

PocketREC™ Server Platform

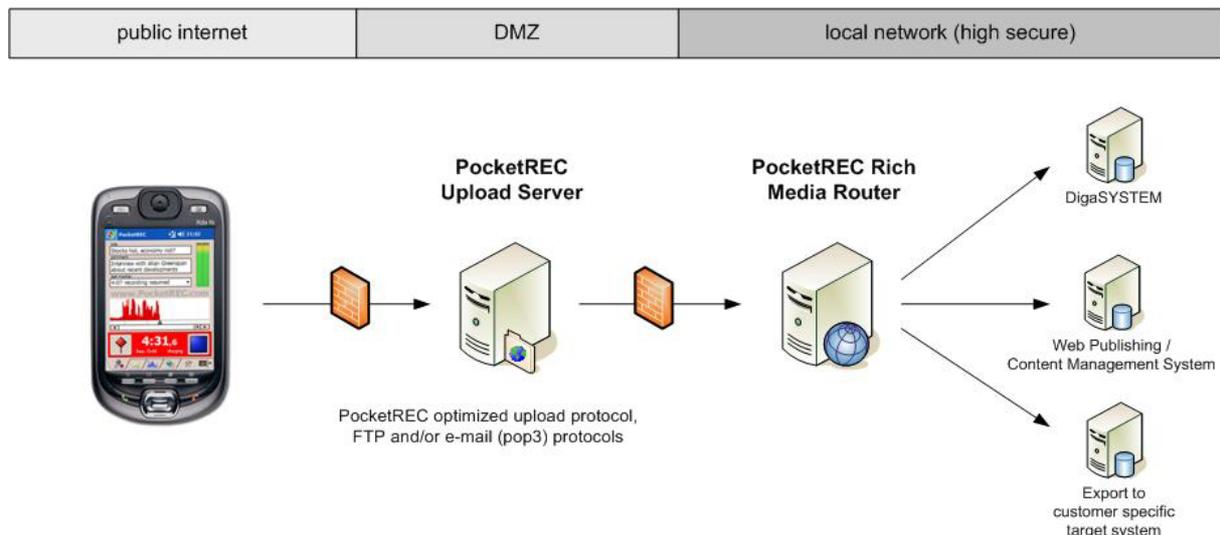
Introduction

PocketREC Server products are designed to ultimately meet the requirements of today's broadcast organizations regarding fast, reliable and redundant content ingest and distribution.

The PocketREC Server is the interface between the PocketREC field units (or other sources) and existing Content Management, Digital Asset Management or Radio Automation System. All steps in the delivery process of uploaded content are automated.

PocketREC Server Platform includes two main applications

- **PocketREC Upload Server,**
provides an optimized upload protocol service for PocketREC field units when uploading over low bandwidth, i.e. wireless connections. The capacity via low bandwidth connections can be up to doubled.
- **PocketREC Rich Media Router,**
for fully automated conversion and distributing of uploaded content. The following is dedicated to further details, regarding the highly flexible PocketREC Rich Media Router.



picture: Typical PocketREC Server infrastructure - fastest possible content delivery without compromises in network security

