

D2.1a - VISHNU User Management System Package Design



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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME
1	21/01/2011	Deliverable version	SysFera

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Chapter 1

Document presentation

1.1 Document objectives

This document presents the detailed internal design of the Users Management System (UMS) package. The purpose of this package is to handle all aspects of user management and session management within the VISHNU system. The functional and non-functional requirements for this package are those described in the referenced specification documents. The current document is part of the design phase of the software and therefore its main goal is to define the main components of the system architecture and their relationships.

1.2 Document structure

- Chapter 1 contains a brief overview of the document content.
- Chapter 2 contains a high-level overview of the system architecture.
- Chapter 3 describes the internal API used for remote procedure calls through SysFera-DS.
- Chapter 4 describes the internal class and data structures

1.3 References

- [D1.1a]: VISHNU General specifications
- [D1.1b]: VISHNU Spécifications techniques des besoins
- [D1.1c]: VISHNU API Detailed specifications

1.4 Acronyms

- **API**: Application programming interface
- **CLI**: Command line interface

1.5 Glossary

- **SysFera-DS**: open-source middleware
-

Chapter 2

System Architecture

2.1 Overview of the different architecture components

blabla TODO

- **External API** TODO
- **Internal API** TODO
- **UMS Client** TODO
- **UMS Server** TODO
- **Sysfera-DS Client API** TODO
- **Sysfera-DS Server API** TODO
- **Vishnu Database** TODO

