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28A. AASTRA MANAGEMENT 7450 V2.4 - GENERAL INFORMATION

28A.1 Introduction

Aastra 5000, an open and scalable solution, is a corporate multimedia (voice, video, fax) IP communication software application.

It can be used in all activity sectors (services, industry, healthcare, tourism, education, administrations, etc.), regardless of their structure (single-site, multi-site, central sites, regions, branches) and organisation (centralised, distributed or both).

In single-site mode, the Aastra system has its own administration portal, called **Aastra Management Portal**. Available, as standard, on Aastra X Series gateways, Aastra 5000 and on Aastra 5000 Server, Aastra Management Portal (AMP) offers all the services needed by the administrator, wherever he may be (at the office, at home, on a business trip, etc.).

In multi-site mode or pool management mode (standalone gateways) the **Aastra Management 7450** software manages all these devices consistently and easily for administrators.

Aastra Management 7450 (AM 7450) is a powerful tool which enables administrators to manage one or more interconnected AX Series, 500 and A5000 networks.

It is based on a client/server architecture; the server software runs with Linux, and the client with Microsoft Windows (.NET or WEB client).

Thanks to its modularity, only one server is required, both for small businesses and large companies. In fact, AM 7450 can manage up to 2000 AX Series, A500 or A5000 systems and 150,000 subscribers.

Its numerous functions make it a vital tool for the administrator, especially for configuring the LDAP directory and users, monitoring systems (iPbxs, routers, etc.) and unified applications, programming maintenance actions or upgrading systems or telephones.

An open software solution, thanks to the implementation of many standards (XML, LDAP, SNMP, etc.), AM 7450 is easy to integrate into the information system. For instance, it synchronises in real time the user data between the enterprise directory (Microsoft Active Directory, OpenLDAP...) and the LDAP directory of A5000.

Finally, AM 7450 is perfectly suited to the technologies deployed by network administrators: access security, interface encryption, virtual server with VMware ESX, server data protection through redundancy, etc.

AM 7450 functions cover the following fields:

Fault management

- Managing Aastra system alarms, data equipment and application servers
- Monitoring Aastra system, data equipment and application servers through SNMP map
- Sending SNMP traps and site statuses to an external SNMP supervision application
- Sending alarms by e-mail,
- Managing the logbooks of Aastra 5000 systems

Configuration management

- Accessing the numbering plan of Aastra 5000 devices
- Managing telephony parameters
- Managing abbreviated numbers
- Managing users (subscribers), their keys, forwarding operations, voicemail accounts and TWP accounts
- Simplified managing users by profiles (new web interface)
- Managing hunt groups
- Managing user/device connections
- Operation log
- Managing inventories
- Managing the directory
- Collecting call tickets and remote internal directories
- Accessing Aastra Management Portal on Aastra devices.

Maintenance services

- Backing up Aastra devices
- Restoring Aastra devices
- Upgrading software
- Managing Aastra terminals: software, configuration files.

Security management

- Managing user rights.

Detailed information about AM 7450 is given in the chapter "AM 7450 V2.4 – Functions".

28A.2 Enhancements in version 2.4

For each of the functions see the detailed information given in parts A and B of the chapter "Aastra Management 7450".

The enhancements in version 2.4 are summarised below:

Operating system

AM 7450 Server V2.4 is used with Linux CentOS 6.2 or RedHat 6.2.

The operating system delivered by default for a configuration on an Aastra Server is CentOS 6.2.

The AM 7450 software is compatible with VMware ESX/ESXi 5.0.

A5000 R5.4 system management

AM 7450 V2.4 manages A5000 R5.4 systems. So, it is necessary while upgrading the iPbx to R5.4 to also upgrade AM 7450 to V2.4.

Version R2.4 allows you to manage A5000 R5.2, R5.3 and R5.4. NeXspan R4.2 is no longer managed with AM 7450 R2.4.

Web interface for easy day-to-day management via profiles

A new web interface is available with AM 7450 R2.4. It facilitates the management of network subscribers via preconfigured profiles.

Interface for managing subscribers via public API

A public interface is available as of AM 7450 R2.4. It facilitates the management of network subscribers from an external application. This interface is subject to the acquisition of a license on AM 7450. It is necessary to participate in the Aastra A²P² partnership program to obtain the external interface documentation.

User / IVB password management

The user password and integrated voicemail box password are unified into a single password as of A5000 R5.4. This password can now be initialised with a value specific to each user by the administrator, from the AM 7450 client, the profile-based management AM 7450 web client, but also from Aastra Management Portal (AMP) for networks without AM 7450.

Enhancements in AM 7450 2.4 SP2:

Functional changes:

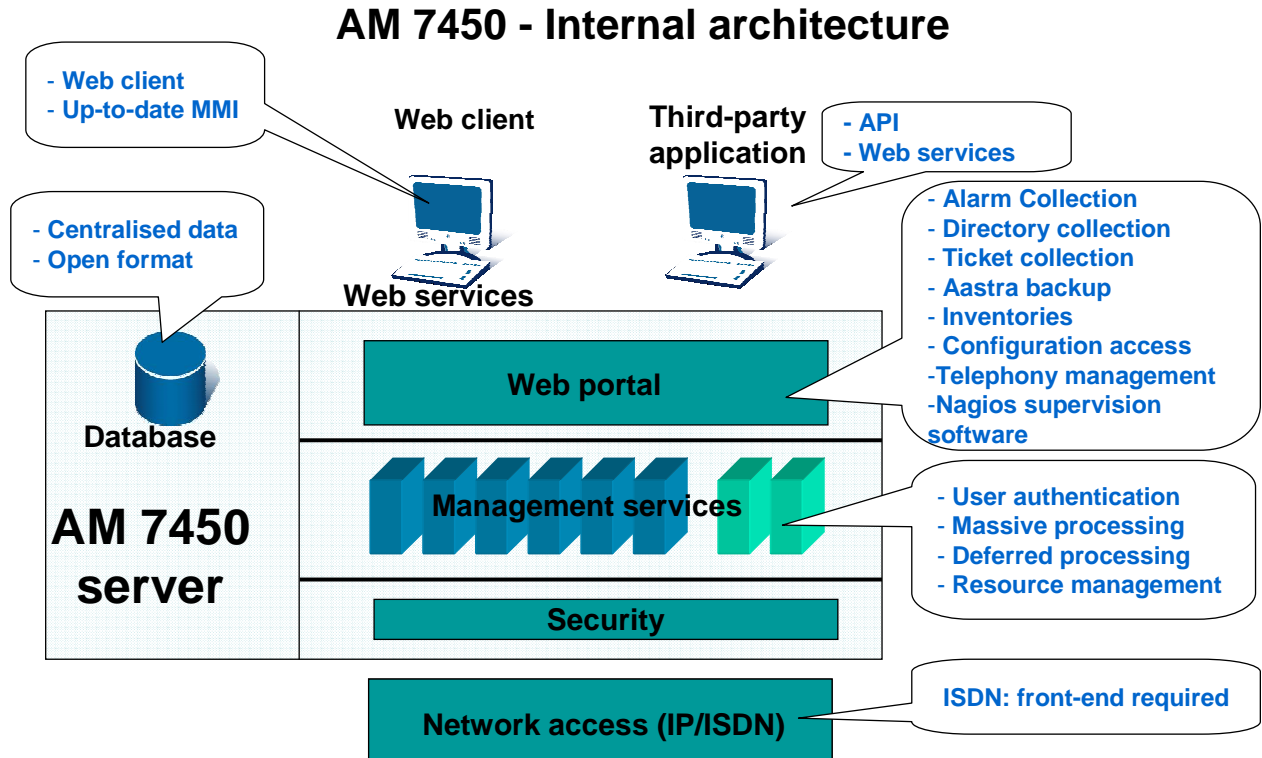
- Easy BluStar deployment, with the management of authentication (subscription login/password) and advanced security checks
- Administration of TWP 4.1 and UCP 3.0

Software environment:

- Server: Linux CentOS 6.3 and RedHat 6.3 compatibility
- Client: Windows 8 compatibility

28A.3 Overview of the AM 7450 software

AM 7450 is installed on a Linux server.



