Nokia 9210 Communicator compatibility with Microsoft

Contents

1. INTRODUCTION

1.1 Requirements for remote access

Remote connections to corporate back-end systems are very common these days. Some data connectivity standards are commonly used in the PC world while connecting to back-end systems. There are some common requirements for accessing back-end systems:

- Dial-in system, providing access to the TCP/IP network where the servers are located
- TCP/IP access to the back-end system

The requirements are fairly simple to produce, but still involve several issues which need to be carefully thought through before implementation. The advantage of accessing back-end systems remotely is that there are fixed standards and protocols which are commonly used. When accessing back-end systems wirelessly, using the GSM network, the same standards and procedures apply. One main extra requirement remains; that is, to have the GSM data option activated in the GSM subscription.

1.2 Nokia 9210 Communicator

The Nokia 9210 Communicator is a second generation communicator, presented at the Nokia Mobile Internet Conference in November 2000. A communicator is a communication device, with all the main applications and features built into the device. Many of the Nokia 9210 Communicator's applications support standards which are used in the Internet and in intranets.

Size:

- Dimensions: 158 x 56 x 27 mm (230 cc)
- Weight: 244 g

Technical data:

- Processor 32-bit Arm9
- Symbian OS
- Data speed of up to 43,200 bit/s ready (with High Speed Circuit Switched Data)
- Memory card slot
- Network: EGSM 900/1800
- Connectivity: IrDA, Ir-TranP, RS-232
- Low power consumption

Battery performance:

	Talk/Data/Fax time	Standby, phone on	Standby, phone off	Charging time
Li-ion Battery 1300 mAh	4-10 h	80-230 h	Up to 400 h	180 min

Applications:

- Digital cellular phone
- Desk with background image and links
- Messaging: Fax, Short Messages, E-mail, Data exchange over IR
- Internet: WWW, WAP
- SyncML for remote synchronisation
- Contacts
- Calendar
- Office: Word, Sheet, Presentation viewer, File manager
- Extras: Calculator, Clock, Games, Recorder, Unit converter, Imaging, Video player

2 WIRELESS NETWORK ACCESS

The Nokia 9210 Communicator supports standard Internet protocols. This makes it easy for a communicator user to access the Internet and intranets using standard equipment. Essentially, what is needed is a dial-in system to the Internet or an intranet capable of receiving data communication. The basic elements of the system are shown in Figure 1.

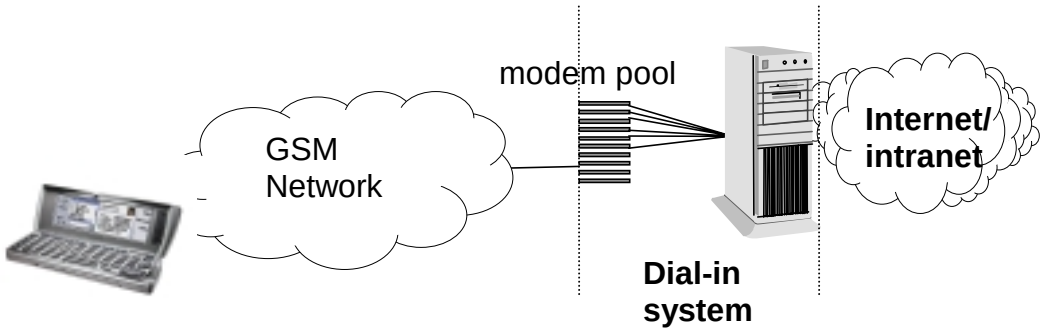

Figure 1. Basic elements of wireless network access

The presented system could be Microsoft Remote Access Server, for example. However, there are a few options which the user and the service provider must take into account. These are discussed below.

2.1 Data calls

The basic requirement for data connection in GSM networks is that the GSM operator supports data connections. This condition is usually met. The other requirement is that the used GSM subscription must have the GSM data option activated.