2.2 Component diagrams

2.2.1 UMS Server Components

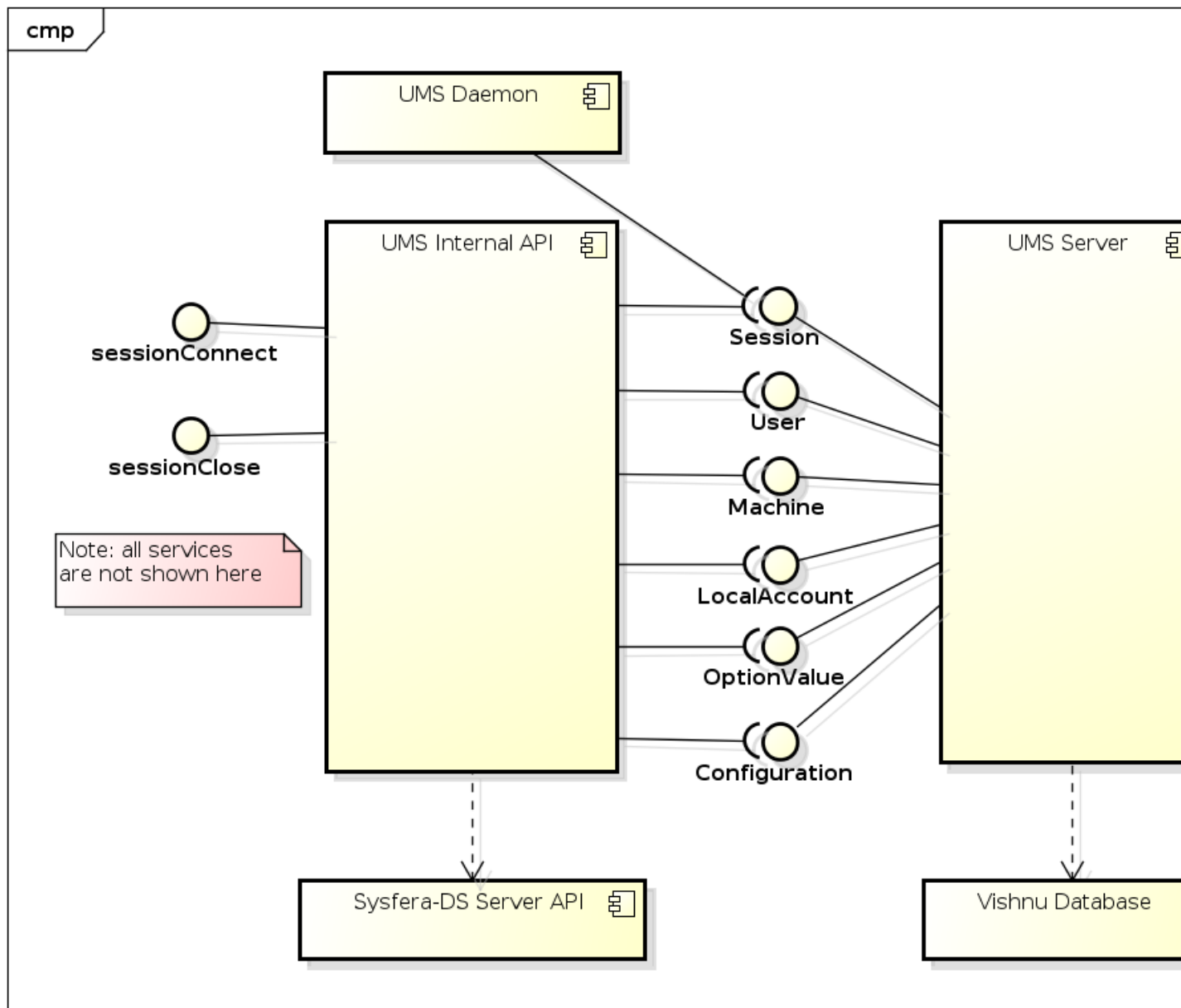


Figure 2.1: UMS Server Components

Chapter 3

Internal API specification

3.1 Generic definition formats presentation

This section presents the formats used in this chapter to describe the services provided by the internal API.

3.1.1 Service definition format

Access

Here is detailed the access level of the service 'myService' (i.e. the privilege required to use it)

Parameters

The following table contains all the input and output parameters of the service, along with their type and description.

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	This is an example of a required string input parameter	IN
listOfJobs	string	ListJobs	This is an example of an object output parameter that is serialized as a string	OUT

Access

Here is detailed the access level of the service 'myService' (i.e. the privilege required to use it)

Description

Here is detailed the purpose of the service 'myService'

Return Value

Here are detailed the different return codes provided by the service.

Name	Description
VISHNU_OK	The service was performed successfully.
TMS_UNKNOWN_MACHINE	This is the human-readable generic message that will be available to the user of the API.

Used by this(these) API function(s):

This shows the list of functions from the external Vishnu API (see [D1_1c]) that use this service.

3.2 Definition of the services of the package

3.2.1 Service commandList

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
options	string	ListCmdOptions	allows the user to list commands by using several optional criteria: a period, specific session and for admin to list all commands of all VISHNU users or commands from a specific user	IN
listCommands	string	ListCommands	listCommands is the list of commands	OUT

Description

The commandList() function lists the commands

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_USERID	The userId is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
INCORRECT_DATE_OPTION	The date option is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::listHistoryCmd

3.2.2 Service sessionConnect

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
userId	string	n/a	userId represents the VISHNU user identifier	IN
password	string	n/a	password represents the password of the user	IN
clientKey	string	n/a	The SSH key that identifies the client host	IN
clientHostname	string	n/a	The full DNS name of the client host	IN
options	string	ConnectOptions	options is an object which encapsulates the options available for the connect method. It allows the user to choose the way for closing the session automatically on TIMEOUT or on DISCONNECT and the possibility for an admin to open a session as he/she was a specific user	IN

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	OUT
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The sessionConnect() function opens a session

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NOT_AUTHENTICATED	Unknown user
UNKNOWN_CLOSURE_MODE	The name of the closure mode is unknown
INCORRECT_TIMEOUT	The value of the timeout is incorrect (negative or higher than the TIMEOUT treshold)
UNKNOWN_USERID	The userId is unknown
NO_ADMIN	The user is not an administrator
INCORRECT_PASSWORD_SIZE	The size of the password is incorrect
INCORRECT_USERID_SIZE	The size of the userId is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::connect

3.2.3 Service sessionReconnect

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
userId	string	n/a	userId represents the VISHNU user identifier	IN
password	string	n/a	password represents the password of the user	IN
clientKey	string	n/a	The SSH key that identifies the client host	IN
clientHostname	string	n/a	The full DNS name of the client host	IN
sessionId	string	n/a	sessionId is the identifier of the session defined in the database	IN
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	OUT
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The sessionReconnect() function returns the sessionKey of a session in which the user was disconnected previously without closing it