VMware virtualisation

AM 7450 V2.4 can run as a virtual application on top of a VMware architecture.

[See the section Virtualisation.](#)

28A.4 AM 7450 software client applications

28A.4.1 AM 7450 administration web client

The Web client is used:

- To install and run the AM 7450 client
- To manage and configure the data required to use AM 7450
- To view the documentation



28A.4.1.1 Languages

The administration web client is offered in the following languages:

- French
- English
- German
- Italian
- Flemish

28A.4.1.2 Installation

The AM 7450 client is very easy to install, by clicking the link "Prepare the deployment of AM 7450 client" from the web client.

Before this, Framework .NET 3.5 and Java Runtime Environment (JRE) 1.5 must be installed on the PC.

It also necessary to install SVGViewer in order to view the Aastra 5000 / Aastra X Series map on NAGIOS.

28A.4.1.3 Administration



Import list of regions and sites

The administrator has the possibility to enter, off line and in an Excel file, the AM 7450 configuration in terms of managed regions and sites.

The form thus created will be used to massively configure the sites and regions managed in AM 7450.

Recover exported data

This menu gives access to the data exported by the AM 7450 client for processing outside of AM 7450:

- Collected directories
- Collected tickets
- The AM 7450 configuration: xml files describing the operators, regions, and managed sites
- AM 7450 logbooks in xml format: 1 log a day
- Gateway logbooks in txt format (1 log a day)
- Site-based inventories in XML format
- Aastra system backups
- The entire technical data of all the subscribers in csv format.

Manage user connection status

This menu gives the user connection status and possibly forces one or more users to log off if necessary.

Only a user with an "Administrator" profile can force the disconnection of another user.

Recover AM 7450 application backups

It is possible to view the list of backups available on the AM 7450 server in order to save them locally, view them, e-mail them later, etc.

Manage AM 7450 service

The link is used to manage the status of the AM 7450 application remotely and to stop or start the application on the server.

As of AM 7450 V2.2 SP1, status management is only accessible with the "Administrator" profile, and in read only mode for the other users.

If necessary, the "Select M7450 interface" field is used to modify the IP address of the AM 7450 server; in principle, this address has been declared during operating system installation.

Therefore, any AM 7450 server IP address modification also implies:

- Updating the location of the LDAP directory (hosted by AM 7450)
- Updating the location of SNMP Manager.

Export user data

This link is used to start exporting user data immediately: directory data, telephony rights, programmed keys and forwarding, voicemail box, associations.

The interface also offers a link to the export directory.

Manage alarm box

This device is used to integrate the Aastra 5000 solution to (audible and visual) alert solutions, via AM 7450.

This alarm box is connected to the AM 7450 server through a serial link.

This link is used to activate or deactivate the management of this alarm box by AM 7450.

Configure external equipment supervision

This link is used to configure the supervision of external physical devices: data devices (routers, switches, etc.), PC servers or applications.



Aastra Management 7450

Configuration des équipements SNMP externes

Nom :	<input type="text" value="GUYUCP"/>	Adresse :	10.102.2.36	Url de gestion :	
Sévérité associée au trap : Majeure					
Message associé au trap : Trap reçu sur l'équipement GUYUCP (10.102.2.36)					
Sévérité associée au succès du polling : OK					
Message associé au succès du polling : Ping OK sur GUYUCP (10.102.2.36)					
Sévérité associée à l'échec de polling : Majeure					
Message associé à l'échec de polling : Ping NOK sur GUYUCP (10.102.2.36)					

Pour revenir à la page d'accueil, cliquez [ici](#)

The configuration concerns the following variables:

- Equipment / application name
- IP address
- Equipment / application management access URL
- Name and severity level of the alarm associated with the SNMP TRAP received
- Name and severity level of the alarm associated with the success of equipment / application pooling by AM 7450
- Name and severity level of the alarm associated with the failure of equipment / application pooling by AM 7450.

It is possible to add or delete a device / application to be supervised.

It is possible to export the configuration in txt format (CSV).

28A.4.1.4 Pre-requisites and documentation

Aastra Management 7450

Pré-requis	
Framework .NET 3.5	Récupérer
JRE 1.5	Récupérer
Composant SVGViewer	Récupérer
Certificat AASTRA	Récupérer

Documentation	
Manuel utilisateur de Aastra Management 7450	Visualiser
Manuel d'installation de Aastra Management 7450	Visualiser
Guide d'installation de Red Hat 5	Visualiser
Guide d'installation de CentOS 5	Visualiser
Manuel d'installation de la redondance et du double attachement	Visualiser
Configuration spécifique en accès NAT	Visualiser
Manuel d'installation des postes Aastra A53xx, A53xxip et A67xxi	Visualiser
Manuel d'installation des postes Aastra A6735i et A6737i	Visualiser
Manuel de TMA en mode Expert Provisionning	Visualiser
Gestion des photos : manuel de mise en oeuvre	Visualiser
Gestion des numéros SDA	Visualiser

Import de la configuration des sites	
Template pour la configuration massive des sites	Visualiser

Divers	
Fichiers de description de la MIB Aastra	Récupérer
Template excel pour traiter les données de l'inventaire R4.2	Visualiser
Template excel pour traiter les données de l'inventaire R5.x	Visualiser
Proxy pour la gestion de l'UCP R2.0	Récupérer
Script pour la supervision de l'UCP	Récupérer

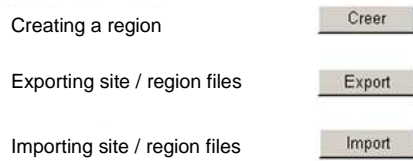
This link is used to view:

- The necessary third-party components (.net, java, etc.)
- AM 7450 related documentation: installation manual, user manual, etc.
- The Excel forms used for massive site configuration in AM 7450
- Various documents or executable (example: UCP / AM 7450 synchronisation proxy)

Template menu:



The Create button is used to declare regions; each region corresponds to a tab in which administrative data and Gateway connection data can be entered.



Clicking "Create" opens a region creation window.



Opens a template to create the new region "Region1"

	A	B	C	D	E	F	G
	Nom	Adresse postale	Commentaire	plan SDA	max numéro SDA	Polling du site	Password FC
1				1		NON	EXPFC
2				1		NON	EXPFC
3				1		NON	EXPFC
4				1		NON	EXPFC
5				1		NON	EXPFC
6				1		NON	EXPFC
7				1		NON	EXPFC
8				1		NON	EXPFC

The "Export" button is used to create the files region.xml and site.xml which can be imported into AM 7450.

The "Import" button is used to import into Microsoft Excel the current configuration of the regions and sites, in order to be able to massively modify the configuration.