Typical PocketREC Content Flow

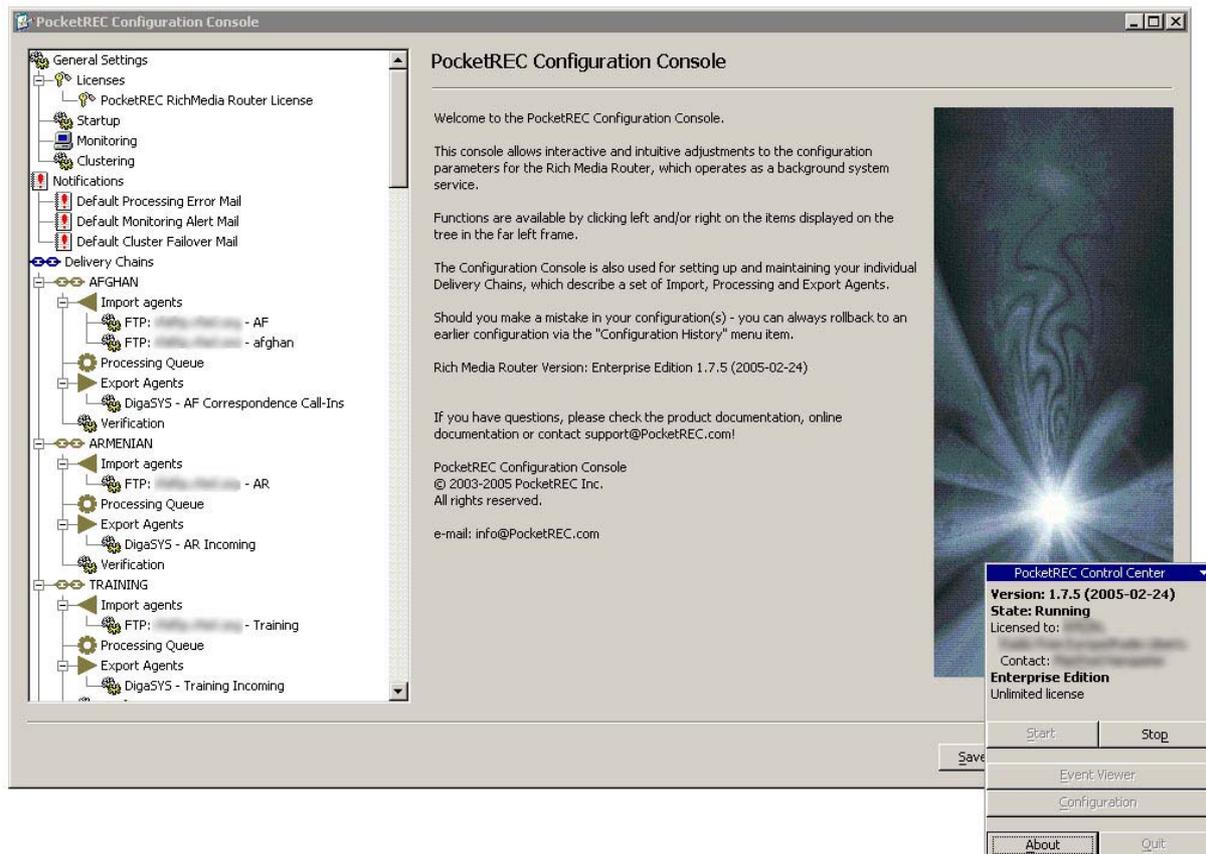
The content from PocketREC field units are uploaded either by ftp, e-mail or the PocketREC optimized protocol to a central PocketREC Upload Server in the DMZ. The PocketREC Rich Media Router, which is located within the highly secured local network, retrieves the content from this server through the internal firewall via ftp, decrypts, converts and processes it, and exports it directly to the designated Radio Automation, Content Management or Digital Asset Management System.

Maximized network security

The highly flexible design of the PocketREC Server Platform applications allows the combined deployment either on the same physical server, or separated on different servers like shown in the graphics. This flexibility enables the PocketREC Server Platform to meet the security requirements of enterprise level broadcast corporations.

The PocketREC Rich Media Router ("PocketREC RMR")

PocketREC Rich Media Router is a highly modular framework for content routing, format conversion and multimedia delivery. The PocketREC RMR is the interface between PocketREC field units and enables their wireless transfer capabilities directly into the attached Content Management or Radio Automation System.



