NOKIA
9290
Communicator

Nokia 9290 Communicator

Information Management and Service Provider Guide

Chapter Section

1. INTRODUCTION

This guide is intended mainly for the IT and Help Desk personnel of Carriers, Corporations, or Internet Service Providers. The following pages provide information to understand the functionality of the Nokia 9290 Communicator and the requirements to set up the data call, e-mail, WWW, and WAP services. This guide can also be used as a general technical specification document for the Nokia 9290 Communicator.

Please note that this guide is not a substitute for the Nokia 9290 Communicator's User Guide. The User Guide contains more detailed information about the use of the Nokia 9290 Communicator and should be referred to when step-by-step user instructions are needed.

More Nokia 9290 Communicator product information and end-user support can be found at www.Communicatorworld.net; developer support can be found at www.forum.nokia.com.

2. NOKIA 9290 COMMUNICATOR

Contents:

2.1 Technical specification

Applications

- Cellular mobile phone (handsfree, handset, car kit, and headset use)
- Desk application with background image and links
- Messaging includes SMS, fax, and e-mail
- Internet services include WWW and WAP
- Contacts
- Calendar
- Office includes Document, Sheet, File manager, and Presentation viewer
- Extras: Calculator, Clock, Games, Recorder, Unit converter, Imaging (Digital camera connectivity), Video player

Note: Additional applications can also be found on the CD-ROM in the sales package.

Size

- Dimensions: 6.22 x 2.20 x 1.06 in.
- Weight: 8.6 oz.

Technical data

- GSM 1900
- 32-bit ARM9-based RISC CPU
- Operating system: Symbian OS
- Memory card slot
- Connectivity: IrDA, Ir-TranP, RS-232
- Low power consumption
- Active matrix color display with 4,096 colors
- Java™ support
- Supports HSCSD*

E-mail protocols

- POP3 or IMAP4 (Nokia 9290 Communicator supports IMAP4rev1)
- SMTP
- MIME
- MHTML

Supported mail servers*

- Cyrus IMAPD Mail Server
- HP OpenMail
- Lotus Domino Mail R5
- Microsoft Exchange
- Netscape Messaging Server
- Stalker CommuniGate Pro Mail Server
- Sun Internet Mail Server
- University of Washington IMAP4 Server
- Oracle InterOffice Mail Server
- Teamware Office Mail Server
- Zmailer

** Network dependent*

Attachments/files supported

- View ASCII text, and JPEG or GIF graphics
- View and edit Word 95/97/2000 and Excel 95/97/2000 documents
- View Microsoft PowerPoint 97/2000 slides
- View WordPerfect 7.0/8.0 and Lotus 1-2-3 for SmartSuite for the Millennium
- Winzip supported (unzip) – (third-party application required)
- WAV audio files

Nokia 9290 PC Suite for Nokia 9290 Communicator

- For use in Microsoft Windows 95/98/2000 and Microsoft Windows NT 4.0 environments

File conversion support

- Symbian OS Word <---> Rich Text Format, Text (MS-DOS), Text (Windows ANSI), Word 6.0, Word 95, Word 97, Word 2000
- Symbian OS Sheet <---> Excel 5.0, 95, Excel 97, Excel 2000

Calendar and contacts compatibility

- Microsoft Schedule+ 7.x
- Microsoft Outlook 97/98/2000
- Lotus Notes 4.5, 4.6, and 5.0
- Lotus Organizer 97, 5.0, 6.0, and GS/4.0
- SyncML remote synchronization (contacts/calendar)

Additional software on CD-ROM in sales package

- Many Nokia 9290 Communicator applications
- PC software
  - Nokia 9290 PC Suite for Nokia 9290 Communicator
  - Multimedia converter
- Documentation

Battery performance

Battery	Talk/data/ fax time	Standby time (phone on)	Standby time (phone off)	Charging time
High-power Battery BLL-3 1300 mAh Li-Ion	up to 10 h	up to 230 h	up to 400 h	3 h

Battery information is provided for comparison purposes. Talk and standby times are estimates and vary based on many factors. For complete battery information for this phone and a list of major factors impacting charge times, please refer to www.nokia.com or the phone's user guide.

2.2 GSM phone feature list

Display & keypad

- Up to five lines for text and status indicators
- Indicators (e.g., incoming messages and call forwarding)
- Service provider indicator
- Welcome message
- Menu help texts after a time out
- Last digit and full display clear
- Full screen cursor editor
- One-touch voice mail button
- International access (+) function
- Keyguard
- Language dependent keymappings
- Special characters under ✻ key while in alpha mode
- Changing character case by pressing # key once
- Illumination

Phone features

- Customizable profiles (set up from Nokia 9290 Communicator interface)
- Clock
- Alarm clock (activated from Nokia 9290 Communicator interface, stop alarm also from phone side)

Call management

- One-key calling: locations 1 to 9 (1 is always voice mail)
- Last number redial
- Anykey answer
- Automatic redial
- Automatic answer (works with headset or car kit only)
- Supports emergency calls without SIM
- One-touch dialing
- Conference calling
- Call waiting, call hold
- Call/fax/data forward, separate for voice, fax and data
- Automatic and manual network selection
- Alternate line service
- Call transfer
- Closed user group
- Fixed dialing number
- Dual Tone Multi Frequency (DTMF) signal transmitting
- DTMF control characters (pause, wait)
- Calling line identification presentation (CLIP)
- Calling line identification restriction (CLIR)
- Connected number identification presentation (COLP, COLR)
- CLI-based caller groups, a ringing tone, and calling priority
- Recent calls list with time stamp (Dialed/Received/Missed calls)

Phone book memory

- The phone book supports multiple name entries per name
- Thousands of memory locations (depending on the Nokia 9290 Communicator memory)
- Names with multiple numbers (mobile, home, fax)
- Up to 250 numbers on the SIM card (SIM specific)

Short Message Service

- Mobile Originated (MO), send
- Mobile Terminated (MT), receive
- Message class 0, 1, 2, 3 supported
- Easy to call number in message
- Sent message delivery report
- Cell Broadcast
- Multiple SMS sending
- Long messages concatenated with nine messages up to 1,337 characters in one message (concatenated with 30 messages in one message up to 4,590 characters in Nokia 9290 Communicator interface)*

** Network dependent*

Security and cost control

- Electronic keyguard (Menu + ✳)
- Security code (when a non-owner SIM is inserted)
- Device lock
- PIN1, PIN2
- Advice of charge
- Call restriction
- Last and cumulative call timer

Other controls

Volume control

- Number of volume levels: 10
- Separate voice volume level settings for handportable, car handsfree, and headset mode
- In-call volume control with the scroll keys

Power control

- Ignition switching time-out: 45 seconds
- Car kit power off: 12 h
- Automatic power save if no network available

Tone control

- Several ringing tones
- Ringing types: ascending ringing, normal ringing, WAV, ring once, silent, priority group(s) only
- Keypad tone levels: 4 (from off to 3)
- Ringing tone levels: 6 (from silent to 5)
- SMS/fax/e-mail/clock alarm/calendar alert tones: standard, silent, WAV (volume level can be set separately for each application tone operated from Nokia 9290 Communicator interface)
- Downloadable ringing tones Over the Air SMS/Smart messaging

Data calls

- Data calls send and receive
- Fax calls send and receive
- Data speeds up to 14.4 kbps SCSD*
- Data speeds up to 43.2 kbps HCSD*

System specific features

- GSM phase 2 signaling
- 3V SIM Application Toolkit support
- Enhanced full rate (EFR) speech codec
- Full rate speech codec
- Encryption algorithms: none, A5.1, A5.2
- Discontinuous transmission (DTX)
- Cell broadcast (DRX)
- USSD (mobile originated and terminated)
- SIM Application Toolkit (Class 1.bis)

** Network dependent*

Smart messaging (Over the Air SMS) features

- Name and number (business card) sending and receiving
- Calendar note sending and receiving (Nokia 9290 Communicator interface)
- Ringing tone receiving (Nokia 9290 Communicator interface)
- Carrier logo receiving
- WAP (operated from Nokia 9290 Communicator interface)
- WWW settings (access point), (operated from Nokia 9290 Communicator interface)

Infrared features

- Name and number receiving (vCard)
- Calendar note receiving (vCal)
- File transfer between Nokia 9290 Communicators
- Digital camera connectivity
- Receiving is activated from Nokia 9290 Communicator or phone interface, sending from Nokia 9290 Communicator interface

Note 1: Some of the above features are network dependent.

Note 2: In the case of local network dependent features or other market specific features (such as languages, ALS), parties shall agree separately in writing if the feature is activated.

2.3 Content of the sales package

The Nokia 9290 Communicator sales package contains the following articles (however, the content may vary due to country specific requirements):

- Transceiver (Nokia 9290 Communicator)
- High-power Battery BLL-3 (1300 mAh Li-Ion)
- 16 MB MMC Memory Card
- Performance Travel Charger ACP-12U
- RS-232 Adapter Cable DLR-2L
- Folder
  - User Guide
  - Getting Started Guide
  - Third-party application guide
  - CD-ROM (Nokia 9290 PC Suite, additional Nokia 9290 Communicator software, and documentation)
  - Warranty card

2.4 Optional Nokia original accessories

The following optional Nokia original accessories are available for the Nokia 9290 Communicator:

- Advanced Desktop Stand DCH-10
- High-power Battery BLL-3
- Performance Travel Charger ACP-12U
- Advanced HF Car Kit CARK-109
- Mobile Charger LCH-9
- Headset HDC-8L
- Carry Case (vertical and horizontal styles)
- Memory Card (64 MB)
- RS-232 Adapter Cable DLR-2L

2.5 To use the phone

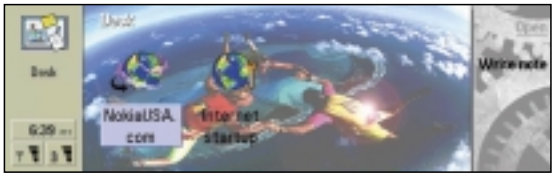
To be able to send and receive calls and messages:

- The phone must be turned on
- A valid SIM card must be inserted
- You must be located in the service area of the wireless (GSM) network
- The local carrier services must be available and activated to support services like data call, e-mail, fax, WWW, and WAP

3. APPLICATIONS

Contents:

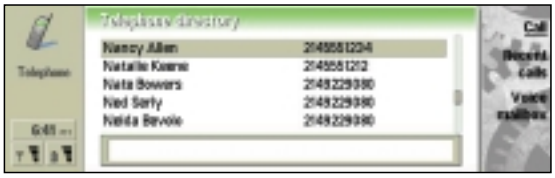
3.1 Desk



The Desk application group is used for managing and using various links to your favorite applications or third-party software. You create these links in the relevant applications. Also, quick notes can be written in this application.
The Desk application is customizable by the user:

- Background image is changeable
- Reminder notes can be created quickly
- Shortcuts/links can be created to:
  - Applications
  - Messages
  - WWW pages and WAP bookmarks
  - Documents, Sheets, Notes

3.2 Tel



Telephone is the application for call management and adjusting the telephone settings. The main telephone features are listed below. The full GSM telephone feature list can be seen in chapter 2.2.