28A.4.1.5 AM 7450 administration client of the Aastra 5000 solution

The **AM 7450** Windows client main window consists of three areas.

When a session is opened, these three areas are displayed as follows:

- An area on the left, with the identity of the connected user and available menus
- The upper right space is reserved for the interface of the selected function. The welcome screen gives information about the AM 7450 software: product version, number of sites, managed regions and operators and list of unlocked functions.
- The space at the bottom right displays the last events recorded in the operations log. By default, this display area is available but may be resized or even hidden.



Languages

The AM 7450 client is offered in the following languages:

- French
- English
- German
- Italian
- Flemish

The language of the interface is synchronized with the one defined while installing the server.

User preferences

The user can save some of his display preferences from the “preferences” menu.

It is possible to deactivate the notification pop-up window (this window is active by default).

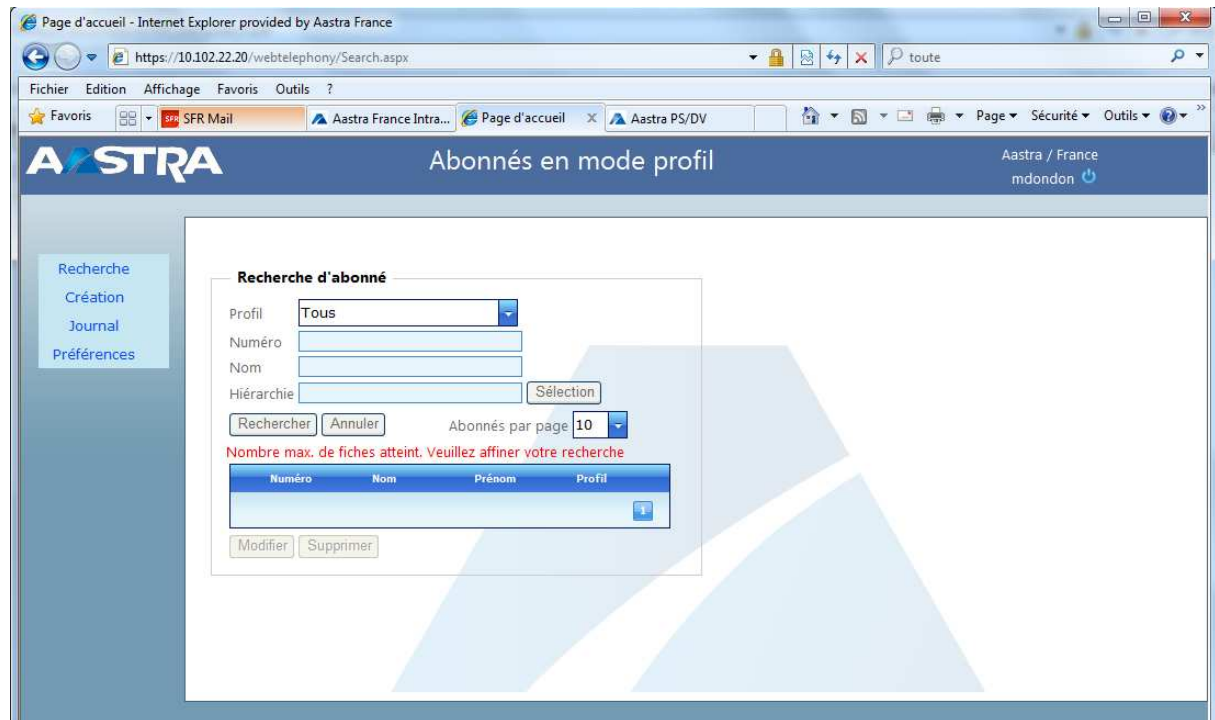
It is also possible to deactivate the alarm pop-up window in which filtered alarms are displayed (this window is active by default).

Finally, the user may choose “full screen” mode by default for the application windows.

This menu can also be used to modify the user password.

5.1.1 AM 7450 Web Client for managing subscribers via profiles (>=R2.4)

Introduced in AM 7450 R2.4, a new web interface makes internal subscribers easy to manage, using profiles declared in advance in AM 7450.



The left menu offers the following functions: subscriber search, subscriber creation, access to web operation log and user preferences.

Languages

The web client is offered in the following languages:

- French
- English
- German
- Italian
- Flemish

The interface language is synchronised with the one defined while installing the server.

28A.5 Security management

28A.5.1 Application security

28A.5.1.1 User rights management

The AM 7450 offers network management functions to geographically dispersed operators, while accurately defining the rights individually associated with each operator.

The rights management module is accessible to system administrators only. Only the operators declared in the system via this rights management module may access these functions.

The rights management module provides the following services:

- Creating the system operator or administrator
- Deleting the system operator or administrator
- Modifying operator or administrator characteristics and rights
- Resetting an operator or administrator's password
- Viewing the characteristics and rights
- Exporting operators, characteristics and associated rights (except passwords).

The characteristics of an operator are:

- Login
- Surname
- First name
- E-mail address
- Operator profile
- Password.

The different user profiles are:

- Administrator (Admin)
- Operator
- Telephony
- Web telephony (new as of R2.4)

The table below gives a view of the functions available according to profile.
The accessible functions are still in read / write mode.

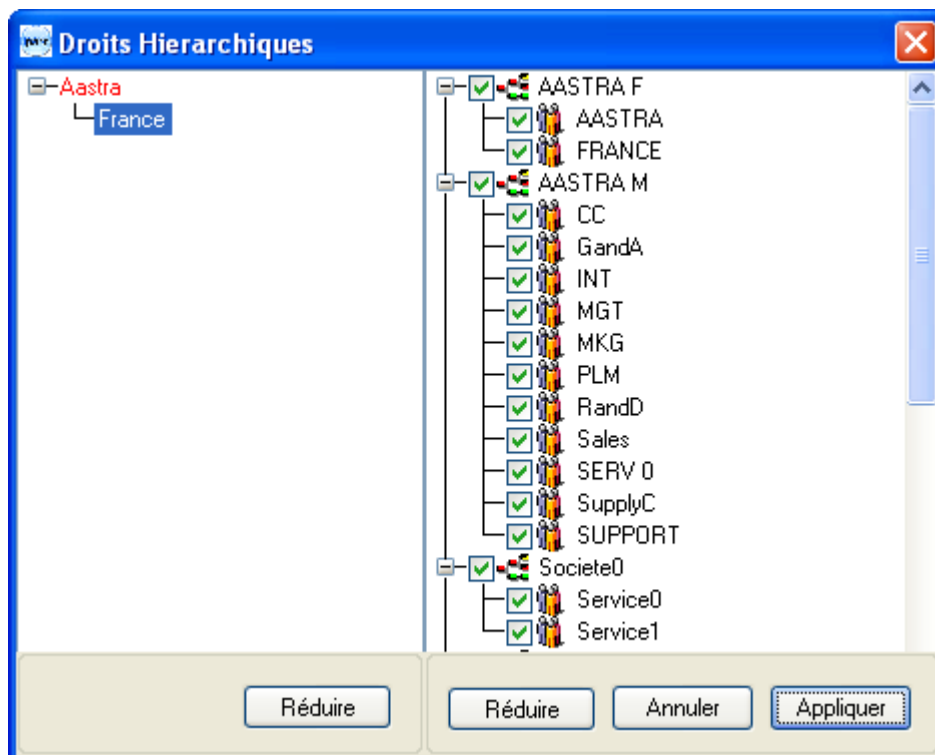
Function	Admin	Operator	Telephony	WEB (>=2.4)
User rights	√			
Directory	√	√	√	
Speed dial (or abbreviated) numbers	√	√	√	
Subscriber profile management (>=R2.3 SP1)	√	√	√	
Subscriber management	√	√	√	
Profile-based web subscriber management	√	√	√	√
Telephony parameters	√	√	√ (Read only)	
Numbering ranges	√	√	√	
Login	√	√	√	
Backup	√	√		
Upgrade	√			
Restore	√			
Spoken announcements	√ (AMP)	√ (AMP)		
IVR	√ (AMP)	√ (AMP)		
AMP	√	√		
Alarm management	√	√		
Installation	√	√		
Call records (tickets)	√	√		
Inventories	√	√		
SNMP supervisor	√	√		
Logbooks	√	√	√ (telephony)	√ (WEB)
TMA service (terminals)	√	√		

Moreover, an operator's rights are:

- **Geographic rights:** visibility and possible actions on a set of regions, and within the regions, multi-site configurations and inside these multi-site configurations, or one or more iPbxs.



