StatusCode specification:

Note: Status codes represent errors, warnings and status. It is provided as a part of **T*ReturnStatus.** Additional reasons may be supplied in the "explanation" string as part of **T*ReturnStatus.**   Unless noted, status code itself explains when to be used. There are status codes at the request level and at each space or file level when there are many in a request.

A couple of issues:
1. Are we allowing operations on the expired spaces and expired files, such as life time extension or changing types? In our point of view, this should be a local policy.
2. There are legitimate requests such as releasing on already released files. Should we treat the second such request as a failure or legitimate success? If a client application behaves in such a way, it should be notified in a way that it would not repeat. Otherwise, it could repeat the same operation again and again, and SRM implementation could waste resources.

Status code   Explanation

SRM_SUCCESS:
- SRM request was successful

Errors:

SRM_FAILURE :
- Requested operation failed for unspecified reason, and additional info is in the explanation string.

SRM_AUTHENTICATION_FAILURE:
- Requester has an invalid authentication information.

SRM_UNAUTHORIZED_ACCESS:
- Requester has no permissions for the operation (although the user could have a valid authentication information).

SRM_INVALID_REQUEST:
- The request is invalid, and additional information may be provided in the explanation string.   For example,
  - The request token is invalid
  - The requested life time of a file is longer than the lifetime of the space.

SRM_INVALID_PATH:
- The requested file/directory path is invalid.

SRM_FILE_LIFETIME_EXPIRED:
- The life time on the pinned file has expired

SRM_SPACE_LIFETIME_EXPIRED:
- The life time on the reserved space has expired

SRM_EXCEED_ALLOCATION:

- Requester exceeded allocation (number of requests, files or spaces), and the request cannot be placed.

SRM_NO_USER_SPACE:
- The requester does not have enough space to put the file into that space.

SRM_NO_FREE_SPACE:
- SRM has not more space.

SRM_DUPLICATION_ERROR :
- Requester tried to create a new file or directory that already exists.

SRM_NON_EMPTY_DIRECTORY:
- Requester tried to remove a non-empty directory without the recursive option set.

SRM_TOO_MANY_RESULTS:
- The request produced too many results; for example, as a result of srmLs. The term "too many" is determined by each SRM , and the detailed information, such as the supported max number of results can be returned in the explanation string.

SRM_INTERNAL_ERROR:
- SRM has an internal error temporarily. Client may try again.

SRM_FATAL_INTERNAL_ERROR:
- SRM has a severe internal error that cannot be recovered.

SRM_NOT_SUPPORTED:
- SRM implementation does not support this functionality that client requested.

Status:

SRM_REQUEST_QUEUED
SRM_REQUEST_INPROGRESS
SRM_REQUEST_SUSPENDEND
SRM_ABORTED
SRM_RELEASED

SRM_FILE_PINNED
- The requested file is pinned

SRM_FILE_IN_CACHE
- The file is in cache, but not pinned

SRM_SPACE_AVAILABLE
- The requested space is reserved and ready to be used

SRM_LOWER_SPACE_GRANTED
- The requested space is not ready, but lower sized space is granted.

SRM _DONE
SRM_CUSTOM_STATUS:

- SRM has a site specific status information. The details are described in the explanation string.

Function code	Function Name	code

01.   *srmReserveSpace*
        SRM_SUCCESS (When the max desired size is granted)
          If anything less than max granted,
          It should SRM_LOWER_SPACE_GRANTED.
        SRM_LOWER_SPACE_GRANTED
          (When anything less than max granted)
        SRM_UNAUTHORIZED_ACCESS
        SRM_NO_FREE_SPACE
        SRM_EXCEED_ALLOCATION
        SRM_FAILURE

02.   *srmReleaseSpace*
        SRM_SUCCESS
        SRM_FAILURE: SPACE_ALREADY_RELEASED
This case may not be a failure, but the "request" itself failed.
        SRM_INVALID_REQUEST: SPACE_DOES_NOT_EXIST
        SRM_UNAUTHORIZED_ACCESS
        SRM_FAILURE

