more details.

BEA Adaptor Installation

The BEA Download is a compressed zip file (.zip) file, so may need WinZip or similar software to decompress.

Download this file from the www.nclt.com into a directory where you want it installed. Uncompress the file:

```
winzip provato.version.weblogic.adapter.zip
```

Once this has been uncompressed, you will have a directory called

```
provato-adapter.ear
```

Start the BEA WebLogic Server Console in a browser and deploy the Provato adapter EAR file. This is done using the follow steps:

- Go to *Integration Applications* section
- Click on *Deploy a new Application*
- Click on *Applications*
- Select the directory location containing the *provato-adapter.ear* file
- Click on the *provator-adapter.ear* and then *Continue* button
- Click *Deploy*
- Wait for the Provato EAR to deploy - this should take no longer than a minute

To test that the server has been installed and run correctly, start a browser (Mozilla, Netscape, Internet Explorer) and enter the address

```
http://localhost:8080/provato-console
```

in a browser. This will bring up the administration console of the Provato Server in the web browser. To access the administration console remotely, enter the address:

```
http://myHost:8080/provato-console
```

where *myHost* is the machine on which Provato has been started.

NOTE: that the server may take a minute to complete initialisation.

Please read the *Trouble Shooting Installation* for more information if the console does not appear in the browser.

Once the console is displayed in the browser, you have successfully installed the Provato Server. The next step is to configure the server. See *Configuration* for more details.

JBOSS Adaptor Installation

The JBOSS Adaptor download is a compressed zip file (.zip) file, so you will need WinZip or equivalent to decompress this file.

Download this file from the www.nclt.com into a directory where you want it installed. Uncompress the file using WinZip

```
winzip provato.version.jboss.adapter.zip
```

Once this has been uncompressed, you will have a directory called

```
provato-adapter.ear
```

The Provato EAR now needs to be deployed in JBOSS (3.2.3). This is done using the follow steps:

- Copy the `provato-adapter.ear` file in `JBoss/server/default/deploy` folder (replace 'default' with the name of your server configuration if using an alternate configuration)
- Restart the JBoss server using shutdown/start scripts
- Wait for the Jboss to restart - this should take no longer than a minute

To test that the server has been installed and run correctly, start a browser (Mozilla, Netscape, Internet Explorer) and enter the address

```
http://localhost:8080/provato-console
```

in the browser. This will bring up the administration console of the Provato Server in the web browser. To access the administration console remotely, enter the address:

```
http://myHost:8080/provato-console
```

where *myHost* is the machine on which Provato has been started.

NOTE: that the server may take a minute to complete initialisation.

Please read the Trouble Shooting Installation for more information if the console does not appear in the browser.

Once the console is displayed in the browser, you have successfully installed the Provato Server. The next step is to configure the server. See Configuration for more details.

License Key Configuration

License keys need to be configured before the services of Provato Server are fully enabled. A license key can be *evaluation*, expiring after a fixed time period, or full license key. A typical License keys look like:-

```
E28052004-PVIVATO-V1.0-X571BE20C6B9C0F77
E28052004-PGSMODEM-V1.0-X2E9C9E6C12D6536B
E28052004-PSMPP-V3.4-X5A59557BF9C4D289
E28052004-PCIMD-V2.0-X0CE10012CC9A3F07
E28052004-PWAPPUSH-V0.9-XE6104C22FC876C91
E28052004-PUCP-V1.0-X5B015F96994AD8EE
```

Licenses are obtained from NCL Technologies via Email. You can register on line for an evaluation license key. Contact NCL if you do not have an evaluation or full license key - see www.nclt.com for information.

To install the license key, select the *System* sidebar menu option on the Provato Server Console and select *Licenses*. Enter the license key in the text box (hint: use cut and paste to save time) and press Apply.

Provato Server should now be fully enabled. To verify this select the *System* sidebar menu option and select *Licenses*. (If the licenses are invalid this section will say 'Licenses not valid' that could be due to expired or corrupt license keys.)

SMS and MMS Configuration

Before applications can start sending SMS and/or MMS messages, a *Gateway* needs to be configured in the Provato Server. To do this, select the *Gateways* sidebar menu option on the Provato Server Console and select *Add*.

A Gateway can be one of the following types:-

- SMS – GSM Cellular Device
- SMS – SMPP (Logica SMSC)
- SMS – UCP (CMG SMSC)
- SMS – CIMD (Nokia SMSC)
- MMS – 3GPP MM7 (Ericsson/Nokia/Openwave)

NOTE: More than one Gateway can be configured at any one time. For example, two cellular modems could be configured to double the throughput (routers can be set-up between applications and gateways – more on those later).

SMS - GSM Cellular Device

A GSM Cellular device is a modem device that the Provato Server can connect to via RS232 serial ports. The device normally has an antenna and requires a SIM card to operate.

Supported devices are the Siemens M20, MC35, TC35 cellular terminals. See www.nclt.com for more information on support devices and suppliers of cellular devices.

Connect your device to the serial port on the computer. Select the *Gateways* sidebar menu option on the Provato Server Console and select *Add*.