- **Hierarchical rights:** visibility on a certain number of companies / departments (only the subscribers belonging to these latter are accessible in configuration)



In addition to this security management module, AM 7450 has an operations log used to list precisely all the operations performed by the different operators.

28A.5.1.2 Secure password policy

The password management policy is reinforced as of version V2.1D.

- The passwords must respect a format imposed by the administrator.
- The passwords have a validity period after which they are no longer valid and must be changed.
- In case of prolonged inactivity on the AM 7450 client, access is blocked and the user must re-authenticate.
- Login/logout operations are recorded in a logbook.

The new password format is defined from the following combinations:

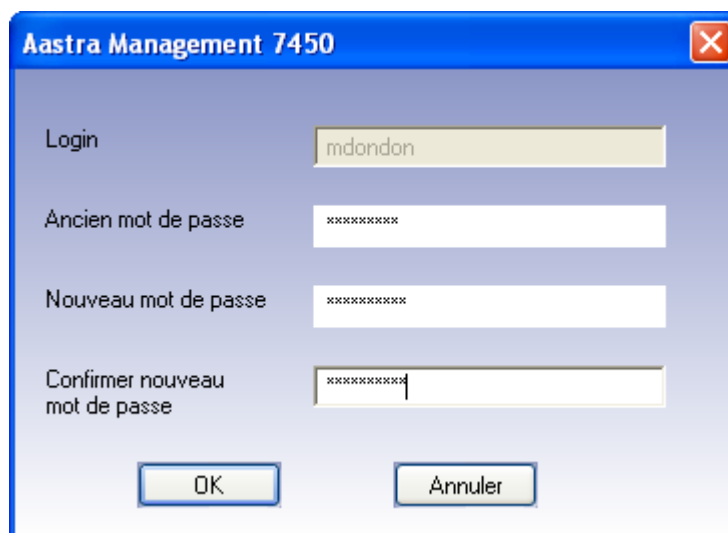
- At least n characters
- At least w lower-case characters
- At least x upper-case characters
- At least y digital characters
- At least z special characters (*+ ?...)
- Number of the above rules to apply.

The password validity period is configurable and is 90 days by default. It can also be inhibited.

An alert informs the user about the imminent expiration of his password (7 days in advance), during login.

The user is prompted to modify his password immediately in the following cases:

- If his account has just been created; he is logging on for the first time.
- His password has just been reset by the administrator
- His password has expired



The screenshot shows a standard Windows-style dialog box titled "Aastra Management 7450". It features a blue title bar with a close button (X) on the right. The main area is light blue and contains four text input fields stacked vertically. The first field is labeled "Login" and contains the text "mdondon". The second field is labeled "Ancien mot de passe" and contains a series of asterisks. The third field is labeled "Nouveau mot de passe" and also contains asterisks. The fourth field is labeled "Confirmer nouveau mot de passe" and contains asterisks. At the bottom of the dialog, there are two buttons: "OK" on the left and "Annuler" (Cancel) on the right.

In case of prolonged user inactivity from his AM 7450 client software, the session is locked and a login window opens above the AM 7450 main window.

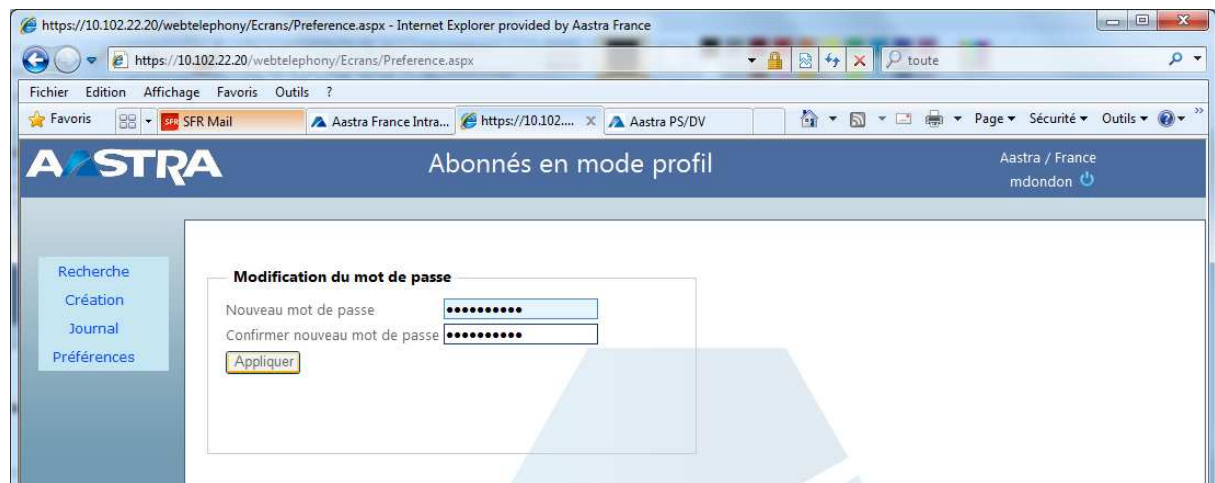
If the user wishes to resume his activity on AM 7450, he authenticates again by entering only his password and can again access different menus.

The duration of inactivity is configurable and is 10 minutes by default.

All logon and logout operations are time-stamped and displayed in the operation log, indicating the action and user concerned.

Journal des opérations									
Date	Utilisa	Libellé	Site	Messa	Multis	Régio	Action	Com	
16/09/10 16:04:51	Dondon	Connexion à l'application (adresse IP : 10.102.127.107)							
16/09/10 15:34:18	Dondon	Déconnexion de l'application (adresse IP : 10.102.14.18)							
16/09/10 14:18:01	Dondon	Connexion à l'application (adresse IP : 10.102.14.18)							

WEB interface for managing users via profiles (>=R2.4)



Administrators with "Web telephony" profile have access to this web interface only. They can thus modify their password in this interface. The new password is securely sent on HTTPS to the AM 7450 server and saved in encrypted form in the AM 7450 administrators' database.

Administrators with other profiles (Admin, User, Telephony), and who also have access to the user management web interface, can modify their password both in the AM 7450 client interface and in the web interface.

The same security policy applies, no matter the interface in which the password is modified.

28A.5.2 Technical security

The Aastra 5000 solution is intrinsically designed to offer easy and efficient administration, no matter the number of users. The ease of administration must not be to the detriment of security (availability, integrity, confidentiality, audit). Therefore, the Aastra administration solutions offer all the mechanisms required to securely integrate telephony into the corporate IT system.

