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About this book. The HPSS Storage Broker (HSB) User’s Guide provides the necessary information for transferring and querying data using HSB. In particular, the following interfaces are described:

• HPSS Storage Broker Graphical User Interface (GUI)

Refer to the HPSS Storage Broker Installation Guide and the HPSS Storage Broker Management Guide for descriptions of the interfaces provided to administrators.

The HPSS Storage Broker User’s Guide is structured as follows:

• Chapter 1: Overview - Provides an overview of each type of user interface, a summary of key storage concepts, and recommendations on usage.
• **Chapter 2: HPSS Storage Broker Client GUI** - Provides descriptions of the windows and field in the client graphical user interface application.

• **Chapter 3: Scenarios** - A step-by-step guide on how to use the HSB client GUI to perform various scenarios.

• **Appendix A: Glossary of Terms and Acronyms**

• **Appendix B: References** - Lists documents cited in the text as well as other reference materials.

• **Appendix C: Developer Acknowledgments**

**Typographic and keying conventions.** This document uses the following typographic conventions:

Example commands that should be typed at a command line will be proceeded by a percent sign ("%") and be presented in a boldface courier font:

```
% sample command
```

Any text preceded by a pound sign ("#") should be considered comment lines:

```
# This is a comment
```

*Italic*   *Italic* words or characters represent variable values to be supplied.

[]   Brackets enclose optional items in syntax and format descriptions.

{}   Braces enclose a list of items to select in syntax and format descriptions.
Chapter 1. System Overview
This section provides an overview of the various HPSS Storage Broker (HSB) Client GUI features available to end users.

1.1. Projects

Projects are created by an HSB system administrator through the HSB Admin GUI. User Roles can be assigned in one of the following ways:

1. By the HSB system administrator through the HSB Admin GUI.

2. By a user configured with the Owner role for a project through the HSB Client GUI. See the HPSS Storage Broker Administrator’s Guide for details on how projects are created and how the project roles are assigned to users.

The Projects window will list the projects available to the end user. A user will be able to do the following when working with a specific project:

- View a list of existing datasets.
- Create, recall, or delete datasets.
- View or update project roles.
- View the Events that have been generated by the HSB server for the functions performed by the user.
- View the Storage Policies available to use for the Project.

The operations that can be performed on specific projects will be determined by the user’s role defined for that project.

For details on working with projects see the Projects Menu.

1.2. Jobs

The Jobs window will display a list of the currently running jobs the user has submitted. For details on the various types of jobs see the Jobs Menu.

1.3. Events

Events are important system messages related to users, projects, and datasets recorded by the HSB server. The events listed in the HSB Client GUI are related to the activities performed by currently logged in user. For details on the various event types and viewing event information, see the Events Menu.

1.4. Endpoints

Endpoints are the storage resources defined to the HSB server.
• Dataset creations will read data from static endpoints, aggregate and fragment it, then write the fragments to the repository endpoints defined on the storage policy being used by the Project.

• Dataset recalls will read data from the fragments on repository endpoint, disaggregate the data into the separate files used to create the dataset, and then write the files to the desired static endpoint.

For details on working with endpoints see the Endpoints Menu.

1.5. Account

The Account menu allows the logged in user to update various details about their HSB user profile. For details on working with your user profile, see the Account Menu.

1.6. Window

This menu allows a user to close all open client GUI windows. For details see Window Menu.

1.7. Help

This menu will allow a user to display the version of the client GUI and the latest data privacy notices. For details see the Help Menu.
Chapter 2. HPSS Storage Broker Client GUI
2.1. Launching the HPSS Storage Broker Client GUI

2.1.1. Prerequisites

The HPSS Storage Broker (HSB) Client GUI application must be installed prior to launching. This is done through the HPSS Storage Broker (HSB) Admin GUI. See the HPSS Storage Broker (HSB) Administrator’s Guide for details on how to download the HPSS Storage Broker (HSB) Client GUI installer.

2.1.2. Launching

To launch the HSB Client GUI execute the following command:

```bash
> treefrog_gui
```

This will launch the HSB Client GUI Login dialog:

**Figure 2.1. HSB GUI Login dialog**

Enter your username and password then click the **Login** button.

If this is your first login attempt, or you have not previously clicked "Accept" on the "Privacy Notice" dialog during a previous login, or the privacy notice message has changed since your last login, then you will be prompted to accept the privacy notice. Otherwise the HSB Client GUI main menu will appear.
Figure 2.2. Privacy Notice window

After clicking on "Accept" the HSB Client GUI main menu will appear. Clicking "Decline" will exit the HSB Client GUI application.
Figure 2.3. HSB Client GUI main menu

- **File**
  - Preferences - Allows a user to adjust certain preferences (e.g. Log level detail) related to the HSB Client GUI application.
  - Exit - Exits the HSB Client GUI application.

- **Projects**
  - List - Displays a list of the projects the user currently has access to.

- **Jobs**
  - Jobs List - Displays a list of jobs that are currently active. Allows a user to abort a job.

- **Events**
  - List - Displays a list of events associated with the user.

- **Endpoints**
  - View Status - Allows a user to view the status of endpoints for which they have permission.
  - Explore - Allows a user to explore endpoints for which they have permission.

- **Account**
• **Profile** - Displays the user’s HSB account profile information and allows the user to change their account password.

• **Window**
  
  • Close All Windows - Closes all HSB Client GUI windows.

• **Help**
  
  • Data Privacy - Allows a user to review the most recently accepted privacy notice.

### 2.1.3. Uninstalling the HSB Client GUI

If you need to uninstall the HSB Client GUI, change to the user’s top level directory. Then remove the `.treefrog` directory and all subdirectories and files.

```bash
% rm -r ~/.treefrog
```
2.2. File menu

Select File from the HPSS Storage Broker Main Menu main menu to display the options:

Figure 2.4. File menu

2.2.1. Preferences

To manage your preferences select Preferences from the File menu. This will launch the Preferences dialog:

Figure 2.5. File Preferences dialog

Set each field to the value you prefer, and then click Save.

Refresh Interval for Data in Tables
Most panels in the HSB Client GUI contain a table displaying information retrieved by an API call. This value controls how often, in seconds, the data in these tables is refreshed.

