

Symbian OS Version 9.2

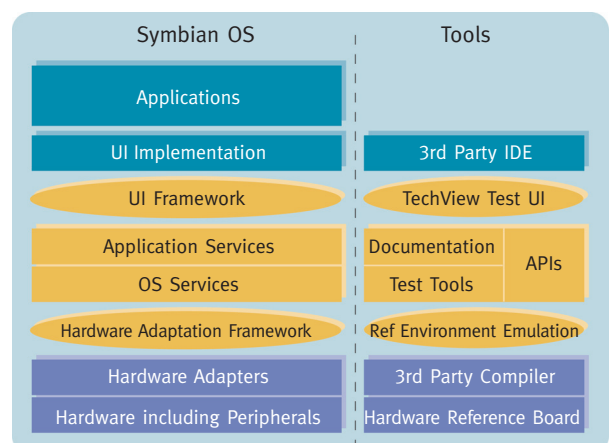
Symbian OS is the advanced, open operating system licensed by the world's leading mobile phone manufacturers. It is designed for the specific requirements of advanced 2.5G and 3G mobile phones. Symbian OS combines the power of an integrated applications environment with mobile telephony, bringing advanced data services to the mass market.

Symbian OS supports a wide range of device categories with several user interfaces, including Nokia Series 60, UIQ and the NTT DoCoMo common software platform for 3G FOMA™ handsets. The commonality of Symbian OS APIs enables development that targets all of these phone platforms and categories.

Key features of Symbian OS v9.2:

- **Platform security** – system defence mechanism based on granting and monitoring application capabilities. Infrastructure to allow applications to have private protected data stores. In addition, full encryption and certificate management, secure protocols (HTTPS, SSL and TLS) and WIM framework
- **Rich suite of application services** – the suite includes services for contacts, scheduling and messaging, OBEX for exchanging appointments (vCalendar) and business cards (vCard); integrated APIs for data management, text, clipboard and graphics
- **Comprehensive Java support** – supports the latest wireless Java standards, including CLDC 1.1, MIDP 2.0, JTWI (JSR185), Mobile Media API (JSR135), Bluetooth (JSR082), Wireless Messaging (JSR120), Mobile 3D Graphics API (JSR184), Personal Information Management and FileGCF APIs (JSR075) and Content Handling API (JSR 211)
- **Hard real-time capabilities** – a real-time, multithreaded kernel provides the basis for a robust, power-efficient and responsive phone and enables support for a single-core architecture
- **Support for the latest hardware** – supports latest CPU architectures, peripherals and internal and external memory types
- **Complete messaging capabilities** – Internet email based on Post Office Protocol (POP3), Internet Message Access Protocol (IMAP4) and Simple Mail Transfer Protocol (SMTP) including attachment support. Also support for IMAP4 IDLE command. Email format is based on MIME (Multipurpose Internet Mail Extensions). Support for Short Message Service (SMS) and Enhanced Message Service (EMS)
- **Rich multimedia capabilities** – audio and video support for recording, playback and streaming; image conversion
- **Powerful graphics** – direct access to screen and keyboard for high performance; graphics accelerator API; increased UI flexibility (support for multiple simultaneous display, multiple display sizes and multiple display orientation)
- **Broad support for communications protocols** – wide area networking stacks including TCP/IP (dual mode IPv4/v6), RTP, RTCP and SIP, and WAP 2.0 (Connectionless WSP and WAP Push); personal area networking support including infrared (IrDA), Bluetooth and USB; support for multi-homing and link layer Quality-of-Service (QoS) on GPRS and UMTS networks; support is also included for bearer mobility
- **Optimized for mobile phones** – Symbian OS v9.2 is optimized for the 3G market with support for WCDMA (3GPP R5); GSM circuit switched voice and data (CSD and EDGE CSD) and packet-based data (GPRS and EDGE GPRS); CDMA circuit switched voice, data and packet-based data (IS-95 and 1xRTT); SIM, RUI, UICC Toolkit; other standards can be implemented by licensees through extensible APIs of the telephony subsystem; 3GPP R5 IMS; Smart Card access APIs
- **CDMA-specific features including** CDMA network roaming, third party OTA API, NAM programming mode, CDMA SMS stack, NAI handset identification, interfaces to enable Mobile IP and bridge and router gateway modes of operation
- **International support** – supports the Unicode Standard version 3.0
- **User-friendly data synchronization** – over-the-air (OTA) synchronization and PC-based synchronization (over Bluetooth, infrared and USB) support using OMA Data Sync 1.2; a PC Connectivity framework providing the ability to transfer files and synchronize PIM data
- **Lowering cost of ownership through Device Management/OTA provisioning capabilities** – OMA DM 1.2 compliant, OMA Client provisioning v1.1
- **Rich set of options for developing for Symbian OS** – content development options include: C++, Java (J2ME) MIDP 2.0 and WAP; tools are available for building C++ and Java applications; reference telephony abstraction layer for 2G, 2.5G and 3G provided.