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NOT_AUTHENTICATED	Unknown user
INCORRECT_USERID_SIZE	The size of the userId is incorrect
INCORRECT_PASSWORD_SIZE	The size of the password is incorrect
SESSION_INCOMPATIBILITY	This session identifier is incompatible with the authenticated user
UNKNOWN_SESSION_ID	The session Id is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
UNKNOWN_MACHINE_FOR_SESSION	This session has been opened with another machine
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::reconnect

3.2.4 Service sessionClose

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The sessionClose() function closes the session identified by the session key

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
COMMAND_RUNNING	Command(s) is/are running
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::close

3.2.5 Service sessionList

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
listsession	string	ListSessions	listsession is the list of sessions	OUT
options	string	ListSessionOptions	allows the user to list sessions using several optional criteria such as: the state of sessions (actives or inactives, by default, all sessions are listed), a period, a specific session or for admin to list all sessions of all users or sessions of a specific user.	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The sessionList() function lists all sessions of the user

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_USERID	The userId is unknown
UNKNOWN_SESSION_OPTION	The name of the session option is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
INCORRECT_DATE_OPTION	The date option is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::listSessions

3.2.6 Service userCreate

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
user	string	User	The user object	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The userCreate() function adds a new VISHNU user

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully

Name	Description
NO_ADMIN	The user is not an administrator
INCORRECT_USERID_SIZE	The size of the userId is incorrect
INCORRECT_PASSWORD_SIZE	The size of the password is incorrect
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
USERID_EXISTING	The userId already exists in the database
INVALID_MAIL_ADRESS	The mail adress is invalid
USERID_REQUIRED	The userId must to be defined
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::addVishnuUser

3.2.7 Service userUpdate

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
user	string	User	The user object	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The userUpdate() function updates the user information except the userId and the password

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NO_ADMIN	The user is not an administrator
UNKNOWN_USERID	The userId is unknown
INVALID_MAIL_ADRESS	The mail adress is invalid
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
INCORRECT_USERID_SIZE	The size of the userId is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::updateUser

3.2.8 Service userDelete

Access

This service can be used by ADMIN users only

Parameters



Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
userId	string	n/a	userId represents the VISHNU user identifier of the user who will be deleted from VISHNU	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The userDelete() function removes a user from VISHNU

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_USERID	The userId is unknown
NO_ADMIN	The user is not an administrator
INCORRECT_USERID_SIZE	The size of the userId is incorrect
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::deleteUser

3.2.9 Service userList**Access**

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the identifier of the session generated by VISHNU	IN
userIdOption	string	n/a	allows an admin to get information about a specific user identified by his/her userId	IN
listuser	string	ListUsers	listuser is the list of users	OUT
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The userList() function lists VISHNU users

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
NO_ADMIN	The user is not an administrator
UNKNOWN_USERID	The userId is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.

Name	Description
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
INCORRECT_DATE_OPTION	The date option is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::listUsers

3.2.10 Service userPasswordChange

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
userId	string	n/a	userId represents the VISHNU user identifier	IN
password	string	n/a	password represents the password of the user	IN
passwordNew	string	n/a	passwordNew represents the new password of the user	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The userPasswordChange() function changes the password

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NOT_AUTHENTICATED	Unknown user
INCORRECT_USERID_SIZE	The size of the userId is incorrect
INCORRECT_PASSWORD_SIZE	The size of the password is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::changePassword

3.2.11 Service userPasswordReset

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
userId	string	n/a	userId represents the VISHNU user identifier of the user whose password will be reset	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The userPasswordReset() function resets the password of a user

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NO_ADMIN	The user is not an administrator
UNKNOWN_USERID	The userId is unknown
INCORRECT_USERID_SIZE	The size of the userId is incorrect
INCORRECT_PASSWORD_SIZE	The size of the password is incorrect
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::resetPassword

