# D1.1d - VISHNU Command-line interface specifications

**COLLABORATORS**

| | *TITLE* :<br><br>D1.1d - VISHNU Command-line interface specifications | | |
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**REVISION HISTORY**

| NUMBER | DATE | DESCRIPTION | NAME |
|---|---|---|---|
| 0 | 05/01/2011 | Formatting example | SysFera |
| 1 | 13/01/2011 | First release | SysFera |
| 2 | 10/02/2011 | Removed UMS::SessionStateType. Added UMS::StatusType, UMS::PrivilegeType. Modified UMS::addVishnuUser, UMS::updateUser, UMS::addLocalAccount, UMS::addMachine, UMS::updateMachine, UMS::listSessions, UMS::restoreConfiguration. | SysFera |
| 3 | 18/02/2011 | Renamed all commands to follow C-style command names with vishnu prefix. Added the help option to all commands. Modified update_machine and export_commands. Removed the VISHNU_SESSION_KEY environment variable on all commands. | SysFera |

| | | REVISION HISTORY | |
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| NUMBER | DATE | DESCRIPTION | NAME |
| 4 | 15/04/2011 | Updates for TMS: Modified description of machineId parameter, vishnu_submit_job service. Modified name of get_all_jobs_output to get_completed_jobs_output. Added input parameter outDir to get_job_output and get_completed_jobs_output. Added vishnu_get_machine_refresh_period service. Removed set_machine_env service. Removed jobPriority option in submit_job. Updates for IMS: Add option in exportCommand, getMetricCurrentValue, getProcesses, getMetricHistory, restart and getSystemThreshold. Add services stop and getSystemInfo. | SysFera |

# Contents

# Chapter 1

# Document presentation

## 1.1 Document objectives

This document presents the detailed specifications of the VISHNU command line user interface.

These specifications include the definition of all commands including administration commands.

## 1.2 Document structure

The document is divided into 4 parts corresponding to the 4 modules that compose the Vishnu system:

- UMS: Users Management Service

- TMS: Tasks Management Service

- FMS: Files Management Service

- IMS: Information Management Service

Each module corresponds to a chapter in the document, and each chapter contains the following sections:

- A first section describing the definition of all commands provided by the package.

- A second section describing the definition of all enumerated values used as command parameters.

## 1.3 References

- D1.1a : VISHNU General specifications

## 1.4 Glossary

- VISHNU admin: any user having the administrator privilege

## 1.5   Generic command definition format

This section presents the generic format used in the following chapters to describe the commands. It also details the environment variables required and the user options.

A commands is defined as follows:

**Access**

Here is detailed the access level of the command line (i.e. the privilege required to use this command)

**Description**

Here is detailed the purpose of the command line.

**Example of use**

Here is detailed an example of the use of the command line which starts by optional arguments preceded by a short letter and the required arguments at the end.

myCommand **-l** acLogin **-s** sshKeyPath userId

**Parameters**

The following table contains all the input arguments of the command with their type and description, their short letter for options and a required flag.

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | | This is an example of a required argument | YES |
| acLogin | string | l | This is an example of an optional argument | NO |
| sshKeyPath | string | s | This is an example of an optional argument | NO |

The following table contains the list of environment variables information. These environment variables can be mandatory or optional and the value will be overriden by the corresponding command-line option if applicable. When the user option flag is true, the value for this variable can be defined persistently as a user option stored in the database (see the "vishnu_configure_option" command.

**Environment variables**

| Name | Parameter | Type | Description | Required | User option |
|------|-----------|------|-------------|----------|-------------|
| VISHNU_CONFIG_FILE | N/A | string | This is an example of an environment variable | YES | NO |

**Note:**

For each command line the -h option can be used for help.

## 1.6   Environment variables and options

Here is detailed the way to use the user options which are stored in the database and environment variables in VISHNU.

**Example 1.1** Pseudo code

```
if (the option is provided in the command line) {
    optionValue = option

} else {
    if (an environment variable exists) {
        optionValue = EnVariable_Value

    } else {

        if (a value has been defined in the user configuration) {
            optionValue = user_Option
        }
        else {
            //The default value of the option defined by VISHNU admin is used
            optionValue = defaultValueOption
        }
    }
}
```

# Chapter 2

# Commands specification for User Management Service (UMS)

## 2.1 Command definitions

### 2.1.1 vishnu_connect

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_connect command opens a session