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Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID:
Description:
Start-up:
Reconnect:
Messages sent to:
Enroute messages: Enabled Disabled
Use Handset Database: Enabled Disabled
Type of Gateway:

Enter the Gateway details as follows:

- Gateway ID – a unique name such as “Modem1”
- Description – optional text or comment such as “Modem on COM1”
- Start-up – set to “Automatic” to re-connect if server reboots
- Reconnect – set to “Every 5 Minutes”. In the event of a connection failure, the Provato Server will attempt to re-connect every 5 minutes.
- Message sent to – ignore for now
- Enroute messages – ignore for now
- Use Handset Database – ignore for now

- Type of Gateway – “SMS – GSM Cellular Device”

Then click on the next button to add cellular device specific parameters.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

NCL TECHNOLOGIES

Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID: Modem1

Type of Gateway: GSM Cellular Gateway

COM Port Name:

COM Port Speed:

Pin:

Phone Number:

Enter the settings required are as follows:

- COM Port name – typically “COM1” this must match the serial port that the device is connected to. (Check the back of the PC for a number assigned to the serial port). For serial port 2 this would be “COM2” and so on. For Linux users this would be “/dev/ttyS0” for serial port 1 and “/dev/ttyS1” for serial port 2.
- COM Port Speed – defaults to 19200. (Some devices support only this speed.)
- PIN – set to the PIN number of the SIM card in the cellular device.
- Phone Number – set to phone number associated with the SIM card.

IMPORTANT: Please ensure the correct PIN is entered. If an attempt is made to start the device more than 3 times with the incorrect PIN, the SIM will block and needs to be unblocked with the PUK code. (To do this, remove the SIM from the device and insert it in a phone and enter the PUK code from there.)

Once these details have been entered, click on the “Save and Start” button. The modem takes a few seconds to start so please be patient.

If the modem has been successfully started, an icon will be added to the Visual Status screen of the Provato Server Console like:



If the device does not start, please refer to the log to see more detailed information. To view the log file select the *System* sidebar menu option on the Provato Server Console and select *Logging*. Then select the *View* link on the Informational Log (last entries at the end).

SMS - SMPP SMSC

This is a TCP/IP connection to a Short Message Service Centre or SMSC that supports the SMPP 3.3 or the SMPP 3.4 protocol.

The SMSC typically resides on the mobile network operator site.

To connect with SMPP, the SMSC administrator (or your Service Provider) will need to supply the following account details:

- **System ID**
- **System Type** (may be optional)
- **Password**
- **Connection Type** - Transmitter, Receiver or Tranceiver
- **Host name** or IP address of the message centre
- **Port number** of the SMPP server on the message centre
- Address Range (Optional)
- Version Number (3.3 or 3.4)

To configure this gateway, select the *Gateways* sidebar menu option on the Provato Server Console and select *Add*.

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Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID:
Description:
Start-up:
Reconnect:
Messages sent to:
Enroute messages: Enabled Disabled
Use Handset Database: Enabled Disabled
Type of Gateway:

Enter the Gateway details as follows:

- Gateway ID – a unique name such as “Globafone”
- Description – any optional text or comment
- Start-up – set to “Automatic” to re-connect if server reboots
- Reconnect – set to “Every 5 Minutes”. In the event of a connection failure, the Provato Server will attempt to re-connect every 5 minutes.
- Message sent to – ignore for now
- Enroute messages – ignore for now
- Use Handset Database – ignore for now
- Type of Gateway – “SMS – SMPP (Logica SMSC)”

Then click on the next button to add cellular device specific parameters.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

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Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID: Globafone

Type of Gateway: SMPP (Logica SMSC)

System Id:

System Type:

Password:

Bind as:

SMSC Hostname:

SMSC Port:

Query link:

Enter the SMPP specific settings required ensuring they match the configuration as supplied by the SMSC administrator or SMS Service provider

- System ID
- Type
- Password
- Connection Type / Bind As (transmitter, receiver or transceiver)
- Host name of SMSC

- Port number
- Query Link (set to every minute)

Once these details have been entered, click on the “Save and Start” button. The SMPP connection may takes a few seconds to start so please be patient.

If the connection has been successfully started, and icon will be added to the Visual Status screen of the Provato Server Console like:



If the device does not start, please refer to the log to see more detailed information. To view the log file select the *System* sidebar menu option on the Provato Server Console and select *Logging*. Then select the *View* link on the Informational Log (last entries at the end).

SMS - UCP SMSC

This is a TCP/IP connection to a Short Message Service Centre or SMSC that supports the UCP 4.0 protocol.

To connect with UCP, the SMSC administrator (or your Service Provider) will need to supply the following account details:

- **Username**
- **Password**
- **Host name** or IP address of the message centre
- **Port number** of the UCP server on the message centre

To configure this gateway, select the *Gateways* sidebar menu option on the Provato Server Console and select *Add*.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

NCL TECHNOLOGIES

Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID:

Description:

Start-up:

Reconnect:

Messages sent to:

Enroute messages: Enabled Disabled

Use Handset Database: Enabled Disabled

Type of Gateway:

Enter the Gateway details as follows:

- Gateway ID – a unique name such as “Comet”
- Description – any optional text or comment
- Start-up – set to “Automatic” to re-connect if server reboots
- Reconnect – set to “Every 5 Minutes”. In the event of a connection failure, the Provato Server will attempt to re-connect every 5 minutes.