Client Log Level Detail
This value controls the type and amount of information written to the Client GUI log files. The possible values are:

- **WARN**: Capture information about potentially harmful situations.
- **INFO**: Capture information associated with client login failures and information associated with API calls.
A log level of \texttt{WARN} is the highest level of logging and will write the least amount of information to the log. If the log level is set to a lower level of logging, then more information will be written to the log and it will include log entries of a higher level. For example, if the level is set to \texttt{DEBUG} both \texttt{INFO} and \texttt{WARN} log entries will also be written to the log, however, \texttt{TRACE} log entries would not.

\textbf{Figure 2.6. Client Log Level options}

![Preferences Window]

Endpoint Explorer Client Thread Pool Size - This value is used when a folder is added to the dataset manifest from the "Create Dataset" window. When a folder is added we compute the number of objects under that folder and the total size of the objects under that folder. The pool size determines the maximum number of threads that can be used when determining this sizing information.

\textbf{2.2.2. Exit HPSS Storage Broker Client GUI}

To exit the \texttt{HSB Client GUI} select \texttt{Exit} from the \texttt{HSB GUI File} menu.
2.3. Projects Menu

A "Project" in HPSS Storage Broker (HSB) is a way of organizing datasets and controlling access. Select Projects from the HPSS Storage Broker Main Menu to display the available options:

Figure 2.7. Projects menu

2.3.1. List Projects

Select List from the options to see your Projects. This will launch the Project List window:

Figure 2.8. Project list window

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>proj2</td>
<td>owner</td>
<td>proj2</td>
</tr>
<tr>
<td>3</td>
<td>proj3</td>
<td>owner</td>
<td>proj3</td>
</tr>
<tr>
<td>21</td>
<td>proj6</td>
<td>owner</td>
<td>proj6</td>
</tr>
<tr>
<td>1</td>
<td>proj1</td>
<td>owner</td>
<td>proj1</td>
</tr>
<tr>
<td>22</td>
<td>proj7</td>
<td>owner</td>
<td>proj7</td>
</tr>
<tr>
<td>42</td>
<td>proj100</td>
<td>owner</td>
<td>project100</td>
</tr>
</tbody>
</table>

The columns on the window are described below:

**ID** A unique identifier that is automatically assigned to a project during creation.

**Name** A unique name given to the project by the project creator.

**Role** The role defines the permissions you’ve been assigned for the project. The roles are defined as read, update, delete, and owner. Refer to the "Project Role Configuration"
Double-click on the desired project. This will launch the project’s dataset window:

**Figure 2.9. Project datasets window**

![Project datasets window](image)

The columns on the window are described below:

**ID**
A unique identifier that is automatically assigned to a dataset during creation.

**Name**
A name given to the dataset by the dataset creator.

**Version**
The version of the dataset. Dataset versioning is currently not supported.

**State**
The state of the dataset.

**Policy**
The policy the dataset was created with.

**Creator**
The username who created the dataset.

The tabs on the window are described below:

**Datasets**
List of datasets in the project.

**Users**
List of users on the project and their role. You can add and delete users from the project and change the role of existing users on the project.

**Events**
List of events associated with the project.
| Storage Policies | List of storage policies configured for the project. |
2.3.1.1. Datasets

A Dataset is a collection of data and metadata stored in the HPSS Storage Broker (HSB) system on one or more repository endpoints.

From the Project window a user can:

- Create a Dataset - Copy user data from a static endpoint to repository endpoints and create associated metadata.
- Recall a Dataset - Copy dataset data from repository endpoints to a static endpoint.
- Delete a Dataset - Delete the dataset data from the repository endpoints and the dataset metadata from the HSB database.

Create Dataset

Click the Create Dataset button to create a new Dataset. This will launch the Create Dataset window:

Figure 2.10. Create Dataset window

- **Project Name**
  Not editable. The name of the project that will contain the created dataset.

- **Dataset Name**
  Required. The name of the dataset. The maximum size of this field is 2000 characters. Must be unique within a project.
Dataset Description
Not editable.

Policy
The policy to use when creating the dataset. Only policies associated with the project will appear in the drop down list.

Metadata File
XML metadata to associate with this dataset. Select the folder icon, browse to the location of the XML file and select it.

Metadata Description
Description of the attached metadata. The maximum size of this field is 2048 characters.

Object Count
Not editable. Running count of the objects added to this dataset.

Dataset Size
Not editable. Running total of the number of bytes for the objects added to this dataset.

Min. Dataset Size
Not editable. The minimum number of bytes required, as defined by the policy selected, to create this dataset. If the policy does not have a defined minimum dataset size, the value will be "N/A".

Max. Dataset Size
Not editable. The maximum number of bytes allowed, as defined by the policy selected, in this dataset. If the policy does not have a defined maximum dataset size the value will be "N/A".

Endpoint
Drop down list of static endpoints. Once you have selected a static endpoint, you can then select files or folders and add them to the dataset with the Add button.

Fill out the required fields and add the desired file and container resources to the dataset and click the Create button:

The Create button is only enabled once a dataset name has been provided and the dataset size is within the defined minimum and maximum size limits.
Figure 2.11. Create Dataset window filled out

![Create Dataset window](image)

Delete Dataset

Click once on the desired dataset and then click the **Delete Dataset** button. The "Confirm deletion" panel will be launched:

**Figure 2.12. Confirm dataset deletion window**

![Confirm deletion window](image)

Press the **Yes** button to confirm, or the **No** button to cancel the delete request. Selecting "Yes" will submit the request to the HSB Server where it will be processed and the data will be deleted from the appropriate repository endpoints.

Dataset Contents

Double-click the desired dataset on the Project datasets window. This will open the dataset contents panel:
Figure 2.13. List dataset contents window

Recall Dataset

From this window you can click the **Recall Dataset** button to recall the entire dataset (see Section 3.2, “Recall Entire Dataset”) or you can select individual objects from the dataset contents list and click **Recall Selected** to recall only the objects selected from the dataset (see Section 3.3, “Partial Recall of Dataset”). This will launch the **Recall Dataset** window:
**Figure 2.14. Recall dataset window**

![Recall Dataset Window](image)

- **Project**
  Not editable. The name of the project that contains this dataset.

- **Dataset**
  Not editable. The name of the dataset.

- **Recall Count**
  Not editable. The number of objects in the dataset.

- **Recall Size**
  Not editable. The size of dataset in bytes.

