



# Fraunhofer Institut Sichere Informations- Technologie



## MIDMAY – Mobile Information Distribution Management & Access for You!

How often do you search in vain for information? Every day we store so many files and e-mails that we lose track of what is there very quickly. We do not any longer store our information on only one computer, we also upload files into the Intranet, the PDA or a USB stick. Many people are on the verge of drowning in the flood of information they receive and the many devices available today. To provide a quick and secure information access, the Fraunhofer Institute for Secure Information Technology SIT developed

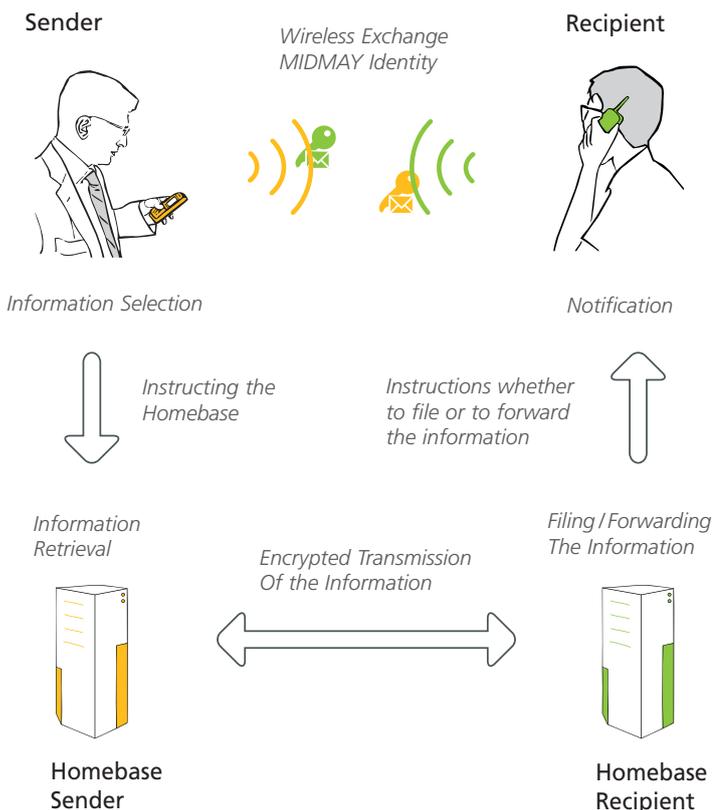
the MIDMAY software for the mobile management of information. An intelligent retrieval function allows MIDMAY users to access their documents and e-mails quickly and easily – from their own PC as well as from their mobile phone. What is really ingenious about this is that with MIDMAY the users can forward their files themselves, by e-mail or any other means, even if these files are stored on another device. Beyond that, encryption procedures and a secure system architecture guarantee the protection of the data.

## Information Overflow

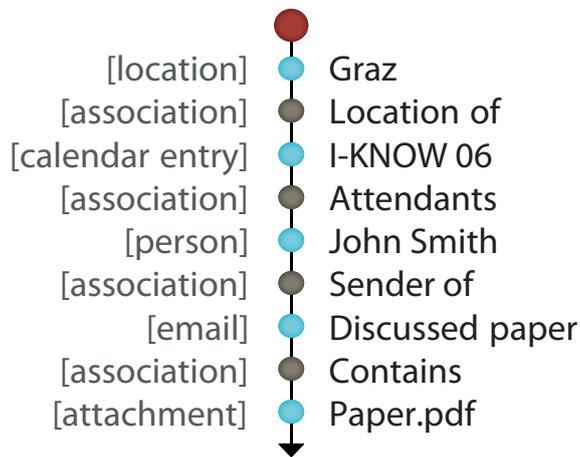
According to a recent study an employee spends during his work week an average of 9.5 hours searching for information. For three of these hours he is searching in vain, which means that he has to invest an extra three hours to retrieve the information that was previously lost. An additional obstacle in retrieving information is the increasing number of mobile devices, services and networks, with the information scattered over various end devices and intranet or internet storage space. MIDMAY offers access to the proprietary information regardless of location. A central information repository represents the hub, from where all files and e-mails will be catalogued and interrelated based on the individual topic map.