When making a call from abroad, the situation changes slightly. First of all, the operator whose SIM card is being used must have a roaming agreement with one of the GSM 900, GSM 1800, or GSM900/1800 operators in the foreign country. Moreover, calling to a number abroad must be allowed (no data call barring) and must be possible while roaming.

According to the GSM standard, the speed of data transfer in the GSM network is 9.6 kbit/s. However, when using the latest technology, some networks are capable of transferring data at 14.4 kbit/s. When using several time slots at the same time, the connection speed increases. This technique is called High Speed Circuit Switched Data and it enables connection speeds of up to 43.2 kbit/s. This requires support from the GSM network and GSM terminal. The Nokia 9210 Communicator supports the above-mentioned data rates. For ISDN data calls, please see the following section.

The chart below provides information on possible data rates with different access types when using the Nokia 9210 Communicator.

Remote modem type	1 time slot	2 time slots	3 time slots
Analogue	9.6 kbit/s -14.4 kbit/s	19.2 kbit/s –28.8 kbit/s	Not available
ISDN v.110	9.6 kbit/s -14.4 kbit/s	19.2 kbit/s –28.8 kbit/s	28.8 kbit/s -38.4 kbit/s
ISDN v.120	9.6 kbit/s -14.4 kbit/s	19.2 kbit/s –28.8 kbit/s	28.8 kbit/s- 43.2 kbit/s

2.2 Modems

The communicator can access either analogue or digital modems. This means that computer network access can use, for example, a standard single modem or a terminal server with several ISDN modems. Direct Digital Access (DDA) connections from the GSM network to the Internet or to an intranet are also possible. The advantage in using digital connections is that they are faster to establish and are usually more reliable.

Accessing ISDN modems requires ISDN V.110 or ISDN V.120 rate adoption protocol support from the local GSM operator and the dial-in system. Also, an AT command to the communicator modem initialisation is usually required when using digital connections.

2.3 PPP

The Nokia 9210 Communicator uses the PPP (Point-to-Point Protocol) service to access TCP/IP networks such as corporate intranets and the Internet. PPP acts as a bridge between the communicator and the TCP/IP network. For user authentication, the communicator uses common PPP protocol authentication protocols: Password Authentication Protocol (PAP) and PPP Challenge Handshake Authentication Protocol (CHAP). Both Microsoft's MS-CHAP and MD5 CHAP are supported.

With the communicator, the speed of the PPP connection is up to 43.2 kbit/s. Due to the fact that the computer networks usually offer a much higher data transfer speed that the one used in the PPP connection, it is advisable to use PPP compression protocols.

PPP Compression:

The Nokia 9210 Communicator supports three different compression protocols: PPP Stac LZS Compression Protocol, Microsoft Point-to-Point Compression (MPPC), and Predictor Compression Protocol. To use these compressions, the dial-in system must be configured properly for usage.

PPP Scripts:

By default, the communicator uses a dedicated Point-to-Point Protocol (PPP) service. A dedicated PPP service means that the PPP state machine should be ready to receive PPP data before the user name and password are given to the system. The log-in sequence can be customised using scripts when needed. It is also possible to have a terminal window before the PPP connection is established. A document on PPP login scripts can be found on the Forum Nokia web site.

2.4 TCP/IP configuration

In the communicator settings, it is possible to define static values for all TCP/IP configurations. For ease of use, it is also possible to use dynamic values. If you want to use dynamic TCP/IP configuration, note the following. For IP address negotiations, the communicator uses IPCP, DHCP, and/or BOOTP. The dial-in system should provide Microsoft extensions for IPCP DNS negotiation (MSIPCP), the BOOTP server, or the DHCP server for the automatic configuration of the communicator's other TCP/IP settings, such as the DNS server.

2.5 Remote configuration

For simple administration and better service for users, the Nokia 9210 Communicator supports remote configuration using Symbian's Bearer Independent Object (BIO) messaging. The configuration messages are sent to the Nokia 9210 Communicator using the GSM Short Message Service (SMS). For maximising the compatibility and minimising the transition period for help desks, BIO messaging support for the Nokia 9210 Communicator is similar to Nokia Smart Messaging, which is supported by earlier Nokia communicators. The supported message syntax is based on *Smart Messaging Specification 3.0.0*, Nokia Mobile Phones, 2000. This document is available on the Forum Nokia web site at http://www.forum.nokia.com/.