3.2.12 Service localAccountCreate

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
newAccount	string	LocalAccount	newAccount is the object which encapsulates the new local user configuration	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The localAccountCreate() function adds a new local user configuration

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
LOCAL_ACCOUNT_EXIST	The local account already exists for the given user on the given machine
USERID_REQUIRED	The userId must to be defined
MACHINEID_REQUIRED	The machineId must to be defined
UNKNOWN_USERID	The userId is unknown
UNKNOWN_MACHINE	The machineId is unknown
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::addLocalAccount

3.2.13 Service localAccountUpdate

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
LocalAccUpd	string	LocalAccount	is an object which encapsulates the local user configuration changes except the machineId and the userId	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The localAccountUpdate() function updates a local user configuration

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
UNKNOWN_USERID	The userId is unknown
UNKNOWN_MACHINE	The machineId is unknown
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
UNKNOWN_LOCAL_ACCOUNT	The local configuration for the given user on the given machine is unknown
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::updateLocalAccount

3.2.14 Service localAccountDelete

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
userId	string	n/a	userId represents the VISHNU user identifier of the user whose local configuration will be deleted for the given machine	IN
machineId	string	n/a	machineId represents the identifier of the machine whose local configuration will be deleted for the given user	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The localAccountDelete() function removes a local user configuration (for a given user on a given machine) from VISHNU

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_LOCAL_ACCOUNT	The local configuration for the given user on the given machine is unknown
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::deleteLocalAccount

3.2.15 Service localAccountList

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
listLocalAcct	string	ListLocalAccounts	listLocalAccount is the list of the local user configurations	OUT
options	string	ListLocalAccOptions	allows an admin to list all local configurations of all users or a simple user to list his/her local user configurations on a specific machine	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The localAccountList() function lists the local user configurations

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_USERID	The userId is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
INCORRECT_DATE_OPTION	The date option is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::listLocalAccount

3.2.16 Service configurationSave

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
configuration	string	Configuration	The configuration is an object which encapsulates the configuration description	OUT
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The configurationSave() function saves the configuration of VISHNU

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NO_ADMIN	The user is not an administrator
SAVE_CONFIG_ERROR	A problem occurs during the configuration saving
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::saveConfiguration

3.2.17 Service configurationRestore

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
configuration	string	Configuration	The configuration is the object which encapsulates the configuration information	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The configurationRestore() function restores the configuration of VISHNU

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully

Name	Description
NO_ADMIN	The user is not an administrator
RESTORE_CONFIG_ERROR	A problem occurs during the configuration restoring
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::restoreConfiguration

3.2.18 Service machineCreate

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
machine	string	Machine	existing machine information	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The machineCreate() function adds a new machine in VISHNU

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
MACHINE_EXISTING	The machineId already exists in the database
MACHINEID_REQUIRED	The machineId must to be defined
NO_ADMIN	The user is not an administrator
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::addMachine

3.2.19 Service machineUpdate

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
machine	string	Machine	existing machine information	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The machineUpdate() function updates machine description

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
MACHINEID_REQUIRED	The machineId must be defined
UNKNOWN_MACHINE	The machineId is unknown
NO_ADMIN	The user is not an administrator
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::updateMachine

3.2.20 Service machineDelete

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
machineId	string	n/a	machineId represents the identifier of the machine	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The machineDelete() function removes a machine from VISHNU

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NO_ADMIN	The user is not an administrator
UNKNOWN_MACHINE	The machineId is unknown
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::deleteMachine

3.2.21 Service machineList

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
options	string	ListMachineOptions	allows a user to list all VISHNU machines or information about a specific machine and an admin to list machines used by a specific user	IN
listMachine	string	ListMachines	listLocalAccount is the list of the local configs	OUT
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The machineList() function lists the machines in which the local user configurations are defined for the given user

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_USERID	The userId is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
INCORRECT_DATE_OPTION	The date option is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::listMachine

3.2.22 Service optionValueList**Access**

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the identifier of the session generated by VISHNU	IN
options	string	ListOptOptions	allows to list a specific option or all default options values or for an admin to list options of a specific user	IN
listOptValues	string	ListOptionsValues	listOptValues is an object which encapsulates the list of options	OUT
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The optionValueList() function lists the options of the user