**Example of use**

```
vishnu_connect [-h] [-p closePolicy] [-d sessionInactivityDelay] [-s substituteUserId] userId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| userId | string | | userId represents the VISHNU user identifier | YES |
| password | string | | password represents the password of the user, it is an interactive parameter | YES |
| closePolicy | SessionCloseType | p | is an option for closing session automatically | NO |
| sessionInactivityDelay | int | d | is the maximum delay in seconds between two user requests when the CLOSE_ON_TIMEOUT policy is set | NO |
| substituteUserId | string | s | is an admin option which allows an admin to open a session as if she was another user identified by her userId | NO |

**Environment variables**

| Name | Parameter | Type | Description | Required | User option |
|---|---|---|---|---|---|
| VISHNU_CLOSE_POLICY | closePolicy | SessionCloseType | is an option for closing session automatically | NO | YES |

### 2.1.2 vishnu_reconnect

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_reconnect command reconnects to a session that is still active

**Example of use**

`vishnu_reconnect [-h]` *`userId sessionId`*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | | userId represents the VISHNU user identifier | YES |
| password | string | | password represents the password of the user, it is an interactive parameter | YES |
| sessionId | string | | sessionId is the identifier of the session defined in the database | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.3 vishnu_add_user

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_add_user command adds a new VISHNU user

**Example of use**

`vishnu_add_user [-h]` *`firstname lastname privilege email`*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| firstname | string | | is the firstname of the user | YES |
| lastname | string | | is the lastname of the user | YES |
| privilege | PrivilegeType | | is the privilege of the user (admin or simple user) | YES |
| email | string | | is the email of the user | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.4 vishnu_update_user

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_update_user command updates the user information except the userId and the password

**Example of use**

```
vishnu_update_user[-h][-f firstname][-l lastname][-p privilege][-m email][-s status]userId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | | represents the VISHNU user identifier | YES |
| firstname | string | f | represents the updated firstname of the user | NO |
| lastname | string | l | represents the updated lastname of the user | NO |
| privilege | PrivilegeType | p | represents the updated privilege of the user | NO |
| email | string | m | represents the updated email adress of the user | NO |
| status | StatusType | s | represents the status of the user (LOCKED or ACTIVE) | NO |

**Environment variables**

This command defines no environment variables.

### 2.1.5 vishnu_delete_user

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_delete_user command removes a user from VISHNU

**Example of use**

```
vishnu_delete_user[-h]userId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | | userId represents the VISHNU user identifier of the user who will be deleted from VISHNU | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.6 vishnu_close

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_close command closes the session

**Example of use**

```
vishnu_close[-h]
```

**Parameters**

This command defines no arguments.

**Environment variables**

This command defines no environment variables.

### 2.1.7 vishnu_change_password

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_change_password command changes the password

**Example of use**

`vishnu_change_password [-h] userId`

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| userId | string | | userId represents the VISHNU user identifier | YES |
| password | string | | password represents the password of the user, it is an interactive parameter | YES |
| passwordNew | string | | passwordNew represents the new password of the user, it is an interactive parameter | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.8 vishnu_reset_password

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_reset_password command resets the password of a user

**Example of use**

`vishnu_reset_password [-h] userId`

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| userId | string | | userId represents the VISHNU user identifier of the user whose password will be reset | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.9 vishnu_add_local_account

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_add_local_account command adds a new local user configuration

**Example of use**

`vishnu_add_local_account [-h] userId machineId acLogin sshKeyPath homeDirectory`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | | The userId represents the VISHNU user identifier of the user of the local user configuration | YES |
| machineId | string | | The MachineId represents the identifier of the machine associated to the local user configuration | YES |
| acLogin | string | | accLogin represents the login of the user on the associated machine | YES |
| sshKeyPath | string | | sshKeyPath is the path of the ssh key of the user on the associated machine | YES |
| homeDirectory | string | | HomeDirectory is the path of the home directory of the user on the associated machine | YES |

**Environment variables**

This command defines no environment variables.

## 2.1.10  vishnu_update_local_account

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_update_local_account command updates a local user configuration

**Example of use**

```
vishnu_update_local_account [-h][-l acLogin][-s sshKeyPath][-d homeDirectory] userId machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | | The userId represents the VISHNU user identifier of the user of the local user configuration | YES |
| machineId | string | | The MachineId represents the identifier of the machine associated to the local user configuration | YES |
| acLogin | string | l | accLogin represents the login of the user on the associated machine | NO |
| sshKeyPath | string | s | sshKeyPath is the path of the ssh key of the user on the associated machine | NO |
| homeDirectory | string | d | HomeDirectory is the path of the home directory of the user on the associated machine | NO |

**Environment variables**

This command defines no environment variables.