- Make and receive voice calls
- Multiple search criteria for the telephone directory
- Handsfree option
- Sending sequences of dial tones (DTMF) during the active call
- Maintain list of DTMFs for quick access
- Maintaining phone's speed dial list
- Monitoring call costs
- Adjusting the phone volume level

3.3 Messaging

The Messaging application is a central place for Fax, SMS, and Mail applications. You can write, edit, and send mail, short messages, and faxes in their corresponding editors.

- Inbox folder for received messages and faxes
- Sent messages folder for sent messages
- Drafts folder for messages not yet sent or ready
- Outbox folder for messages that are selected to be sent but are not yet sent
- New messages note appears in the screen when new fax, e-mail, or short messages arrive
- Contact cards can be created from messaging editors/ viewers address fields
- Recipient/sender information is compared to contacts database information (entry verifying)

3.3.1 SMS

User can write and receive short text messages (SMS).
The following SMS features are supported:

- Unclassified short messages
- Class 0, 1, 2, and 3 short messages
- Concatenated short messages (e.g., messages over 160 characters)
- Received class 2 short messages (SIM specific) are stored both in the SIM and in the Inbox
- Multiple recipients
- Send options: Delivery, Date (in scheduled sending), Time (in scheduled sending), Delivery report, Validity period, Reply path request, Service center, Message conversion
- Unicode (character) support

3.3.2 Mail

User can send and receive e-mail. Mail addressed to you is not automatically received by your Nokia 9290 Communicator, but by your remote mailbox. To read your mail, you must first connect to the remote mailbox and then select the messages you wish to retrieve. The connection is established via a data call. The following features are supported:

- Multiple mailboxes, new mailboxes can be added
- Carrier or service provider can add new remote mailboxes by smart messages
- Disconnected (= offline) mode
- Read e-mail attachments: Windows Word, Excel, and PowerPoint. You can view many other file types too, like Lotus files. More file viewers are provided on the CD-ROM supplied in the sales package.
- Mail editor with font formatting, alignment adjusting, object inserting, spell checking (installable from CD-ROM, English only) and bulleting features
- Sending mail attachments
- Opening attachments from mail viewer to appropriate application
- Send as mail (attachment) functionality from other applications (menu command)
- Send options: Priority, Message type, Copy to self, Request read receipt, Mail account, Send message
- Multiple recipients. Recipient fields: To, Cc, Bcc
- Special strings (phone numbers, URLs, etc.) are recognized in Mail viewer and can be used for making a call or launching Web application
- PCMail for PC synchronization

3.3.3 Fax

User can read, write, and send fax messages. The Fax editor allows user to write formatted text with embedded objects such as spreadsheet objects. User can also use another editor for writing fax messages. The Fax viewer is used for viewing received faxes (fax images).

- Fax ECM (Error Correction Mode) provides automatic resending of pages in case of error
- Normal Fax polling (user makes fax call, other end sends fax in the same call to the user – network dependent feature)
- Class 2 and 2.0, Group 3
- Transmission speed up to 14.4 kbps
- Receive and send resolution
  - standard 60 x 60 dpi
  - fine 100 x 100 dpi
- Fax restriction and fax forwarding
- Menu commands for sending written fax also as SMS, mail, or via IR
- Cover page templates for easy fax writing and for corporate usage
- Fax is a network service

3.4 Internet

The Internet application provides access to Internet and value-added services – with Login script and Callback supported. The Main view contains WWW and WAP browser application icons as default.

3.4.1 WWW

The Nokia 9290 Communicator has a full-featured Web browser including:

- HTML 3.2 support (including frames support)
- HTTP 1.1
- Color WWW pages support
- Pointer
- Add link bookmark and frame bookmark
- Full screen mode
- Font style and size can be changed (which show Web page)
- Secure Web browsing (HTTPS) supported over SSLv3 and TLSv1
- WWW browser plug-in support
- Caching of Web pages and offline browsing
- History lists
- Bookmarks
- Reload
- Find

3.4.2 WAP

There are two views in WAP browser: the Bookmarks view and the Card view. The Card view consists of a rendered card and options list. Bookmark view consists of a hierarchical list of saved bookmarks.

The main features:

- WAP 1.1
- Displaying the encoded WML from the WBXML
- Displaying online WBMP images with the WML
- Follow the state modals defined in the WML for navigation
- Supports WMLScript
- Supports color images
- Use of the WAP stack for optimal Over the Air (OTA) bandwidth usage
- Number of bookmarks supported: 100
- Tables supported
- Find

3.5 Contacts

Use Contacts for creating, editing, and managing all contact information, such as phone numbers and addresses. The main contacts database is in the Nokia 9290 Communicator's memory. Other applications (such as telephone, short messages, fax, and e-mail) use contact information from this application. You can also store contacts in separate databases on an attached memory card.

- Several phone numbers per contact/entry supported
- Three address fields (Preferred, Business, Private)
- Phone call, SMS, or e-mail can be created/sent directly from contact card
- Group cards to send short messages, faxes, or e-mails to a large number of people
- SIM and Memory Card contacts can be viewed and edited through this application
- One-touch dialing, individual ringing tones, and contact images can be assigned to a contact card
- General and individual logs
- Contacts database can be exported to PC and imported from PC
- By using Sync-button on the deskstand, database can be synchronized with the most common PC contacts databases, such as Microsoft Schedule+, Microsoft Outlook, Lotus Notes, Lotus Organizer, etc. (More third-party converters can be added later)
- vCard compatible

Contacts compatibility:

- Microsoft Schedule+ 7.x
- Microsoft Outlook 97/98/2000
- Lotus Notes 4.5, 4.6, 5.0
- Lotus Organizer 97, 5.0, 6.0, GS/4.0
- SyncML remote synchronization

3.6 Calendar

The Calendar application is used for organizing time usage by storing and viewing information about events and tasks.

- Calendar has the following views: Month, Week, Day, Weekly time schedule, Year schedule, Anniversaries, and Task lists
- Multiple task lists
- Task lists with alarms and priorities
- Possibility to have several calendars (e.g., for private and business usage)
- Colors and icons can be used to separate different types of calendar events
- Calendar events can be sent and received as smart messages
- National holidays and other calendar events can be received from WWW as normal calendar files
- Calendar can be exported to a compatible PC and imported from a compatible PC
- By using Sync-button on the deskstand, calendar data can be synchronized with the most common PC calendars, such as Microsoft Outlook, Schedule+, Lotus Notes and Lotus Organizer
- Private and public option in calendar event: for example, only public events can be synchronized with PC

Calendar compatibility:

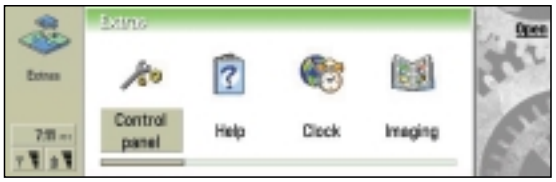
- Microsoft Schedule+ 7.x
- Microsoft Outlook 97/98/2000
- Lotus Notes 4.5, 4.6, 5.0
- Lotus Organizer 97, 5.0, 6.0, GS/4.0
- SyncML remote synchronization

3.7 Office

Office application group contains the following applications:

- Document for viewing, creating, and editing documents – Microsoft Word compatible
- Spreadsheet for viewing, creating, and editing spreadsheets – Microsoft Excel compatible
- Presentation viewer – Microsoft PowerPoint compatible
- File Manager for file management

3.8 Extras



Extras is an application group for several types of applications, for instance: Clock, Calculator, Games, Imaging application, Control panel, Recorder, Video player, and Unit converter. Also, additional applications can be installed here by using the Nokia 9290 PC Suite for Nokia 9290 Communicator.

3.8.1 Control panel

The Control panel application manages all the settings that are not related to one single application. There is also one operational feature in Control panel Main view, namely "Lock system."

Control panel main view contains several icons for different setting categories. Opening them will display a dialog or another view. The settings are:

Display
Contrast, brightness, color, and screen blanker settings

Date & time
Present time setting, clock, and agenda alarm snooze times settings

Regional settings
Time, date, number, and currency formats

Internet access
The user can edit, make new, and delete Internet connections, which are used in different applications.

Profiles

Enables the user to control the audio-visual functionality and accessibility of the device. Each profile is a group of setting values that can be activated at once by activating the profile. One of the profiles is always active. Default profiles are Normal, Silent, Flight, Outdoor, Meeting, Pager, and Car, but the user may add, delete, and modify them as s/he wishes.

Security

The following settings can be modified:

- PIN code request
- Autolock period
- SIM change security
- PIN code
- PIN2 code
- Lock code
- Restriction password

Certificate manager

Managing of cryptographic keys. For example, SSLcertificate.

Install/remove add-on applications

It opens a Main view of the Applications Installer.

Default folder

User can specify the folder that all applications should use as the default folder in the "Save as" command.

Memory

Shows detailed view of device and memory card usage by file type.

Accessories

Settings for car kit and headset accessories.

About product

Detailed information about the Nokia 9290 Communicator.

Regional settings

Date, time, number, and currency preferences.

3.9 Other applications

3.9.1 Log

Log application shows communications from and to the device. Application menus (Menu – Tools) have a command for easy access to log application.

3.9.2 Receive via IR

Infrared (IR) receiving is possible to activate through application menus or by keyboard shortcuts at any time. Received files or messages end up in the Messaging Inbox. Infrared in general has the following features:

- Support IrDA
- Support for IrTranP
- IrObex 1.1
- Transmission speed up to 115 kbps

3.9.3 SyncML – remote synchronization

The Nokia 9290 Communicator supports the SyncML synchronization of contacts, calendar, and task lists over the GSM data call. Nokia 9290 Communicator will work with SyncML-enabled network applications and services.
The Nokia 9290 Communicator Remote synchronization application is supplied on the CD-ROM in the Nokia 9290 Communicator sales package.

The Nokia 9290 Communicator works with SyncML-enabled synchronization servers that support PIM data (contacts, calendar, task lists).

There will be various vendors bringing SyncML-enabled synchronization servers both for carriers and Internet service providers (synchronizing with Internet calendars) and for the corporate market (synchronizing with Lotus Domino or Microsoft Exchange). The list of products that have passed the conformance and interoperability tests of the SyncML initiative can be found at the SyncML initiative's Web site, www.syncml.org.