Security of the operating system (OS)

The AM 7450 solution runs with Linux. This OS has been hardened in order to minimise the risks of security gaps:

- Only the services necessary to deploy AM 7450 are launched in order to minimise the visibility of the application on the network (reduced number of open ports).
- Password management policy
- Compatibility with standard antivirus solutions and firewalls
- Linux also natively integrates a firewall which must be configured by the administrator.

The following services must be opened on the firewalls:

- FTP
- SSH
- HTTP
- HTTPS

The ports to be opened so the AM 7450 software can work correctly are:

Port type	Ports or port range	Use	Configurable
TCP	22	SSH	No
TCP	80	HTTP	No
TCP	443	HTTPS	No
TCP	25	SMTP (mail transmission)	No
TCP	8201 to 8220	VT100 port range	Yes
UDP	162	SNMP (trap manager)	Yes
TCP	20911	Net remote (web services)	Yes
TCP	90	HTTP #2 Supervision: Nagios SNMP	No
TCP	8080	ISDN call automaton	No
TCP	389	LDAP connection port	No

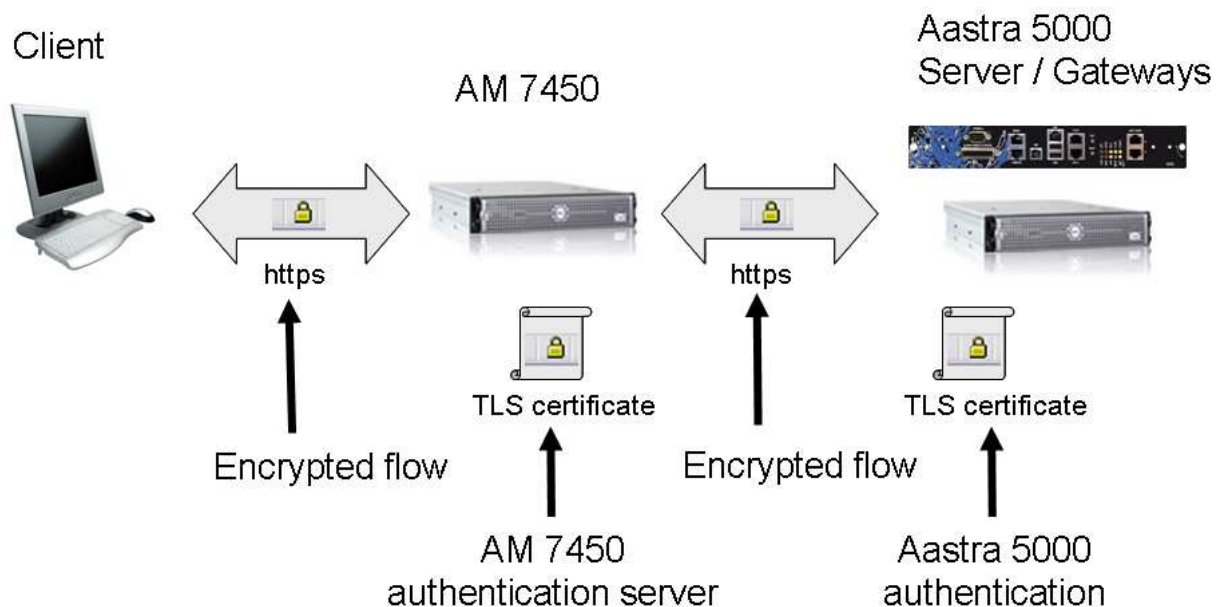
Secured access

Access to the AM 7450 application is through the AM 7450 Client application. This application is deployed automatically on the client terminal and uses a Web Services-based interface to communicate with the AM 7450 application.

An application authentication enables some services, adapted to the user's profile and geographical area, to be provided.

All the client-server exchanges are authenticated and encrypted using the https protocol over TLS.

Interfaces: authentication and encryption



Administration flows

The administration flows between the different components of the A5000 solution are authenticated and encrypted in order to provide a high level of confidentiality and integrity.

These flows include:

- The retrieval of alarm logs
- The acquisition of communication tickets
- Backup/restore management
- Update management
- Subscriber and Call Server/Gateway/iPbx configuration
- Inventory flows.

Alarms

The alarms captured by AM 7450 are also transmitted in form of SNMP traps to a third-party SNMP supervision application (configurable) of the type HP OV.

Follow-up of configurations

AM 7450 provides all the functions needed to follow up configurations:

- Automatic backup of Aastra 5000 and Aastra X Series / Aastra 500 configurations through AM 7450
- Automatic downloading of logbooks and inventories
- Numbering plan audit
- Inventory of IP and digital subscribers via the TMA service.

Availability

Automatic spatial duplication towards a second synchronised server is recommended in order to secure the AM 7450 server.

28A.5.3 Security - user rights

Access to the AM 7450 web portal is controlled through login / password. Several profiles are possible.



The User, Telephony and Web Telephony (>=R2.4) profiles have limited access.

Administration du serveur AM7450

- Pour gérer le service AM7450, cliquez [ici](#)
- ~~Pour importer la liste des régions et des sites, cliquez [ici](#)~~
- Pour récupérer des données exportées, cliquez [ici](#)
- ~~Pour gérer l'état de connexion des opérateurs, cliquez [ici](#)~~
- Pour récupérer les sauvegardes de l'application AM7450,
- Pour provoquer un export des données abonnés, cliquez
- ~~Pour tester ou désactiver le dispositif externe pour la ge~~
- ~~Pour configurer les équipements externes, cliquez [ici](#)~~

28A.6 Maintaining the AM 7450 server

It is possible to define the following parameters:

- Start time for programmed campaigns and actions
- Export and exported data directory
- Duration or number of data backups stored in the AM 7450 database
- SNMP and mail server configuration
- Range of telephone parameter and DID number data (global or by region)
- Aastra 5000 OpenLDAP directory configuration
- Alarm filter configuration.

Campaign times

Day	Start Time
Dimanche	01:00
Lundi	02:00
Mardi	03:00
Mercredi	04:00
Jeudi	05:00
Vendredi	06:00
Samedi	07:00

Note: these periods defined by default can be modified by date in the menu Campaigns / Actions for a daily campaign given.

Campagnes

Actions par date

Heure de début: 05:00
 Inhiber la campagne

Nombre d'actions: 3

Région sélectionnée (Aastra)

Export directories and data:



Heures de campagne | **Export** | Purge | Serveurs | Portée | Annuaire | Filtrages

Configuration

Répertoire de base des exports :

Export du journal des opérations

Export pour taxateur (tickets de communication et annuaire)

Export des journaux de bord IPBX

Export des inventaires IPBX

Export

Export des fichiers sites et régions

[voir les exports présents sur le Repository](#)

The configuration modification is saved in the operations log.