- **Endpoint**
  Required. Drop down menu of static endpoints to recall the dataset to. After the static endpoint is selected, select a recall target directory. Additionally, a new directory can be created on the static endpoint with the button.

- **Destination**
  Not editable. Path of destination folder on the static endpoint.

Fill out the necessary fields and click the **Recall Dataset** button. The Recall Submitted window will be displayed:
Figure 2.15. Recall Submitted window

Click **OK** to dismiss the Recall Submitted window.

The default behavior when recalling to file system endpoints, is to set the ownership, permissions, and modification time of the recalled objects using any information saved with the object during dataset creation. The **Recall Options** button allows you to modify this behavior for the current recall operation. The user can choose to disable restoration of the object’s ownership and permissions or modification time.

Figure 2.16. Recall dataset window with options expanded

**Dataset Metadata**

Dataset metadata is an XML file containing user-defined attributes related to the dataset. This metadata will be validated against an XML schema.

Select the **Metadata** tab on the List Dataset Contents window. This will open the dataset metadata window:
Figure 2.17. Dataset metadata window

Upload Metadata

Click on the **Upload Metadata** button. This will open the **Upload Metadata** window:
Figure 2.18. Upload metadata window

![Figure 2.18. Upload metadata window](image)

**Filename**
Required. The name of the XML file.

**Schema ID**
The identifier of the schema to validate this metadata with.

**Description**
Not editable. This contains the name of the XML file. The maximum size of this field is 2048 characters.

Press the folder icon next to the "Filename" field. This will open the file selection window:

Figure 2.19. Upload metadata detail window

![Figure 2.19. Upload metadata detail window](image)
Size
The size of the file.

Modified
The date the file was last modified.

Folder Navigation

Look in - Drop down list to navigate up the folder path.
- Goes up one level.
- Goes to user’s home directory.
- Display folders and files in list format.
- Display folders and files in detail format.

Folder Name
The path of the folder we are currently in.

Files of Type
Selectable drop down list. Can either show all files or XML files.

Select a file and then click the Open button. Select the Upload button to upload the file.

Download Metadata

Click once on the desired metadata line and click the Download Metadata button. This will open the Save Metadata window:
Figure 2.20. Save metadata list window

![Save Metadata Window]

Select a folder to save the metadata file in and click the **Save** button.

No formatting information (such as white space or line returns) is saved with the XML. If the file used to save the XML had formatting information it will not be present in the downloaded file.

**Delete Metadata**

Click once on the desired metadata line (see Figure 2.17) and click the **Delete Metadata** button. This will open a confirmation window:

Figure 2.21. Confirm metadata delete window

![Delete File Confirmation]

Click on the **Yes** button to delete, **No** button to cancel the delete request. Selecting "Yes" will immediately delete the metadata file and at that point the metadata file will be nonrecoverable.
Dataset Events

Select the **Events** tab on the List Dataset Contents window. This will open the **Dataset Events** window:

**Figure 2.22. Dataset events window**

![Dataset events window image]

Click on an event to see the details in the description pane that is below the event list pane.
Figure 2.23. Display event details

<table>
<thead>
<tr>
<th>Time</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/19/2020</td>
<td>Job 3 Project proj1 dataset 20191104/1031 recall from by jceusermang@192.168.221.215 from endp2 to filesystems/acs1/clearlake.ibm.com/Storage/disk2/trashlog_endp/endp16/fflogs_20191104/1212 completed with status SUCCESS</td>
</tr>
</tbody>
</table>
2.3.1.2. Users

Select the Users tab from the Project window to see the Users assigned to the Project:

**Figure 2.24. Project users window**

**Username**

The name of an existing HPSS Storage Broker (HSB) user to add to the project.

**Role**

The role assigned to the user for the project. The roles are:

- **Owner** - An owner of the project. Owners are considered the owner of the data stored in the project. They have permission to access and delete datasets stored in the project. They can modify the metadata associated datasets. They can also add users to the project and modify roles of non-owner members of the project.

- **Delete** - The user can view datasets in the project, delete datasets from the project, upload and delete the metadata for datasets in the project, create new datasets in the project, and recall datasets.

- **Update** - The user can view datasets in the project, upload metadata for datasets in the project, create new datasets in the project, and recall datasets.

- **Read** - The user can view and recall datasets in the project.

**Add User**
Press the **Add User** button to add a user to the project. This will launch the Add User window:

**Figure 2.25. Add User window**

![Add User window](image)

Username - The name of an existing HSB user to add to the project.

Role - The role assigned to the user for the project. The roles available for selection are read, update, delete, or owner. For a description of the roles see Role.

Enter the required fields and click the **Add** button.

**Change User Role**

Select the desired user from the Project Users window and click the **Change Role** button. This will launch the Change User Role window:

**Figure 2.26. Change User Role window**

![Change User Role window](image)

Select the desired role and click the **Change Role** button.
Remove User

In the Project User window click the user you wish to remove, then click the **Remove User** button. The Confirm Remove User window will be launched:

**Figure 2.27. Confirm Remove User window**

![Remove User window](image)

Press the **Yes** button to confirm, or the **No** button to cancel the request.
2.3.1.3. Events

Select the **Events** tab from the Project window to see the **Events** associated with the project:

Events are important system messages related to users, projects, and datasets. The project event window will show the events for just the project being viewed. This includes messages for:

- Dataset created
- Dataset recalled
- Dataset deleted
- User added to the project
- User project role changed
- User removed from the project

**Figure 2.28. Project events window**

<table>
<thead>
<tr>
<th>Time</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/19/2020 11:18:55 CST</td>
<td>Job 3 Project proj1 dataset 201911041051 recall from by user manager@192.168....</td>
</tr>
<tr>
<td>03/17/2020 08:19:22 CST</td>
<td>Job 2 Project proj1 dataset 202001170918 create by boomer@192.168.221.21....</td>
</tr>
<tr>
<td>03/17/2020 08:02:53 CST</td>
<td>Job 1 Project proj1 dataset 202001170903 create by boomer@192.168.221.21....</td>
</tr>
</tbody>
</table>

- **Time**: Timestamp of when the event occurred.
- **Message Identifier**: A unique identifier for this message. It is generated when the event is generated.
- **Message**: The event message text. It contains details relating to the event.
Click on an Event to see the entire message:

**Figure 2.29. Project event detail window**

![Project event detail window](image)
2.3.1.4. Storage Policies

Select the Storage Policies tab from the Project window to see the Storage Policies configured for the project:

Figure 2.30. Project storage policies window

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Access Permissions</th>
<th>Min Dataset Size</th>
<th>Max Dataset Size</th>
<th>Expiration Time</th>
<th>Number of Cus</th>
<th>Recall Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>policy1</td>
<td>N/A</td>
<td>1</td>
<td>Unlimited</td>
<td>None</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>policy2</td>
<td>N/A</td>
<td>1</td>
<td>Unlimited</td>
<td>None</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The columns on the window are described below:

**ID**
A unique identifier that is automatically assigned to a storage policy during creation.

**Name**
A unique name given by the policy creator.

**Access Permissions**
The permissions assigned to this storage policy. It can be one of the following values:

- **Disabled** - Policy is disabled and cannot be read from or written to.
- **Read/Write** - Policy can be used for dataset recall, create, and delete requests. "Read" is required for dataset recall requests and "Write" is required for dataset create and delete requests.
- **Read** - The storage policy can only be used for recall requests.

**Min Dataset Size**
The minimum size of the dataset in mebibytes that is allowed to be stored on this storage policy.
Max Dataset Size
The maximum size of the dataset in MiB that is allowed to be stored on this storage policy.

Expiration Time
Time until the policy expires.

Number of Copies
The number of copies created for datasets written using this storage policy.

Recall Preferred Copy
The ID of the storage policy copy that is defined as the preferred policy copy to use when recalling data.
2.4. Jobs Menu

The Jobs window shows the work which is currently enqueued for processing by the HSB server. A job may be initiated to create, delete, recall, or verify a managed dataset. You can also abort an enqueued job from this window as well.

Select Jobs from the HPSS Storage Broker Main Menu to display the available options:

Figure 2.31. Jobs menu option window

2.4.1. List Jobs

Select List from the options to see your Jobs. This will launch the Jobs window:

Figure 2.32. Jobs list window

The following columns will be displayed on the Jobs window:

<table>
<thead>
<tr>
<th>Id</th>
<th>Unique Job Identifier.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Identifies the type of work being executed:</td>
</tr>
<tr>
<td></td>
<td>• CREATE - Create a Managed Dataset</td>
</tr>
<tr>
<td></td>
<td>• RECALL - Recall a Managed Dataset</td>
</tr>
<tr>
<td></td>
<td>• ABORT - Abort request being processed.</td>
</tr>
<tr>
<td></td>
<td>• DELETE - Delete a Managed Dataset</td>
</tr>
</tbody>
</table>
State of the Job:

- **INIT** - The initial state of the job.
- **WAIT** - The job is waiting for resources.
- **HOLD** - The job has resources but not enough to execute.
- **SCHED** - The job is in the scheduler attempting to gather resources.
- **SUSPENDED** - The job is waiting on the user to delete it or restart it.
- **PENDING** - The job is finished but waiting on child jobs. This state is for parent jobs only.
- **RUN** - The job is running/executing.
- **COMPLETE** - The job is complete.
- **ABORT_LOOMING** - The job is currently running and will be aborted (and placed in the ABORT state) after it finishes executing.
- **ABORT_PENDING** - The job is finished aborting but is waiting on child jobs. This state is for parent jobs only.
- **ABORT** - The job is aborted and is just waiting to be cleaned up.

**Created**
Date and time when the **Job** was submitted.

**IO Updated**
Date and time of the last IO status update.

**Bytes Processed**
The total number of bytes processed at the time indicated in **IO Updated**.

**IO Failures**
The total number of IO failures at the time indicated in **IO Updated**.

**Project**
The name of the **Project** the **Job** pertains to.

**Dataset**
The name of the **Dataset** the **Job** pertains to.

### 2.4.1.1. Abort Job

Select the desired job to abort from the Jobs List Window and click the **Abort job** button. The "Confirm Abort" window will appear:
Press **Yes** to continue with the **Abort Job** request, or click **Cancel/No** to cancel it.
2.5. Events Menu

Select **Events** from the HPSS Storage Broker Main Menu to display the available options:

Events are important system messages related to users, projects, and datasets. Examples of events logged are:

- Dataset created
- Dataset recalled
- Dataset deleted
- User logged in
- User password expired
- User added to project
- User logged in
- User log in failure
- Recall dataset failure

**Figure 2.33. Events menu option window**

![Events menu option window](image)

This will launch the "Events" window:
### Figure 2.34. Events window

<table>
<thead>
<tr>
<th>Time</th>
<th>Identifier</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/19/2020 15:13:51 CST</td>
<td>3285</td>
<td>successful account log in.</td>
</tr>
<tr>
<td>02/19/2020 11:18:55 CST</td>
<td>3284</td>
<td>Job 3 Project proj dataset 201911041031 recall from b...</td>
</tr>
<tr>
<td>02/19/2020 09:30:15 CST</td>
<td>3283</td>
<td>successful account log in.</td>
</tr>
<tr>
<td>02/18/2020 15:40:25 CST</td>
<td>3282</td>
<td>successful account log in.</td>
</tr>
<tr>
<td>02/18/2020 14:58:56 CST</td>
<td>3281</td>
<td>successful account log in.</td>
</tr>
<tr>
<td>02/04/2020 15:35:11 CST</td>
<td>1260</td>
<td>successful account log in.</td>
</tr>
<tr>
<td>02/04/2020 14:58:26 CST</td>
<td>1252</td>
<td>Log in failure, account password expired for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:58:46 CST</td>
<td>1251</td>
<td>Log in failure, account password expired for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:54:24 CST</td>
<td>1250</td>
<td>Log in failure, max failed login attempts reached for user...</td>
</tr>
<tr>
<td>02/04/2020 14:54:05 CST</td>
<td>1249</td>
<td>Log in failure, account disabled for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:53:45 CST</td>
<td>1248</td>
<td>Log in failure, account disabled for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:52:39 CST</td>
<td>1247</td>
<td>Login failure, max failed login attempts reached for user...</td>
</tr>
<tr>
<td>02/04/2020 14:52:02 CST</td>
<td>1246</td>
<td>Login failure, account disabled for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:51:00 CST</td>
<td>1245</td>
<td>Login failure, account disabled for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:50:14 CST</td>
<td>1244</td>
<td>Login failure, account disabled for user jo...</td>
</tr>
<tr>
<td>02/04/2020 14:38:47 CST</td>
<td>1243</td>
<td>Account password expired for user jo...</td>
</tr>
</tbody>
</table>