In addition to the contacts, calendar, and task lists, there is a possibility for independent software vendors to build corporate solutions or vertical applications (inventory data synchronization, sales data synchronization, etc.) based on SyncML technology on top of the Symbian operating system in the Nokia 9290 Communicator.

4. PC CONNECTIVITY

Contents:

4.1 Nokia 9290 PC Suite for Nokia 9290 Communicator

You can connect your Nokia 9290 Communicator to a compatible PC or laptop using the Nokia 9290 PC Suite for Nokia 9290 Communicator program supplied on the CD-ROM in the Nokia 9290 Communicator sales package.

Nokia 9290 PC Suite for Nokia 9290 Communicator works with Windows 95/98/2000 and NT 4.0.

The Nokia 9290 PC Suite features are:

- **File management** – Provides access to the Nokia 9290 Communicator file management as well as the user's own PC file management to move, copy, rename, and delete files and folders on and between your Nokia 9290 Communicator and your PC.
- **Task scheduler** – Enables the user to specify regular tasks and then automatically manages these for the user. You can synchronize applications data like contacts or e-mails between your Nokia 9290 Communicator and your PC.
- **Backup/restore** – (Archive Manager) enables an easy way to view backed-up files and restore different archived versions.
- **Control panel** – Provides access to all Nokia 9290 PC Suite settings.
- **Installing applications**
- **Offline mode** – You can also use Nokia 9290 PC Suite when it is not connected to your Nokia 9290 Communicator (offline mode). When you connect the two devices the next time, the changed information is updated from your PC to your Nokia 9290 Communicator and vice versa.
- **Plug-ins**
  - PC upgrade software (section 4.2. below)
  - Nokia 9290 Administrator Suite (section 4.4 below)
  - Other additional plug-ins

4.2 Upgrade software

The upgrade software is a PC connectivity plug-in. Therefore, you first have to install the Nokia 9290 PC Suite for Nokia 9290 Communicator before installing this program. This upgrade program enables you to move your contact data (phone book), and calendar from the Nokia 5100, 6100, 7100, 8200, 8800 series GSM phones and the Nokia 9110 Communicator to the Nokia 9290 Communicator. The upgrade software is supplied on the CD-ROM of the Nokia 9290 Communicator sales package.

4.3 Multimedia converter

With Multimedia converter you can convert common video file formats to NIM format playable on the Nokia 9290 Communicator. When converting a video file, the size of the converted file is usually much smaller than the size of the original file.

You can also convert common audio file formats to WAV format and optimize existing WAV format sound files for use on the Nokia 9290 Communicator. You can use converted WAV files as ringing tones, for example.

Multimedia converter runs on the 32-bit Microsoft Windows operating system (95, 98, Me, NT4, and 2000). It is included on the CD-ROM of the sales package.

You can use the Nokia 9290 PC Suite for Nokia 9290 Communicator to copy converted files to your Nokia 9290 Communicator via a serial cable or an infrared (IR) connection. You can also store video clips directly to a memory card, if you have an appropriate peripheral installed in your computer. NIM files can also be stored on a Web server and referred from an HTML page. This enables users to download NIM files into the Nokia 9290 Communicator.

Multimedia converter supports most files that you can play in Windows Media Player. The exact set of supported files depends on the version of Media Player installed in your system and on the installed audio and video codecs. Typically, Multimedia converter is able to support most AVI, WAV, MPG, and MP3 files.

Note: You can play a NIM file on your PC using Multimedia converter only.

4.4 Nokia 9290 Administrator Suite

Nokia 9290 Administrator Suite is an additional PC software that is targeted to retailers and corporate IT personnel. It features Nokia 9290 Communicator setting, file, and application delivery to the Nokia 9290 Communicator. The Nokia 9290 Administrator Suite is supplied on the CD-ROM in the Nokia 9290 Communicator sales package.

It is possible to transfer the configurations to the Nokia 9290 Communicator either by connecting the Nokia 9290 Communicator to the PC where the Nokia 9290 Administrator Suite is locally or remotely. In the user interface of the Nokia 9290 Administrator Suite it is possible to create a whole selection of different settings, applications, etc. and transfer that set to one or several Nokia 9290 Communicators. This makes it possible to easily administer several Nokia 9290 Communicators from one service point.

The following settings can be configured:

- IAP settings
- E-mail settings
- WAP settings
- SMS settings

It is also possible to transfer/install:

- WWW bookmarks
- WAP bookmarks
- Voice and fax mailbox numbers
- Files
- Applications/software

In short, the Nokia 9290 Administrator Suite will help company administrators to offer a standard Nokia 9290 Communicator software and setting package to their users.

5. NOKIA 9290 COMMUNICATOR AND DATA SERVICES

Contents:

5.1 Introduction

Before you can start to use the Nokia 9290 Communicator data features efficiently, you have to check the following information from your GSM carrier:

- The cellular network that you use must support data calls
- Data service must be activated for your SIM card
- Before you can use HSCSD data, check with your carrier to see whether it is supported

5.2 Data call and high-speed data options

Data call options can be handled in Internet settings. Under Advanced settings; Connection type, Remote modem type and other data call related information could be found and edited.

Connection type gives two alternatives for the connection type. The default for every IAP (Internet Access Point) is "Normal," which stands for normal single time slot GSM data call. The connection speed can be either 9600 or 14400 bps, and in addition for analog calls autobauding is the third speed option. "High speed" selects the High Speed Circuit Switched Data (HSCSD) call. Higher transfer speeds are achieved by reserving multiple GSM time slots for single user.

Note: The 14400 bps speed for normal GSM data call and HSCSD services are not basic GSM data services. These services may not be available in all networks in all areas, and they may require a separate subscription. If the network does not support the call type, or it has not been enabled in the user's subscription, the data call may fail. Even the basic data call services may need to be subscribed to separately.

Remote modem type defines the connection method to be used. There are three alternatives available: Analog (for normal modems), ISDN V.110, and ISDN V.120. The GSM network and the remote access server or dial-in modem pool must support the selected connection method; otherwise, the connection attempt will fail.

Note: Analog (normal modem) connections are usually supported in all networks. The connection time (before the data call is established) is about 40 seconds for analog connections and 15 seconds for ISDN connections[1]. Maximum data speeds are 28800 bps for analog, 38400 bps downstream for V.110 and 43200 bps downstream with V.120. In addition, the data flow may be smoother when using ISDN connections. These restrictions are caused by the GSM network, and are not inherent to the Nokia 9290 Communicator.

Max. connection speed is for determining the maximum connection speed. The GSM network may change the current connection speed at its direction – for example, when the network becomes congested.

Note: All HSCSD connections are always made with 14400 bps per timeslot. This speed is almost always available in the areas where network coverage is good and the network supports HSCSD. If the network signal quality gets weaker, the speed is automatically downgraded to 9600 bps per timeslot by the GSM network. The network can also decrease the number of time slots allocated for a user if network congestion occurs. These actions may cause fluctuations in the data rate, and may cause the total data rate to be smaller than the requested data rate.

[1] These times are rough estimates and depend on the network coverage, on the Internet service provider, and other variables.

Available connection speeds are:

Connection type	Remote modem type	1 timeslot	2 timeslots	3 timeslots
Normal data call	Analog	Autobauding, 9600 or 14400	Not available	Not available
	ISDN V.110	9600 or 14400	Not available	Not available
	ISDN V.120	9600 or 14400	Not available	Not available
High-speed data call	Analog	9600 or 14400	19200 or 28800	Not available
	ISDN V.110	9600 or 14400	19200 or 28800	28800 or 38400
	ISDN V.120	9600 or 14400	19200 or 28800	28800 or 43200

When HSCSD connections are used, the user may control how many timeslots are used for the connection. Some GSM carriers may charge on slot amount usage basis; some other GSM carriers may implement a fixed charging model for HSCSD calls. Please contact your network carrier for HSCSD coverage and charging details.

6. NOKIA 9290 COMMUNICATOR AND INTERNET SERVICE

Contents:

6.1 Introduction

This chapter describes how to configure Internet settings manually to the Nokia 9290 Communicator to be able to access the Internet. Information concerning the correct settings must be obtained from the Internet service provider (ISP).

The service provider may be able to configure the access point for you via a special SMS message or a WWW page, which sets all the necessary Internet access settings. Please contact your Internet service provider (ISP) for details.

To obtain access to the Internet:

- The cellular network (GSM 1900) you use must support data calls
- The data service (also the High-speed (HSCSD) service if used) must be activated for your SIM card
- You must have obtained an Internet Access Point (IAP) from an Internet service provider
- You must have entered the proper Internet settings

For more information about using the Internet application, please refer to the User Guide of the Nokia 9290 Communicator.

6.2 Nokia 9290 Communicator and Internet features

The Nokia 9290 Communicator supports the following basic Internet features:

- Normal single-slot GSM data calls using either 9600 bps or 14400 bps
- Support for analog modem connections and ISDN V.110 and ISDN V.120 rate adaption protocols
- Point to Point Protocol as the data link level protocol, RFC 1661
- PPP link level authentication using the Password Authentication Protocol (PAP) or Challenge Authentication Protocol (CHAP), RFC 1334
- PPP link level compression using Stac LZS (modes 4 and 3), MPPC, and Predictor compression methods, RFC 1974
- PPP callback using the Microsoft callback protocol (client supplied number, server supplied number) and PPP callback type 0 as specified in RFC 1570
- Internet Protocol Control Protocol (IPCP) extensions for Domain Name Service (DNS)
- Scripting language for automating login procedures, compatible with previous Symbian OS devices (such as Psion's Series 5 PDAs)
- Van Jacobson TCP/IP header compression, RFC 1144
- Secure Sockets Layer (SSL) version 3 and Transport Layer Security (TLS) version 1 protocols

6.3 Creating Internet connections

Obligatory settings for Internet connection are (information from Internet service provider):

- Phone number where to call
- Username
- Password
- Data call options (especially when HSCSD data is used)

To set up new Internet access:

1. Open Internet startup from Desk or from under Extras.
2. Select Internet access and press Open.
3. To create an Internet connection, press New.

If you want to modify an existing Internet Access Point, open Internet access from Control panel in the Extras application.

6.4 Connection details

1. Open Control panel from Extras.
2. Select Internet access and press Open.
3. To view and edit existing Internet connections, select the IAP you want by pressing Change. To create a new Internet Access Point, press New.
4. Create a Connection name that you can recognize easily (e.g., name of the ISP).
5. Type in the phone number of your Internet account. This is the phone number of the dial-in line (also called the modem pool or PPP servers) of the ISP. Your ISP may have several different phone numbers for different modems.
6. Set Password prompt to Yes if you want to type in your password every time you log in. Select No to save your password in your Nokia 9290 Communicator and automate the login procedure. If you are using one-time passwords (such as RSA SecurID or OTP), select Yes.
7. Type in the Username for your Internet account.
8. Type in the Password for your Internet account. Then confirm the password by retyping it in the Confirm password field. Note that the characters in your password are replaced with symbols so that no one can see them accidentally. Note also that usernames and passwords are usually case-sensitive (capitalization of letters matters).

