

Winbox Technologies EVO1 Updater Component

Part of EVO1 Future TV OEM software framework
Based on Microsoft Embedded Windows CE

Product Data Sheet

Client / Server Update Component for IP based remote updates

Part of software development framework suitable for building internet streaming, IPTV, VOD,
internet on TV, PVR/DVR, DMA and Home Networking solutions



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Introduction

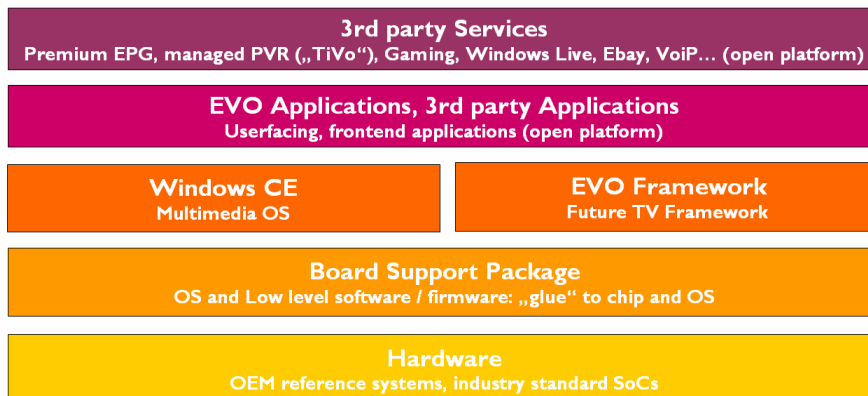
About EVO1 Update Component

EVO1 Update Component is part of the EVO1 OEM software framework. It is used for massmarket approved remote updates over IP for consumer electronic devices such as connected Set-Top-Boxes, connected TVs, DMAs or IPTV devices. The Update Component includes a client part and a server part. The update component can be licensed stand alone although using the component within the EVO1 framework is recommended.

About EVO1 Framework

Winbox Technologies EVO Software Framework – a part of the Winbox Technologies EVO Ecosystem - is a rich set of commonly needed software modules that allows Winbox Technologies customers to build their own Future TV devices like IPTV receivers, PVRs / DVRs, digital set-top-boxes, hybrid TV receivers or DMA kind of devices with a significantly reduced time-to-market, less R&D investments / NREs and with less risk.

The Winbox Technologies EVO Ecosystem



Winbox Technologies EVO is a full ecosystem available both as Turnkey OEM products including all software layers and massmarket ready OEM-hardware systems but also on an individual layer licence base for those customers who want to use inhouse R&D or 3rd parties to develop the upper layers of the software and / or develop their own hardware.

Furthermore, Winbox Technologies is offering professional services for support, training, integration or customization.

Further Information on the Winbox Technologies EVO1 Framework and other products can be obtained from <http://www.winbox.ag> or from our sales department.



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The Winbox Technologies EVO1 Update Component

Winbox Technologies provides its customers with different ready-to-use software libraries that they can integrate into their software to shorten the product's time-to-market significantly. One of these libraries is the update infrastructure library.

As the name implies, this library consists of multiple components:

- A ready-to-use client software that runs on the STB
- A ready-to-use server environment that creates all necessary files to put on internet servers that provide software updates for the STB
- Documentation

There are a number of prerequisites that the software needs:

1. The current client component depends on the Nandflash library. A client device needs to be built with this software to use Winbox Technologies's client.
2. The full server solution runs on Microsoft Windows 2003 Server using ASP.NET and a configurable RDBMS back-end.

Client software functionality

It's important to note that although its name may suggest it, the update infrastructure library does not actually perform any application software updates on the STB. Its purpose is solely to check for updates on an internet server and subsequently download the updates to the STB. The only update functionality that it provides directly, is the ability to write new OS images using the Nandflash library.

The client software runs on the STB and consists of 2 parts:

- A small start-up stub that connects to the update server and verifies that the update client software is the most recent version.
- The update client that connects to the update server to download the actual files that compose the update and verify their integrity by using MD5-checksums.

The customer's STB software calls the start-up stub to initiate the update process. During the update process frequent feedback is provided to the customer's application, so that it can update the UI (for example: display a status bar). After downloading the files the client component returns control to the customer's application which then has to perform the adequate steps to update the software on the box (i.e. copying downloaded files to their destination, updating configuration files and so on).

In the current version (Version 1) the client software provides functionality for a linear point-to-point upgrade path. That means that the STB-software is updated from one version to the next. There is currently no support for optional updates or branching upgrades. However, STBs are identified by their serial numbers and the update components can provide different updates to different serial numbers. This allows, for example, for creating a group of beta testing boxes that receive new software first.