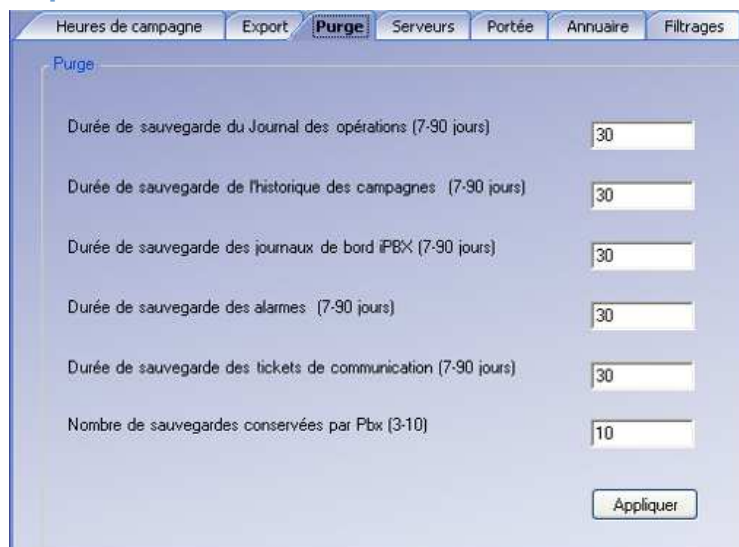
Note: this configuration is used without any changes by the immediate actions. While creating deferred actions, it is possible to re-specify whether or not you want an export.

At the end of processing, the data transmitted by the sites are saved in the specified export directory located on the AM 7450 server.

These data are not purged by AM 7450. The content of this directory is to be deleted by the administrator.

The backup directory for exports is accessible thanks to the link "see the exports available in the repository".

Duration of backups:



Heures de campagne | Export | **Purge** | Serveurs | Portée | Annuaire | Filtrages

Purge

Durée de sauvegarde du Journal des opérations (7-90 jours)

Durée de sauvegarde de l'historique des campagnes (7-90 jours)

Durée de sauvegarde des journaux de bord IPBX (7-90 jours)

Durée de sauvegarde des alarmes (7-90 jours)

Durée de sauvegarde des tickets de communication (7-90 jours)

Nombre de sauvegardes conservées par Pbx (3-10)

When the backup durations are attained, when new data must be saved in the AM 7450 database, expired data are automatically deleted.

Configuring SNMP and mail servers:

The screenshot shows the 'Serveurs' tab in the configuration interface. It is divided into two sections: 'SNMP' and 'Serveur mail'.

SNMP Section:

- Masque réseau:** Two input fields, both containing '33'.
- Adresse manager:** Three empty input fields.
- Polling (min):** An input field containing '1'.

Serveur mail Section:

- Serveur mail:** An input field containing 'guyamailrnt.fr.aastra.com'.
- Adresse e-mail du AM7450:** An input field containing 'guyam7450@aastra.com'.

SNMP server: allows the configuration of 1 to 3 external SNMP servers to which AM 7450 sends alarm SNMP messages.

Mail server: used to configure a mail server, for sending mails to administrators and operators as well as to third parties.

Configuring the parameter range:

The screenshot shows the 'Administration' section, specifically the 'Configuration' tab and the 'Portée' sub-tab. It displays three configuration sections for parameter ranges:

Portée des paramètres téléphoniques:

- Globale
- À base région
- À base multisite

Portée des paramètres pour le plan de numérotation:

Portée du mode de gestion des numéros SDA

- Globale
 - Dans les caractéristiques techniques
 - Dans les caractéristiques annuaires
- À base multisite

Portée du numéro de plan SDA principal pour le mode de gestion dans les caractéristiques annuaires:

- Globale

Número de plan SDA:
- À base multisite

Telephony parameters range: used to define the distribution of telephony parameters (feature classes, PSTN, TL) on the sites managed by AM 7450. The range may be: global, by region, or by multi-site.

DID number range: used to indicate whether the DID numbers are defined for all the sites managed by AM 7450, or by multi-site.

Configuring the Aastra 5000 directory:

The screenshot shows the 'Annuaire' configuration page in the Aastra Management 7450 interface. The page is divided into three main sections: 1. Directory area: Includes a 'Multisite' dropdown, 'Adresse ip' (10.102.22.20), 'Port TCP' (389), and 'Branche principale' (o=AASTRA) fields, with a 'Valider' button. 2. Administration area: A text input field containing 'ROOT CONFIG'. 3. Users area: A list of users including 'i2052', 'i2070', 'twp', 'acp', 'billing', 'lightManagement', and 'bastos', with 'i2052' highlighted.

This tab is divided into 3 areas:

- Directory area: for configuring LDAP directory connection parameters
- Administration area: lists the administrators created in the LDAP directory
- Users area: lists the applications authorised to access the LDAP directory.

AM 7450 data backup

AM 7450 backs up its data every day in a given directory.

The number of backups is 30 (monthly data backup).

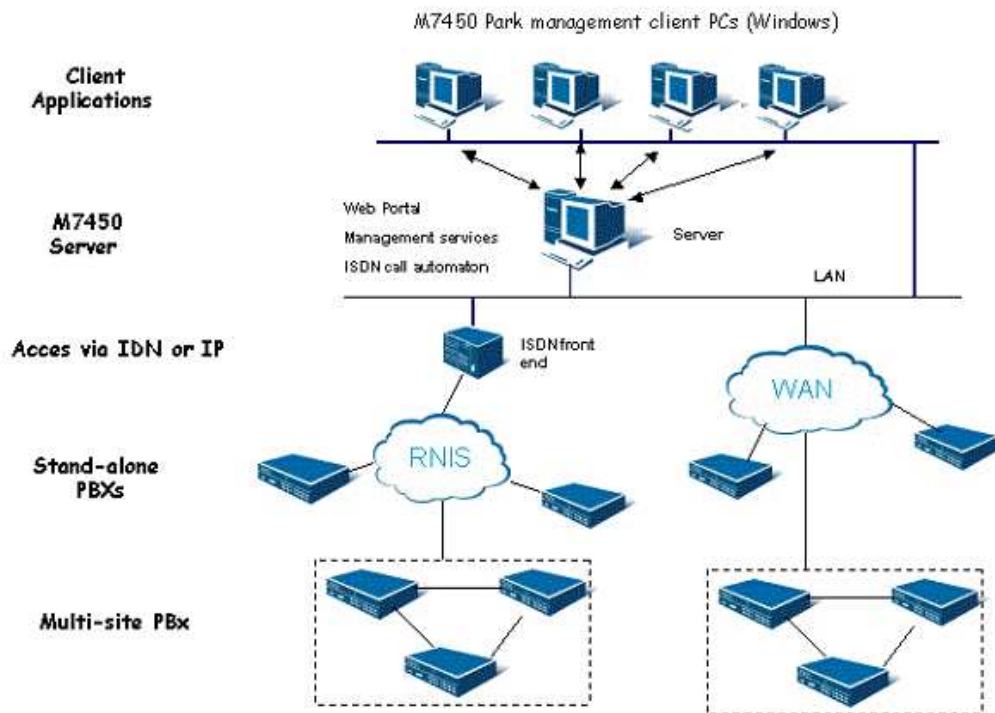
If the remaining disk space is below 20%, the administrator is notified through a message in the operations log every 12 hours.

28A.7 Architecture

28A.7.1 General architecture

Remote access to gateways may be via IP, for systems R5.x, or via IP or ISDN, for systems R4.x/R3.x.

For systems < R5.X, ISDN connection is set up using a front gateway.
 This gateway must be a NeXspan XS/XL iPbx or XD iPbx R4.2.



28A.7.2 Duplicated architecture

The AM 7450 software can be deployed on two servers. These servers run in active/passive mode, based on a main server and a backup server which takes over if the main server fails.

The backup server is updated in real time by the main server.