The username and password are used for PPP (Point to Point Protocol) authentication and supplied to you by your Internet service provider. Some IAPs do not require the username and password; some IAPs may only require the phone number and the connection name.

6.5 Advanced settings

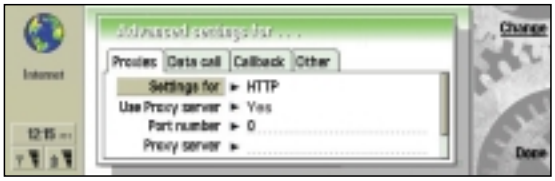
To define advanced settings of the connection, press Advanced settings. A dialog with four pages opens.

6.5.1 Setting proxies

You may wish to use a proxy to speed up access to the Internet. Note also that some ISPs require the use of WWW proxies; contact your ISP to determine the proxy details.

You may also need a proxy server when you have an Internet connection for your company's intranet, and as a result are unable to retrieve Web pages from the WWW. In this situation you may need to set up a proxy server to retrieve Web pages outside your company's intranet.

A proxy is a server at the interface between your Nokia 9290 Communicator and the remote (target) WWW server that offers the Web pages. Proxies usually cache popular documents so that they do not need to be reloaded from the remote server every time they are accessed. After you get the connections working, you may want to test the connection speed with and without proxies to find out whether they offer any increase in speed.

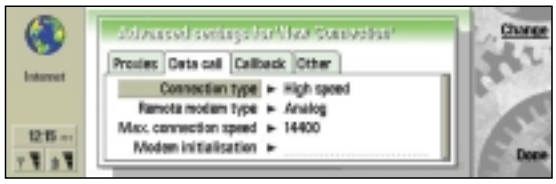


1. Select the Protocol for your connection. (HTTP is for normal WWW connections and HTTPS is for SSL-secured WWW connections. Usually, but not always, the proxy information is the same for both protocols.)
2. Set Use proxy server into Yes or No according to your setting requirements.
3. Type in the Port number. This is often 8000, 8080, or 80, but can vary by proxy server.
4. Type in the address of the Proxy server (either the domain name or the IP address).
5. Type domains that should not be accessed through the proxy server in the No proxy for field. Separate each domain with a semicolon (;). For example, if you want to use proxies for all pages other than those that reside in your company's intranet, write your company's domain name (e.g., yourcompany.com) in this field. If your company intranet requires the use of proxy servers, contact your support person for details.

Note: Settings 3, 4, and 5 are available only when proxy servers are used.

6.5.2 Modifying data call settings

1. To activate the Data call tab, press the Menu key.



2. Select the Connection type. Options are Normal and High speed.

Note: To be able to use High speed, the network service provider has to support this feature, and, if necessary, to activate it for your SIM card. When using High speed, extra charges may apply, even for received data calls within your home network. Check with your network service provider for details on their pricing.

3. Select the Remote modem type. The default is Analog, but your service provider may also have ISDN connections available. This setting may depend on both your GSM network carrier and ISP, because some GSM networks do not support certain types of ISDN connections. For details, contact your ISP and network provider. ISDN connections are preferable to analog connections, because they offer considerably faster data call establishment (often about twenty seconds faster than with analog connections), and offer higher data transfer speeds as the connection is fully digital from end to end. On the other hand, if you have problems establishing a data call (for example, when roaming outside your home network), using analog connections may help you to establish a connection.
4. Set the Maximum connection speed. When your Connection type is Normal, only autobauding, 9600, and 14400 are available. Different, higher connection speeds are available with different combinations of High speed settings. Higher data rates may cost more, depending on the network service provider. The speed indicated here is the maximum speed that will be used. The true data transfer speed depends on congestion in the Internet, the type of data you are downloading, whether you are running other applications on the Nokia 9290 Communicator, on the congestion of the mobile phone network, and on your location in the mobile phone network. In poor reception areas, the network may choose to use a significantly lower transmission speed.
5. Type in the Modem initialization string, if needed, to control the Nokia 9290 Communicator using modem AT commands. Enter characters specified by your network service provider or ISP; otherwise, leave this field empty. The modem initialization string specified here will override all other data call settings. The initialization string may be required if the normal settings are not sufficient for a particularly complex network/IAP configuration.

For more details, see also Chapter 5 – Nokia 9290 Communicator and Data Services.

6.5.3 Taking callback into use

This option allows a server to call you back once you have made the initial call, which means in most countries that a connection is established without your having to pay for the call. Contact your ISP to find out whether this service is available and to subscribe to this service. If you are roaming outside your home network or use high-speed data calls, you may still have to pay for part of the call.

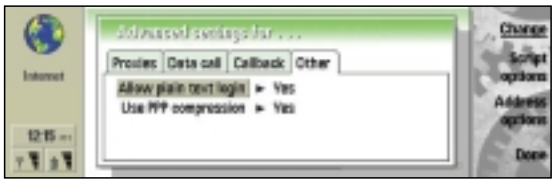
Note: Most public ISPs do not support callback. Most common callback users are companies and other private dial-up systems that require increased security.

1. To activate the Callback tab, press the Menu key.
2. Set Use callback to Yes if you have a service that dials back to your phone when you establish an Internet connection. Callback works as follows: You first dial into the IAP and request callback. The data call is then closed. Within a minute, the IAP has to call back to your Nokia 9290 Communicator.
3. Select the Callback type. You have the option of choosing between IETF PPP callback protocol, which calls back to a number stored on the callback server, and two different modes of Microsoft callback protocol, one of which uses a number stored on the server, and one which uses a client-supplied phone number.
4. If you selected Use number below, type in your Callback number. This number is usually the data call phone number (not the voice number) of your Nokia 9290 Communicator. This is filled in when using Microsoft callback protocol in a mode where the client specifies the number to call back.

The Callback call from the remote server must use the same data call settings as the callback-requesting call. The network has to support the call type in both directions (to and from the Nokia 9290 Communicator). You may need to ask your ISP to configure the callback server accordingly, and check with your network provider as to whether the GSM network supports this functionality.

6.5.4 Other settings

1. To activate the Other tab, press the Menu key.



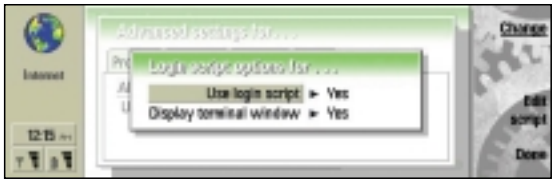
2. Set Allow plain-text login to No if you don't want to send your password as plain text without encryption. Note that this option only affects PPP connections, and some ISPs require that this setting is Yes. Check with your ISP: If your ISP supports CHAP or MS-CHAP, set this to No; if they only support PAP, set this to Yes.
3. Set Use PPP compression to Yes to enable compression. When set to Yes, this option speeds up the data transfer (especially when downloading text and other compressible information) if it is supported by the remote PPP server. If you have problems establishing a connection, try setting this to No.

6.5.5 Setting script options

If you need to define script options for your Internet connections, move to the Other page of the Advanced settings dialog, then press Script options. A script can automate the connection between the Nokia 9290 Communicator and the server.

Note: Scripts are not usually required when you establish a connection. To find out whether you need a script, contact your ISP. Usually a script is required if the login procedures do not use standard PPP authentication systems (PAP, CHAP, or MS-CHAP).

1. Press Script options to open the Script options dialog.



2. Set Use login script to Yes in case your Internet service provider requires a login script, or if you want to automate your login with a script yourself.
3. Set Display terminal window to Yes if you want to be able to see the execution of the script or to interact with the terminal server during login. Note that this setting is only available when Use login script is set to Yes.
4. To view and modify the script, press Edit script.
5. Type in the script. This information is provided by your Internet provider. Press Import script to import script from a file. The scripting syntax is available from Forum Nokia and has to be imported in Unicode format.
6. Press Done to finish.
7. Press Done to close script options.

6.5.6 Setting server address options

Note: Usually you do not have to alter Address options. Most ISPs support automatic configuration of IP and DNS addresses.

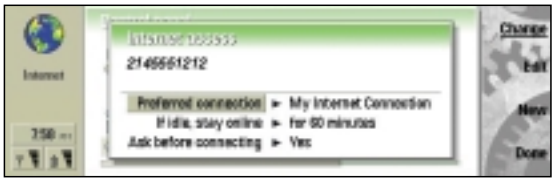
1. Press Address options to open the server address options dialog.

2. In the Address options dialog, you can set the addresses of your Internet services. IP addresses are unique strings of numbers that point to computers on the network. Set Auto retrieve IP address to Yes if you want to obtain the IP addresses automatically from the server (this is also called the dynamic IP). To type in the IP addresses on the fields below, select No. Type in your IP address if Auto retrieve IP address is set to No. In this case, your ISP will provide you with a fixed IP address.
3. If you cannot auto retrieve DNS addresses automatically, set Auto retrieve DNS address to No, and type in the Primary DNS address and the Secondary DNS address if necessary. DNS means "domain name server" – that is, a server that translates domain names (foo.bar.com) into IP addresses (of the type 000.000.000.000).
4. Press Done to close the Address options dialog.
5. Press Done to close the Advanced settings dialog.
6. Press Done to close the Connection details dialog.

Note: New connection is set as Preferred connection by default. To select a different Preferred connection, press Change. A list of your Internet connections opens.

6.6 Editing Internet access

To edit some additional settings of already configured Internet access points, press the Menu key and open the Control panel under Tools (or open it from Extras). Open Internet access.



In addition to the settings discussed above, you can also edit the following settings:

- Preferred connection: If you have configured several Internet access points, select which one is the preferred one when connecting to the Internet.
- If idle, stay online: The connection to the Internet will automatically close after the inactivity period defined here. The options are For 2 minutes/For 5 minutes/ For 10 minutes/For 60 minutes.
- Ask before connecting: To monitor the connection process, set this setting to Yes. This way you can always see when a connection is established as the connection dialog opens when you use the Web browser. If you are using several different IAPs (for example, one for company intranet and one for public WWW access, or one for normal and one for high-speed data calls), it is recommended to set this to Yes so that you can always be sure to which IAP the connection will be made.

Press Done to close the Connection details dialog.