03.   *srmUpdateSpace*
        SRM_SUCCESS
        SRM_LOWER_SPACE_GRANTED
        SRM_INVALID_REQUEST: SPACE_DOES_NOT_EXIST
        SRM_UNAUTHORIZED_ACCESS
        SRM_NO_USER_SPACE
        SRM_NO_FREE_SPACE
        SRM_SPACE_LIFETIME_EXPIRED
do we allow life time extension for the expired spaces?
        SRM_FAILURE

04.   *srmCompactSpace:*
        SRM_SUCCESS
        SRM_INVALID_REQUEST: SPACE_DOES_NOT_EXIST
        SRM_UNAUTHORIZED_ACCESS
        SRM_SPACE_LIFETIME_EXPIRED
Do we allow operation on the expired space?
        SRM_FAILURE

05.   *srmGetSpaceMetaData:*
        SRM_SUCCESS
        SRM_INVALID_REQUEST: SPACE_DOES_NOT_EXIST
        SRM_UNAUTHORIZED_ACCESS
        SRM_FAILURE

06.   *srmChangeFileStorageType:*

Requests:

    SRM_SUCCESS

    SRM_INVALID_REQUEST: SPACE_DOES_NOT_EXIST

    SRM_UNAUTHORIZED_ACCESS

    SRM_NO_USER_SPACE

    SRM_NO_FREE_SPACE

    SRM_SPACE_LIFETIME_EXPIRED

Do we allow operation on the expired space?

    SRM_FAILURE

Files:

    SRM_SUCCESS

    SRM_INVALID_PATH

    SRM_UNAUTHORIZED_ACCESS

    SRM_FILE_LIFETIME_EXPIRED

Do we allow operation on the expired files?

    SRM_EXCEED_ALLOCATION

    SRM_DUPLICATION_ERROR

    SRM_FAILURE

07.   *srmGetSpaceToken:*

    SRM_SUCCESS

    SRM_UNAUTHORIZED_ACCESS

    SRM_INVALID_REQUEST

    SRM_FAILURE

08.   *srmSetPermission:*

    SRM_SUCCESS

    SRM_UNAUTHORIZED_ACCESS

    SRM_INVALID_REQUEST

    SRM_FAILURE

09.   *srmReassignToUser:*

    SRM_SUCCESS

    SRM_REQUEST_QUEUED

    SRM_UNAUTHORIZED_ACCESS

    SRM_INVALID_PATH

    SRM_FAILURE : USER_DOES_NOT_EXIST

Is this SRM_AUTHENTICATION_FAILURE?

    SRM_FAILURE

10.   *srmCheckPermission:*

    needs status at the file level

    modification to the spec is needed.

    Requests:

    SRM_SUCCESS

    SRM_UNAUTHORIZED_ACCESS

    SRM_AUTHENTICATION_FAILURE

    SRM_FAILURE

Files:

    SRM_SUCCESS

SRM_UNAUTHORIZED_ACCESS
SRM_INVALID_PATH
SRM_FAILURE

11.   *srmMkdir:*
        SRM_SUCCESS
        SRM_UNAUTHORIZED_ACCESS
        SRM_INVALID_PATH
        SRM_FAILURE

12.   *srmRmdir:*
        SRM_SUCCESS
        SRM_UNAUTHORIZED_ACCESS
        SRM_INVALID_PATH
        SRM_NON_EMPTY_DIRECTORY
        SRM_FAILURE

13.   *srmRm:*
      Requests:
        SRM_SUCCESS
        SRM_UNAUTHORIZED_ACCESS
        SRM_FAILURE

      Files:
        SRM_SUCCESS
        SRM_INVALID_PATH
        SRM_UNAUTHORIZED_ACCESS
        SRM_FAILURE

14.   *srmLs:*
       Requests:
        SRM_SUCCESS
        SRM_TOO_MANY_RESULTS
        SRM_UNAUTHORIZED_ACCESS
        SRM_FAILURE

      Files:
        SRM_SUCCESS
        SRM_INVALID_PATH
        SRM_UNAUTHORIZED_ACCESS
        SRM_FAILURE

15.   *srmMv:*
        SRM_SUCCESS
        SRM_UNAUTHORIZED_ACCESS
        SRM_INVALID_PATH
        SRM_NO_USER_SPACE
        SRM_FAILURE