**Time**
Timestamp of when the event occurred.

**Identifier**
A unique identifier for this message. It is generated when the event is generated.

**Message**
The event message text. It contains details relating to the event.

Click on an Event to see the entire message appear in the box at the bottom.
Figure 2.35. Event detail shown

<table>
<thead>
<tr>
<th>Time</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/19/2020 15:13:51 CST</td>
<td>3285  joouserman@192.168.221.215 successful account log in.</td>
</tr>
<tr>
<td>02/19/2020 11:19:55 CST</td>
<td>3284  Job 3 Project pql dataset 201911041031 recall from b...</td>
</tr>
<tr>
<td>02/19/2020 09:30:15 CST</td>
<td>3283  joouserman@192.168.221.215 successful account log in.</td>
</tr>
<tr>
<td>02/18/2020 15:40:25 CST</td>
<td>3282  joouserman@192.168.221.215 successful account log in.</td>
</tr>
<tr>
<td>02/18/2020 14:58:56 CST</td>
<td>3281  joouserman@192.168.221.215 successful account log in.</td>
</tr>
<tr>
<td>02/04/2020 15:35:31 CST</td>
<td>1260  joouserman@192.168.221.215 successful account log in.</td>
</tr>
<tr>
<td>02/04/2020 14:55:26 CST</td>
<td>1252  Log in failure, account password expired for user joouser...</td>
</tr>
<tr>
<td>02/04/2020 14:55:48 CST</td>
<td>1251  Log in failure, account password expired for user joouser...</td>
</tr>
<tr>
<td>02/04/2020 14:55:26 CST</td>
<td>1250  Log in failure, max failed login attempts reached for user...</td>
</tr>
</tbody>
</table>

Log in failure, max failed login attempts reached for user joouserman@192.168.221.215.
2.6. Endpoints Menu

Select **Endpoints** from the HPSS Storage Broker Main Menu to display the available options:

**Figure 2.36. Endpoints menu window**

2.6.1. View Endpoint Status

Select **View Status** from Endpoints drop-down list. This will launch the "Endpoints Status and Credential Configuration" window:

**Figure 2.37. Endpoints Status and Credential Configuration window**

2.6.1.1. Add Credential

Select the desired endpoint from the Endpoints Status and Credential Configuration window and click the **Add** button.

This will launch the **Add Endpoint Credential** window:
Figure 2.38. Add Endpoint Credential window

![Add Endpoint Credential window]

**Project**
The project to associate with the credential. To add the user credential of the current user to the endpoint, select "N/A". If adding a project credential, select the project name you want to associate with the credential.

Only projects that have not been assigned a credential and the user is assigned an owner role on the project will be available for selection.

**Username**
Username to be used when accessing the storage endpoint.

**Password**
Password to be used when accessing the storage endpoint.

**Confirm Password**
Confirmation password value must match the value entered in the "Password" field.

**Expiration Date**
Select the date the credential will expire and no longer be able to access the storage endpoint. This field is optional.

Fill out the required fields and click the Add button.

If the credential is added successfully, then the following Info window appears:
2.6.1.2. Update Credential

Select the desired endpoint credential to update and click the Update button. This will launch the "Update Endpoint Credential" window:

Update Endpoint Credential Window Fields

**Project**
- The project associated with the credential. Note, if updating the user credential this field will not be shown.

**Username**
- Username used when accessing the storage endpoint.

**Password**
- Password used when accessing the storage endpoint.
Confirm Password
Confirmation password value should match the value entered in the "Password" field.

Expiration Date
Select the date the user credential will expire and no longer be able to access the storage endpoint. This field is optional.

Update the fields and then click the Update button. If the credential is successfully changed the following "Info" window appears:

Figure 2.41. Update Endpoint Credential success window

2.6.1.3. Delete Credential
Select the desired credential and click the Delete button. The confirm delete window will appear:

Figure 2.42. Confirm delete of Endpoint Credential window

Press the Yes button to confirm, or the No button to cancel the request.

2.6.2. Explore
Select "Explore" from Endpoints menu window. This will launch the "Endpoint Explorer" window:
Figure 2.43. Endpoint Explorer Window

The **Endpoint Explorer** window allows you to browse the contents of a static endpoint. From the drop-down list, select the desired endpoint you wish to view.
Figure 2.44. Endpoint Explorer Window

From this window you can browse the objects stored on the endpoint. You can right-click an object and either select **Delete** to delete the object, select **Properties** to view the properties (for example, Size) of the object, or select **Import** to import an archive file as a dataset.

The **Import** option is only available if the static endpoint has been defined as an import source on a policy and the object is an archive file such as an htar or tar file. Refer to the "Storage policy configuration" section of the *HPSS Storage Broker Administrator’s Guide* for more information regarding the configuration of an import source.
Figure 2.45. Endpoint Explorer Properties Window

<table>
<thead>
<tr>
<th>Properties</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Path:</td>
<td>treefrog.txt</td>
</tr>
<tr>
<td>Size:</td>
<td>9</td>
</tr>
<tr>
<td>Created:</td>
<td>2020-01-15T14:22:18.597-06:00</td>
</tr>
<tr>
<td>Modified:</td>
<td>2020-01-15T14:22:18.597-06:00</td>
</tr>
</tbody>
</table>

Metadata

Permissions: Private
Expires: 2021-05-14T08:46:14.889-05:00

2.6.2.1. Import Dataset

Figure 2.46. Endpoint Explorer Import Dataset Window

Source: core.tar
Source Type: TAR
Source Management Type: USER
Can access archive?

Dataset Name
Dataset Description
Project
Storage Policy
Metadata file
Metadata Description

[Import] [Cancel]
Import Dataset Fields

Source
Not editable. The filename of the archive file to be imported.

Source Type
The type of archive file being imported. Currently only TAR and HTAR types are supported.

Source Management Type
Indicates how the imported files will be managed. Currently the only management type available is USER. This type has the following characteristics:

1. The archive file owner is responsible for managing the data.
   a. If the file is deleted before the HSB dataset is deleted then the data will not be accessible using HSB.
   b. If the file permissions change, HSB may not be able to access the data.
   c. When the HSB dataset is deleted the archive file will not be deleted.