- Message sent to – ignore for now
- Enroute messages – ignore for now
- Use Handset Database – ignore for now
- Type of Gateway – “SMS – UCP (CMG SMSC)”

Then click on the next button to add connection specific parameters.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

NCL TECHNOLOGIES

Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID: Comet

Type of Gateway: UCP (CMG SMSC)

SMSC Hostname:

SMSC Port:

SMSC Username:

SMSC Password:

Query link:

Enter the UCP specific settings required ensuring they match the configuration as supplied by the SMSC administrator or SMS Service provider

- Hostname
- Port Number
- User name
- Password
- Host name of SMSC
- Query Link (set to every minute)

Once these details have been entered, click on the “Save and Start” button. The UCP connection may takes a few seconds to start so please be patient.

If the connection has been successfully started, and icon will be added to the Visual Status screen of the Provato Server Console like:



If the device does not start, please refer to the log to see more detailed information. To view the log file select the *System* sidebar menu option on the Provato Server Console and select *Logging*. Then select the *View* link on the Informational Log (last entries at the end).

SMS - CIMD SMSC

This is a TCP/IP connection to a Short Message Service Centre or SMSC that supports the CIMD 2.0 protocol (such as a Nokia SMSC).

The SMSC typically resides on the mobile network operator site.

To connect with CIMD, the SMSC administrator (or your Service Provider) will need to supply the following account details:

- **System ID**
- **System Type** (may be optional)
- **Password**
- **Connection Type** - Transmitter, Receiver or Tranceiver
- **Host name** or IP address of the message centre
- **Port number** of the CIMD server on the message centre
- Address Range (Optional)
- Version Number (3.3 or 3.4)

To configure this gateway, select the *Gateways* sidebar menu option on the Provato Server Console and select *Add*.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

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Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID:

Description:

Start-up:

Reconnect:

Messages sent to:

Enroute messages: Enabled Disabled

Use Handset Database: Enabled Disabled

Type of Gateway:

Enter the Gateway details as follows:

- Gateway ID – a unique name such as “H2O”
- Description – any optional text or comment
- Start-up – set to “Automatic” to re-connect if server reboots
- Reconnect – set to “Every 5 Minutes”. In the event of a connection failure, the Provato Server will attempt to re-connect every 5 minutes.
- Message sent to – ignore for now
- Enroute messages – ignore for now
- Use Handset Database – ignore for now
- Type of Gateway – “SMS – CIMD (Nokia SMSC)”

Then click on the next button to add connection specific parameters.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

NCL TECHNOLOGIES

Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID:	H2O
Type of Gateway:	CIMD (Nokia SMSC)
System Id:	<input type="text" value="ID"/>
Password:	<input type="text" value="Password"/>
SMSC Hostname:	<input type="text" value="host"/>
SMSC Port:	<input type="text" value="8011"/>
Query link:	<input type="text" value="Every minute"/>

Enter the CIMD specific settings required ensuring they match the configuration as supplied by the SMSC administrator or SMS Service provider

- System ID
- Type
- Password
- Connection Type / Bind As (transmitter, receiver or transceiver)

- Host name of SMSC
- Port number
- Query Link (set to every minute)

Once these details have been entered, click on the “Save and Start” button. The CIMD connection may takes a few seconds to start so please be patient.

If the connection has been successfully started, and icon will be added to the Visual Status screen of the Provato Server Console like:



If the device does not start, please refer to the log to see more detailed information. To view the log file select the *System* sidebar menu option on the Provato Server Console and select *Logging*. Then select the *View* link on the Informational Log (last entries at the end).

MMS – MM7 MMSC

This is a TCP/IP connection to a Multimedia Message Service Centre or MMSC that supports the MM7 protocol (such as a Ericsson, Nokia and Openwave).

The MMSC typically resides on the mobile network operator site.

To connect with MM7, the MMSC administrator (or your Service Provider) will need to supply the following account details:

- **Server URL**
- **VASP ID**
- **VAS ID**

To deliver MMS, the MMSC will need to initiate HTTP connections back to the Provato Server. Consequently, you will need to do the following to receive MMS

- **Allow IP connectivity to the Provato Server from the MMSC (setting up firewalls etc.) By default, the Provato Server runs on port 8080 so this will need to be enabled in the firewall (from say the MMSC IP address for higher security).**
- Provide the MMSC administrator the full URL required to deliver MMS to the Provato Server. This will typically be <http://hostname:8080/mm7soap>, where *hostname* is the name of the machine. However if you have a firewall proxy, this might be set to <http://firewallproxyhostname:8080/mm7soap> for example.