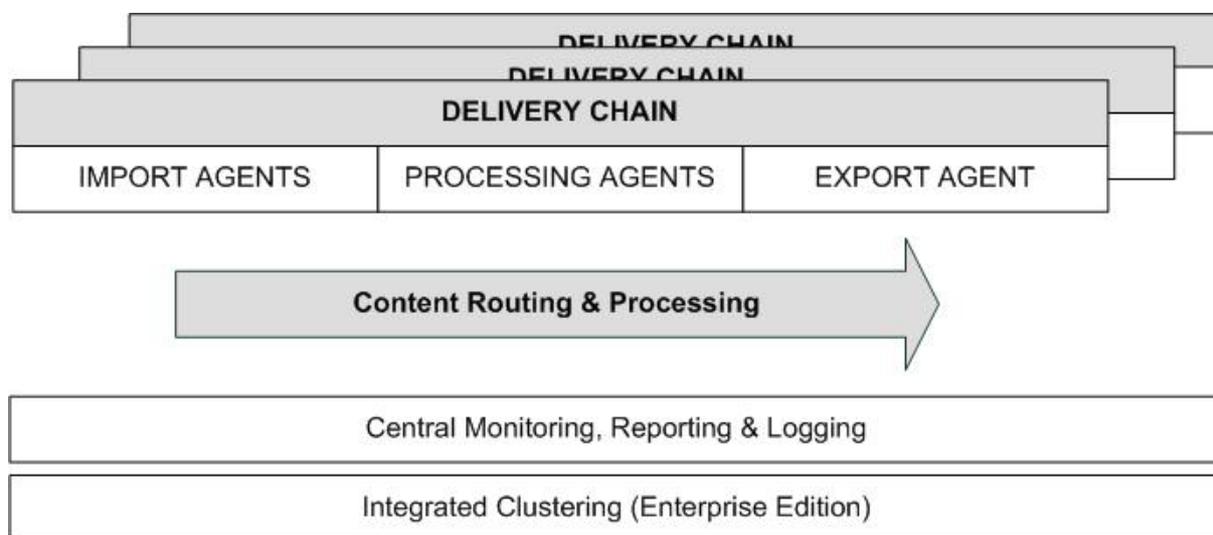
screenshot: PocketREC Configuration Console

The PocketREC RMR enables the following upload features for PocketREC field units:

- **Encryption/decryption**
with integrated key management for highly secured uploads
- **Audio compression/decompression**
with the PocketREC optimized high quality audio codec for a fast upload

The PocketREC RMR can be used as universal, agent driven content ingest and routing system within your broadcast organization. Its open and modular structure separates every step of content processing into internal Agents (for Import, Processing and Export Agents). All Content Delivery Chains can be configured to their specific needs. The modular structure also allows cost effective, customer specific customization when required. As a standard feature, the PocketREC RMR includes beside the PocketREC field unit ingest also an Import Agent for web upload ingest.

The basic elements of the PocketREC RMRs' internal control and content flow can be seen in the following graphics:



picture: Content Routing with the PocketREC Rich Media Router

Delivery Chain(s)

The PocketREC Rich Media Router's workflow is defined and structured by the Delivery Chains, which each consist of

- One or more Import Agents – to retrieve content from a certain source
- One or more Processing Agents – processing the metadata, audio and other multimedia content
- An Export Agent transfers the content directly into your existing Content Management System.

Depending on the PocketREC RMR license, multiple Delivery Chains can be configured and operated in parallel.

(...)
DELIVERY CHAIN

• **Import Agents**

The Import Agents import content from external sources into the routing system. Such external sources can be:

- ftp server folder
- e-mail account (pop3)
- local directory or network file share
- web upload audio files and texts

A time schedule for a fully automated retrieval of content from the individual sources can be configured. For PocketREC field unit content delivery, the Import Agents take care that the original audio is not removed from the original locations before the processing and export has successfully finished.

(...)

DELIVERY CHAIN

Other content sources can be added as customizations upon customer request. I.e. it is possible to read content from existing Radio Automation or Content Management Systems.

If a new file or file set has been retrieved by an Import Agent, it will be forwarded to the Processing Agents of this Delivery Chain

- **Processing Agents**

The Processing Agents can be assigned to a Delivery Chain to handle predefined audio format and metadata conversions, filter the content etc. These are normally steps to prepare the received content for the export to the designated Content Management System by the Export Agent.

After the processing as finished, the file or file set is being forwarded to the Export Agent.