6.7 Tested Nokia 9290 Communicator compatible PPP access servers

This section contains a list of commonly used PPP dial-in access servers, which have been compatibility tested with the Nokia 9290 Communicator. Another type of PPP server may also work, assuming the server has been configured with generally used PPP settings, such as:

- The PPP server is capable of establishing data calls using the PSTN/ISDN V.110/ISDN V.120 method
- The server is able to handle a maximum transfer unit (MTU) of at least 1500 octets
- Login script authentication with terminal server or PAP/CHAP authentication with PPP server
- Van Jacobson TCP/IP header compression on/off
- Dynamically/manually set IP and DNS addresses
- PPP compression provided by Compression Control Protocol on/off
- IP packet routing gateway information is set by the PPP server

The configuration options listed here may differ for your local Internet access point. Please contact your local ISP or corporate information management to get more information about used parameters for your Internet Access Point.

Compatibility tested PPP servers with the Nokia 9290 Communicator:

Cisco AS5300
Cisco AS5200
Shiva Access Switch
Shiva LanRover E+
Microsoft NT RAS 4.0
Ericsson Tigris AXC 623
Ascend Max 4004
Lucent PortMaster 3
Nortel/Bay Networks Versalar 8000
Morning Star PPPD
Various Linux/Unix based PPP daemons conforming RFC 1661

6.8 Default parameters and settings

- Async Control Character Map (ACCM) 0x00000000
- Dynamic protocol timeout for LCP, IPCP, CCP, PAP, and CHAP 3 seconds
- Maximum Receive Unit (MRU) 1500
- Magic number negotiation is on
- Address and Control field Compression is on
- Maximum configure request restart 10
- Maximum configure Naks before failure 5
- Link quality report interval 10 seconds
- Compression method negotiation order (PPP compression on by default):
  - Stac LZS mode 3
  - Stac LZS mode 4
  - Microsoft PPC
  - Predictor 1
- PPP callback is off
- TCP/IP-header Van Jacobson compression on
- TCP maximum segment size (MSS) 536 bytes
- Maximum time-to-live (TTL) 64
- Default PPP idle timeout is 2 minutes
- Show connection dialog is off
- Proxy servers are off by default
- Default data call parameters are normal analog data-calls, autobauding, and no AT commands
- Plain text login is allowed by default
- Login scripts are not used by default
- IP addresses and DNS addresses are requested dynamically from server by default
- For SSL and TLS, a collection of well-known certification authorities' root certificates has been installed and marked as trusted

7. NOKIA 9290 COMMUNICATOR AND E-MAIL SERVICE

Contents:

7.1 Introduction

For reading and sending e-mail via the Nokia 9290 Communicator remote e-mail client, you need to have an Internet Access Point (IAP) configured to your Nokia 9290 Communicator. For further information on how to configure IAPs, please refer to Chapter 6 – Nokia 9290 Communicator and Internet Service.

You also need to have an e-mail account that supports SMTP protocol for sending e-mail, and POP3 or IMAP4rev1 protocol for receiving e-mail. You can also have multiple e-mail accounts in the Nokia 9290 Communicator.

Note: The necessary settings for mail configuration are provided by your e-mail service provider. Depending on your service provider, you may not need to fill in all of the settings. If your mail settings are incomplete or incorrect, please contact your service provider. An e-mail service provider can be your company or a commercial ISP, for example.

Important information that must be filled in when defining a new e-mail account includes:

- Host name to receive mail (IMAP4 or POP3 e-mail server)
- Host name to send mail (SMTP server)
- Mailbox type (which protocol to use, either POP3 or IMAP4)
- Username (case sensitive)
- Password (case sensitive, displayed using asterisks (*))
- Dial-in access point for the mail service
- Use of secure connection (i.e., require SSL/TLS encryption to be used)

7.2 Mail settings

In order to connect to your electronic mailbox service, you need to define your remote mailbox on your Nokia 9290 Communicator. This can be made from the Messaging application main view under Menu (see figure below) or from that shortcut (Internet Start up) in the Desk application.

To define a new remote mailbox:

1. Press the Menu key in the main view of the Messaging center and first select Tools, then Accounts. A list of accounts opens.
2. Press Create new to create an e-mail account. You'll get the following dialog:

3. Select Email and press OK. A dialog with four pages opens.
4. Define the settings on the General, Servers, Retrieve, and Advanced pages below.
5. You must fill in at least:
   - Username used to log in the POP3/IMAP4 e-mail server
   - Password for the POP3/IMAP4 e-mail server
   - Your e-mail address (e.g., for replies to messages you have sent)
   - Outgoing e-mail server (host name for SMTP server)
   - Incoming e-mail server (host name for IMAP4 or POP3 server)
6. Press Delete to discard any changes.
7. Press Close to accept the changes you have made.

7.3 General page

1. Enter the name of the remote mailbox under My account name. The name can be entered freely (e.g., My mail, John's mail, etc.).
2. Type your name (note: your name appears here automatically if you have entered your contact card), username, and password.

Tip: Usually the name and password are the same ones you use for your Internet Access Point (PPP authentication). However, if your e-mail service provider is different from the Internet service provider, this may not be the case. Note that both the username and password are case-sensitive (capitalization of letters matters). If you do not specify a password, you will be prompted for one when you try to read mail in your remote mailbox.

3. My mail address: Type in the e-mail address given to you by your service provider. The address must contain the @ character. This address will be shown as the originating (From) address in your messages.
4. Choose the Internet Access Point used for the mailbox. Choose from the list that contains all available IAPs. Note that you must be able to connect to the remote mailbox via the given IAP. For example, if you are accessing your company's intranet mailbox, you may need to use your company's intranet Internet Access Point as well.
5. Choose Default account from the list, which contains all available mail accounts.

7.4 Servers page

1. Press the Menu key to activate the Servers tab.

2. Select Mail account type (POP3 or IMAP4). This defines the mail protocol your mailbox service provider recommends. If you are allowed to choose between these two protocols, you should select IMAP if you are working with multiple folders and receive a lot of attachments, and POP if you have a single incoming mail folder and receive no attachments. POP may be slightly faster in some situations, but IMAP gives the user more control over the mailbox and mail retrieval. Note that mailbox type cannot be changed after the e-mail account settings have been saved!
3. Enter the Outgoing mail server IP address or host name. This is also known as the SMTP server, sending server, or mail relay. When you are sending e-mail, your Nokia 9290 Communicator connects to this server and sends the mail. This server will then relay the mail towards the recipient's mail server (e.g. 123.123.123.123 or mail.server.com).
4. Enter the Incoming mail server IP address or host name. This is also known as the IMAP or POP server (depending on the account type) or the remote mailbox server. When you receive mail, the mail will be stored on this server. During mail retrieval, your Nokia 9290 Communicator connects to this server in order to download mail.

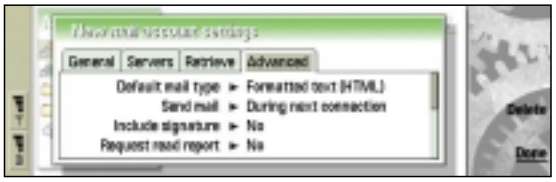
7.5 Retrieve

Press the Menu key to activate the Retrieve tab and fill in the following settings:

- Retrieve: Choose what will be fetched from the remote mailbox when the connection is established. The options are: Message headers (stay online)/Messages and attachments/Messages. The last option is available only if the Mail account type is IMAP4.
- Max. size of message: The maximum size of a message that will be retrieved with the Retrieve mail command. The minimum is 1 and the maximum is 1000 kB (kilobytes). One kilobyte corresponds to approximately half of a written page of plain text. Max. size of message also includes attachments.
- Synchronize: Sync your mail folders.

7.6 Advanced page

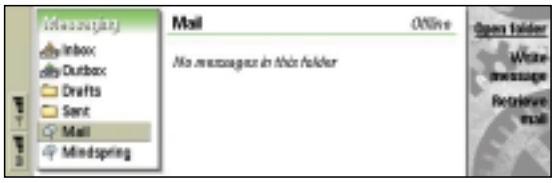
Press the Menu key to activate the Advanced tab and fill in the following settings if necessary. Contact your e-mail service provider for the correct settings.



- Default mail type: Select the type of mail that you can write and send from your Nokia 9290 Communicator. The options are Plain text/Plain text (no MIME)/ Formatted text (HTML).
  - If you are using accented characters, you should use either Plain text or Formatted text. Otherwise, accented characters will not be transferred correctly.
  - For the best compatibility across existing electronic mail systems, choose Plain text. If you are only communicating with people with new, graphical e-mail systems, you can choose Formatted text. Formatted text may not be correctly shown to recipients with older, text-based e-mail systems.
  - Use Plain text (no MIME) only if corresponding with people with old e-mail systems.
- Send mail: Choose how mail messages are sent from your Nokia 9290 Communicator. The options are Immediately/During next connection/Upon request.
  - Bear in mind that if you select During next connection, the mail will be sent during the next connection to that mailserver, not during the next connection to the Internet.
- Include signature: Select whether your signature is attached to sent mail. The options are No/Use my contact card/Custom. If you choose Custom, press Edit signature to create a signature.
- Request read report: Select whether you want to receive a report when the recipient has read your mail. The options are Yes/No.
  - Not all e-mail software can generate a read report. A read report should not be used as proof that a mail has been read or not read. Usually the recipient can decide whether a read report will be generated or not.
  - Some mail systems call read reports "read receipts" or "disposition notifications."
- Allow report requests: This option defines whether the Nokia 9290 Communicator will generate a "read report" mail to the Outbox if received mail requires it. The options are Yes/No.
  - Read reports will be generated in your outbox. The Nokia 9290 Communicator will reply to standard disposition notification requests and some non-standard requests. Depending on the sender's mail system, a read report may not be generated. If the sender's mail system does not support standard disposition notifications, the mail system may not be capable of utilizing the information in the read report automatically.
- Copy to my mail address: Select whether you want to send a copy of sent mail to your own mail address. The options are Yes/No.

- Secure login (APOP): The options are Yes/No. Use of APOP increases security when connecting to a POP3 mail server. Please check with your e-mail service provider whether this option can be used. The option is available only if the used e-mail protocol is POP3.
  - Note that this does not encrypt your mail or protect the mail itself in any way. This option just protects your password from being transmitted as plain text.
- Secure connection (TLS): Select whether to use TLS security when connecting to the mail server. The options are Yes/No. Please check with your e-mail service provider whether this option can be used.
  - The mail server needs to support the standard "starttls" or "stls" command (depending on the protocol) in order to be used with the Nokia 9290 Communicator. Some older servers use a dedicated server port for secure connections over SSL. The Nokia 9290 Communicator does not support this non-standard system.
  - Note that this only protects the transfer of your e-mail between the Nokia 9290 Communicator and the first server (either the sending server or your remote mailbox). When sending mail, it will be transferred without any security from the first mail server onwards. Also, any mail you receive will have been transferred without any security to the remote mail server.
  - When using security, both the sending and receiving servers must support secure connections.
- Enter IMAP4 folder path: (The folder path could be Inbox, for example.) This option is available only if the mailbox type is IMAP4.