To configure this gateway, select the *Gateways* sidebar menu option on the Provato Server Console and select *Add*.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

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Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID:
Description:
Start-up:
Reconnect:
Messages sent to:
Enroute messages: Enabled Disabled
Use Handset Database: Enabled Disabled
Type of Gateway:

Enter the Gateway details as follows:

- Gateway ID – a unique name such as “MMSC”
- Description – any optional text or comment
- Start-up – ignored for now – MM7 is stateless
- Reconnect – ignored for now – MM7 is stateless
- Message sent to – ignore for now
- Enroute messages – ignore for now
- Use Handset Database – ignore for now
- Type of Gateway – “MMS – 3GPP MM7”

Then click on the next button to add connection specific parameters.

SOFTWARE SOLUTIONS FOR A MOBILE WORLD

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Vivato Console

Add a Gateway

Please enter the new gateway details and press save.

Gateway ID: MMSC

Type of Gateway: 3GPP MM7

Server URL:

VASP ID (Company Id):

VAS ID (Application Id):

Receive URL:

Enter the MM7 specific settings required ensuring they match the configuration as supplied by the MMSC administrator or MMS Service provider

- Server URL
- VASP ID
- VAS ID

Once these details have been entered, click on the “Save and Start” button. The MM7 connection may takes a few seconds to start so please be patient.

If the connection has been successfully started, and icon will be added to the Visual Status screen of the Provato Server Console like:



If the device does not start, please refer to the log to see more detailed information. To view the log file select the *System* sidebar menu option on the Provato Server Console and select *Logging*. Then select the *View* link on the Informational Log (last entries at the end).

MMSC originated messages – SOAP URL

The MMSC needs to contact Provato to deliver messages and requires a URL in its configuration. This is fixed on the Provato Server and will always be specified in the **Receive URL** of the gateway properties.

Trouble Shooting

If you need to modify the settings, select the *Visual Status* sidebar menu option on the Provato Server Console and click on the gateway just added. Click the *Modify* option and follow the procedure as if you were adding a new gateway.

If a GSM Cellular Device does not start properly, it is usually because of one of the following problems:

- Device Name – check the correct device name (COM1 or /dev/ttyS0) is configured
- Device Not Responding – incorrect baud speed (usually 19200 is the correct speed), faulty cable, or device is not powered on.
- Device In Use – check that no other software is using this device
- Incorrect PIN – set to the PIN number of the SIM card in the cellular device (you can check the PIN by putting it in your own phone)

If an SMSC connection does not start properly, it is usually because of one of the following problems:

- **For SMPP:** System ID, Type, Password – check the authentication information matches the that supplied by the SMSC Administration or SMS Service Provider
- For UCP: Username, Password – check the authentication information matches the that supplied by the SMSC Administration or SMS Service Provider
- For CIMD: System ID, Password – check the authentication information matches the that supplied by the SMSC Administration or SMS Service Provider
- Check the full host name and or IP address is correct
- Network Check – check the TCP/IP network is established between the Provato Server and the SMSC/Service Provider. You can easily do this using ‘telnet host port’ to ensure that a TCP/IP connection can indeed be established.
- Already Bound – perhaps a gateway has already been configured that is using that account.

Send a test message

Once a gateway is up and running (represented by a play icon or ► on the gateway), you can send a test message from the Provato console.

Select the *Visual Status* sidebar menu option on the Provato Server Console and click on the gateway just added. Click the *Test* option.

Enter a mobile number in full international format and the message text and press send. The text should be delivered to your mobile phone.

If the message failed to send, check the log file for the cause of failure - select the *System* sidebar menu option on the Provato Server Console and select *Logging*. Then select the *View* link on the Informational Log (last entries at the end).

MMS over WML - Using SMS to send Media Content

To send media content usual requires an MMSC connection. Provato allows you to send media content, bypassing the MMSC. This is done as follows:

- A WAP Push Service Indicator (SI) message is send over the SMS connection configured in Provato.
- The WAP Push message contains a URL that points back to a WML page. This page contains the media content and is hosted by the Provato Server
- The recipient get the WAP Push Service Indicator on their phone with the option to retrieve the content (the recipient phone must support WAP Push and this is usually the case if it is an MMS phone)
- The recipient clicks on the link, the phone establishes a GRPS/Dialup connection with the Internet and the content is downloaded.
- A delivery receipt message is sent back to the originating client application once the content is downloaded.
- Note the user has the option to reply (via http/wml get/post). This is built in to the WML page.

To set-up MMS/WML over an SMS gateway you will need to do go to the Visual Status of the Provato Server and click on the gateway through which the SMS messages are routed.

Select the modify option and then click on the “Send MMS Messages” and set the “As WML” option, (then *Next* and *Save*)

Go to the *System, MMS over WML* navigation side bar option. Set up the properties and then *Apply*. The *MMS over WML* properties are:

- **Base URL** - The base URL of the link send to the phone identifying the location of the content. The host/port address should be change to a firewall proxy if the Provato server is running behind a firewall.
- **Validity Period** – The validity period in hours of the hosts content on the Provato Server.
- **Expire Messages Every** – How often old content is removed from the server
- **Delivery Receipt for WAP Push** – send a delivery receipt to the originating application once the WAP Push service indicator message has been delivered
- **Delivery Receipt for Content Fetched** – send a delivery receipt to the originating application once the content is downloaded

- **Make Images Link to Content** – Put a link around images so that mobile users can download and save the content they are viewing to a gallery on the phone
- **Allow reply from WML** – Allow the mobile user to post a reply back to the originating application. This is done over the GPRS connection that the user established to download the message content.