2. A directory for the dataset will be created under the HSB project. It will contain a HSB magic file and the dataset catalog.

3. The original archive file will remain with the original owner and group permissions.

4. An HPSS extended attribute will be added to the archive file to indicate it has been imported into HSB.

Can access archive
Selecting this indicates that an import using this source may read the archive, as opposed to reading the index file, during the import. For TAR import types selecting this is necessary. For HTAR import types the normal behavior is to read the archive contents from the HTAR index file, which is typically stored on fast random access storage.

Dataset Name
The name of the dataset. The maximum size of this field is 2000 characters. Must be unique within a project.

Dataset Description
Not editable.

Project
The name of the project that will contain the created dataset.

Storage Policy
The policy to use when creating the dataset. Only policies that are associated with a project and have an import source defined in the policy for the archive Source Type will appear in the drop down list. Refer to the "Storage policy configuration" section of the HPSS Storage Broker Administrator's Guide for more information regarding the configuration of an import source.

Metadata File
XML metadata to associate with this dataset. Select the folder icon, browse to the location of the XML file and select it.
Metadata Description

Description of the attached metadata. The maximum size of this field is 2048 characters.
2.7. Account Menu

Select Account from the HPSS Storage Broker Main Menu to display the available options:

Figure 2.47. Account menu option window

This will launch the "Account - Profile" window:

Figure 2.48. Account Profile window

2.7.1. User Fields

First Name
   Required. First name of this user. Max size 256 characters.

Last Name
   Required. Last name of this user. Max size 256 characters.

Office Address
   Office address for this user. Max size 256 characters.

Office Phone
   Office phone number for this user. Max size 32 characters.

Mobile Phone
   Mobile phone number of this user. Max size 32 characters.
Email
Required. Email address for this user. Max size 256 characters.

Enter the fields as necessary then click the Save button or cancel the changes by clicking the Cancel button.

Press the Change Password button to launch the "Change User Password" window:

Figure 2.49. Change User Password window

Fill in the password fields then click the "OK" to save the new password or click the Cancel button to cancel the changes.
2.8. Window Menu

Select **Window** from the HPSS Storage Broker Main Menu to display the available options:

**Figure 2.50. Window menu option window**

Select "Close All Windows" to close all open HSB Client GUI windows.
2.9. Help Menu

Select **Help** from the HPSS Storage Broker Main Menu to display the available options:

**Figure 2.51. Help menu option window**

![Help menu option window](image)

2.9.1. About

Select "About" to launch the "About HPSS Storage Broker" window. From this window you can view the version of the HSB client GUI.

**Figure 2.52. About window**

![About window](image)

2.9.2. Data Privacy

Select "Data Privacy" to launch the "View Privacy Notice" window:
When you log on to the client GUI for the first time or if a new privacy notice was created since your last log on attempt, you must "Accept" the privacy notice presented to them before they are allowed to use the client GUI. The "View Privacy Notice" window allows the user to review the most recently accepted privacy notice.
Chapter 3. Scenarios
3.1. Create Dataset

Follow these steps to create a new dataset:

1. Select "List" from the Projects menu option:

**Figure 3.1. HSB Client GUI main menu**

This will launch the Project datasets window:

**Figure 3.2. Project datasets window**

2. Click the **Create Dataset** button. This will launch the "Create Dataset" window:
Figure 3.3. Create dataset window

a. Enter the Dataset Name.

b. Select the storage policy to use.

c. Select the endpoint containing the source files.

d. Select the directories or files, or both, to include in the dataset and click the Add button.
   i. This will add the components selected from the source endpoint (in left box) to the "Dataset Manifest" box on the right.

3. Click the Create button. A message window will appear with the request id number for the dataset create job submitted.

For additional details see Create Datasets in Chapter 2.
3.2. Recall Entire Dataset

Follow these steps to recall the entire contents of a dataset:

1. Double-click on the dataset you want to recall from the "Project Datasets" window:

Figure 3.4. Project Datasets window

This will open the Dataset Contents window:
2. Click the **Recall Dataset** button. This will launch the "Recall Dataset" window.
3. Select the desired endpoint for the dataset to be recalled to.

4. Select the desired recall target directory, or select the desired directory in which to create a new target and click the **New Folder** button (/button) and enter the new folder name.

5. Click the **Recall Dataset** button.

For additional details see **Recall Dataset window**.
3.3. Partial Recall of Dataset

Follow these steps to recall a select set of objects from the dataset:

1. Double-click on the desired dataset from the "Project Datasets" window:

Figure 3.7. Project datasets window

This will open the "Dataset Contents" window:
2. Select the set of objects to recall by individually clicking on each object to select it. If multiple pages of objects exist in the dataset the page forward ">" and page backward "<" buttons can be used to navigate between pages. Individual items can be deselected by clicking on the object again or the Clear Selection button can be clicked to clear all selections. After selecting the objects to recall click the Recall Selected button. This will launch the "Recall Dataset" window.
3. Select the desired endpoint for the dataset to be recalled to.

4. Select the desired recall target directory, or select the desired directory in which to create a new target and click the **New Folder** button and enter the new folder name.

5. Click the **Recall Dataset** button.

For additional details see Recall Dataset in Chapter 2.
3.4. Delete Dataset

Follow these steps to delete a dataset:

1. Select the desired dataset from the "Project Datasets" window:

   **Figure 3.10. Project datasets window**

   ![Project datasets window]

2. Click the **Delete Dataset** button. This will launch

   **Figure 3.11. Confirm dataset deletion confirmation message**

   ![Confirm deletion]

3. Click the **Yes** button to delete the dataset, or the **No** button to cancel the dataset delete request.
3.5. Add User to Project

Follow these steps to add a User to a Project:

1. Select "List" from the Projects menu option:

Figure 3.12. HSB Client GUI main menu

This will launch the Project datasets window:

Figure 3.13. Project datasets window

2. Select the "Users" tab. This will change to the Project Users window:
Figure 3.14. Project users window

3. Click the Add User button. This will launch the "Add User" window:

Figure 3.15. Project add user window

4. Specify the Username and Role then click the Add button to add the user, or click the Cancel button to cancel the "Add User" request.