## 2.1.11  vishnu_delete_local_account

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_delete_local_account command removes a local user configuration (for a given user on a given machine) from VISHNU

**Example of use**

```
vishnu_delete_local_account [-h] userId machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| userId | string | | userId represents the VISHNU user identifier of the user whose local configuration will be deleted for the given machine | YES |
| machineId | string | | machineId represents the identifier of the machine whose local configuration will be deleted for the given user | YES |

**Environment variables**

This command defines no environment variables.

## 2.1.12  vishnu_save_configuration

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_save_configuration command saves the configuration of VISHNU

**Example of use**

```
vishnu_save_configuration [-h]
```

**Parameters**

This command defines no arguments.

**Environment variables**

This command defines no environment variables.

## 2.1.13  vishnu_restore_configuration

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_restore_configuration command restores the configuration of VISHNU

**Example of use**

```
vishnu_restore_configuration [-h] filePath
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| filePath | string | | The filePath is the path of the file used to restore VISHNU configuration | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.14 **vishnu_add_machine**

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_add_machine command adds a new machine in VISHNU

**Example of use**

```
vishnu_add_machine [-h] name site language sshPublicKeyFile machineDescription
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| name | string | | represents the name of the machine | YES |
| site | string | | represents the location of the machine | YES |
| language | string | | represents the language used for the description of the machine | YES |
| sshPublicKeyFile | string | | contains the path to the SSH public key used by VISHNU to access local user accounts | YES |
| machineDescription | string | | represents the description of the machine | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.15 **vishnu_update_machine**

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_update_machine command updates machine description

**Example of use**

```
vishnu_update_machine [-h] [-n name] [-s site] [-d machineDescription] [-l language] [-t status] [--
k sshPublicKeyFile] machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | represents the identifier of the machine | YES |
| name | string | n | represents the name of the machine | NO |
| site | string | s | represents the location of the machine | NO |
| machineDescription | string | d | represents the description of the machine | NO |
| language | string | l | represents the language used for the description of the machine | NO |
| status | StatusType | t | represents the status of the machine | NO |
| sshPublicKeyFile | string | k | contains the path to the SSH public key used by VISHNU to access local user accounts | NO |

**Environment variables**

This command defines no environment variables.

### 2.1.16  vishnu_delete_machine

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_delete_machine command removes a machine from VISHNU

**Example of use**

`vishnu_delete_machine [-h] machineId`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | machineId represents the identifier of the machine | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.17  vishnu_list_local_account

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_local_account command lists the local user configurations

**Example of use**

`vishnu_list_local_account [-h] [-a] [-u userId] [-i machineId]`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| adminListOption | boolean | a | is an admin option for listing all local configurations of all users | NO |
| userId | string | u | is an admin option for listing the local configurations of a specific user | NO |
| machineId | string | i | is an option for listing local user configurations on a specific machine | NO |

**Environment variables**

This command defines no environment variables.

### 2.1.18  vishnu_list_machine

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_machine command lists the machines that are accessible through VISHNU

**Example of use**

```
vishnu_list_machine[-h][-u userId][-a][-m machineId]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userId | string | u | is an admin option for listing machines in which a specific user has a local configuration | NO |
| listAllmachine | boolean | a | is an option for listing all VISHNU machines | NO |
| machineId | string | m | is an option for listing information about a specific machine | NO |

**Environment variables**

This command defines no environment variables.

## 2.1.19  vishnu_list_history_cmd

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_history_cmd command lists the commands

**Example of use**

```
vishnu_list_history_cmd[-h][-a][-u userId][-i sessionId][-s startDateOption][-e endDateOpti-
on]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| adminListOption | boolean | a | is an admin option for listing all commands of all users | NO |
| userId | string | u | is an admin option for listing commands launched by a specific user identified by his/her userId | NO |
| sessionId | string | i | lists all commands launched within a specific session | NO |
| startDateOption | long | s | allows the user to organize the commands listed by providing the start date (the UNIX timestamp of the start date is used) | NO |
| endDateOption | long | e | allows the user to organize the commands listed by providing the end date (the timestamp of the end date is used). By default, the end date is the current day | NO |

**Environment variables**

This command defines no environment variables.

## 2.1.20  vishnu_list_options

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_options command lists the options of the user

**Example of use**

```
vishnu_list_options [-h][-a][-u userId][-n optionName]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| listAllDeftValue | boolean | a | is an option for listing all default option values defined by VISHNU administrator | NO |
| userId | string | u | is an admin option for listing the options of a specific user | NO |
| optionName | string | n | allows the user to get the value of a specific option identified by its name | NO |

**Environment variables**

This command defines no environment variables.

### 2.1.21 vishnu_list_users

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_list_users command lists VISHNU users

**Example of use**

```
vishnu_list_users [-h][-i userIdOption]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| userIdOption | string | i | allows an admin to get information about a specific user identified by his/her userId | NO |

**Environment variables**

This command defines no environment variables.

