

DIFMET, soprano product dissemination system

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Sending many products in a very short time using e-mail, fax, ftp, sms, and voice messages is one of the main issues to be tackled by our production department. For a global answer, Meteo France has decided to develop a new product dissemination system, called "Difmet", with all these functionalities available at the same time. Difmet will be used by Meteo France central production system SOPRANO but also by the regional production systems.

Difmet will be able to manage high volume of data with high availability. It will use a structured product identifier for an easiest control and sharp products identification. The main functions will be switching, queuing and priority management, data conversion, reemission, storage. The monitoring interface will offer facilities to control and prevent saturation, follow the production and the products delivery to Meteo-France customers.

Difmet should be in operation by the end of 2008.

Why a new dissemination tool ?


- The new Production system SOPRANO needs features to send a high amount of products through the new protocols : SMS, E-MAIL, Voice messages...
- For a full production management, each product **shall be followed during all its dissemination until the end user.**
- For a faster reactivity, the new dissemination tool shall be able to offer producer features **to set up itself this dissemination.**
- The new framework has to offer **flexibilities in the products file naming** from one end to the other end.
- Our actual MSS does not offer these functionalities.



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DIFMET main functionalities

- Used by Meteo France central production system SOPRANO and also by the regional production systems.
 - for all Product type (customized products, raw products)
 - in push mode, directly to the end user or through a provider (for example SMS issue)
- Allows high volume of data management with increased availability
- Allows sending of a lot of products in a very short time
- Difmet has to provide features to define a product identifier for an easier control and sharp products identification
- Difmet will be handling different priorities for the different reception files.
- Difmet will provide international language switching.



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General framework

- Producers put on the right directory products according Difmet file naming convention.
- The data acquisition system pools all directories to get products and switch them to the kernel
- The kernel manages the data switching, makes controls, conversion and switches the product to the right channel
- Products are queued before transmission. There is one queue per dissemination channel.
- Through the dissemination channel, the products can be sent to the end user. Dissemination channel are FTP, Mail, Fax, Printers...

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Technical architecture

- Implementation
 - Diagram showing the technical architecture. It includes 'DIFMET Operational' (with 'Virtual IP'), 'DIFMET backup', 'DIFMET Standby Remote Site', 'DataBase Postgre SAN OPER', 'DataBase Postgre SAN backup', and 'DataBase Postgre SAN Remote Site'. Arrows indicate 'Heartbeat Serial Connexion' between 'DIFMET Operational' and 'DIFMET backup', and 'Dictionary update' between 'DIFMET Operational' and 'DataBase Postgre SAN OPER'. A dashed line indicates 'Dictionary update' between 'DIFMET Standby Remote Site' and 'DataBase Postgre SAN Remote Site'.
- Programming requirements:
 - Programming language :C' and PERL (Transmet software reuse) for the BackOFFICE.
 - PHP5, PERL JAVASCRIPT to generate HTML GUI.
 - DIFMET uses LINUX system as SOPRANO system.
 - The database is a PostgreSQL database

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Deposite products interface

- Product identifier**
It is useful to have a good visibility of the type of data carried along by having a look on the data designator:
Ideally, any user should be given details about the data type being processed and the product identifier will be used both for routing purposes and data description.
The WMO product identifier defined for the file naming convention when the Pflag eq "W" has all these qualities
- pflag_productidentifier_oflag_originator_yyyyMMddhhmmss**
[_freeformat].type|.compression

When the pflag is « W » the « **productidentifier** » is the following :

- <location indicator>,<data designator>,<free description>,<International date-time group>,<BBB modification header>

For example in Difmet, we have this product identifier :

fr-meteofrance-toulouse,SYNOP,MAIN+HOURS,20061000000,RRR

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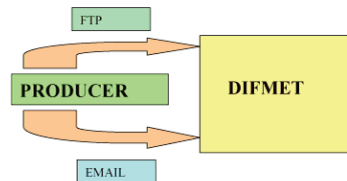
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File naming convention

- To simplify the description by the producer, Difmet uses a simplified file naming ,WMO identifier compliant
- The Difmet file naming is structured as below:
 - < productidentifir >.[<checksum>].<extension>
- For example : fr-meteofrance-toulouse,SYNOP,MAIN+HOURS,200610000000,RRA.html
- Difmet file naming extension :
txt,Html,Tiff,rf,ps,pdf,gif,jpg,mpg,wav,png,mp3,xls,doc,avi,xml,Tar,zip, gz,zip,bin

Deposit products interface

- Deposit protocols
 - Only with FTP and e-mail protocol are allowed
 - more than 100 Difmet producers
 - Each producer can send its products on his own directory using :
 - **FTP** anonymous. The "walk-in" directory is secured and controlled to prevent saturation.
 - **E-mail**. only e-mail address define in Difmet data base are allowed, with a special string in the e-mail header for a best control.