After you have filled in all details, press Close to close dialogs, and the new e-mail account will appear in the Messaging application as shown in the picture below. (The name of the remote mailbox is the name that you defined earlier.)



New e-mail account in Messaging application

Now you are ready to use the Retrieve mail command to connect to the newly defined e-mail account and fetch messages. The very first time you connect to the IMAP4 account may take more time, depending on the number of mail messages in the remote Inbox and also the number of remote mail folders, because the device fetches message headers and scans remote folders for subscriptions. Subsequent Retrieve mail commands should work faster, as only changed folder data is downloaded to the device.

Note: Once you have retrieved mail and you go offline, all the headers from your remote mailbox are shown in your Nokia 9290 Communicator's Mail inbox. BE CAREFUL WHEN DELETING THEM, because if you delete them, they will be deleted from your Remote inbox, too, the next time you connect to your mailbox. To avoid this situation, please refer to the Messaging chapter in the User Guide.

Tip: When using an Internet Access Point that uses a high-speed data call, and when you have to send large attachments or e-mails, you will get the fastest upload (sending) speed if you select "28800" as the maximum transfer rate in the IAP settings. This involves the use of two GSM timeslots (28800 bits per second) in the uplink direction (from your Nokia 9290 Communicator to the mail server). All other transfer rates use just one GSM timeslot, 9600 or 14400 bits per second, in uplink direction. When downloading (receiving) mail, you will get the best performance by selecting the largest possible value as the maximum transfer rate.

7.7 PCmail and Nokia 9290 Communicator

PCmail is a mail you can read, write, and edit on your Nokia 9290 Communicator, but which cannot be sent without your PC or laptop. PCmails are sent the next time you synchronize your Nokia 9290 Communicator to your PC or laptop.

Internet mails can be converted to PCmails so that mails can be synchronized with your PC or laptop, or PCmails can be converted to Internet mails so that mails can be sent directly from the Nokia 9290 Communicator.

Note: Refer to the Nokia 9290 Communicator User Guide for converting mails.

7.8 Compatible e-mail systems

Here are listed mail systems that can be connected with the Nokia 9290 Communicator. All of these systems should work with the Nokia 9290 Communicator. This list is not exhaustive and other mail servers supporting standard Internet protocols (SMTP, IMAP4, and POP3) should work as well.

Cyrus IMAPD Mail Server (http://asg.web.cmu.edu/cyrus/)
- Cyrus IMAPD Mail Server (Carnegie Mellon) supports MIME, IMAP4, and POP3 standards

HP OpenMail (http://www.hp.com)
- OpenMail 6.0 (for Linux) supports SMTP, MIME, IMAP4, and POP3 standards

Lotus Domino Mail (http://www.lotus.com)
- Lotus Domino R5 Mail Server supports SMTP, MIME, IMAP4, and POP3 standards

Microsoft Exchange 5.5 (http://www.microsoft.com)
- Microsoft Exchange 5.5 supports SMTP, MIME, IMAP4, and POP3 standards

Microsoft Exchange 2000 (http://www.microsoft.com)
- Microsoft Exchange 2000 supports SMTP, MIME, IMAP4, and POP3 standards

Oracle InterOffice Mail Server (http://www.oracle.com)
- Oracle InterOffice Mail Server 5.1 supports the SMTP, MIME, IMAP4, and POP3 standards

Stalker CommuniGate Pro Mail Server
(http://www.stalker.com/CommuniGatePro)

- Stalker CommuniGate Pro 3.3 supports SMTP, MIME, IMAP4, and POP3 standards and also secure connections (SSL/TLS). Also APOP command is supported for POP3.

Sun Internet Mail Server (http://iplanet.com/)

- Sun Internet Mail Server 4.0 supports SMTP, MIME, POP3, and IMAP4 standards

University of Washington IMAP4 Server
(http://www.washington.edu/imap)

- UW IMAP Server v10.173 supports POP3 and IMAP4 standards

Zmailer (http://www.zmailer.org/)

- ZMailer (version 2.99) supports SMTP standard

TeamWare Office Mail Server
(http://www.teamware.com/products/)

- SMTP, MIME, POP3, and IMAP4 standards

Other solutions

If the e-mail server does not support POP3/IMAP4 and SMTP protocols, it may be possible to use converter software that provides necessary POP3/IMAP4 and SMTP protocol support for the e-mail server.

Examples of converter software include Infinite InterChange by Infinite Technologies. Infinite InterChange creates POP3, IMAP4, and HTTP/HTML support. More information on the Infinite InterChange can be found at www.ihub.com.

Additionally, connection to the e-mail server can also be established with the Nokia 9290 Communicator's Web browser if the e-mail server supports HTTP/HTML access.

Note: With the Nokia 9290 Communicator, you can also read Web mails, i.e. Hotmail and Yahoo mail.

7.9 Supported e-mail attachments

E-mail attachments are supported and downloaded attachments that can be viewed on the Nokia 9290 Communicator. Initially supported attachment types are marked with an asterisk (*) in Table 1 (on the next page). Other attachment types in Table 1 are supported if the appropriate application or converter is installed to the device. New attachment types can be supported via add-on applications installed to the Nokia 9290 Communicator. Downloaded attachments can also be saved to files and transferred to a PC for viewing. Overall use of attachments is rather limited by the small disk space and amount of free memory. A memory card can be used to expand the available disk space for messaging.

7.10 RFC (Request for Comments) documents

Internet e-mail protocols are specified using RFC (Request for Comments) documents. RFC documents are available, for example, from IETF (the Internet Engineering Task Force, www.ietf.org/).

SMTP (Simple Mail Transfer Protocol)	RFC 821
Standard for the format of ARPA Internet text messages	RFC 822
POP3 (Post Office Protocol, version 3)	RFC 1939
PPP (Point to Point Protocol)	RFC 1661
MIME (Multipurpose Internet Mail Extensions) Part One: Format of Internet Message Bodies	RFC 2045
MIME (Multipurpose Internet Mail Extensions) Part Two: Media Types	RFC 2046
MIME (Multipurpose Internet Mail Extensions) Part Three: Message Header Extensions for Non-ASCII Text	RFC 2047
IMAP4 (Internet Message Access Protocol, version 4rev1)	RFC 2060
TLS (Transport Layer Security Protocol, version 1.0)	RFC 2246
Read receipts (an Extensible Message Format for Message Disposition Notifications, Disposition-Notification-To header)	RFC 2298
SMTP Service Extension for Secure SMTP over TLS	RFC 2487
Using TLS with IMAP, POP3, and ACAP	RFC 2595

Table 1 Supported e-mail attachments

The Nokia 9290 Communicator supports the following e-mail attachment types:

Attachment type	File extensions	MIME Types
Audio File	WAV, AU, WVE	"audio/x-wav" "audio/basic" "audio/x-sibo-wve"
CompuServe GIF	GIF	"image/gif"
Computer Graphics Metafile	CGM	"image/cgm" "image/x-cgm"
Corel/Novell Presentations	SHW	"image/x-presentations"
Symbian OS Word*	-	
Symbian OS Sheet*	-	
Symbian OS Bitmap*	MBM	
Internet HyperText Markup Language*	HTML, HTM	"text/html"
Lotus 1-2-3 v.1/2/3/4/5/97/Millennium	WQ1, WKU, WK1, WK3, WK4, WK5, WK6, 123	"application/x-lotus-123" "application/vnd.lotus-1-2-3"
Lotus AMI Draw	SDW	"image/x-amidraw"
Microsoft Excel 2/3/4/5/7/97/98/2000	XLS, XLC	"application/x-msexcel" "application/x-excel" "application/vnd.ms-excel" "application/msexcel" "application/xlc"
Microsoft PowerPoint 3/4/7/97/98/2000	PPT, POT, PPS	"application/x-mspowerpoint" "application/vnd.ms-powerpoint" "application/ppt" "application/pot" "application/pps" "application/mspowerpoint"
Microsoft Project	MPP	"application/vnd.ms-project"
Microsoft Word 1/2/3/4/5/6/7/97/98/2000	DOC, WRI	"application/msword" "application/vnd.ms-word" "application/vnd.msword"
Paintbrush	PCX, DCX	"image/x-pc-paintbrush"
PKZIP Format	ZIP	"application/zip"
Portable Network Graphics	PNG	"image/png" "image/x-png"
Rich Text Format	RTF	"application/rtf"
Ringing Tones*	MG	"application/vnd.nokia.ringing-tone"
Tagged Image File Format (TIFF, JPEG)	TIF, JPG, JIF	"image/tiff" "image/jpeg"
Text*	TXT	"text/plain"
vCard	VCF	"text/x-vcard"
vCalendar	VCS	"text/x-vcalendar"
Visio	VSD	"application/vnd.visio"
Windows Bitmap	BMP, RLE, ICO, CUR	"image/x-win-bitmap" "image/x-MS-bmp" "image/bmp" "image/x-bmp"
Windows Metafile	WMF, EMF	"image/x-win-metafile" "image/x-wmf"
WordPerfect 4/5/6/7/8	WPD	"application/wordperfect5" "application/wordperfect5.1" "application/x-wordperfect6"

8. NOKIA 9290 COMMUNICATOR AND WAP SERVICE

Contents:

8.1 Introduction

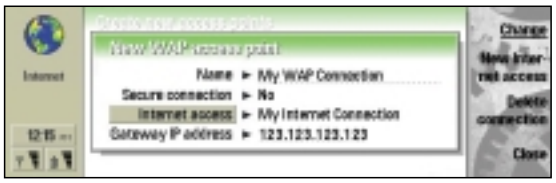
Before you can use the WAP services, you need to configure your WAP settings. Your WAP service provider will provide you with the exact values for the WAP settings. Follow the instructions carefully. You can use this information to define and edit the settings manually.

Also, your service provider may be able to send some, or all, of the required settings to you via a special short message called an Over the Air (OTA) message. After you have received the settings, you can start using the WAP application or edit the settings as described below.

Note: The necessary settings for WAP configuration are provided by your WAP service provider. Depending on your service provider, you may not need to fill in all of the settings.

8.2 Defining WAP access points manually

To set up a new WAP access point, open Internet startup under the Extras application, and select WAP access (a shortcut to Internet startup can also be found in the Desk application).



1. Open Internet startup from Desk or from under Extras.
2. Select WAP access and press Open.
3. Fill in the following settings. Contact your WAP service provider for the correct settings.
   - Name – Create a name for the access point that you can recognize easily.
   - Secure connection – Choose whether to Use secure connection, according to your service provider's instructions.
   - Internet access – From a selection list, choose the Internet Access Point (IAP) you want to use for this connection. If you have no configured IAPs, you can create a new one by pressing New Internet access.
   - Gateway IP address – Type in the IP address that the WAP gateway uses.
4. Press Close to exit the WAP access point settings.