### 2.1.22 vishnu_list_sessions

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_sessions command lists all sessions of the user

**Example of use**

```
vishnu_list_sessions [-h][-t status][-p sessionClosePolicy][-d sessionInactivityDelay][-m ma-
chineId][-a][-u userId][-i sessionId][-s startDateOption][-e endDateOption]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| status | StatusType | t | specifies the status of the sessions which will be listed | NO |

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| sessionClosePolicy | SessionCloseType | p | specifies the closure mode of the sessions which will be listed (CLOSE_ON_TIMEOUT or CLOSE_ON_DISCONNECT) | NO |
| sessionInactivityDelay | int | d | specifies the inactivity delay in seconds of the sessions which will be listed | NO |
| machineId | string | m | allows the user to list sessions opened on a specific machine | NO |
| adminListOption | boolean | a | is an admin option for listing all sessions of all users | NO |
| userId | string | u | is an admin option for listing sessions opened by a specific user | NO |
| sessionId | string | i | allows the user to list all commands launched within a specific session | NO |
| startDateOption | long | s | allows the user to organize the commands listed by providing the start date (the UNIX timestamp of the start date is used) | NO |
| endDateOption | long | e | allows the user to organize the commands listed by providing the end date (the timestamp of the end date is used). By default, the end date is the current day | NO |

**Environment variables**

This command defines no environment variables.

### 2.1.23   vishnu_configure_default_option

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_configure_default_option command configures a default option value

**Example of use**

`vishnu_configure_default_option` [-h] *optionName value*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| optionName | string | | represents the name of an option | YES |
| value | string | | represents the value of an option | YES |

**Environment variables**

This command defines no environment variables.

### 2.1.24   vishnu_configure_option

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_configure_option command configures an option of the user

**Example of use**

```
vishnu_configure_option [-h] optionName value
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| optionName | string | | represents the name of an option | YES |
| value | string | | represents the value of an option | YES |

**Environment variables**

This command defines no environment variables.

## 2.2   Parameters definitions

**Enumeration UMS::PrivilegeType Type**

| Name | Value |
|------|-------|
| USER | 0 |
| ADMIN | 1 |

**Enumeration UMS::SessionCloseType Type**

| Name | Value |
|------|-------|
| UNDEFINED | 0 |
| CLOSE_ON_TIMEOUT | 1 |
| CLOSE_ON_DISCONNECT | 2 |

**Enumeration UMS::StatusType Type**

| Name | Value |
|------|-------|
| INACTIVE | 0 |
| ACTIVE | 1 |

# Chapter 3

# Commands specification for Tasks Management Service (TMS)

## 3.1 Command definitions

### 3.1.1 vishnu_submit_job

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_submit_job command submits job on a machine through the use of a script (scriptFilePath).

**Example of use**

```
vishnu_submit_job [-h] [-n name] [-q queue] [-t wallTime] [-m memory] [-P nbCpu] [-N nbNodesAndCpu-
PerNode] [-o outputPath] [-e errorPath] machineId scriptFilePath
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine on which the job must be submitted | YES |
| scriptFilePath | string | | The path to the file containing the characteristics (job command, and batch scheduler directive required or optional) of the job to submit. | YES |
| name | string | n | Assigns a job name. The default is the path of job. | NO |
| queue | string | q | Assigns the queue or class of the job. | NO |
| wallTime | int | t | The maximum wall-clock time during which the job can run. | NO |
| memory | int | m | Is the memory size that the job requires. | NO |
| nbCpu | int | P | The number of cpu that the job requires. | NO |
| nbNodesAndCpuPerNode | string | N | The number of nodes and processors per node. | NO |
| outputPath | string | o | Assigns the path and file for job output. | NO |
| errorPath | string | e | Assigns the path and file for job error. | NO |

**Environment variables**

This command defines no environment variables.

### 3.1.2 vishnu_get_job_info

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_job_info command gets information on a job from its id

**Example of use**

```
vishnu_get_job_info [-h] machineId jobId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine on which the job is running | YES |
| jobId | string | | The id of the job | YES |

**Environment variables**

This command defines no environment variables.

### 3.1.3 vishnu_get_job_progress

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_job_progress command gets the progression status of jobs

**Example of use**

```
vishnu_get_job_progress [-h] [-i jobId] [-u jobOwner] machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine to get the jobs progression | YES |
| jobId | string | i | Represents the id of the job that the user wants to see the progression of. | NO |
| jobOwner | string | u | Represents the owner of the job. | NO |

**Environment variables**

This command defines no environment variables.

### 3.1.4 vishnu_list_queues

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_queues command gets queues information

**Example of use**

```
vishnu_list_queues [-h] machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine that the user wants to list queues | YES |

**Environment variables**

This command defines no environment variables.