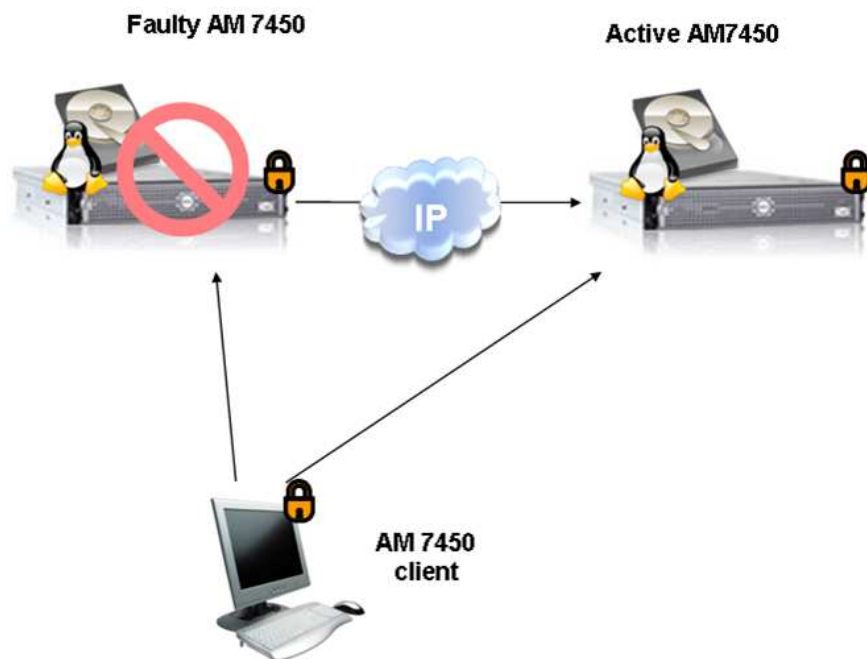
Switchover to the backup server takes place as follows:

- Automatically upon detection of a network interruption or a fault on the main server
- Instantaneously.

An administrator with an open AM 7450 client session during AM 7450 switchover must stop this latter and restart it to continue the management operation.

This security server must be deployed locally (LAN).

Spatial duplication of AM 7450



Both servers must have the same virtual address. AM 7450 thus allows a level 2 redundancy on a LAN only.

28A.7.3 AM 7450 Server used together with other applications

The AM 7450 server can be used with different applications running with Linux.

Combination with Aastra 5000 Server

This combination is no longer available as of AM 7450 R2.3 / A5000 R5.3.
However, it may be offered on a VMware architecture.

Combination with Aastra Visual Taxe Pro R4

The combination is possible within the following limits:

- AM 7450 Server in non-redundancy configuration
- AM 7450 with multi-site R5.x management
- AM 7450: 3000 subscribers managed
- VT Pro: 3000 subscribers managed

This cohabitation is possible as of AM 7450 V2.2 and VT Pro V4.

Only one dongle is used (that of AM 7450) up to AM 7450 R2.3.

As of R2.4, locking is based on a virtual dongle in all modes (virtual or non-virtual mode).

Note: VT PRO R4.2 and AM 7450 V2.4 cohabitation is available Each software uses its own licensing.
In that mode:

- Visual Taxe PRO manages up to 3000 terminals
- AM 7450 cannot be secured by duplication

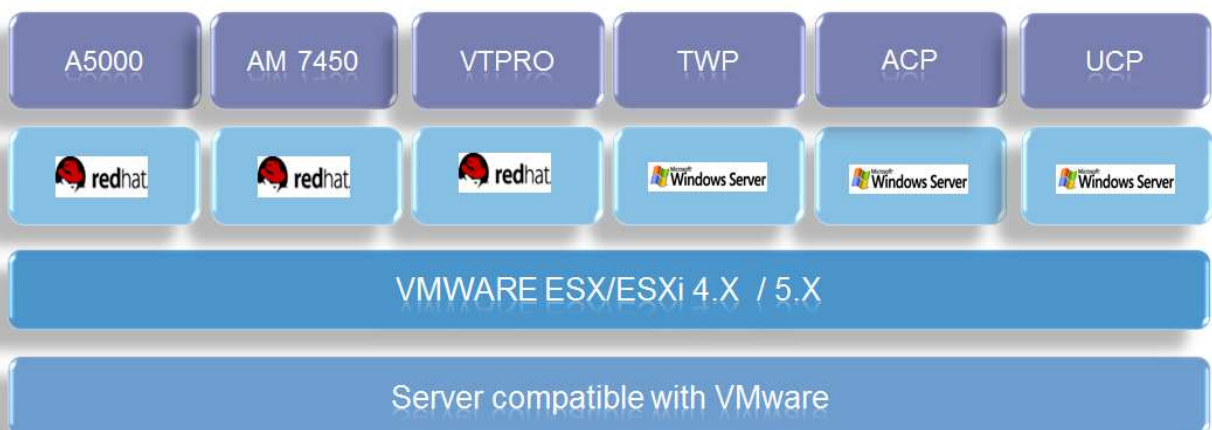
28A.7.4 Virtual architecture

AM 7450 can work in a virtualised VMware architecture.

AM 7450 becomes a virtual application and can, thus, be installed on a VMware ESXi 4.1, 5.0 et 5.1 (AM 7450 V2.4 SP2) server, alongside other virtual applications. Possible configurations are of load-balancing or high-availability type.

In R5.4, the following virtual applications run on one and the same ESX server:

- Aastra 5000
- Aastra Management 7450
- Aastra Visual Taxe PRO
- ACP
- TWP
- AMC Controller
- UCP
- AHS.



Prerequisites for using AM 7450 in a VMware architecture:

To work in a virtual VMware architecture, AM 7450 is based on software locking (a virtual dongle) and no longer on a physical USB dongle.

This virtual dongle, associated with a key, is used to unlock the AM 7450 options.

The key is generated thanks to an installation code generated by AM 7450 from some information accessible during installation, such as the application's virtual IP address (among others).

For more details, refer to the chapter "Virtualisation" in the Aastra 5000 R5.2 Product Guide.

28A.7.5 AM 7450 hardware and software configuration

AM7450 is based on a rackable-IT-server-type network administration platform running with Linux.

Therefore, it is possible to obtain only the user licence for this application. Moreover, to ensure the continuity of the marketing methods, Aastra continues to offer a fully integrated system.

Configuring the server (without combination with other applications)

The server must meet the following minimum specifications:

- Operating system: Linux CentOS R6.3 or RedHat Enterprise 6.3 64 bits. The RedHat company provides the list of all the servers certified with this operating system (list available on www.hardware.redhat.com).
- 2 GHz Dual Core Intel or equivalent, which supports the required operating system
- Random Access Memory (RAM):
 - Up to 4000 users / 10 iPbxes: 2GB
 - Above 4000 users / 10 iPbxes: 4GB
 - Above 10000 users: contact Aastra
- DVD-ROM drive
- 10 BaseT/100BaseTx Ethernet card
- Available disk space recommended: 80 GB minimum. The required disk space varies according to the number of sites, the purge rate and type of data stored.
- Ports: 1 serial port for the alarm box (optional)
- Screen: 1024x1280 SVGA. Note: the screen is not necessary on the server.