8.3 Setting home page

1. Press the Internet button and open the WAP application.
2. Press the Menu key, and open the Settings dialog under the Tools menu.
3. To activate the Home page tab, press the Menu button.
4. Type in the WAP home page URL.
5. Choose the WAP access point you want to use.
6. Press Done to exit the WAP settings.

8.4 Supported images, their suffixes, and MIME-types

In addition to WBMP image format, the Nokia 9290 Communicator supports all the most commonly known image formats.

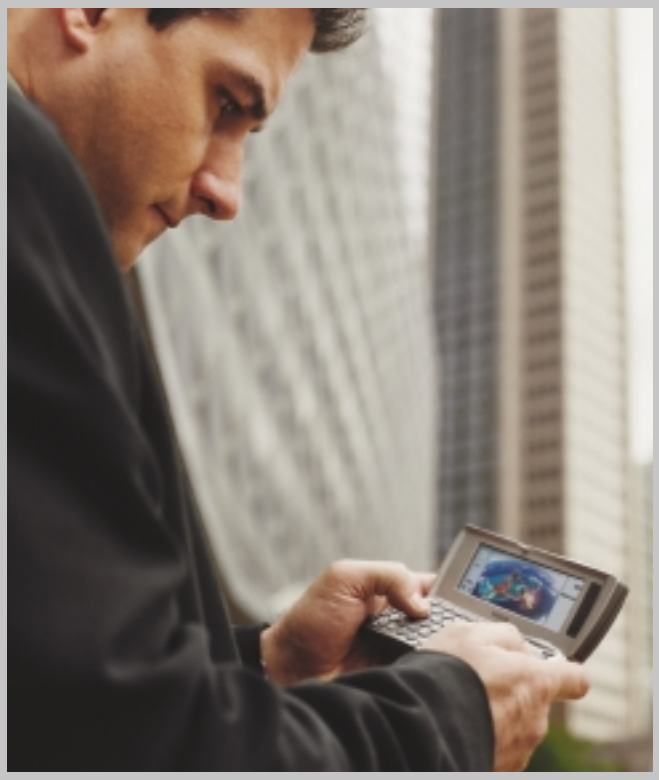
Note: Some WAP gateways may not support all of these content types.

Nokia WAP gateway products support all the content types listed here:

- a WBMP (Wireless Bitmap), "image/vnd.wap.wbmp"
- a JPEG file (incl. Progressive), ".JPG", "image/jpeg"
- a GIF file (incl. anim-gif), ".GIF", "image/gif"
- a PNG file, ".PNG", "image/png"

The WAP Service Developer's Guide for the Nokia 9290 Communicator, which is available at www.forum.nokia.com, contains more detailed information about WAP and the Nokia 9290 Communicator.

9. NOKIA 9290 COMMUNICATOR AND REMOTE / OVER THE AIR (OTA) CONFIGURING



Contents:

9.1 General

This chapter shows how the Nokia 9290 Communicator can be configured remotely using Symbian's Bearer Independent Object (BIO) messaging. Remote configuration helps the end user to get the most out of the device as quickly as possible. Complex settings, such as Internet settings, can be "pushed" to the device by the carrier or the help desk of an Internet service provider or a corporate IT department.

The configuration messages are sent to the Nokia 9290 Communicator using the GSM Short Message Service (SMS). For maximizing the compatibility and minimizing the transition period for help desks, the BIO messaging support for the Nokia 9290 Communicator is similar to Nokia Smart Messaging, which is supported by earlier Nokia 9290 Communicators. The development of the Symbian platform may introduce new BIO message types in the future that leverage the new features of the Nokia 9290 Communicator and the Symbian operating system. WAP settings can be configured using OTA (Over the Air) configuration syntax.

9.2 Further information and support

The supported message syntax is based on Smart Messaging Specification 3.0.0, Nokia Mobile Phones, 2000. The document is available from the Forum Nokia Web site at www.forum.nokia.com/, Smart Messaging section.

The syntax for WAP settings is based on WAP Over the Air settings specifications, available from the Forum Nokia Web site at www.forum.nokia.com/, Smart Messaging section.

For details on what the Internet settings mean, please refer to chapters 5 and 6 in this document.

9.3 Creating configuration messages

The creation and syntax of Smart Messaging-type configuration messages is specified in the Smart Messaging specification mentioned in section 9.2. That specification contains the details on how the messages should be created and sent.

The following sections list the deviations from that specification.

9.3.1 Configuration over SMS only

At the moment, the only way to transfer a configuration message to the Nokia 9290 Communicator is over the GSM Short Message Service. Transferring the configuration messages over HTTP (in Web) or as e-mail attachments is not supported yet.

The Nokia 9290 Communicator is a WAP device and as such all Smart Messages should be sent to WDP ports, as specified in the Smart Messaging specification. If this is not possible, keyword headers (also known as compatibility headers) can also be used. NBS port numbers, on the other hand, should not be used.

9.3.2 Non-supported feature sets

Some of the following feature sets were specified in older versions of the Smart Messaging document. They are listed for the sake of completeness.

- TTML (Tagged Text Markup Language) is considered as "deprecated." WAP and WML have replaced TTML. The Nokia 9290 Communicator does not support TTML.
- DMCP (Dynamic Menu Control Protocol) is not supported by the Nokia 9290 Communicator. The majority of features are activated from the PDA side of the Nokia 9290 Communicator; therefore, dynamic menus on the phone side are not supported.
- Service Cards are not supported. Service Card functionality can be used with normal business cards that have a phone number field for each service. To converge with the de facto standards, the Nokia 9290 Communicator supports the vCard business card format, which can be used for this purpose.
- Extended Configuration Syntax is not supported at the moment, except for the Short Message Center number setting.

9.3.3 Further deviations

- The Notify text field in the basic Internet configuration message is now optional, rather than mandatory. Hence, the first line of the definition now reads: <iap-message> ::= [<iap-compatibility-header>] [<notify-text>] <info-body>
- Script version and script data fields in Internet configuration settings are not used in the Nokia 9290 Communicator.

10. NOKIA 9290 COMMUNICATOR AND SECURITY

Contents:

10.1 Hardware and SIM card security

The following security methods can be used to ensure Nokia 9290 Communicator hardware and SIM card security (for details and activation/deactivation, please refer to the Nokia 9290 Communicator User Guide):

- PIN code & PUK code
- Security code for SIM change security
- Device lock – to lock the whole device
- Call restriction – to restrict incoming or outgoing calls

10.2 Radio interface security

The security of the radio connection between a GSM phone and the GSM network is specified in the GSM standards. The GSM network specifies the radio interface security level, and the encryption applies to voice, data, and fax calls. Note that encryption is only used between the GSM phone and the base station. The level of security in the radio transmissions depends on the network and the local laws.

GSM short messages (SMS) are transported using the GSM signaling channels, but these signaling channels are not encrypted. Therefore, short messages are not a secure way to transport data.

10.3 Software security

As the Nokia 9290 Communicator is a versatile and open programming environment, anyone can create new software for it. The Nokia 9290 Communicator has a secure software installation system that can be used to minimize the risks posed by the possible malicious software.

Software is distributed in software packages called SIS files. These packages can be digitally signed. By signing a software package, the originator of the package makes sure that the package cannot be modified while it is being stored, or while it is en route to the Nokia 9290 Communicator.

When installing software, the user will see the alleged originator of the package and the party that authenticates the originator's identity. To view the currently trusted certification authorities, the user can go to the Certificate management tool. The user can edit trust settings for each listed certificate. By giving a certificate a "trusted" status, the user vouches that he/she knows that a given certificate really belongs to the given entity.

In order to maximize software security in your Nokia 9290 Communicator:

- When editing trust parameters in the Certificate management tool in Control panel, only trust those certificates whose origin you can be sure of, and you know that the certificate really belongs to the entity whose name is on the certificate. If you are in doubt, contact the certification authorities help desk and ask them for their certificate "MD5 fingerprint." Compare the "fingerprint" with the one that is displayed in the Certificate management tool.
- Make sure that the software is intended for the Nokia 9290 Communicator.
- Only install software that comes in SIS files. Never install raw DLLs or EXEs.
- Only install software that has been signed and only if you trust both the author and the certification authority.
- During the installation, be sure to read the dialogs that are presented to you. They may contain further security information.
- Nokia runs a Nokia OK logo program for third-party software developers. Using software that has the Nokia OK logo offers further assurances on the quality of the software.

10.4 Internet and intranet

Data communications over the Internet or other IP networks is not secure by default. To enable secure connections, the Nokia 9290 Communicator supports various security protocols.

10.4.1 Incoming data calls

By relying only on the factory configuration, it is not possible to access the Nokia 9290 Communicator's files from an incoming data call. However, as with any normal computer, malicious third-party software can potentially degrade the security of the device. Therefore, only install and use software that comes from a trusted source and is digitally signed by a trusted party.

10.4.2 Attacks from the Internet

When the Internet connection is up, it is possible to send data packets from the Internet to the Nokia 9290 Communicator. As the wireless link is low-bandwidth, it is potentially possible to cause congestion by sending large amounts of bogus packets to the device. Therefore, it is recommended that the dial-up link uses a firewall to filter suspicious packets. Many Internet service providers offer this service. The use of dynamic IP addresses is another recommended safety measure. Most, if not all, Internet service providers supply dial-in clients with dynamic IP addresses by default.

Also, installing defective or malicious third-party software (especially from Internet servers) in Nokia 9290 Communicators may degrade the security. Only install and use software that comes from a trusted source and is digitally signed by a trusted party.

10.4.3 Dial-up security

The Nokia 9290 Communicator requires a PPP (Point to Point Protocol) connection to allow connection to the Internet/intranet. The supported authentication protocols are PAP (Password Authentication Protocol) [RFC 1334], CHAP (Challenge Handshake Authentication Protocol) [RFC 1994], and MS-CHAP (Microsoft variant of CHAP).

To enhance the security of PAP, CHAP, and MS-CHAP, some other authentication methods can be used when creating a network connection. If the method works with normal PAP or CHAP, it can be used with the Nokia 9290 Communicator. Other login schemes can be supported using a login script. Some of the alternatives are:

- Callback system (supported PPP callback protocols: IETF type 0 [RFC 1570] and the Microsoft callback protocol)
- Centralized security (authentication server configured based on RADIUS [RFC 2138] and TACACS [RFC 1492])
- Multiple Passwords and one-time password schemes
- Token-based security

10.5 SSL and TLS

The Nokia 9290 Communicator supports the SSLv3 (Secure Socket Layer) and TLSv1 (Transport Layer Security) protocols. These protocols are integrated in the socket interface, so third-party programs can easily use these protocols to offer secure Internet connections.