### 3.1.5 vishnu_list_jobs

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_jobs command gets a list of all submitted jobs

**Example of use**

```
vishnu_list_jobs [-h] [-i jobId] [-P nbCpu] [-d fromSubmitDate] [-D toSubmitDate] [-u owner] [-s s-
tatus] [-p priority] [-o outPutPath] [-e errorPath] [-q queue] machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine on which the jobs are running | YES |
| jobId | string | i | To list job which has this id. | NO |
| nbCpu | int | P | To list jobs which have this number of cpu. | NO |
| fromSubmitDate | long | d | List jobs submitted after this date (unix timestamp). | NO |
| toSubmitDate | long | D | List jobs submitted before this date (unix timestamp) | NO |
| owner | string | u | To list all jobs submitted by this owner. | NO |
| status | JobStatus | s | To list jobs which have this status. | NO |
| priority | JobPriority | p | To list jobs which have this priority | NO |
| outPutPath | string | o | Gets the path and file for each job output. | NO |
| errorPath | string | e | Gets the path and file for each job error. | NO |
| queue | string | q | To list jobs which have this queue name. | NO |

**Environment variables**

This command defines no environment variables.

### 3.1.6 vishnu_get_job_output

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_job_output command gets standard output and error output files of a job given its id

**Example of use**

```
vishnu_get_job_output [-h][-o outDir] machineId jobId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | gets outputPath and errorPath of a job from its id | YES |
| jobId | string | | The Id of the job | YES |
| outDir | string | o | The output directory where the files will be stored (default is current directory) | NO |

**Environment variables**

This command defines no environment variables.

### 3.1.7  vishnu_get_completed_jobs_output

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_completed_jobs_output command gets standard output and error output files of completed jobs (applies only once for each job)

**Example of use**

```
vishnu_get_completed_jobs_output [-h][-o outDir] machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine on which the jobs are been submitted | YES |
| outDir | string | o | The output directory where the files will be stored (default is current directory) | NO |

**Environment variables**

This command defines no environment variables.

### 3.1.8  vishnu_cancel_job

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_cancel_job command cancels a job from its id

**Example of use**

```
vishnu_cancel_job [-h] machineId jobId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine on which the job is running | YES |
| jobId | string | | The Id of the job | YES |

**Environment variables**

This command defines no environment variables.

### 3.1.9  vishnu_set_machine_refresh_period

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_set_machine_refresh_period command sets the refresh period of output and error files contents

**Example of use**

`vishnu_set_machine_refresh_period` [-h] *machineId value*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine that the user wants to set refresh period | YES |
| value | int | | Is the refresh interval value (in seconds) | YES |

**Environment variables**

This command defines no environment variables.

### 3.1.10  vishnu_get_machine_refresh_period

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_get_machine_refresh_period command gets the refresh period of output and error files contents

**Example of use**

`vishnu_get_machine_refresh_period` [-h] *machineId*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | Is the id of the machine that the user wants to get refresh period | YES |

**Environment variables**

This command defines no environment variables.

## 3.2  Parameters definitions

**Enumeration TMS::JobPriority Type**

| Name | Value |
|------|-------|
| UNDEFINED | -1 |
| VERY_LOW | 100 |

| Name | Value |
|------|-------|
| LOW | 200 |
| NORMAL | 300 |
| HIGH | 400 |
| VERY_HIGH | 500 |

### Enumeration TMS::JobStatus Type

| Name | Value |
|------|-------|
| SUBMITTED | 0 |
| QUEUED | 1 |
| WAITING | 2 |
| RUNNING | 3 |
| TERMINATED | 4 |
| CANCELLED | 5 |

### Enumeration TMS::QueuePriority Type

| Name | Value |
|------|-------|
| UNDEFINED | -1 |
| VERY_LOW | 0 |
| LOW | 1 |
| NORMAL | 2 |
| HIGH | 3 |
| VERY_HIGH | 4 |

### Enumeration TMS::QueueStatus Type

| Name | Value |
|------|-------|
| NOT_STARTED | 0 |
| NOT_AVAILABLE | 1 |
| STARTED | 2 |
| RUNNING | 3 |

# Chapter 4

# Commands specification for Information Management Service (IMS)

## 4.1 Command definitions

### 4.1.1 vishnu_export_commands

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_export_commands command exports all the commands made by a user during a session

**Example of use**

```
vishnu_export_commands [-h] [-t exportType] oldSessionId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| oldSessionId | string | | The id of the session to export (session has ended) | YES |
| exportType | ExportType | t | The type to export | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.2 vishnu_get_metric_current_value

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_metric_current_value command retrieve the current value of a metric on a machine

**Example of use**

```
vishnu_get_metric_current_value [-h] [-t metricType] machineId
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | The id of the machine | YES |
| metricType | MetricType | t | The type of the metric | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.3   vishnu_get_metric_history

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_metric_history command retrieve the history of values of a metric on a machine