SECURITY WARNING: Because the Provato Server hosts out content (WML pages) to mobile users, **it is important to ensure that your firewall is correctly set-up to allow mobile users link back to only the Base URL** and not other web pages hosted by the Provato Server such as the console configuration pages etc.

Additional firewall security policies would be to

- Deny Access from any IP addresses other then the mobile network operator WAP Gateways
- Throttle number of connections from the WAP Gateways to reduce “denial of service” attacks.

Gateways

If you have read the chapter on *SMS and MMS Configuration*, you will already understand that a Gateway in the Provato Server is an interface with the mobile SMS and MMS network, and there are a number of different types of gateways that can be configured.

This section looks at gateways in more functional detail. The diagrams in this section are similar to configurations that can be viewed in on the Visual Status component of the Provato Server (sidebar menu option Visual Status).

When a Gateway is configured in the Provato Server, it is assigned two message queues internally, for both *inbound* and *outbound* messages. These are persistent queues, so if the server requires a restart, no messages are lost.

Outbound messages are read off the queue by the Gateway and send to the SMSC, MMSC or device that is configured. Received messages are placed on the inbound queue for further processing by other nodes (applications and routers) configured on the Provato Server.

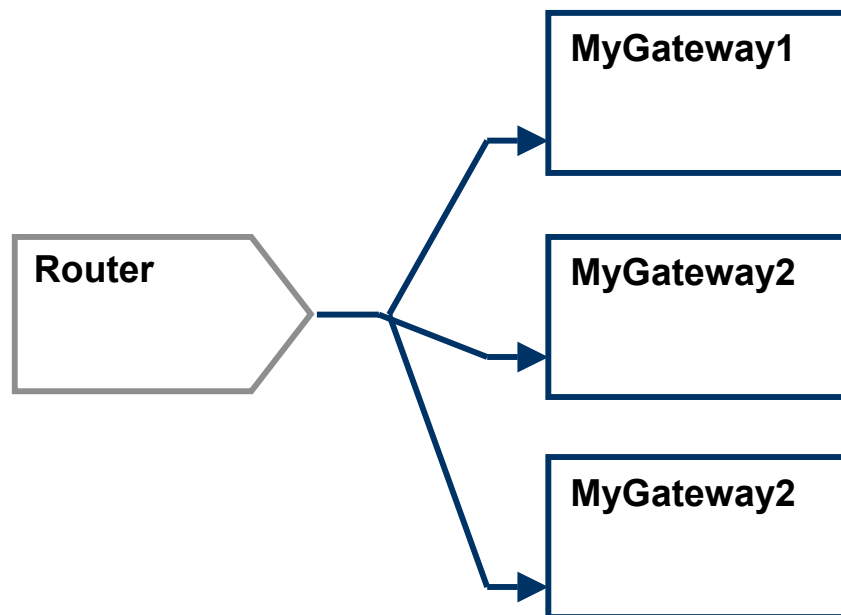
Outbound Messages

In order for a gateway to start sending messages, something must be placing messages in the gateways outbound queue. This can be an *Application* or a (outbound) *Router*.

An Application can send messages directly to a Gateway. Each Application added to Provato Server has a "Messages sent to" attribute where it places outbound messages. So for example, in the configuration below, the application "MyApp" would have its "Messages sent to" configured as "MyGateway". (The section *Applications* for more details on how to configure applications.)



A Router (outbound) can also send messages to one or more gateways. A Router typically sends to multiple Gateways with a policy or a set of criteria for deciding which route a message should take based on message attributes such as source, destination, content type, content, keywords etc. (The section *Routers* for more details on how to configure Routers.)

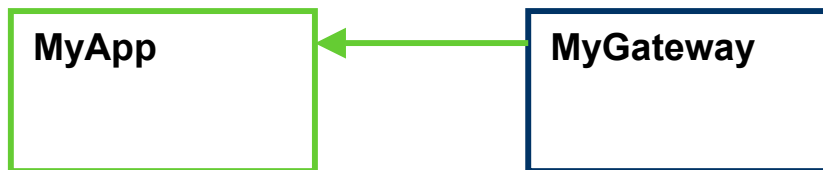


Inbound Messages

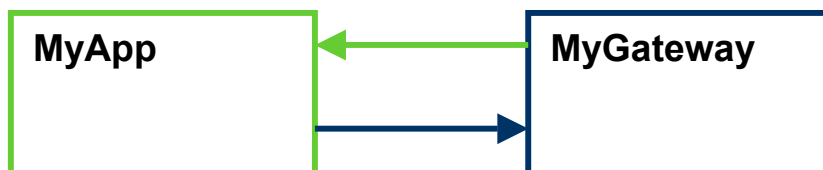
In order for a Gateway to start delivering messages to Applications, something must consume the messages in the gateways inbound queue. This can be an *Application* or a (inbound) *Router*.