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NO_ADMIN	The user is not an administrator
UNKNOWN_USERID	The userId is unknown
UNKNOWN_OPTION	the name of the option is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
INCORRECT_DATE_OPTION	The date option is incorrect
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::listOptions

3.2.23 Service optionValueSet

Access

This service can be used by any VISHNU user

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
optionValue	string	OptionValue	The optionValue is an object which encapsulates the option information	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The optionValueSet() function configures an option of the user

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
UNKNOWN_OPTION	the name of the option is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::configureOption

3.2.24 Service optionValueSetDefault

Access

This service can be used by ADMIN users only

Parameters

Parameter	Type	Serialized type	Description	Mode
sessionKey	string	n/a	The sessionKey is the encrypted identifier of the session generated by VISHNU	IN
optionValue	string	OptionValue	The optionValue is an object which encapsulates the option information	IN
errorInfo	string	n/a	Additional information provided when an error code is returned	OUT

Description

The optionValueSetDefault() function configures a default option value

Return Value

An error code is returned when an error occurs during the execution of the service

Name	Description
VISHNU_OK	The service was performed successfully
NO_ADMIN	The user is not an administrator
UNKNOWN_OPTION	the name of the option is unknown
SESSIONKEY_EXPIRED	The sessionKey is expired. The session is closed.
SESSIONKEY_NOT_FOUND	The sessionKey is unrecognized
DB_ERROR	A problem occurs with the database

Used by this(these) API function(s):

UMS::configureDefaultOption

Chapter 4

Internal class and data structures

4.1 UMS Client Class Diagrams

4.1.1 Class diagrams

4.1.1.1 UMS_Client Class Diagram

TODO

Class Diagram .png Class Diagram .png

Figure 4.1: UMS_Client Class Diagram

4.1.1.2 UMS SessionProxy Class Diagram

The SessionProxy is an object which encapsulates all session activities

SessionProxy Class Diagram.png SessionProxy Class Diagram.png

Figure 4.2: UMS SessionProxy Class Diagram

4.1.1.3 UMS UserProxy Class Diagram

This diagram represents the UserProxy which is an object used for all user functions

UserProxy Class Diagram.png UserProxy Class Diagram.png

Figure 4.3: UMS UserProxy Class Diagram

4.1.1.4 UMS MachineProxy Class Diagram

This diagram illustrate the MachineProxy which is an object which encapsulates all Machine fuctions

MachineProxy Class Diagram.png MachineProxy Class Diagram.png

Figure 4.4: UMS MachineProxy Class Diagram

4.1.1.5 UMS LocalAccountProxy Class Diagram

This diagram illustrate the LocalAccountProxy which is an object which encapsulates the LocalAccount functions

LocalAccountProxy Class Diagram.png LocalAccountProxy Class Diagram.png

Figure 4.5: UMS LocalAccountProxy Class Diagram

4.1.1.6 UMS QueryProxy Class Diagram

This diagram represents a generic object using a template to request the database to list objects of VISHNU

QueryProxy Class Diagram.png QueryProxy Class Diagram.png

Figure 4.6: UMS QueryProxy Class Diagram

4.1.1.7 UMS ConfigurationProxy Class Diagram

This diagram illustrate the configuration object functions

ConfigurationProxy Class Diagram.png ConfigurationProxy Class Diagram.png

Figure 4.7: UMS ConfigurationProxy Class Diagram

4.1.1.8 UMS OptionValueProxy Class Diagram

OptionValueProxy Class Diagram.png OptionValueProxy Class Diagram.png

Figure 4.8: UMS OptionValueProxy Class Diagram

4.2 UMS Server Class Diagrams

4.2.1 Class diagrams

4.3 Vishnu core Class Diagrams

4.3.1 Tables' relationship

The links between the tables are based on the following rules:

- – The *VISHNU* table has one or more *MACHINE*
 - A *MACHINE* is in one and only one *VISHNU* infrastructure
- – A *MACHINE* has one or more *CPU*
 - A *CPU* is in one and only one *MACHINE*
- – A *MACHINE* has one or more *DESCRIPTION*
 - A *DESCRIPTION* is for one and only one *MACHINE*