**Example of use**

```
vishnu_get_metric_history [-h][-s startTime][-e endTime] machineId metricType
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | The id of the machine | YES |
| metricType | MetricType | | Type of metric | YES |
| startTime | long | s | The start time to get the history | NO |
| endTime | long | e | The end time to get the history | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.4   vishnu_get_processes

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_get_processes command gets the list of the processes running over a front machine

**Example of use**

```
vishnu_get_processes [-h][-p machineId]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | p | The id of the machine | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.5   vishnu_set_system_info

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_set_system_info command updates the system information of a machine

**Example of use**

`vishnu_set_system_info[-h][-m memory][-d diskSpace][]`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| memory | long | m | Amount of RAM memory available on the machine (in Bytes) | NO |
| diskSpace | long | d | Amount of disk space available on the machine (in Bytes) | NO |
| machineId | string | | The id of the machine | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.6 vishnu_set_system_threshold

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_set_system_threshold command sets a threshold on a machine of a system

**Example of use**

`vishnu_set_system_threshold[-h][][][]`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| value | double | | The value of the threshold | NO |
| machineId | string | | The machine ID the threshold is available | NO |
| type | MetricType | | The type of the threshold | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.7 vishnu_get_system_threshold

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_get_system_threshold command gets a System threshold on a machine

**Example of use**

`vishnu_get_system_threshold[-h][-m machineId][-t metricType]`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | m | The id of the machine where the metric is defined | NO |
| metricType | MetricType | t | The type of the metric | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.8 vishnu_define_user_identifier

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_define_user_identifier command defines the shape of the identifiers automatically generated for the users

**Example of use**

```
vishnu_define_user_identifier [-h] format
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| format | string | | The new format to use | YES |

**Environment variables**

This command defines no environment variables.

### 4.1.9 vishnu_define_machine_identifier

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_define_machine_identifier command defines the shape of the identifiers automatically generated for the machines

**Example of use**

```
vishnu_define_machine_identifier [-h] format
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| format | string | | The new format to use | YES |

**Environment variables**

This command defines no environment variables.

### 4.1.10 vishnu_define_job_identifier

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_define_job_identifier command defines the shape of the identifiers automatically generated for the jobs

**Example of use**

`vishnu_define_job_identifier` `[-h]` *format*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| format | string | | The new format to use | YES |

**Environment variables**

This command defines no environment variables.

### 4.1.11 vishnu_define_transfer_identifier

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_define_transfer_identifier command defines the shape of the identifiers automatically generated for the file transfers

**Example of use**

`vishnu_define_transfer_identifier` `[-h]` *format*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| format | string | | The new format to use | YES |

**Environment variables**

This command defines no environment variables.

### 4.1.12 vishnu_load_shed

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_load_shed command load sheds a machine

**Example of use**

`vishnu_load_shed` `[-h]` *machineId loadShedType*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| machineId | string | | The id of the machine to stop | YES |
| loadShedType | LoadShedType | | Selects a load shedding mode (SOFT: stops all services and they can be restarted, HARD: stops all services, they cannot be restarted) | YES |

**Environment variables**

This command defines no environment variables.

### 4.1.13 vishnu_set_update_frequency

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_set_update_frequency command sets the update frequency of the IMS tables

**Example of use**

`vishnu_set_update_frequency [-h] freq`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| freq | int | | Frequency the data are updated, in second | YES |

**Environment variables**

This command defines no environment variables.

### 4.1.14 vishnu_get_update_frequency

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_update_frequency command gets the update frequency of the IMS database

**Example of use**

`vishnu_get_update_frequency [-h]`

**Parameters**

This command defines no arguments.

**Environment variables**

This command defines no environment variables.

### 4.1.15 vishnu_stop

**Access**

This command line can be used by ADMIN users only

**Description**

The vishnu_stop command to stop (and do not try to relaunch) a SeD

**Example of use**

`vishnu_stop [-h] [] [] [-d dietId] [-s state] [-t timestamp]`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| processName | string | | The name of the process (the name of the executable) | NO |
| machineId | string | | The id of the machine | NO |
| dietId | string | d | The diet id of the process | NO |
| state | ProcessState | s | THe state of the process | NO |
| timestamp | long | t | The timestamp corresponding to the moment the process is registered | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.16  vishnu_get_system_info

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_get_system_info command to get the system info on a machine

**Example of use**

```
vishnu_get_system_info[-h][-m machineId]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| machineId | string | m | The machine id | NO |

**Environment variables**

This command defines no environment variables.

### 4.1.17  vishnu_restart

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_restart command to restart a SeD or a MA

**Example of use**

```
vishnu_restart[-h][-d dietConfFile][-v vishnuConf][-t sedType] machineId type
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| machineId | string | | The id of the machine where to restart | YES |
| type | RestartType | | If restarting a sed or an agent | YES |
| dietConfFile | string | d | The path to the diet configuration file | NO |
| vishnuConf | string | v | The path to the vishnu configuration file | NO |
| sedType | SeDType | t | The type of the vishnu sed | NO |

**Environment variables**

This command defines no environment variables.

