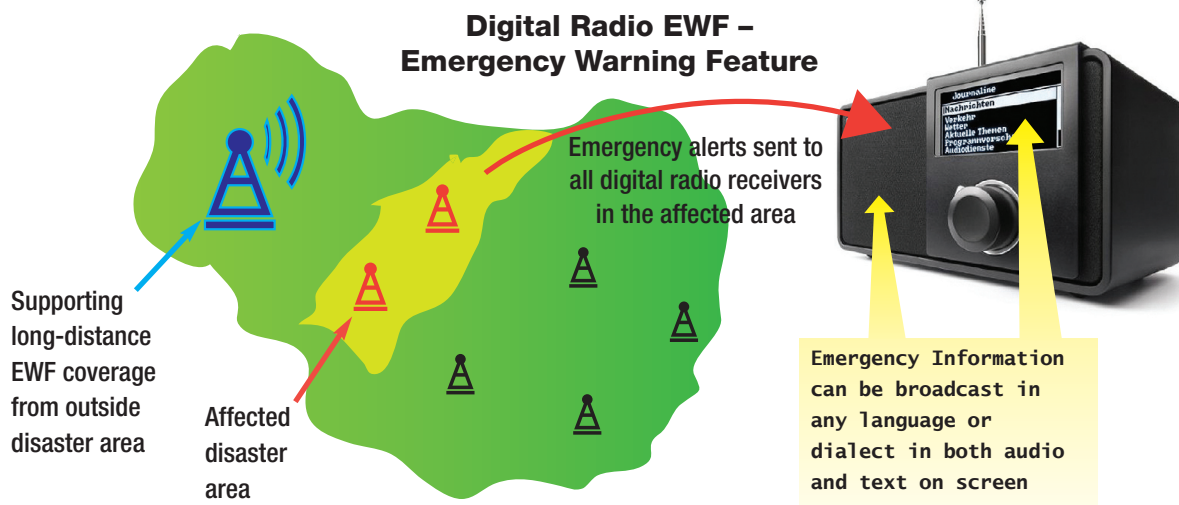



DRM Emergency Warning Functionality (EWF) Already part of DRM!

DRM EWF – Functional Overview



- 1 Receiver switches on and/or retunes automatically
- 2 Visual/acoustic signalling
- 3 Alarm announcement and multi-lingual look-up text instructions via Journaline (serving non-native speakers and the hearing impaired)

EWF for Digital Radio – Disaster Stages

Digital Radio provides essential services in all these stages, as it:

- a) reaches the affected people reliable
- b) enables detailed multi-lingual text infos

Overview

Digital Radio Mondiale (DRM) supports and provides a fully integrated disaster and early warning service called Emergency Warning Functionality (EWF). The functionality described below is part of the DRM system specifications, which is described in Recommendation ITU-R BS.1114-7 and is a European Telecommunications Standards Institute standard (ES 201 980).where they live.

Task

Inform **general public** (and relevant authorities) about the impending disaster, with **maximum reach** and as **quickly** as possible, giving **all relevant information**.

Requirements

- Send notification to maximum number of people in the affected areas as promptly as possible
- Must cover large areas with very high reliability
- Must work when common information services and local services fail
- Make warnings available on devices that people use on daily basis
- Reach devices that are still operational, if electricity fails (i.e. radio sets and other devices with independent energy source)
- Be as un-intrusive as possible for daily use
- Must be available and continuously on-air for the duration of the emergency
- Control of emergency notification and immediate access by authorities
- Make emergency message available to widest possible audience, including the visually or hearing impaired

Benefits

- EWF support is mandatory as described in the DRM minimum receiver requirements and second-level receiver profile (pls. see www.drm.org) with no need for special chipsets or extra adaptation for EWF. **Everything needed for EWF is already in the receivers built according to the above specifications issued by the DRM Consortium.**
- The DRM technology should be the major building block of a **national emergency warning** policy, providing full and continuous services as a last resort potentially even from a remotely located transmitter site.

How the EWF functionality works ...



All DRM receivers can pick up the alarm signal and switch to the emergency broadcast (if required).