For additional details see Project Users in Chapter 2.
3.6. Change a User’s Role on a Project

Follow these steps to change a User’s role on a Project:

1. Select "List" from the Projects menu option:

   **Figure 3.16. HSB Client GUI main menu**

   ![HSB Client GUI main menu](image)

   This will launch the Project datasets window:

   **Figure 3.17. Project datasets window**

   ![Project datasets window](image)

2. Select the "Users" tab. This will change to the Project Users window:
3. Click the Change User button. This will launch the "Change User Role" window:

**Figure 3.19. Project change user role window**

4. Specify the new Role then click the Change Role button.

For additional details see Project Users in Chapter 2.
3.7. Remove a User from a Project

Follow these steps to change a User's role on a Project:

1. Select "List" from the Projects menu option:

Figure 3.20. HSB Client GUI main menu

This will launch the Project datasets window:

Figure 3.21. Project datasets window

2. Select the "Users" tab. This will change to the Project Users window:
3. Select the desired User to remove and then click the Remove User button. This will launch the "Remove User" confirmation window:

**Figure 3.23. Remove user window**

4. Click "Yes" to confirm the "Remove User" request or "No" to cancel it.

For additional details see Project Users in Chapter 2.
3.8. Configure User Endpoint Credentials

Follow these steps to configure a User's Endpoint credentials:

1. Select "View Status" from the Endpoints menu option:

   **Figure 3.24. HSB Client GUI main menu**

   ![HSB Client GUI main menu](image)

   This will launch the "Endpoint Status and Configuration" window:

   **Figure 3.25. Endpoint status and configuration panel**

   ![Endpoint status and configuration panel](image)

2. Select the endpoint from the left panel. This will populate the right panel with user that have credentials for the selected endpoint.

3. Select the desired User to update or delete or click the Add User button to add user credentials for the selected endpoint.

   a. To update a user's credentials click the Update User button. This will launch the "Update User Endpoint Credential" window:
i. Enter the new **Password** and **Expiration Date** and click the **Update** button to update the credentials or the **Cancel** button to cancel the credential update.

   a. To delete a user’s credentials click the **Delete User** button. This will launch the "Delete User Confirmation" window:

**Figure 3.27. User credential deletion confirmation message**

4. Click "Yes" to confirm the "Delete User" request or "No" to cancel it.

For additional details see Endpoints Status and Configuration in Chapter 2.
3.9. Abort a Job

Follow these steps to abort a job:

1. Select "Jobs List" from the Jobs menu option:

   Figure 3.28. HSB Client GUI main menu

   This will launch the "Jobs" list window

   Figure 3.29. Jobs window

2. Select the desired job to abort and click the **Abort Job** button. This will launch the Abort Job Confirmation window. Click the **Yes** button to confirm aborting the job or the **No** button to cancel the abort request.
### Appendix A. Glossary of terms and acronyms