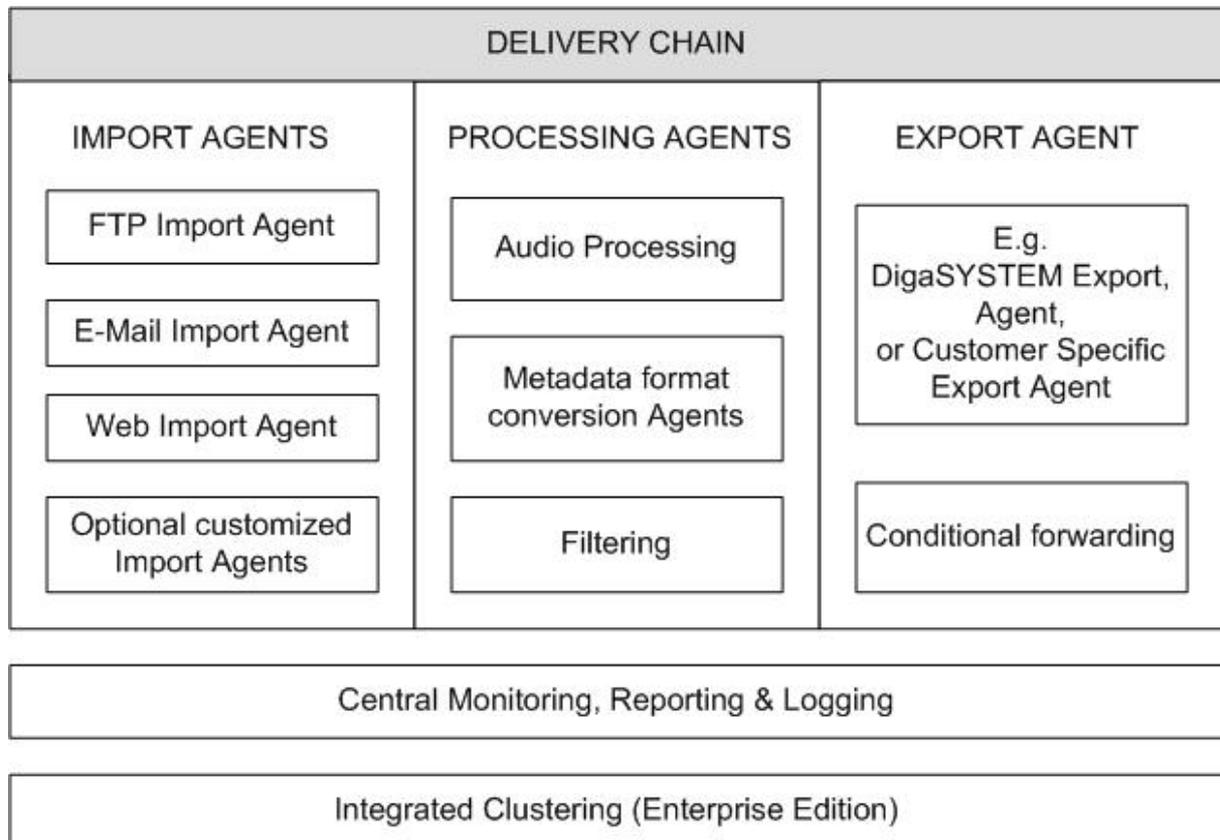
- **Export Agents**

The Export Agent interfaces to the designated Content Management, Digital Asset Management or Radio Automation System which is configured. Individual parameters and definitions can be configured for each Export Agent individually.

A rich set of PocketREC RMR Export Agents are already available. Upon customer request, new Export Agents can be implemented.

An example Delivery Chain

As an example, the following graphics shows a schematic overview of a typical Delivery Chain configuration:

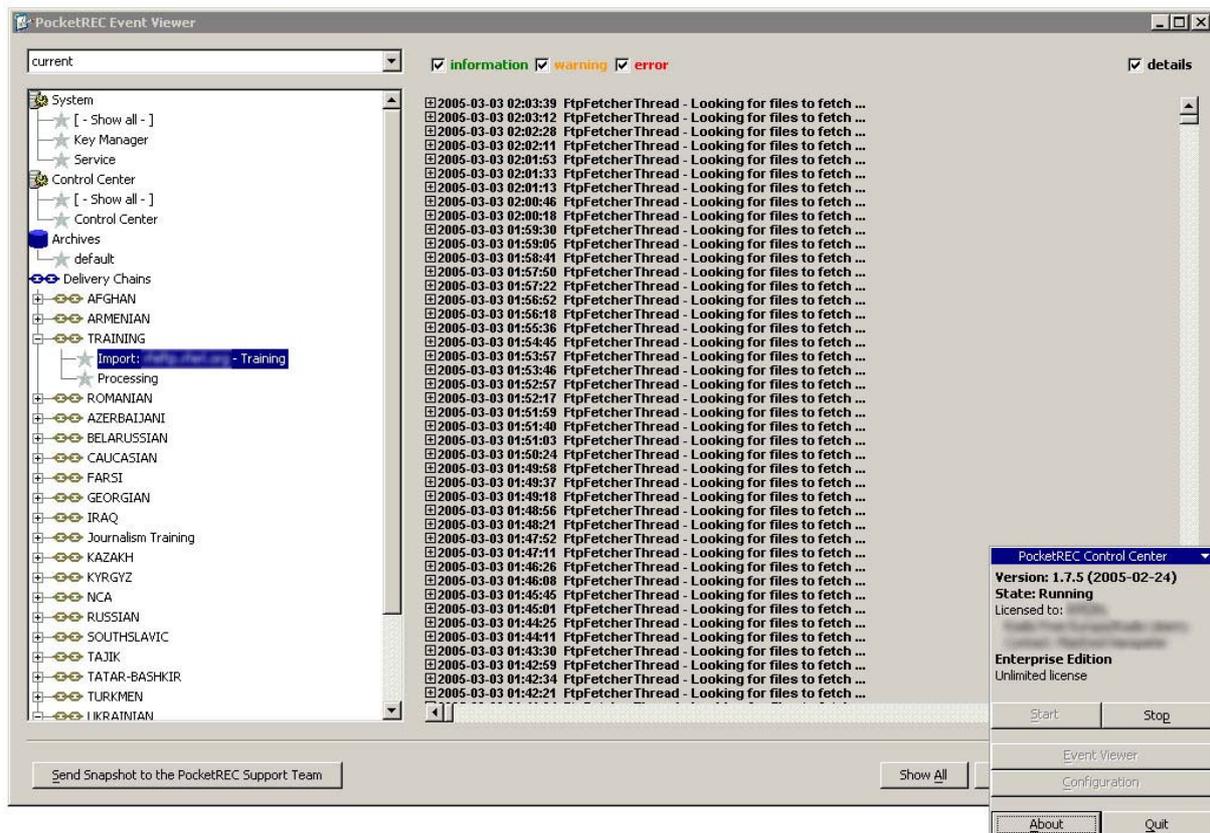


picture: sample PocketREC RMR Delivery Chain in the content routing configuration

The PocketREC RMR Framework

Each Agent has a well defined interface to the PocketREC Rich Media Router engine, but runs independently from it. This modular aspect allows a very detailed, individual configuration of the content routing. Cost effective customizations are possible due to the fact that only the affected Agent has to be customized, not the entire PocketREC RMR product.

The PocketREC RMR framework controls and synchronizes the individual agents, monitors their functionality and logs the activity etc. Automated notifications and reporting can be configured via a comfortable graphical user interface. An event viewer allows an organized view into the active processes and operations. The PocketREC Rich Media Router engine runs independent as a System Service or System Daemon in the background.



screenshot: The PocketREC Server Event Viewer

Additionally the PocketREC RMR Enterprise Edition includes a clustering option that enables an automatic failover to a backup system: In case of the target Content Management System becomes unavailable from one PocketREC RMR node, a serious issue occurs on the primary node, or the primary node has to be shut down due to system maintenance, the operation is flawlessly handed over to the PocketREC RMR backup node. The Java environment of the PocketREC RMR allows running the backup system even on a server which is primarily used for other tasks without taking risk of unintended interference.

Archiving & Forwarding

After the processing, the content is moved to Archive directories, ordered by date, time and filename. Storage time for each Archive can be set individually. Multiple Archives can be configured and assigned to different Delivery Chains. Every Archive record contains the full information of all processing steps, starting from the Import, Processing to the Export Agents, including all log information created on this way.

Also, after finishing the processing of the content, a forward to a ftp directory can be defined. With this feature, multiple PocketREC delivery chains can be put into a Daisy Chain. A practical example is a broadcast organization that first imports all PocketREC field units audio uploads into their Radio Automation System. Afterwards, the file set gets forwarded to another delivery chain or a different PocketREC RMR of the Internet Department, where the content will get automatically converted into the required web publishing formats, including video clips and images.

PocketREC RMR for general Content Routing, Ingest and Delivery

Further, the PocketREC Rich Media Router is the logic step coming next to automated web upload, audio conversion and transfer scripts that can be found in almost all broadcast corporations. Historically, most of those existing scripting solutions have started out of the need for a quick answer for a simple task. Over the years, the demands and therefore their complexity has dramatically increased.