Minimum client configuration

The client PC must meet the following specifications:

- Operating system: Microsoft Windows XP Pro, VISTA, 7, 8
- Pentium IV or equivalent, compatible with the OS
- Random Access Memory (RAM): 2GB minimum
- 10 BaseT/100 BaseTx Ethernet card
- Available disk space (excluding user data): 75 MB
- 1024x1280 SVGA screen
- Compatible web browsers:
 - Internet Explorer 8, 9,
 - Mozilla Firefox 9, 12, 13,
 - Google Chrome V19

28A.7.6 Configuring gateways

28A.7.7 Compatibilities

Daily Management - Aastra 5000 / AM 7450 compatibility:

Daily management: Aastra 5000 LDAP directory, subscribers management (rights, keys, forwards, associations, UCP, TWP), SNMP alarms, SNMP synoptic.

The system types or releases not available in the table below are considered as incompatible.

System / release	R5.2	R5.3	R5.4
Aastra X Series	✓	✓	✓
Aastra 5000 Server	✓	✓	✓
Aastra 500	-	✓	✓
Aastra 5000 C ² l Enterprise	-	✓ (SP1)	✓

Aastra 5000 Server, AX Series and A500 gateways for releases \geq R5.2 require an IP connection.

NeXspan Release \leq 4.2:

The AM 7450 \geq R2.4 does not provide subscriber management functions (create, modify, delete, move) for NeXspan systems.

Park Management - Aastra 5000 / AM 7450 compatibility:

Park management: access to Aastra Management Portal (AMP), inventories, maintenance, alarms, logs, collecting call tickets and collecting directories for isolated iPbx.

Park management functions apply to the following systems:

- Aastra 5000 Server, Aastra X Series from R5.2
- Aastra 500 from R5.3
- NeXspan C/S/L/50/Communication Server as of system release 3.2,
- NeXspan D as of release 4.2
- NeXspan 500, system release 4.2 or later

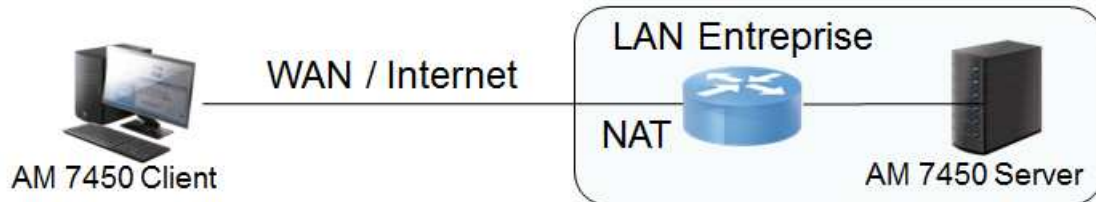
To manage NeXspan iPbxs \leq R4.2, the connection may be either via IP or via ISDN, by adding a front end NeXspan iPbx R4.2.

28A.7.8 Client / server connection via NAT

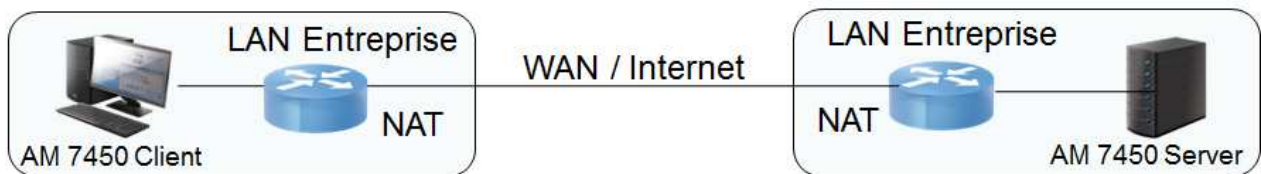
AM 7450 supports address translation between the client and AM 7450 server.

The following configurations have been tested:

- NAT router on the AM 7450 Server side

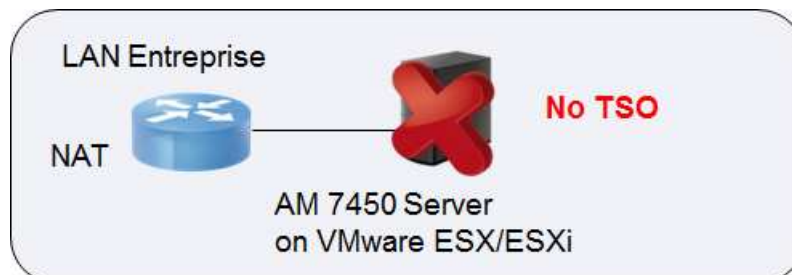


- Router with NAT on the AM 7450 Server side and router with NAT on the AM 7450 Client side



AM 7450 with the heterogeneous management option (co-located M7430)
7430 client via NAT compatible VNC

Virtualised VMware environment on the AM 7450 server



Note the incompatibility with the TSO (TCP Segmentation Offload) option activated by default via the VMware tools.

Limitations:

- TMA service: no access to the terminal web admin function
- NAGIOS: no access to the iPbx detail
- OMM web admin started via AM7450.

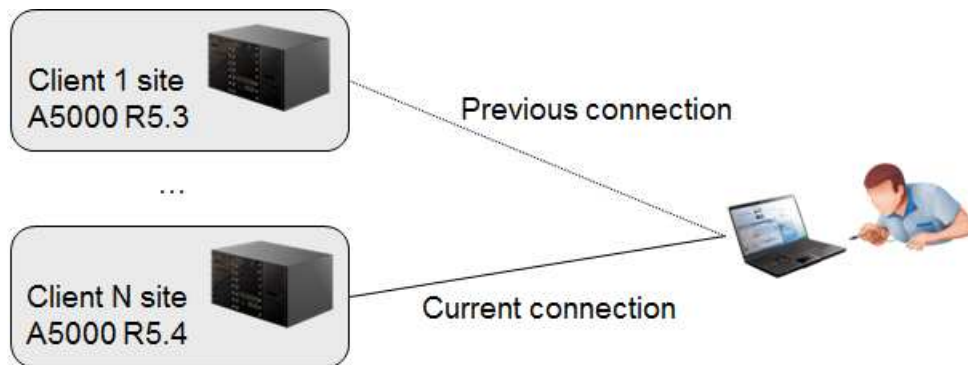
28A.7.9 Client / server connection via Proxy

The third configuration tested uses an intermediate http proxy between the AM 7450 client and server.



28A.7.10 AM 7450 Client – several clients on a single PC

Several versions of AM 7450 Client can be installed on a user PC to facilitate remote management of the sites managed by an AM 7450.



However, the installation of 'N' AM 7450 client applications must be manual and in distinct folders.

28A.7.11 Capacity

The AM 7450 software can be used to manage a multi-site network, a single-site network or a series of distributed platforms belonging to and used by different clients. This AM 7450 software can also be used to manage several distributed gateways.

AM 7450 has the following management capacities:

- Up to 2000 iPbxs, gateways, and call servers deployed on multi-site or standalone networks
- Up to 150,000 subscribers
- Up to 200,000 directory records for all the multi-site configurations managed by AM 7450 and up to 80,000 directory records per multi-site configuration
- Number of operators declared: unlimited
- Number of operators connected simultaneously: 80 (Including operators connected to the subscribers Web management interface via profiles (\geq R2.4))
- Number of directory synchronisation connectors:
 - 1 per multi-site configuration for AM 7450 \leq R2.3
 - 3 per multi-site as of AM 7450 R2.3 SP1
- Number of profiles for automatic creation via directory synchronisation / profile-based subscriber creation web interface (\geq R2.4)
 - 1000 profiles per multi-site configuration
 - No limit on the total

The flow rate between the AM 7450 server and the client is below 64kb/s.