10.5.1 Web browser

Web URLs (addresses) that start with "https" are SSL-secured connections. The SSL connection is negotiated with the server and then the data is transferred over the encrypted connection. A small lock symbol is displayed as an indication that the connection is encrypted.

The encryption strength depends on the SSL server. The Nokia 9290 Communicator supports strong 128 bit encryption in SSL and TLS, but can downgrade its security to a lower level if the server is not capable of handling such strong encryption.

The authenticity of the Web server is determined by the help of certificates in the Certificate management tool. As discussed above in the software security chapter, the user can select which certificates are trusted and which are not. When connecting to a server, whose identity is certified by a trusted party, there will be no warning note. Otherwise, the user will be able to review the identification offered by the remote server. Some certification authority root certificates are factory-installed on the device; Nokia does not endorse any specific certification authority.

The HTTP (Hypertext Transfer Protocol) also provides a simple authentication protocol, which uses a username/password pair. It can be used to authenticate the user to a remote server. This method can be used over the SSL for additional security.

10.5.2 Reading and sending mail

Access to remote mailboxes (IMAP and POP) and sending mail (SMTP) can also be secured using the SSL/TLS. You can request a secure connection by ticking the appropriate box in the settings.

In order to use secure connections with electronic mail, the mail server has to support the "starttls" command (IMAP, SMTP) or the "stls" command (POP).

Note: Sending electronic mail over a secure connection does not encrypt the mail itself, only the connection to the mail server. After the mail continues to its destination from the first mail server, it is not encrypted. This feature is most useful when accessing mail servers in a secure intranet through a public Internet service provider.

10.5.3 Supported encryption algorithms

The selection of algorithms depends on the protocol being used. It is advisable to avoid the use of "export-grade" algorithms (RC4 with 40 secret bits and DES) for security reasons. The Nokia 9290 Communicator supports the following cryptographic algorithms in SSL/TLS:

- For server authentication and/or key exchange: RSA, DSA, and Diffie-Hellman
- For data encryption: RC4™ (plus the "export" version with 40 secret bits), DES, and Triple-DES

10.6 WAP security

When using WAP for a data call, the dial-up security is the same as with Internet services. Please refer to the chapter above.

WAP uses an optional security layer called WTLS. This can be turned on in the settings, or the server can mandate it. WTLS security ends at the WAP gateway. Connections to the target server from the WAP gateway might not be encrypted.

WAP Forum specifies WTLS. The Nokia 9290 Communicator supports strong 128 bit encryption in WTLS, but is able to lower the security level if required by the server. The Nokia 9290 Communicator supports server authentication and key exchange using the RSA algorithm and data encryption using the RC5™ algorithm. The gateway is authenticated using certificates. Some certification authority root certificates are factory-installed on the device; Nokia does not endorse any specific certification authority.

11. FORUM NOKIA – COMMUNITY FOR DEVELOPERS

Contents:

11.1 Introduction

Forum Nokia is an online community for third parties developing applications and services for Nokia platforms. The Forum Nokia Web site provides information for different technologies and platforms for developers, system integrators, content providers, and for others who are interested in the mobile application development. Marketing support as well as possibility for application certification is provided via the developer alliances, Nokia Developer ProPoint, and Nokia Developer NetPoint.

After free registration to Forum Nokia, the registered members can find supporting documents, toolkits, and software development kits (SDKs) and share development tips and find solutions to problems in the Online Discussion areas.

You can find the Forum Nokia Web site at www.forum.nokia.com.

11.2 Information for Symbian application developers

As the Symbian operating system of the Nokia 9290 Communicator is an open platform by Symbian, third-party developers can create additional software applications for the Nokia 9290 Communicator. The Symbian application developers can register to the Symbian Platform section in Forum Nokia. Besides downloading supporting documents, the Software Development Kit (SDK) for Symbian operating system application development can be ordered here. The SDK CD-ROM includes both the C++ SDK and Java™ SDK, and both programming languages can be used in the application development.

11.3 Developing optimized WAP services

Forum Nokia also offers guidance in developing optimized WAP services for the Nokia 9290 Communicator, as well as for other Nokia WAP phones. The Nokia WAP Toolkits can be downloaded for free, and several WAP service development related discussion areas are on hand.

11.4 Nokia Developer ProPoint

Companies that want to develop applications and services in closer relationship with Nokia can apply for the Nokia Developer ProPoint. Members of Nokia Developer ProPoint can get technical assistance, marketing support, and other membership benefits during their membership period. See the Forum Nokia Web site at www.forum.nokia.com for further information on services, price, and availability.

11.5 Third-party connectivity solutions

Since the Nokia 9290 Communicator has both an infrared and a serial port, it is possible to connect different kinds of external devices to it. Third-party connectivity solutions include, for example, bar code readers, GPS receivers, digital still cameras, and portable scanner applications.

12. ABBREVIATION

Abbreviation:

bps	bits per second
CHAP	Challenge Handshake Authentication Protocol
CMT	Cellular Mobile Telephone
DNS	Domain Name Server
DTMF	Dual Tone Multi Frequency
GSM	Global Digital System for Mobile Communications
HSCSD	High Speed Circuit Switched Data
HTML	HyperText Markup Language
IAP	Internet Access Point
IMAP	Internet Mail Access Protocol
IP	Internet Protocol
IrDA	Infrared Data Association
ISP	Internet Service Provider
IT	Information Technology
MIME	Multi-purpose Internet Mail Extensions
MMC	MultimediaCard
NIM	Nokia Interleaved Multimedia
PAP	Password Authentication Protocol
PDA	Personal Digital Assistant
POP	Post Office Protocol
PPP	Point to Point Protocol
SIM	Subscription Identification Module
SMSC	Short Message Service Center
SMTP	Simple Mail Transfer Protocol
SSL	Secure Socket Layer
TCP	Transport Control Protocol
TLS	Transport Layer Security
URL	Uniform Resource Locator
USSD	Unstructured Supplementary Service Data
WAP	Wireless Application Protocol
WML	Wireless Markup Language
WWW	World Wide Web

13. SHORTCUTS FOR THE NOKIA 9290 COMMUNICATOR

Shortcuts for the Nokia 9290 Communicator:

The Nokia 9290 Communicator supports Windows™-like shortcuts. The table below lists some of the available shortcuts:

Shortcut	Function
Ctrl + a	Selects all
Ctrl + c	Copies selected text
Ctrl + x	Cuts selected text
Ctrl + v	Pastes selected text
Ctrl + z	Undoes (the last action)
Ctrl + b	Applies bold
Ctrl + i	Applies italics
Ctrl + u	Applies underlining
Ctrl + t	Full screen mode (if available)
Ctrl + d	Delete files, messages, shortcuts, and other items
Ctrl + p	Print or Properties
Ctrl + n	Creates a new file
Ctrl + o	Open
Ctrl + e	Close
Ctrl + s	Save
Ctrl + Shift + s	Save As
Chr + left/right arrow (on Arrows key)	Moves the cursor to the beginning or end of the line
Chr + up/down arrow (on Arrows key)	Moves up or down a page
Chr + Ctrl + up/down arrow (on Arrows key)	Moves to start or end of document
Shift + Ctrl + left/right arrow (on Arrows key)	Selects the previous or next word
Shift + right/left/up/down arrow (on Arrows key)	Selects one text character or line
Shift + Chr + up/down arrow (on Arrows key)	Selects text, page by page, inside a document

Tip: You can find more shortcuts in the menus on the display of the Nokia 9290 Communicator interface.

14. SETUP CHECKLIST

Setup checklist

	Information you need	Where to obtain it	Where to insert it	Write it here
MAIL	Mail address of your remote mailbox	If you have an existing mail account, this address is your mail address	See "Mail" in the User Guide. The General page of Mail settings dialog: Your mail address	
	Username and password of your mailbox	Your mailbox service provider	Username and Password	
	IAP to connect to your mailbox	Your mailbox service provider	Use Internet access point	
	The protocol of your remote mailbox	Your mailbox service provider	The Servers page: Mailbox type	POP3 or IMAP4
	IP (Internet Protocol) address or host name of the server that sends your mail	Your mailbox service provider	Outgoing mail server	
	IP address or host name of the server that receives your mail	Your mailbox service provider	Incoming mail server	
SMS	Service center number	Home network carrier	See "SMS" in the User Guide. The Settings page of the SMS settings dialog: Service center in use	
INTERNET	WWW Internet access point: name, modem phone number, username, and password	Your Internet service provider	See "Internet connections" in the User Guide. Internet access, connections details dialog	
	Data call type information: whether high-speed call	Your GSM network carrier	Internet access, connection details dialog, Advanced settings, Data Call page	
	Data call type information: remote modem type	Your Internet service provider	As above	
WAP	WAP Internet access point: name, modem phone number, username, and password	Your WAP service provider	See "WAP" in the User Guide. Internet access, connection settings dialog	
	Data call type information: whether high-speed call	Your GSM network carrier	Internet access, connection details dialog, Advanced settings, Data Call page	
	Data call type information: remote modem type	Your WAP service provider	As above	
	WAP Internet access point: gateway IP address	Your WAP service provider	WAP access point settings dialog	


For online Help at any time, press the key on the Nokia 9290 Communicator keyboard. You are shown a page of information relevant to the task you are doing. You can also search the Help topics for specific subjects and keywords.

Important Safety Notes

All the safety instructions in your phone's user guide and computer also apply when this product is used with the phone.

Remember to make backup copies of all important data to protect against possible loss or alteration.

Do not point the infrared beam into anyone's eyes or allow it to interfere with other infrared devices.

To disconnect the cable from the Nokia Communicator, hold the connector and remove the cable.

Export Controls

This product contains commodities, technology, or software exported from the United States in accordance with the Export Administration regulations. Diversion Contrary to U.S. law is prohibited.

FCC/Industry Canada Notice

Your phone may cause TV or radio interference (for example, when using a telephone in close proximity to receiving equipment). The FCC or Industry Canada can require you to stop using your telephone if such interference cannot be eliminated. If you require assistance, contact your local service facility. This device complies with part 15 of the FCC rules. Operation is subject to condition that this device does not cause harmful interference.

Please refer to the Nokia 9290 Communicator user guide (also available at **www.Communicatorworld.net** or **www.nokia.com**) to learn more about this product's features.

Learn about Nokia products and Nokia at **www.nokia.com**. Nokia is a broadly held company with listings on six major exchanges, including the New York Stock Exchange (NYSE symbol: NOK).

NOKIA

CONNECTING PEOPLE

Nokia Inc.

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www.nokia.com www.Communicatorworld.net

1-800-4MY-9290

Safety- Your most important call

The Wireless Industry Reminds You To Use Your Phone Safely When Driving

N4125 5/02