WAP settings can be configured using Nokia's OTA (over-the-air) configuration syntax. The specification (version 6.5) is available on the Forum Nokia web site.

2.6 Security considerations

Even though GSM networks are quite secure due to their own encryption mechanisms, security issues should be given closer consideration when defining a dial-in system for a large corporation.

When providing the services to an intranet, the following should be considered:

1. Which PPP authentication protocol to use

2. Whether SSL or TLS should be used

3. Whether call back should be used

The communicator supports SSL (v3 128-bit) as a connection encryption protocol, but it can only be used with the communicator's web browser or e-mail client. TLS (Transport Layer Security) can be used with the mail application.

3 WIRELESS MESSAGING

3.1 Overview and requirements

The Nokia 9210 Communicator has an integrated messaging client that supports common Internet messaging protocols.

POP3 and IMAP4 (including IMAP4 rev1) are supported for incoming mail and SMTP for outgoing mail. The communicator also supports MIME1 and MIME2 for special character support.

Microsoft Exchange servers also support all these protocols. Depending on your requirements, they can all be used together or individually selected to be used either in one server or in separate servers.

An existing SMTP server is required to send e-mail.

Microsoft Exchange Server version requirements:

Protocol	Microsoft Exchange Server version
POP3	5.0, 5.5, 2000
IMAP4	5.5, 2000

3.2 Exchange server configuration

In the Exchange server, you can do the site level IMAP4 settings in Configurations -> Protocols. IMAP4 is recommended because it is faster and more versatile than POP3. For sending e-mail, it is recommended to use a server which handles the real SMTP transfer rather than the Exchange SMTP gateway server. This is due to the fact that the communicator requires a real SMTP server for sending e-mail.

4 CALENDAR AND CONTACTS DATA SYNCHRONISATION

4.1 Local synchronisation

The support guide for PC Suite for Nokia 9210 Communicator is available on the Forum Nokia web site and also on the CD-ROM included in the communicator sales package.

4.2 Remote synchronisation with SyncML

The Nokia 9210 Communicator supports remote synchronisation. It uses SyncML protocol for this task. SyncML is a universal synchronisation language which has been developed by the major mobile phone manufacturers and big industry players. SyncML utilises essentially any barrier for the synchronisation; in the communicator, Internet (HTTP) and WAP are used. Virtually any data can be synchronised; in the communicator, calendar, contacts, and to-do list synchronisation is enabled.

Using SyncML requires SyncML support from the calendar, contacts, and to-do list servers. In autumn 2000, it was clear that Microsoft had not joined the SyncML initiative, but among the more than 500 supporters, Microsoft's products were included in those having SyncML support.

5 INTERNET ACCESS POINT SETTINGS

The support guide for Nokia 9210 Communicator Internet access point settings is available on the Forum Nokia web site and also on the CD-ROM included in the communicator sales package.

6 E-MAIL SETTINGS

The support guide for Nokia 9210 Communicator e-mail settings is available on the Forum Nokia web site and also on the CD-ROM included in the communicator sales package.

7 FILE COMPATIBILITY

The Nokia 9210 Communicator can access common office files according to the chart below.

File format	View	Edit
Microsoft Word 95, 97, 2000	Yes	Yes
Microsoft Excel 95, 97, 2000	Yes	Yes
Microsoft PowerPoint 95, 97, 2000	Yes	No

The communicator also supports common picture files and multimedia files. Please refer to the user's guide for details.

8 SPECIAL SOFTWARE SOLUTIONS

The Nokia 9210 Communicator enables additional software creation. If a company requires a special solution for the communicator, it can be created in the system. All needed tools for extra software creation are available. Please refer to http://forum.nokia.com for developer details.