IMPORTANT: A Gateway can only send messages to one other node – an Application or (inbound) Router. Inbound Routers distribute messages to Applications based on a number of message criteria.

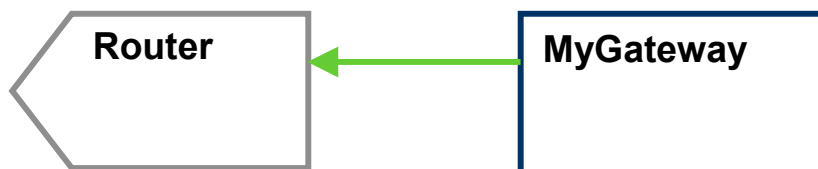
A Gateway can send messages directly to an Application. Each *Gateway* added to Provato Server has a “Messages sent to” attribute where its inbound messages go. So for example, in the configuration below, the Gateway “MyGateway” would have its “Messages sent to” configured as “MyApp”. (The section *Applications* for more details on how to add/configure applications.)



Note, the application can be configured to send outbound messages to the same gateway it is receiving them from (or indeed a different one)



A Gateway can also send messages to a Router (inbound). An inbound Router typically sends to multiple Applications with a policy or a set of criteria for deciding which route a message should take based on message attributes such as source, destination, content type, content, keywords etc. (The section *Routers* for more details on how to configure Routers.)



Gateway Settings

Selecting the *Gateways* sidebar menu option and then selecting the sub-option *Add* will add a Gateway to the Provato Server.

Each gateway added in the Provato Server has a common set of configuration details these are:-

- **ID** – a unique name for the Gateway. No other Gateway, Application or Router configured in the Provato Server can have this name.
- **Description** – any optional text or comment
- **Start-up** – This can be *Manual* or *Automatic*. If this is *Manual*, then when the Provato Server is started, this connection must be manually started. If this is *Automatic*, then this will be started as soon as the Provato Server is started.
- **Reconnect** – This is used to automatically re-establish the connection with the remote Message Centre or Device. If the connection is lost, the Provato Server will attempt to reconnect every configurable number of seconds or minutes.
- **Message sent to** – This specifies a node – Application or Router (inbound) – to which delivered messages are sent on to. Typically a Gateway can send messages directly to an Application or to a Router (inbound) which can distribute the messages to multiple applications based on a number of criteria such as keyword, source address etc. See the section *Applications* and the section *Routers* for more details.
- **Enroute messages** – Enabling En-route messages causes an en-route (or simulated) delivery receipt to be sent back to the Application originator of the message when it is forwarded on to the Message Centre (SMSC/MMSC) or device. An example use would be used where the Gateway is connected to a Message Centres that do not issue delivery receipts. Disabling will result in no en-route delivery receipt to be sent back from the Provato Server.
- **Reply Path Database** – The Reply Path Database maintains information associated with message destinations such as the Correlation ID and the Origination Application of the last message sent to a particular destination. If this is enabled, then these details are stored per message destination, and then placed in message responses from these destinations. See the *Reply Path Database* for more information.
- **Type of Gateway** – The type of gateway. This can be SMS or MMS. More details on these options, see the section *SMS and MMS Configuration*

NOTE: En-route messages are only sent back to the originating application if the outbound message has its delivery receipt message attribute turned on (set to true).

Reply Path Database

Each Gateway configured has an optional *Reply Path Database*.

For each outbound message destination (MSISDN) The Reply Path Database records specific message attributes such as:

- **Originating Application** – the last Application that sent a message to this destination. This is set by the Provato Server.
- **Correlation ID** – the Correlation ID of the last message sent to this destination. Correlation IDs are set by the Client Application for the purposes of association.

If this database is enabled this information is stored when the Gateway sends an outbound message.

When a message response is sent by a mobile user and is received on any Gateway, a database look up is performed and the *Origination Application* and *Correlation ID* are inserted in the message.

A router can now route a response back to an application using the *Originating Application* property of the message.

NOTE: If replies to messages come in through a different (receiver) Gateway, the receiver must also have its Reply Path Database enabled.

Pairing Transmitters and Receivers – Delivery Receipts

Normally a Gateway can both transmit and receive messages. However, some protocols support only one or the other over a single connection (such as SMPP 3.4).

In such instances, a transmitter gateway and a receiver gateway must be configured.

In such a scenario, outbound messages are transmitted on one configured Gateway, but inbound delivery receipts are received on another. To match up messages with the delivery receipts and ensure the correct message ID is returned to the application, the *Delivery Receipts* field of the Gateway must be set.

A gateway must be already be added before the *Delivery Receipts* setting can be set. Select the gateway for modification. Select the *The Delivery Receipts*. This will list all the other Gateways that can be paired with this Gateway.

Maintenance

By selecting the *Gateway* sidebar menu option, you can maintain the gateways and add new gateways. The sub-options are:

- **List** – List all Gateways configured. This will display a table of configured gateways including some settings such as the name and description, and state fields such as the Status (started/stopped) and the number of messages in its inbound and outbound queues. The side icons for each entry allow you to view, modify or delete the gateway.
- **View** – In this option you can select the gateway you want to view in more detail. This will bring up the Gateway settings as well as the State fields.
- **Add** – This option allows you to add a new Gateway.
- **Delete** – This option allows you to delete an existing Gateway (see note below)
- **Modify** – This option allows you to remove a gateway.