16.   *srmPrepareToGet:*
      Requests:
        SRM_REQUEST_QUEUED
        SRM_EXCEED_ALLOCATION
        SRM_UNAUTHORIZED_ACCESS

SRM_NO_USER_SPACE
SRM_DUPLICATION_ERROR
SRM_EXCEED_ALLOCATION
SRM_SPACE_LIFETIME_EXPIRED
SRM_INVALID_REQUEST
SRM_FAILURE

Files:
SRM_REQUEST_QUEUED
SRM_FILE_PINNED

Can we return SRM_FILE_PINNED right away if and when the file is available even though the request IS stated as queued?
SRM_INVALID_PATH
SRM_UNAUTHORIZED_ACCESS
SRM_DUPLICATION_ERROR
SRM_FAILURE

17.   *srmPrepareToPut:*
Requests:
SRM_REQUEST_QUEUED
SRM_INVALID_REQUEST
SRM_UNAUTHORIZED_ACCESS
SRM_NO_USER_SPACE
SRM_DUPLICATION_ERROR
SRM_EXCEED_ALLOCATION
SRM_SPACE_LIFETIME_EXPIRED
SRM_FAILURE

Files:
SRM_REQUEST_QUEUED
SRM_SPACE_AVAILABLE

Can we return SRM_SPACE_AVAILABLE right away if and when the TURL is available even though the request IS stated as queued?
SRM_UNAUTHORIZED_ACCESS
SRM_INVALID_PATH
SRM_DUPLICATION_ERROR
SRM_FAILURE

18.   *srmCopy:*
Requests:
SRM_REQUEST_QUEUED
SRM_INVALID_REQUEST
SRM_UNAUTHORIZED_ACCESS
SRM_NO_USER_SPACE
SRM_DUPLICATION_ERROR
SRM_EXCEED_ALLOCATION
SRM_SPACE_LIFETIME_EXPIRED
SRM_FAILURE

Files:
SRM_REQUEST_QUEUED

SRM_INVALID_PATH
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_AUTHENTICATION_FAILURE
                    SRM_DUPLICATION_ERROR
                    SRM_FAILURE
19.   *srmRemoveFiles:*
             Requests:
                    SRM_SUCCESS
                    SRM_INVALID_REQUEST
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_FAILURE
             Files:
                    SRM_SUCCESS
                    SRM_INVALID_PATH
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_FAILURE
20.   *srmReleaseFiles:*
             Requests:
                    SRM_SUCESS
                    SRM_INVALID_REQUEST
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_FAILURE
             Requests:
                    SRM_SUCESS
                    SRM_INVALID_PATH
                    SRM_FAILURE: SRM_RELEASED already
             This case may not be a failure, but the "request" itself failed
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_FAILURE
21.   *srmPutDone:*
             Requests:
                    SRM_SUCCESS
                    SRM_INVALID_REQUEST
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_FAILURE
             Files:
                    SRM_SUCCESS
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_INVALID_PATH
                    SRM_FAILURE
22.   *srmAbortRequest:*
                    SRM_SUCCESS
                    SRM_UNAUTHORIZED_ACCESS
                    SRM_INVALID_REQUEST
                    SRM_FAILURE: REQUEST_ALREADY_DONE
             This case may not be a failure, but the "request" itself failed

SRM_FAILURE

23.   *srmAbortFiles:*
      Requests:
           SRM_SUCCESS
           SRM_INVALID_REQUEST
           SRM_UNAUTHORIZED_ACCESS
           SRM_FAILURE
      Files:
           SRM_SUCCESS
           SRM_INVALID_PATH
           SRM_UNAUTHORIZED_ACCESS
           SRM_FAILURE: FILE_ALREADY_DONE
           SRM_FAILURE

24.   *srmSuspendRequest:*
           SRM_SUCCESS
           SRM_UNAUTHORIZED_ACCESS
           SRM_INVALID_REQUEST
           SRM_FAILURE: ALREADY_SUSPENDED
This case may not be a failure, but the "request" itself failed
           SRM_FAILURE: REQUEST_ALREADY_FINISHED
           SRM_FAILURE