Symbian OS v9.2 Architecture



Symbian OS v9.2

Technical specifications

Communication infrastructure

TCP, IPv4, IPv6, MSCHAP v2
 IPSec
 RTP, RTCP and SIP
 TCP/IP plug-in framework
 HTTP plug-in framework

- HTTP 1.1
- Pipelining

 WAP push
 Connectionless WSP
 Multiple Primary and Secondary PDP contexts
 Multihoming
 Bearer mobility
 PPP to CDMA specifications
 Enablers for CDMA specification Mobile IP

Telephony / telephony API

Multimode ETel
 GSM Phase 2+
 SIM Application Toolkit, class 3
 SIM and USIM support
 HSCSD
 GPRS, classes A, B and C (R97/98)
 EDGE (CSD and GPRS)
 WCDMA (3GPP R4 and R5 IMS support)
 Quality-of-Service framework
 Phone book synchronizer
 CDMA IS-95 and 1xRTT
 R-UIM support
 CDMA network roaming support
 Third party OTA API
 NAM Programming Mode

Messaging

Post Office Protocol Version 3 (POP3), RFC 1939
 Internet Message Access Protocol Version 4rev1 (IMAP4), RFC 3501
 Simple Mail Transfer Protocol (SMTP), RFC 2821
 IMAP4 IDLE command, RFC2177
 SMTP Service Extension for Authentication, RFC 2554
 Using TLS with IMAP, POP3, and ACAP, RFC 2595
 SMTP Service Extension for Secure SMTP over Transport Layer Security, RFC 3207
 Internet Message Format, RFC 2822
 SMS (3GPP TS 23.040 V6.5.0)
 EMS (3GPP TS 23.040 V4.5)

Java

CLDC HI 1.1.1s (JSR139)
 MIDP 2.0 (JSR118)
 JTWI (JSR185)
 Bluetooth (JSR082) including OBEX
 PIM & FileGCF (JSR075)
 Wireless Messaging 1.1 (JSR120) including CBS
 Mobile Media 1.1 (JSR135)
 Mobile 3D Graphics (JSR184)
 Content Handler (JSR211)

Multimedia

Abstract camera interface supporting multi-megapixel cameras
 Audio capture and recording framework
 Video capture and recording framework
 Direct screen access
 Abstract tuner interface
 Hardware abstraction layer for multimedia acceleration
 Still image conversion (all common formats) with scaling enhancements
 3D Graphics support with OpenGL ES API and reference implementation (for use with WINS emulator and test hardware only)

Personal Area Networking

Bluetooth stereo headset support
 Bluetooth v2.0 (L2CAP, RFCOMM, SDP, GAP and SPP)
 Bluetooth PANu and PAN GN
 IrDA
 USB v2.0 High Speed (Mass storage, ACM, WHCM)
 Serial
 Obex over Bluetooth, IrDA and USB
 PC Connectivity

- agenda and contacts sync framework
- file transfer

 OMA Data synchronization v1.2

Application framework

Advanced UI framework
 Contacts (incl. vCard v2.1)
 Agenda (incl. vCalendar v1.0)
 Unicode v3.0
 Now supports Thai, Arabic, Hebrew, Japanese, Chinese, Hindi and Vietnamese

Device management

Smart Messaging

- vCard and vCalendar
- OTA system configuration

 OMA Device Management v1.2
 OMA Client provisioning v1.1

Security

Application capability management
 Application data caging
 DRM framework and reference implementation
 Cryptographic algorithms – DES, 3DES, RC2, RC4, RC5 and AES
 Certificate management (X509 certificates)
 Secure Software Install – MIDP 2.0 support
 Cryptographic token framework
 SSL/TLS (secure web connections)
 IPSec and VPN client support

Software development

J2ME MIDP 2.0
 Metrowerks CodeWarrior v3.0 and ARM RVCT 2.2 compiler
 PC emulation environment

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