NOTE: Gateways cannot be deleted if there is a node - Application or Router – sending messages to the Gateway. Before you can delete a Gateway, you must manually change the nodes that are sending to this Gateway to an alternative Gateway.

Applications

This section looks at Applications in more functional detail. The diagrams in this section are similar to configurations that can be viewed in on the Visual Status component of the Provato Server (sidebar menu option Visual Status).

When an Application is configured in the Provato Server, it is assigned two message queues internally, for both *inbound* and *outbound* messages. These are persistent queues, so if the server requires a restart no messages are lost.

Also, if Applications are not operational for whatever reason, there queues will continue to receive and store messages.

Each Application configured in the Provato Server has a unique ID. Applications identify themselves by specifying their Application ID when connecting through the Provato Client interfaces.

Provato Client interfaces are SOAP/XML or JMS.

.NET Applications can transmit and receive their messages through a SOAP/XML interface.

Java/J2EE Applications can transmit and receive their messages through either a SOAP/XML interface or through a JMS interface (inbound and outbound queues).

Application Interfaces and examples are described in more detail in NCL's *Provato Client Guide*.

Outbound Messages

What puts messages in the Applications's outbound queue?

Applications connect to the Provato Server through one of the client interfaces (e.g. SOAP/XML or JMS). Applications developed in .NET and Java can create and transmit and receive messages over these interfaces.

An Application can send messages directly to a Gateway. Each Application added to Provato Server has a "Messages sent to" attribute where it routes outbound messages. So for example, in the configuration below, the application "MyApp" would have its "Messages sent to" configured as "MyGateway".



An Application can also send messages to an (outbound) Router. A Router typically sends to multiple Gateways with a policy or a set of criteria for deciding which route a message should take based on message attributes such as source, destination, content type, content, keywords etc. (The section *Routers* for more details on how to configure Routers.)

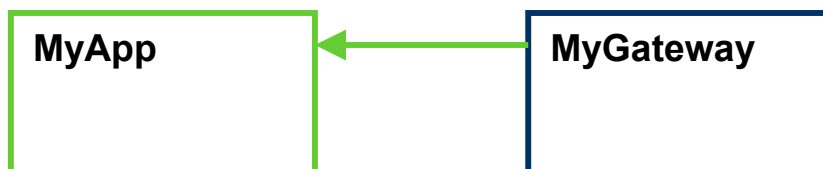


IMPORTANT: An Application can only send messages to one node – a Gateway or (outbound) Router. Outbound Routers are used to distribute messages based to different Gateways based on message criteria.

Inbound Messages

In order for an Application to start receiving messages, a node needs deliver messages into the Applications inbound queue. This can be a *Gateway* or a (inbound) *Router*.

A Gateway can send messages directly to an Application. Each *Gateway* added to Provato Server has a “Messages sent to” attribute where its inbound messages go. So for example, in the configuration below, the Gateway “MyGateway” would have its “Messages sent to” configured as “MyApp”. (The section *Gateways* for more details on how to add/configure Gateways.)

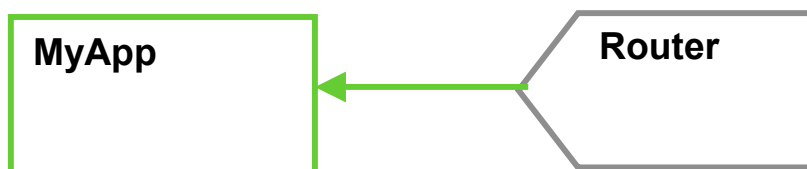


Note, the application can be configured to send outbound messages to the same gateway it is receiving them from (or indeed a different one)

A Router (inbound) can also send messages to an Application. An inbound



Router typically sends to multiple Applications with a policy or a set of criteria for deciding which route a message should take based on message attributes such as source, destination, content type, content, keywords etc. (The section *Routers* for more details on how to configure Routers.)



Application Settings

Selecting the *Applications* sidebar menu option and then selecting the sub-option *Add* will add an Application to the Provato Server.

Each Application added has a common set of configuration details these are:-

- **ID** – a unique name for the Application. No other Gateway, Application or Router configured in the Provato Server can have this name.
- **Description** – any optional text or comment
- **Message sent to** – This specifies a node – Gateway or Router (outbound) – to which outbound messages are sent. Typically a Gateway can send messages directly to an Gateway or to a Router (outbound) which can distribute the messages to multiple applications based on a number of criteria such as keyword, source address etc. See the section *Gateways* and the section *Routers* for more details.
- **Application Client Interface** – *SOAP* by default. For BEA application servers an *Work-Shop Queue* alternative exists whereby Work Shop developers can send XML messages into the Provato Server

NOTE: En-route messages are only sent back to the originating application if the outbound message has its delivery receipt message attribute turned on (set to true).