## Homebase as the Information Administrator – Intelligent Data Structuring

The Homebase represents the MIDMAY system information centre with which all user end devices communicate. This functionality is provided by individual units that may be distributed over any physical servers. The data retrieval module is used for communicating with the distributed data sources. The module indexes the files on the user's various end devices and data sources (databases etc.), carries out the search and navigation requests arriving from the different end devices, returns the retrieved information via the file interface and can directly access and send files; an e-mail client or any other similar application is not required for this on the end device. The updated, stored data is automatically synchronized with the contents of the topic maps. The time intervals lapsing between the synchronizations can be chosen by the user.



A Unified Representation Module (URM) then reproduces the indexed information in a standardized representation. This enables the user to retrieve information from different data sources: a file, meeting dates or addresses, the user always initiates his retrieval request from the same user interface (input mask). The individual information bits are automatically interlinked by their structure and their metadata. MIDMAY for example interlinks all the e-mails of a sender or all the documents of an author. The user is thus able to pursue a personalized search path, provided by the current available knowledge.



*MIDMAY allows to search according to a user's personal way of thinking. The example shows the retrieval path of a document that a conference participant sent to somebody else. The person searching for the document first selects the venue, then the conference associated with the site, and so on, until he locates the document.*

### The Mobile Phone as Remote Control

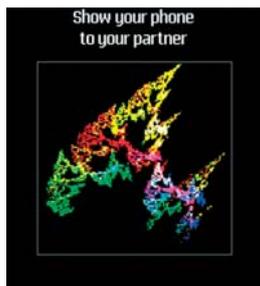
A user can access the Homebase's functionality not only from his PC, but also from his notebook, PDA or mobile phone. The Homebase may for example be prompted via the mobile phone to send a document by e-mail, independent of the actual file location. Transmissions to printers, fax machines or beamers are also possible. A mobile client is responsible to visualize the distributed information and functionalities so that they are suitable for display, thereby providing a clear representation and easy navigation on the end device.

For an easier adaptation to different devices and their individual features, the client's user interface has been separated from the transmission protocol and the information to be displayed. The software can also be used via WAP or an HTML browser to control the Homebase.

The Homebase cannot only communicate with its own clients, but also with other Homebases or external services. This direct form of communication has the advantage that the transferred file is augmented with contextual information. The recipient does not have to classify this information manually anymore.

### Personalized Information

When structuring the data the system not only considers parameters such as names and storage location. It also takes other individual contexts into consideration, for example whether the data belong to the same time frame. If a participant in a meeting sends an e-mail to a user whose calendar has an entry with the corresponding meeting time and the name of the participant, MIDMAY automatically links the file to this calendar entry. The software also takes the existing information source structure as well as the directory structure and the file names stored in the folders into consideration. The form and structure of the topic maps is therefore highly moulded by the individual user's behaviour. This permits the user to use his own terms and way of thinking when searching for his information building bricks and to locate the desired objects faster with MIDMAY than with classic search term-based system.



*Based on codes MIDMAY generates a picture for the exchange of confidential data. It takes only one look: Does the data concur with each other and can it be sent?*

## Information Security and Data Protection

Retrieval and delivery mechanisms have been designed in MIDMAY in such a way that users may transmit even important documents in a trustable and secure manner. The MIDMAY platform security features are based on the secure administration of the user data. An ID manager is responsible for the correct authentication and authorization of the users, both at the client as well as at the Homebase.

MIDMAY also simplifies the confidential exchange of information in ad-hoc situations. Until recently it was for example very awkward to exchange the keys required for an encrypted transmission. Two MIDMAY users can now safely exchange their keys in only a few steps via Bluetooth. The – so far – tedious key administration is carried out by Homebase.

An optical comparison of the graphical displays of the mobile phones (see the illustration on the left) helps to ensure that the transmitted key is authentic. Sending and administrating the key securely allows the sender's Homebase to identify itself clearly towards the recipient's Homebase and to transmit the encrypted information.



Mobile end devices constitute a specific security issue, because these can easily be lost. In the case of MIDMAY, the mobile end device only contains few parts of the personal identity and even this little bit is protected, thereby minimizing the damage in case the end device is lost. People finding such a device or any other unauthorized user cannot use the stored information nor activate the Homebase.

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