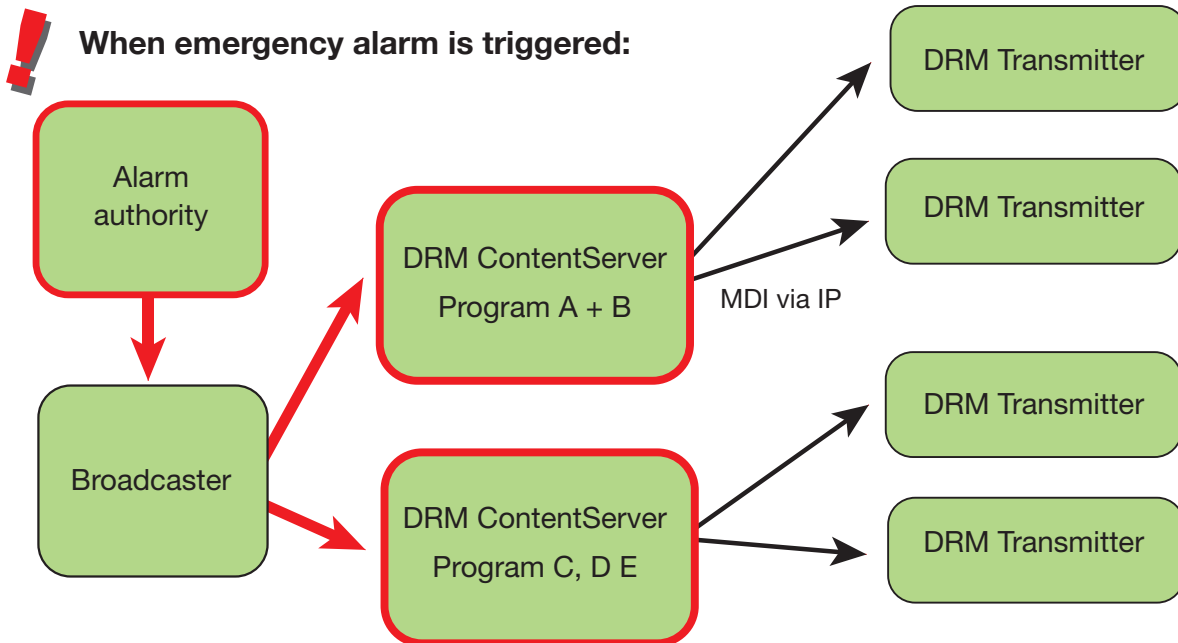
Turned-off receivers can be configured to switch on automatically. (This requirement has to be communicated to the receiver manufacturers).

All DRM receivers display the **audio content** of the emergency programme.

DRM receivers with a text screen can additionally display:

- **Detailed information and instructions** (Journaline) +
- **Text-headlines** (Text Messages)

DRM Broadcast Networks



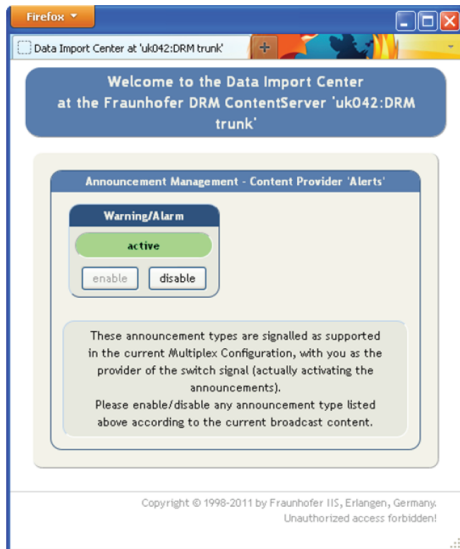
- **Central authority** triggers alarm on **ALL** DRM programs (incl. private Bx!)

- **ContentServers** insert Alsm signal
- Optional Dynamic Service-Reconfiguration (making room for 1 emergency program)

Activation of emergency alert

When the emergency alert is required to be activated, the following steps should be taken:

- Activate switch trigger chain from authorities through studios to DRM Content Servers and eventually the DRM receivers, to switch all receivers automatically to the emergency programme (see Figure);
- Broadcast (at least) one emergency programme covering at least the region of the emergency with audio + text information.



Examples for delivering the alarm signal **from a central authority / studio** to a DRM Content Server:

- **UECP**
International standard for **automated** announcement transfer in studio infrastructure
- **Web interface**
Allows to **manually** enable the alarm trigger in a Content Server
(e.g. from operator panel, or as back-up mechanism)

Conclusion

The DRM audio broadcasting system has all required tools built-in – and supported - by available chipsets for a quick and complete mass notification (including impaired listeners) when disasters/catastrophes occur:

- Providing DRM receivers with switch signals and alternative frequencies to get emergency programmes
- Providing listeners (including impaired users) with complete and detailed information by audio and multilingual on-demand text (Journaline)

Preparation in advance is key in three major areas

- Alarm trigger routing (from central authority to DRM receivers);
- Content preparation for immediate availability (text information, audio loops/feeds)
- Full receiver functionality to be implemented (including EWF and automatic wake-up)