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABRT</td>
<td>Automatic Bug detection and Reporting Tool</td>
</tr>
<tr>
<td>Catalog</td>
<td>A complete list of the files, objects, directories, containers and chunks that comprise a Managed Dataset. This list is stored in a catalog file.</td>
</tr>
<tr>
<td>Class of Service</td>
<td>A set of storage system characteristics used to group HPSS bitfiles with similar logical characteristics and performance requirements together. A Class of Service is supported by an underlying hierarchy of storage classes.</td>
</tr>
<tr>
<td>Chunk</td>
<td>Contiguous data within a managed dataset. Fragments are composed of one or more chunks. Fragments can be broken into multiple chunks to facilitate device storage capacity limitations.</td>
</tr>
<tr>
<td>Copier</td>
<td>Component of the HSB service that creates and recalls managed datasets and lists contents of storage endpoints.</td>
</tr>
<tr>
<td>COS</td>
<td>Class of Service</td>
</tr>
<tr>
<td>CRC</td>
<td>Cyclic Redundancy Check</td>
</tr>
<tr>
<td>Credential expirer</td>
<td>Component of the HSB server that monitors endpoint credentials and notifies the user when credentials are older than the configured expiration period.</td>
</tr>
<tr>
<td>Db2</td>
<td>A relational database system, a product of IBM Corporation, used by HSB to store and manage HSB system metadata.</td>
</tr>
<tr>
<td>Directory, Container</td>
<td>The container components of a file system and object store, respectively.</td>
</tr>
<tr>
<td>DNS</td>
<td>Domain Name Service</td>
</tr>
<tr>
<td>DOE</td>
<td>Department of Energy</td>
</tr>
<tr>
<td>ECC</td>
<td>Error Correction Code</td>
</tr>
<tr>
<td>EOM</td>
<td>End of Media</td>
</tr>
<tr>
<td>File, Object</td>
<td>Data components of a file system and object store, respectively.</td>
</tr>
<tr>
<td>File family</td>
<td>An attribute of an HPSS file that is used to group a set of files on a common set of tape virtual volumes.</td>
</tr>
<tr>
<td>Fragment</td>
<td>Logically contiguous data within a managed dataset. Managed datasets can be fragmented into some number of relatively equal pieces to facilitate increased transfer performance via concurrent, parallel transfers and provide redundancy via the generation of parity fragments.</td>
</tr>
<tr>
<td>FTP</td>
<td>File Transfer Protocol</td>
</tr>
<tr>
<td>GUI</td>
<td>Graphical User Interface</td>
</tr>
<tr>
<td>HADR</td>
<td>Db2 High Availability Disaster Recovery</td>
</tr>
<tr>
<td>HPSS</td>
<td>High Performance Storage System</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>HPSS bitfile</strong></td>
<td>A file stored in HPSS, represented as a logical string of bits unrestricted in size or internal structure. HPSS imposes a size limitation in 8-bit bytes, based upon the maximum size in bytes that can be represented by a 64-bit unsigned integer.</td>
</tr>
<tr>
<td><strong>HPSS Storage Broker (HSB)</strong></td>
<td>High Performance Storage System Storage Broker</td>
</tr>
<tr>
<td><strong>HSB service</strong></td>
<td>On-premise service that allows users to copy data between defined storage systems in a high-performance manner.</td>
</tr>
<tr>
<td><strong>HTTP</strong></td>
<td>Hyper Text Transmission Protocol</td>
</tr>
<tr>
<td><strong>IBM</strong></td>
<td>International Business Machines Corporation</td>
</tr>
<tr>
<td><strong>IEEE</strong></td>
<td>Institute of Electrical and Electronics Engineers</td>
</tr>
<tr>
<td><strong>Instance</strong></td>
<td>Instance of a HSB project name space.</td>
</tr>
<tr>
<td><strong>I/O</strong></td>
<td>Input/Output</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td>Internet Protocol</td>
</tr>
<tr>
<td><strong>ISA</strong></td>
<td>Intel ® Intelligent Storage Acceleration</td>
</tr>
<tr>
<td><strong>JRE</strong></td>
<td>Java Runtime Environment</td>
</tr>
<tr>
<td><strong>LAN</strong></td>
<td>Local Area Network</td>
</tr>
<tr>
<td><strong>LANL</strong></td>
<td>Los Alamos National Laboratory</td>
</tr>
<tr>
<td><strong>LBP</strong></td>
<td>Logical Block Protection</td>
</tr>
<tr>
<td><strong>LDAP</strong></td>
<td>Lightweight Directory Access Protocol</td>
</tr>
<tr>
<td><strong>LLNL</strong></td>
<td>Lawrence Livermore National Laboratory</td>
</tr>
<tr>
<td><strong>LTO</strong></td>
<td>Linear Tape-Open. A half-inch open tape technology developed by IBM, HP, and Seagate.</td>
</tr>
<tr>
<td><strong>Manifest</strong></td>
<td>A listing of the files and objects that comprise a managed dataset.</td>
</tr>
<tr>
<td><strong>MAC</strong></td>
<td>Mandatory Access Control</td>
</tr>
<tr>
<td><strong>Managed Data Set (MDS)</strong></td>
<td>Immutable collection of files or objects managed by the HSB service. Managed data sets are intended as a mechanism to group logically associated data and emphasize the desirable characteristics of high-latency, high-capacity storage. User-defined metadata can be associated with each managed dataset to facilitate efficient location and retrieval.</td>
</tr>
<tr>
<td><strong>Name space</strong></td>
<td>An organization of projects and managed datasets, so that these components can be referred to by name.</td>
</tr>
<tr>
<td><strong>NASA</strong></td>
<td>National Aeronautics and Space Administration</td>
</tr>
<tr>
<td><strong>NASM</strong></td>
<td>Netwide Assembler is an assembler for the x86 CPU architecture.</td>
</tr>
<tr>
<td><strong>NERSC</strong></td>
<td>National Energy Research Supercomputer Center</td>
</tr>
<tr>
<td><strong>NIS</strong></td>
<td>Network Information Service</td>
</tr>
<tr>
<td><strong>NLS</strong></td>
<td>National Language Support</td>
</tr>
<tr>
<td><strong>NSL</strong></td>
<td>National Storage Laboratory</td>
</tr>
<tr>
<td><strong>ORNL</strong></td>
<td>Oak Ridge National Laboratory</td>
</tr>
<tr>
<td><strong>PFTP</strong></td>
<td>Parallel extensions to File Transfer Protocol supported by HPSS</td>
</tr>
<tr>
<td><strong>Term</strong></td>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PFTPD</td>
<td>PFTP Daemon</td>
</tr>
<tr>
<td>POSIX</td>
<td>Portable Operating System Interface (for computer environments).</td>
</tr>
<tr>
<td>Project</td>
<td>Used to group managed datasets in the HSB name space and provide access control. Users can be granted specific permissions for a project and by association permissions on managed datasets in the project. Projects represent a static name space container. All managed datasets associated with a project are located within the project’s HSB name space container.</td>
</tr>
<tr>
<td>RAO</td>
<td>Recommended Access Order</td>
</tr>
<tr>
<td>Repository Storage endpoint</td>
<td>Storage system that can be used by the HSB service as a target for managed dataset creation requests or a source for managed dataset recall requests. These endpoints are represented in HSB service configuration data.</td>
</tr>
<tr>
<td>Request processor</td>
<td>Component of the HSB service that manages resources and schedules requests.</td>
</tr>
<tr>
<td>Server</td>
<td>HSB server is the component of the HSB service that orchestrates data transfers, provides metadata management, and graphical user interfaces for administrators and users.</td>
</tr>
<tr>
<td>SNIA</td>
<td>Storage Networking Industry Association</td>
</tr>
<tr>
<td>SNL</td>
<td>Sandia National Laboratories</td>
</tr>
<tr>
<td>SSL</td>
<td>Secure Sockets Layer</td>
</tr>
<tr>
<td>Storage Policy</td>
<td>Defines storage characteristics and retrieval behavior for Managed Datasets, including repository storage endpoints, number of copies, fragmentation, parity, preferred recall copy, and recall priority.</td>
</tr>
<tr>
<td>Static storage endpoint</td>
<td>Storage endpoint that is represented in the system by configuration data that is used to connect to and access the storage system. These endpoints are used as data sources for managed dataset create requests and targets for managed dataset recall requests.</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>Transmission Control Protocol/Internet Protocol</td>
</tr>
<tr>
<td>TLS</td>
<td>Transport Layer Security</td>
</tr>
<tr>
<td>UDA</td>
<td>User-Defined Attribute</td>
</tr>
<tr>
<td>URI</td>
<td>Uniform Resource Identifier</td>
</tr>
<tr>
<td>User</td>
<td>An identity registered with the HSB system.</td>
</tr>
<tr>
<td>UUID</td>
<td>Universal Unique Identifier</td>
</tr>
<tr>
<td>Web services</td>
<td>Web service component providing HTTP communication with the HSB service.</td>
</tr>
<tr>
<td>XML</td>
<td>Extensible Markup Language</td>
</tr>
<tr>
<td>YASM</td>
<td>The Yasm Modular Assembler Project. A complete rewrite of the NASM assembler under the new BSD license.</td>
</tr>
</tbody>
</table>
Appendix B. References

1. HPSS Storage Broker Installation Guide, current release
2. HPSS Storage Broker Administrator’s Guide, current release
Appendix C. Developer acknowledgments

HPSS Storage Broker is a product of a government-industry collaboration. The project approach is based on the premise that no single company, government laboratory, or research organization has the ability to confront all of the system-level issues that must be resolved for significant advancement in high-performance storage system technology.

HPSS Storage Broker development was performed jointly by IBM Worldwide Government Industry, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, NASA Langley Research Center, Oak Ridge National Laboratory, and Sandia National Laboratories.