Processing mode - dictionary

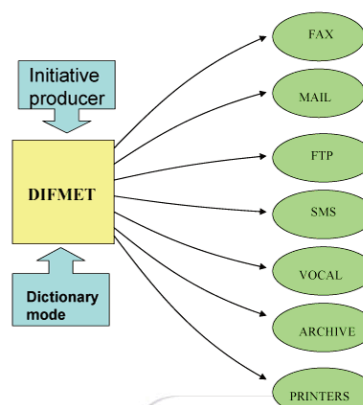
- **Dictionary Mode** : Products description is known in the Difmet data base:
 - Product identifier, product policies, archive time, special processing, end user description...
 - Same dictionary for all Difmet administrators but with different view according to administrator policies.
 - Each administrator could manage this dictionary view through a web interface.

Processing mode - Initiative producer

- The products are put on Difmet acquisition system with a command file
 - XML file (.met extension).
 - File and command file are "Tared" for an easier processing
- The command file contains all the routing description and Difmet directives to process and send products to the end user.
- The system will be able to process .tar and .zip files transparently. This information will be explicit in the associated command file.
- In initiative producer mode, the switching consistency is under producer's responsibility.

Output format

- the different dissemination channels are accessible through dictionary mode as well as through the initiative producer mode.




Supervision

- Difmet system will be supervised in real time by operators from Meteo France central production but also by the regional production system operators.
- For example:
 - Incoming data flow
 - Conversion tasks,
 - Processing and archiving tasks
 - Dissemination multi-channels
- The « real time » supervision duration is around 1 minute but the update operator interface could be customized easily.
- For regional production issues, the supervision interface will provide features to consult and manage their production.

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Administration interface

- Difmet offers features to manage the system with two administration levels
 - A central administration for the main Meteo France production center with all rights on Difmet system, i.e. switching dictionary, end user directory, conversion tasks, different processing, storage...
 - A local administration for regional production with features to manage the production within their area of responsibility.




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HMI : Three different skins


- All interfaces shall offer international language switching
- Three interface with three different skins for a better readability.
 - Administration interface
 - Dictionary update
 - Define customer, products, switching...
 - Operator supervision
 - Following production and products, retransmission, manage dissemination...
 - End user supervision
 - Following this owner dissemination from the producer to the end user
 - This functionality is only available in dictionary mode.




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Connexion interface



- Language selection
- Authentification
- Information



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Following production and products supervision

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DIFMET INTERFACE DE SUPERVISION

SUPERVISION

Statut des machines
Gestion des voies
Suivi des produits
Suivi de la production
Produits en quarantaine
Alertes
Archives
Suivi des doublons
Suivi des actions
Edition d'un message

RECHERCHE AVANCEE
Produits
Diffusions

MODE RELEVÉ

GRAPHIQUES
Emission
Reception

SUIVI DE LA DIFFUSION

CRITÈRES DE SÉLECTION

Date de début: [] Date de fin: [] Producteur: []

Produit: []

Exécuter

Résultats: []

Etat: []

Liste des produits affichés sur cette page: []

| N° | Station | Heure | Produit | Destinataire | Statut | Producteur |
|----|---------|----------|-----------|--------------|--------|------------|
| 1 | | 10:38:24 | SPZ4 | FTP Anquet | Fin | SOFRANO |
| 2 | | 10:38:52 | SPZ4 | FTP Anquet | Fin | SOFRANO |
| 3 | | 10:39:18 | Produit 1 | FTP Anquet | Erreur | SOFRANO |

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Administration interface

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DIFMET INTERFACE D'ADMINISTRATION

WEB / PARAMÈTRES

UTILISATEURS PRODUCTEURS
CRÉATEUR D'UN PRODUCTEUR

CRITÈRES DE RECHERCHE

Nom: [] Commentaires: []

Responsabilité: [] Mode de dépôt: [FTP] [E-Mail]

Résultats: []

Montrer les pages []

Exécuter

LISTE DES PRODUITS

Met: 19:00:04 UTC-01:00 produits entrants

| N° | Station | Responsable | Commentaire | Mode de |
|----|---------|----------------|-------------|---------|
| 1 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 2 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 3 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 4 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 5 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 6 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 7 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 8 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 9 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 10 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 11 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 12 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 13 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 14 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 15 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 16 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 17 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 18 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 19 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |
| 20 | SOFRANO | Jacques Anquet | AAAAAAAAA | FTP |

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End user control interface

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DIFMET SUIVI DE LA DIFFUSION

LISTE DES PRODUITS

| N° | Heure | Produit | Statut | Format | Statut | Commentaire |
|----|----------|-----------|--------|--------|--------|-------------|
| 1 | 10:34:05 | AAAAAAAAA | 000 Ko | MP3 | OK | |
| 2 | 10:34:06 | AAAAAAAAA | 000 Ko | MP3 | OK | |
| 3 | 10:34:40 | AAAAAAAAA | 136 Ko | MP3 | OK | |
| 4 | 10:35:01 | AAAAAAAAA | 000 Ko | MP3 | OK | |
| 5 | 10:35:05 | AAAAAAAAA | 000 Ko | MP3 | OK | |

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Difmet Project

- All the requirements are defined and validated
- Difmet software development is started
 - For BackOffice
 - For FrontOffice
- Difmet should be in operation by the end of 2008
- By now, no expected delay on the development schedule.