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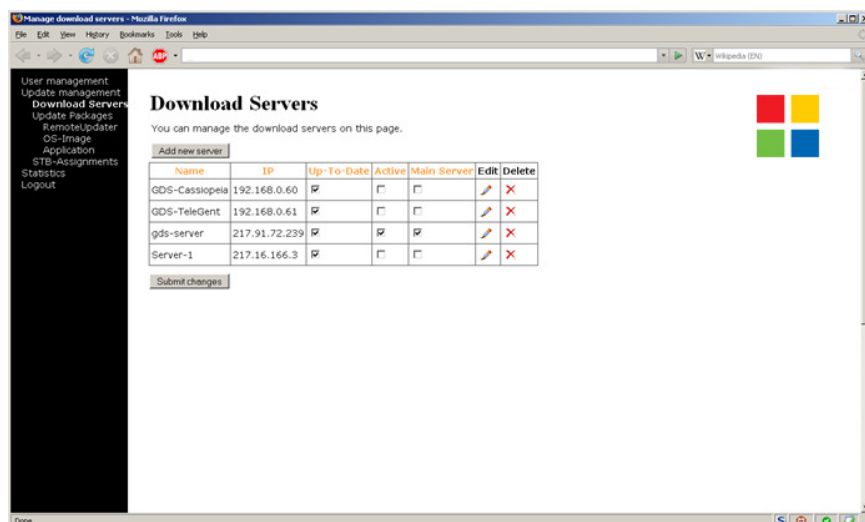
Server software functionality

Winbox Technologies can provide three server software solutions, a small script-based delivery-only solution and a fully fleshed-out solution based on a web-interface with additional server services and a managed, ASP-style service. In the last case Winbox Technologies will operate the server part of the Updater for the customer on a redundant server infrastructure.

Both server software solutions provide a mechanism for deploying new software updates and operating system updates on a server and delivering them to a client.

The fully fleshed-out version provides the following features:

- Convenient web-interface with full user management
- Distributing the updates to multiple download servers
- Load-balancing on an application-level to use these multiple servers
- Easy management of product versions by assigning updates to blocks of serial numbers



The full version follows a general philosophy of making it easy to distribute different updates to clients. For this, the server uses a "best match"-algorithm that allows the administrator to assign an update to a block of serial numbers and then overriding this update for a smaller sub-block. This way, beta testers and product types can easily be accommodated.

The small version runs also on Linux or other Unices It provides a library of Perl administration scripts that can be used to create the necessary update XML files that allow the client to access the updates, but no delivery or load-balancing mechanisms.



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Also available – The EVO product line

Item	Product Name	Description
1	EVO1 Turnkeys	
1.1	EVO1 XS	Super small formfactor IPTV, VOD, DMA OEM device with full software and application stack (IP-Only)
1.2	EVO1 M	Mid-size formfactor IPTV, VOD, DMA, DVB-Hybrid-Single-Tuner Zapper with full software and application stack (DVB / IP hybrid)
1.3	EVO1 L	Full-size formfactor IPTV, VOD, DMA, DVB-Hybrid-Dual-Tuner PVR/DVR with CA/CI System, internal HDD with full software and application stack (DVB / IP hybrid)
2	EVO Board Support Packages	
2.1	EVO1 BSP	Rich Board Support Package for NXP STB 810 and EVO1 compatible systems for Windows CE 5.0
2.2	EVO2 BSP [available Q3/08]	Rich Board Support Package for NXP STB 225 and EVO2 compatible systems for Windows CE 6.0
3	EVO Frameworks	
3.1	EVO1 Framework	Rich software development framework for WindowsCE 5.0 and IPTV, VOD, DVR/PVR, Hybrid-TV, DMA, Home Networking Business Cases
3.1.1	EVO1 Framework – Flash FileSystem	Reliable, faultolerant FlashFileSystem
3.1.2	EVO1 Framework – Update Client	Update Client for remote over IP updates
3.1.3	EVO1 Framework – Update Server	Update Server for remote over IP updates
4	EVO Applications	
4.1	DMA / VOD Application	Complete application set including Microsoft look-a-like User Interface featuring HTML service integration, Windows Live Messenger, Home Media Networking
4.2	Hybrid Zapper Application [available Q1/08]	Complete application set including Microsoft look-a-like User Interface featuring full DVB-integration, hybrid TV integration, Home Media Networking, HTML service integration
4.3	Hybrid PVR Application	Complete application set including moreTV User Interface featuring Dual-Stream DVR/PVR with “TiVo” like features, PiP, CA/CI Integration, Home Media Networking, HTML service integration
5	EVO SDKS & Development Tools	
5.1.1	EVO1 Software SDK	Board Support Package SDK for Windows CE 5.0
5.1.2	EVO1 Hardware SDK	Including NXP reference Board STB 810
5.1.1	EVO2 Software SDK [available Q3/08]	Board Support Package SDK for Windows CE 6.0
5.1.2	EVO2 Hardware SDK [available Q3/08]	Including NXP reference Board STB 225
6	EVO Professional Services	
3.3.1	EVO Development Support	Available from our professional services department
3.3.2	EVO Development Training	Available from our professional services department
3.3.3	EVO Customization	Available from our professional services department
3.3.3	EVO Individual Development	Available from our professional services department



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About Winbox Technologies

Winbox Technologies (formerly known as TeleGent) is the leading provider of OEM technology solutions for Windows Embedded based TV-centric consumer electronics. IPTV receivers, video on demand systems (VoD), harddisk videorecorders (PVR / DVR), connected TV-sets and set-top-boxes can be realized with less development investments and time by using Winbox Technologies' products. Customers can either source so called "TurnKeys" which contain a complete OEM solution including hardware, software and production services or license specific technology modules for in-house development. Partners and customers include Microsoft, NXP, ASUS, Sling Media, Medion and ProSiebenSat.1.

More Information about Winbox Technologies and or products is available online at <http://www.winbox.ag> or contact our sales department:

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