## 4.2  Parameters definitions

**Enumeration IMS::ExportType Type**

| Name | Value |
|---|---|
| UNDEFINED | 0 |
| SHELL | 1 |

**Enumeration IMS::LoadShedType Type**

| Name | Value |
|------|-------|
| UNDEFINED | 0 |
| HARD | 1 |
| SOFT | 2 |

**Enumeration IMS::MetricType Type**

| Name | Value |
|------|-------|
| UNDEFINED | 0 |
| CPUUSE | 1 |
| DISKSPACE | 2 |
| FREEDISKSPACE | 3 |
| MEMORY | 4 |
| FREEMEMORY | 5 |
| CPUNBR | 6 |
| ALL | -1 |

**Enumeration IMS::ProcessState Type**

| Name | Value |
|------|-------|
| UNDEFINED | 0 |
| RUNNING | 1 |
| DOWN | 2 |
| DELETED | 3 |

**Enumeration IMS::RestartType Type**

| Name | Value |
|------|-------|
| UNDEFINED | 0 |
| SED | 1 |

**Enumeration IMS::SeDType Type**

| Name | Value |
|------|-------|
| UNDEFINED | 0 |
| UMS | 1 |
| TMS | 2 |
| FMS | 3 |
| IMS | 4 |

# Chapter 5

# Commands specification for File Management Service (FMS)

## 5.1  Command definitions

### 5.1.1  vishnu_create_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_create_file command creates files on remote machines.

**Example of use**

```
vishnu_create_file [-h] [-m mode] path
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file to create following the pattern [host:]file path. | YES |
| mode | mode_t | m | The file access permissions in octal numeral system. | NO |

**Environment variables**

This command defines no environment variables.

### 5.1.2  vishnu_create_dir

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_create_dir command creates directories on remote machines.

**Example of use**

```
vishnu_create_dir [-h] [-m mode] path
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The directory to create following the pattern [host:]directory path. | YES |
| mode | mode_t | m | the new directories permission access in octal numeral system. | NO |

**Environment variables**

This command defines no environment variables.

### 5.1.3 vishnu_remove_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_remove_file command removes files from remote hosts.

**Example of use**

`vishnu_remove_file` [-h] *path*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file to remove following the pattern [host:]file path | YES |

**Environment variables**

This command defines no environment variables.

### 5.1.4 vishnu_remove_dir

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_remove_dir command removes directories (and subdirectories) from remote machines.

**Example of use**

`vishnu_remove_dir` [-h] *path*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The directory to remove following the pattern [host:]directory path | YES |

**Environment variables**

This command defines no environment variables.

### 5.1.5 vishnu_ch_grp

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_ch_grp command changes group owner of remote files/directories.

**Example of use**

`vishnu_ch_grp` [-h] *path group*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file/directory following the pattern [host:]file path | YES |
| group | string | | the new group owner of file/directory | YES |

**Environment variables**

This command defines no environment variables.

### 5.1.6  vishnu_ch_mod

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_ch_mod command changes access rights of remote files/directories.

**Example of use**

`vishnu_ch_mod` [-h] *path mode*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file/directory following the pattern [host:]file path | YES |
| mode | mode_t | | the access rigths of file/directory in octal system. | YES |

**Environment variables**

This command defines no environment variables.

### 5.1.7  vishnu_head_of_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_head_of_file command displays a few first lines of files located on remote machines.

**Example of use**

`vishnu_head_of_file` [-h] [-n *nLine*] *path*

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file following the pattern [host:]file path | YES |
| nLine | int | n | Number of lines to display | NO |

**Environment variables**

This command defines no environment variables.

### 5.1.8  vishnu_tail_of_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_tail_of_file command displays a few last lines of files located on remote machines

**Example of use**

`vishnu_tail_of_file[-h][-n nLine]path`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file following the pattern [host:]file path | YES |
| nLine | int | n | number of lines to display | NO |

**Environment variables**

This command defines no environment variables.

### 5.1.9  vishnu_content_of_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_content_of_file command displays content of files located on remote machines

**Example of use**

`vishnu_content_of_file[-h]path`

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The file to display following the pattern [host:]file path | YES |

**Environment variables**

This command defines no environment variables.

### 5.1.10  vishnu_list_dir

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_dir command displays the content of a remote directory.