As Content Ingest, Routing and Distribution became more and more important in today's converging broadcast market, those existing scripting solutions can become not only difficult to administrate and reaches their natural limit in maximal growth, but also becomes very susceptible for sudden failures.

The PocketREC Rich Media Router provides the ideal framework to simplify and reintegrate those Content Routing tasks on a solid platform and increasing the operational security in one step. Clustering, monitoring and automated logging and reporting are integrated in the entire content flow.

Manufacturer and System Independence:

The PocketREC RMR is an independent solution and not tied to a certain 3rd party Content Management, Digital Asset Management or Radio Automation System, but provides readily available Export Agents for most of those systems on the market. The number of Export Agents for 3rd party systems is steadily increasing, and new Export Agents can be provided upon individual request.

Therefore, the PocketREC RMR represents a system independent content ingest and routing solution for existing Radio Automation Systems. The PocketREC RMR make traditionally "closed" 3rd party Systems to interoperate and share their content.

Additional value arises for customers that use more than one Content Management or Radio Automation System, as the PocketREC RMR can deliver content in parallel to multiple target Content Management and/or Radio Automation Systems.

Java® Technology

All applications of the PocketREC Server Platform are implemented using Java® Technology. This enables platform independent deployment; the PocketREC Server Platform is not bound to any Microsoft Windows® Platform. Therefore, the PocketREC Server Platform is the ideal answer to the growing demand of the broadcast industry to move away from monolithic Microsoft Windows® structures especially in security relevant areas of the content ingest. I.e., the PocketREC Upload Server can be operated on the same Linux or Sun server that is already handling the corporate ftp server. The PocketREC Rich Media Router can be operated under Linux as well, even though the compliance requirements of some 3rd party Content Management or Radio Audio System manufacturers may require Microsoft Windows® a the operating platform for the appropriate PocketREC RMR Export Agents.

Licensing

The PocketREC Rich Media Router is available in two license packets:

a) PocketREC Rich Media Router – Standard Edition

The Standard Edition of the PocketREC RMR allows the configuration of up to 3 parallel Delivery Chains. It is recommended to use the Standard Edition for small and medium sized broadcast organizations only. One PocketREC Upload Server license is included in the Standard Edition, but no support for Clustering.

b) PocketREC Rich Media Router – Enterprise Edition

The Enterprise Edition of the PocketREC RMR comes without logical restriction of simultaneous Delivery Chains, but depending on which server hardware the PocketREC RMR is installed on, the recommended maximum number of Delivery Chains are 20. A two node Clustering support is included in the Enterprise Edition, as well as the licenses for both cluster nodes. One PocketREC Upload Server license is included as well.

Large and enterprise scale broadcast organization should always use the Enterprise Edition of the PocketREC RMR to satisfy their demands in maximum stability and security of the typical 24/7 operation.

PocketREC Upload Server

PocketREC Upload Server implements a highly optimized communication protocol. PocketREC field units can communicate and transfer with the optimized protocol up to two times faster than it is possible via ftp protocol, when used over low bandwidth (like GPRS mobile data) and/or high delay connections (like satellite modems).

PocketREC Upload Server can run in parallel with other infrastructure and communication services and protocols like ftp and/or e-mail (smtp/pop3) to provide a variation of upload protocols from which the PocketREC field journalist can select from.

However, intensive upload tests have shown that the PocketREC optimized upload protocol should be preferred to ftp whenever low bandwidth connections are being used in order to

- a) Reduce transfer time – “Be 1st On Air!”
- b) Reduce transfer costs

The utilization of the PocketREC optimized upload protocol from the PocketREC field units requires the PocketREC Upload Server and PocketREC Rich Media Router installed at the broadcast upload centre side.

One PocketREC Upload Server license is included in every PocketREC Rich Media Router Package.

The complete implementation of the PocketREC Upload Server in Java enables a deployment on operating system environments other than Microsoft Windows®. Especially when the PocketREC Upload Server is installed in the DMZ of the corporate network, Linux is recommended as platform.

**For more information, please contact us anytime via
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“Thank you for your interest in PocketREC !!!”