- – A *MACHINE* has one or more *THRESHOLD*
 - A *THRESHOLD* is for one and only one *MACHINE*
- – A *MACHINE* has one or more *ACCOUNT*
 - An *ACCOUNT* is for one and only one *MACHINE*
- – The *VISHNU* table has one or more *USER*
 - An *USER* is in one and only one *VISHNU* infrastructure
- – An *USER* has one or more *ACCOUNT*
 - An *ACCOUNT* is for one and only one *USER*
- – An *USER* has one or more *FILE TRANSFER*
 - A *FILE TRANSFER* is for one and only one *USER*
- – An *USER* has one or more *OPTION VALUE*
 - An *OPTION VALUE* is for one and only one *USER*
- – An *USER* sets one or more *THRESHOLD*
 - A *THRESHOLD* is set by one and only one *USER*
- – An *OPTION* has one or more *OPTION VALUE*
 - An *OPTION VALUE* is for one and only one *OPTION*
- – An *USER* has one or more *SESSION*
 - A *SESSION* is for one and only one *USER*
- – A *SESSION* has one or more *COMMAND*
 - A *COMMAND* is for one and only one *SESSION*
- – A *MACHINE* or *CLIENT MACHINE* has one or more *SESSION*
 - A *SESSION* is for one and only one *MACHINE* or *CLIENT MACHINE*
- – A *MACHINE* has one or more *STATE*
 - A *STATE* is for one and only one *MACHINE*
- – A *COMMAND* can have one or more *JOB*
 - A *JOB* is for one and only one *COMMAND*
- – A *COMMAND* can have one or more *FILE*
 - A *FILE* is for one and only one *COMMAND*

4.3.2 Relational model

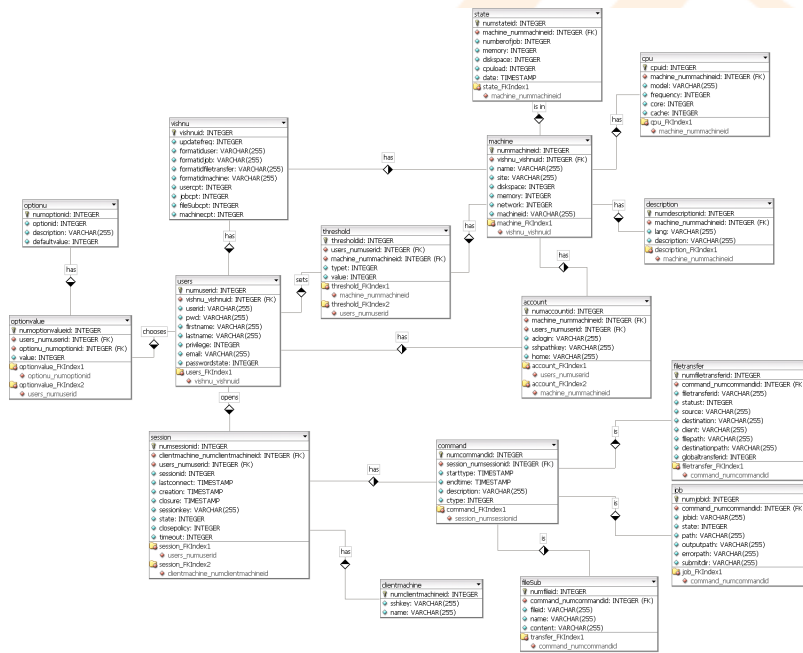


Figure 4.9: Relational model

4.3.3 The class diagrams

4.3.3.1 The exception diagram

The database class diagram is very simple. There is a database interface that defines a set of public operations that can be done over a database:

- commit
- rollback
- execute a query
- connect
- disconnect ...

And there are two examples of classes that implement the database. There is also a factory that can create the databases.