Maintenance

By selecting the *Application* sidebar menu option, you can maintain the Applications and add new Applications. The sub-options are:

- **List** – List all Applications configured. This will display a table of configured Applications including some settings such as the name and description, and state fields such as the Status (started/stopped) and the number of messages in its inbound and outbound queues. The side icons for each entry allow you to view, modify or delete the Application.
- **View** – In this option you can select the Application you want to view in more detail. This will bring up the Application settings as well as the State fields.
- **Add** – This option allows you to add a new Application.
- **Delete** – This option allows you to delete an existing Application (see note below)
- **Modify** – This option allows you to remove a Application.

NOTE: Applications cannot be deleted if there is a node – Gateway or Router – sending messages to the Application. Before you can delete an Application, you must manually change the nodes that are sending to this Application to an alternative Application.

Routers

There are two types of routers that can be configured in Provato, Inbound and Outbound.

Inbound Routers route messages from Gateways to Applications.

Outbound Routers route messages from Applications to Gateways.

Each router has one or more default destinations. If it has more than one default, then messages are sent to each destination in a round robin fashion.

A router can have no default route set. (If one was temporarily changing configuration this might be required.) **If a router has no default configured, it will stop delivering messages.**

It also has a set of alternate routes based on Criteria. Router criteria is based on message attribute fields such as:

- First word of text
- Second word of text
- Last word of text
- Text contains
- Source address
- Source address prefix
- Destination address
- Destination address prefix
- User Agent
- Last originating Application (inbound routers)
- Last originating Gateway (outbound routers)

Routers do not have internal queues. They take messages from application queues and place them in gateway queues and vice-versa.

NOTE: Routers cannot be deleted if there is a node – Gateway or Application – sending messages to the Router. Before you can delete a Router, you must manually change the nodes that are sending to this Router to an alternative.

Configuring Routers

Routers are added by selecting the *Routers* sidebar menu option of the Provato Server console, and then the *Add* sub-option.

Each router requires:

- **ID** – a unique name for the Application. No other Gateway, Application or Router configured in the Provato Server can have this name.
- **Description** – any optional text or comment
- **Router Type** – This specifies if the router is outbound (Application to Gateway) or Inbound (Gateway to Application). This field cannot be modified once the router is added.
- **Messages Sent to** – The default destination gateway(s). Only one need be selected. If more than one is selected, messages will be sent in a round robin fashion to each.

Press the *Next* and *Save and add routes* button to proceed.

Once the router is saved and added, criteria can be added by pressing the *Add Criteria* button. Multiple routing criteria can be added

Each criteria has:

- **Messages Sent to** – The destination gateway(s) that messages get sent to if the criteria is matched. Only one need be selected, but multiple destinations can be selected for a round robin load balancing.
- **Criterion/Value pair** –The routing Criterion (e.g. First Word is, Source Address is etc.) and the value this should match. There are three of these.

Maintenance

By selecting the *Router* sidebar menu option, you can maintain the Routers and add new Routers. The sub-options are:

- **List** – List all Routers configured. This will display a table of configured Routers including some settings such as the name and description, and state fields such as the Status (started/stopped) and the number of messages in its inbound and outbound queues. The side icons for each entry allow you to view, modify or delete the Router.
- **View** – In this option you can select the Router you want to view in more detail. This will bring up the Router settings as well as the State fields.
- **Add** – This option allows you to add a new Router.
- **Delete** – This option allows you to delete an existing Router (see note below)
- **Modify** – This option allows you to remove a Router.

A Router's criteria can be modified by viewing the Router configuration then selecting the *View Criteria*. At this point you can add, modify or delete new criteria.

NOTE: The default route cannot be deleted (or you would have a router with no place to send messages!) It can only be modified.

Definitions

Application	Provato Server entity that external Applications connect to (through SOAP/XML) to send messages through Provato. See sidebar menu option <i>Applications</i> for Adding, Modifying and Deleting Applications.
CIMD	TCP/IP Protocol used to connect with Nokia SMSC
Console Home Page	Typically http://localhost:8080/provato-console where the Provato Server has been installed on the local host.
Gateway	Provato Server entity that connects to the SMS or MMS mobile network. See sidebar menu option <i>Gateway</i> for Adding, Modifying and Deleting Gateways.
Log	Log of recent events, warnings and errors. To view the log file select the <i>System</i> sidebar menu option on the Provato Server Console and select <i>Logging</i> . Then select the <i>View</i> link on the Informational Log (latest entries are at the end of the log).
MMSC	Multimedia Message Service Centre – a store and forward box on the mobile network operator site. Vendors include Nokia, Ericsson and Openwave
Provato Server Console	Typically http://localhost:8080/provato-console where the Provato Server has been installed on the local host.
Router	Provato Server entity that route messages between applications and gateways. See sidebar menu option <i>Routers</i> for Adding, Modifying and Deleting Routers.
SMPP	TCP/IP Protocol used to connect with Logica SMSC
SMSC	Short Message Service Centre – a store and forward box on the mobile network operator site. Vendors include CMG, Logica, Nokia and SEMA
UCP	TCP/IP Protocol used to connect with CMG SMSC
VIVATO	Old name for Provato