**Example of use**

```
vishnu_list_dir[-h][-l][-a]path
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| path | string | | The directory to list following the pattern [host:]directory path | YES |
| longFormat | boolean | l | It specifies the long display format (all available file informations) | NO |
| allFiles | boolean | a | Allows to display all files including hidden files | NO |

**Environment variables**

This command defines no environment variables.

## 5.1.11  vishnu_copy_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_copy_file command executes a synchronous copy of file.

**Example of use**

```
vishnu_copy_file[-h][-r][-c trCommand]src dest
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| src | string | | The source file to copy following the pattern [host:]file path | YES |
| dest | string | | The path of the destination file | YES |
| isRecursive | boolean | r | It specifies when the copy is recursive (case of directory) or not. | NO |
| trCommand | TransferCommand | c | the command to use to perform file transfer. | NO |

**Environment variables**

| Name | Parameter | Type | Description | Required | User option |
|------|-----------|------|-------------|----------|-------------|
| VISHNU_TRANSFER_CMD | trCommand | TransferCommand | the command to use to perform file transfer. | NO | YES |

## 5.1.12  vishnu_copy_async_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_copy_async_file command executes an asynchronous copy of file.

**Example of use**

```
vishnu_copy_async_file[-h][-r][-c trCommand]src dest
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| src | string | | The source file to copy following the pattern [host:]file path | YES |
| dest | string | | The path of the destination file | YES |
| isRecursive | boolean | r | It specifies when the copy is recursive (case of directory) or not. | NO |
| trCommand | TransferCommand | c | the command to use to perform file transfer. | NO |

**Environment variables**

| Name | Parameter | Type | Description | Required | User option |
|---|---|---|---|---|---|
| VISHNU_TRANSFER_CMD | trCommand | TransferCommand | the command to use to perform file transfer. | NO | YES |

## 5.1.13  vishnu_move_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_move_file command executes a synchronous move of file.

**Example of use**

```
vishnu_move_file [-h] [-c trCommand] src dest
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|---|---|---|---|---|
| src | string | | The source file to move following the pattern [host:]file path | YES |
| dest | string | | The path of the destination file | YES |
| trCommand | TransferCommand | c | the command to use to perform file transfer. | NO |

**Environment variables**

| Name | Parameter | Type | Description | Required | User option |
|---|---|---|---|---|---|
| VISHNU_TRANSFER_CMD | trCommand | TransferCommand | the command to use to perform file transfer. | NO | YES |

## 5.1.14  vishnu_move_async_file

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_move_async_file command executes an asynchronous move of file.

**Example of use**

```
vishnu_move_async_file [-h] [-c trCommand] src dest
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| src | string | | The source file to move following the pattern [host:]file path | YES |
| dest | string | | The path of the destination file | YES |
| trCommand | TransferCommand | c | the command to use to perform file transfer. | NO |

**Environment variables**

| Name | Parameter | Type | Description | Required | User option |
|------|-----------|------|-------------|----------|-------------|
| VISHNU_TRANSFER_CMD | trCommand | TransferCommand | the command to use to perform file transfer. | NO | YES |

### 5.1.15  vishnu_stop_file_transfer

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_stop_file_transfer command stops an execution of a set of file transfers.

**Example of use**

```
vishnu_stop_file_transfer [-h] [-i transferId] [-m fromMachineId] [-u userId]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| transferId | string | i | a given transfer id | NO |
| fromMachineId | string | m | the machine that is the source of the file transfer | NO |
| userId | string | u | allows an admin to stop file transfers of a specific user | NO |

**Environment variables**

This command defines no environment variables.

### 5.1.16  vishnu_list_file_transfers

**Access**

This command line can be used by any VISHNU user

**Description**

The vishnu_list_file_transfers command displays the history of all file transfers submitted by User.

**Example of use**

```
vishnu_list_file_transfers [-h] [-t transferId] [-m fromMachineId] [-u userId] [-s status]
```

**Parameters**

| Parameter | Type | Option | Description | Required |
|-----------|------|--------|-------------|----------|
| transferId | string | t | a given transfer id | NO |
| fromMachineId | string | m | the machine that is the source of the file transfer | NO |
| userId | string | u | allows the admin to list file transfers initiated by a specific user | NO |
| status | Status | s | the file transfer status | NO |

**Environment variables**

This command defines no environment variables.

## 5.2   Parameters definitions

**Enumeration FMS::FileType Type**

| Name | Value |
|------|-------|
| BLOCK | 0 |
| CHARACTER | 1 |
| DIRECTORY | 2 |
| SYMBOLICLINK | 3 |
| SCKT | 4 |
| FIFO | 5 |
| REGULAR | 6 |

**Enumeration FMS::Status Type**

| Name | Value |
|------|-------|
| INPROGRESS | 0 |
| COMPLETED | 1 |
| CANCELLED | 2 |
| FAILED | 3 |

**Enumeration FMS::TransferCommand Type**

| Name | Value |
|------|-------|
| SCP | 0 |
| RSYNC | 1 |