4.3.3.2 The exception diagram

The exception class diagrams defines a generic exception class, *VishnuException* that represents a generic exception that can be raised by a Vishnu function. This class gives birth to two subclasses, the *SystemException* that represents an exception due to a system problem and the *UserException* that represents an exception due to the user of the function (bad parameters typically). Both the server and clients have this way of building the exceptions. The *SystemException* has more specific subclasses depending on the modules that raises them. A key function is the append one, that allows to add a message to an existing vishnu exception. Thus, crossing the various level of the call can append information messages to specify the context of the exception.

4.3.4 Class diagrams

4.3.4.1 DB class diagram

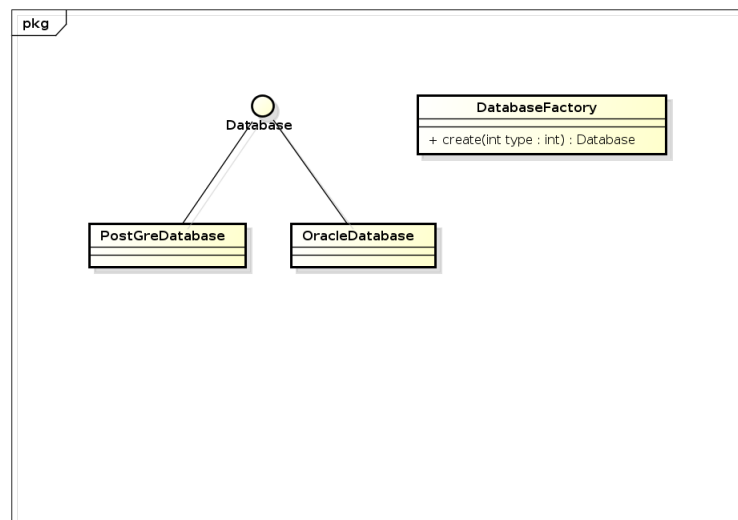


Figure 4.10: DB class diagram

4.3.4.2 exception

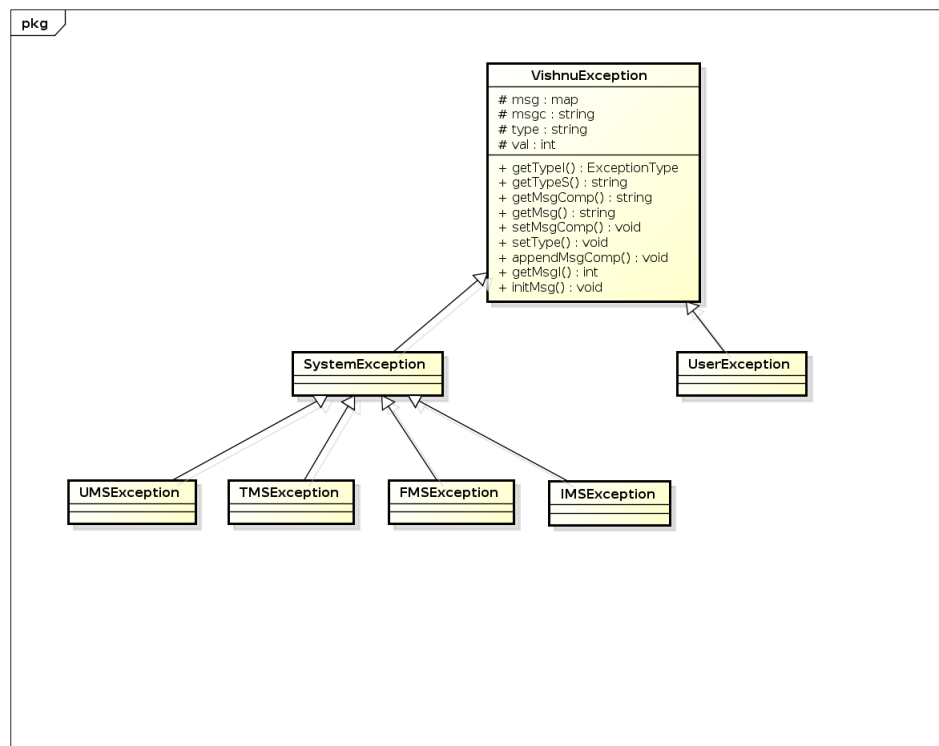


Figure 4.11: exception