25.   *srmResumeRequest:*
           SRM_SUCCESS
           SRM_UNAUTHORIZED_ACCESS
           SRM_INVALID_REQUEST
           SRM_FAILURE: REQUEST_ALREADY_FINISHED
           SRM_FAILURE: ALREADY_RESUMED
This case may not be a failure, but the "request" itself failed
           SRM_FAILURE

26.   *srmStatusOfGetRequest:*
      Requests:
           SRM_REQUEST_QUEUED
           SRM_REQUEST_INPROGRESS
           SRM_DONE
           SRM_REQUEST_SUSPENDED
           SRM_ABORTED
           SRM_INVALID_REQUEST
           SRM_UNAUTHORIZED_ACCESS
           SRM_SPACE_LIFETIME_EXPIRED
                (on the space that files are going into)
           SRM_FAILURE
      Files:
           SRM_FILE_PINNED
           SRM_REQUEST_QUEUED (file request is on the queue)
           SRM_REQUEST_INPROGRESS (actual progress going)
           SRM_REQUEST_SUSPENDED

SRM_RELEASED
                         SRM_INVALID_PATH
                         SRM_AUTHENTICATION_FAILURE
                         SRM_FILE_LIFETIME_EXPIRED
                         SRM_EXCEED_ALLOCATION
                         SRM_DUPLICATION_ERROR
                         SRM_UNAUTHORIZED_ACCESS
                         SRM_ABORTED
                         SRM_FAILURE
27.   *srmStatusOfPutRequest:*
             Requests:
                         SRM_REQUEST_QUEUED
                         SRM_REQUEST_INPROGRESS
                         SRM_REQUEST_SUSPENDED
                         SRM_DONE
                         SRM_ABORTED
                         SRM_INVALID_REQUEST
                         SRM_UNAUTHORIZED_ACCESS
                         SRM_SPACE_LIFETIME_EXPIRED
                         SRM_FAILURE
             Files:
                         SRM_FILE_IN_CACHE (after client's srmPutDone)
                         SRM_REQUEST_QUEUED
                         SRM_REQUEST_INPROGRESS
                         SRM_REQUEST_SUSPENDED
                         SRM_RELEASED
                         SRM_INVALID_PATH
                         SRM_AUTHENTICATION_FAILURE
                         SRM_FILE_LIFETIME_EXPIRED
                         SRM_EXCEED_ALLOCATION
                         SRM_DUPLICATION_ERROR
                         SRM_UNAUTHORIZED_ACCESS
                         SRM_ABORTED
                         SRM_FAILURE
28.   *srmStatusOfCopyRequest:*
             Requests:
                         SRM_REQUEST_QUEUED
                         SRM_REQUEST_INPROGRESS
                         SRM_REQUEST_SUSPENDED
                         SRM_DONE
                         SRM_ABORTED
                         SRM_INVALID_REQUEST
                         SRM_UNAUTHORIZED_ACCESS
                         SRM_SPACE_LIFETIME_EXPIRED
                         SRM_FAILURE
             Files:

<div align="right">

SRM_REQUEST_QUEUED
SRM_REQUEST_INPROGRESS
SRM_REQUEST_SUSPENDED
SRM_DONE
SRM_INVALID_PATH
SRM_AUTHENTICATION_FAILURE
SRM_FILE_LIFETIME_EXPIRED
SRM_EXCEED_ALLOCATION
SRM_DUPLICATION_ERROR
SRM_UNAUTHORIZED_ACCESS
SRM_ABORTED
SRM_FAILURE

</div>

29.   *srmGetRequestSummary:*

          SRM_SUCCESS
          SRM_UNAUTHORIZED_ACCESS
          SRM_FAILURE

30.   *srmExtendFiIeLifeTime:*

          SRM_SUCCESS
          SRM_EXCEED_ALLOCATION (no more extension)
          SRM_FILE_LIFETIME_EXPIRED

do we allow lifetime extension for the expired files ?

          SRM_INVALID_REQUEST
          SRM_INVALID_PATH
          SRM_UNAUTHORIZED_ACCESS
          SRM_FAILURE

31.   *srmGetRequestID:*

          SRM_SUCCESS
          SRM_UNAUTHORIZED_ACCESS
          SRM_FAILURE