

Learning to Use *POINT*'s Batch Job Scheduler By Example

*A Quick Version of the
POINT User Guide*

May 2006

LEHMAN BROTHERS

For Further Information

This manual is a revised and abridged version of a larger document, the *Learning POINT by Example*. To facilitate quick learning, this manual presents concise explanations of basic batch functions. For comprehensive information about other POINT functions, please refer to the POINT User Guide available within POINT.

For assistance, please call your regional *POINT* Help Desk:

- New York: 212-526-1234.
- London: 44-20-7102-2220.
- Tokyo: 81-3-5571-7447.
- Hong Kong: 852-2869-3073.

Batch Scheduling

Introduction

The Batch Job Scheduler allows you to automate the running of reports and portfolio maintenance functions. Batch jobs can be run as standalone functions or as job groups with user-defined job sequencing. In addition, reports and functions can be run as one-time jobs on a specified date or as recurring jobs to be run on a specified period (i.e., daily, weekly, monthly, etc).

Functions

The Batch Job Scheduler provides these functions:

- *Portfolio maintenance* functions can be automated by using the batch scheduler for importing positions, transactions, and pricing files
- *Reporting* functions can be automated for Market Structure, Portfolio Positions, Index Contents, Risk Analysis, and Hybrid Performance Attribution.
- *Securitized Pricing and Analytics* automates functions that can also be performed through the standard user interface. It also provides a method for calculating advanced analytics for securitized instruments.
- The *Scenario Analysis* function can be used to generate pricing and/or analytics based on standard or predefined scenarios.

Scheduling

Functions and reports can be run as one-time batch jobs on a specified date, or recurring jobs on a designated schedule. Batch jobs are scheduled within POINT but are executed off-line at Lehman Brothers on the date specified by the user without any further user interaction. Jobs can be scheduled to run once, or on a recurring basis: daily, weekly, or monthly. When a job has run successfully the user will be sent an email notification with a log file for the job.

Job Management

At any one time, a user may have numerous jobs running on different schedules: import jobs, report jobs, one-time jobs, daily and weekly jobs, and job groups. To help you keep track of job schedules and status, the system provides a set of job management tools that help you to organize scheduled jobs under customized folders, check job status, identify failed jobs, edit completed or failed jobs, and rerun jobs as desired.

FTP Processing

To facilitate uploading and downloading tasks (such as uploading import files for portfolio pricing and downloading the updated portfolio contents) the system provides a dedicated and secure FTP site for POINT users.

Access Requirements

The Batch Scheduler system is not enabled by default and requires specific authorization and entitlement. Please contact your Lehman Brothers representative to see if your firm is eligible for this feature. When activated, access to this feature is provided from the *Batch Job Scheduler* option in the *Tools* menu.

Example 1: Batch Importing

We have illustrated the procedure for importing user prices to a portfolio (see page 6 under the help topic *Using Portfolios* found in the *Point User Guide*). Now let us assume that you would like to schedule an automated job to perform the same process at designated times.

Step 1: Create the Import File

Set up a pricing import file in the required format. For the purposes of this example, we will use the file displayed below.

Security_Identifier	Effective_Date	Quote_Type	Quote_Value
001957AY	1/31/2005	PRICE	106.23
013817AF	1/31/2005	PRICE	108.68
025537AA	1/31/2005	PRICE	103.61
FNA05403	1/31/2005	PRICE	102.34
FNA06003	1/31/2005	PRICE	102.81
31371LSB	1/31/2005	PRICE	103.84
GNB06402	1/31/2005	PRICE	104.51
MCFI97-MC2:A2	1/31/2005	PRICE	103.96

Step 2: Verify the Import Location

In this example, we assume that you have copied the import file to the Lehman FTP site. For more information please contact pointhelp@lehman.com.

Step 3: Define the Import Prices Job Template

To define the import job, select *Tools>Batch Job Scheduler*, then click on *Create New>Import Pricing*. The system displays the *New Job (Pricing)* dialog.

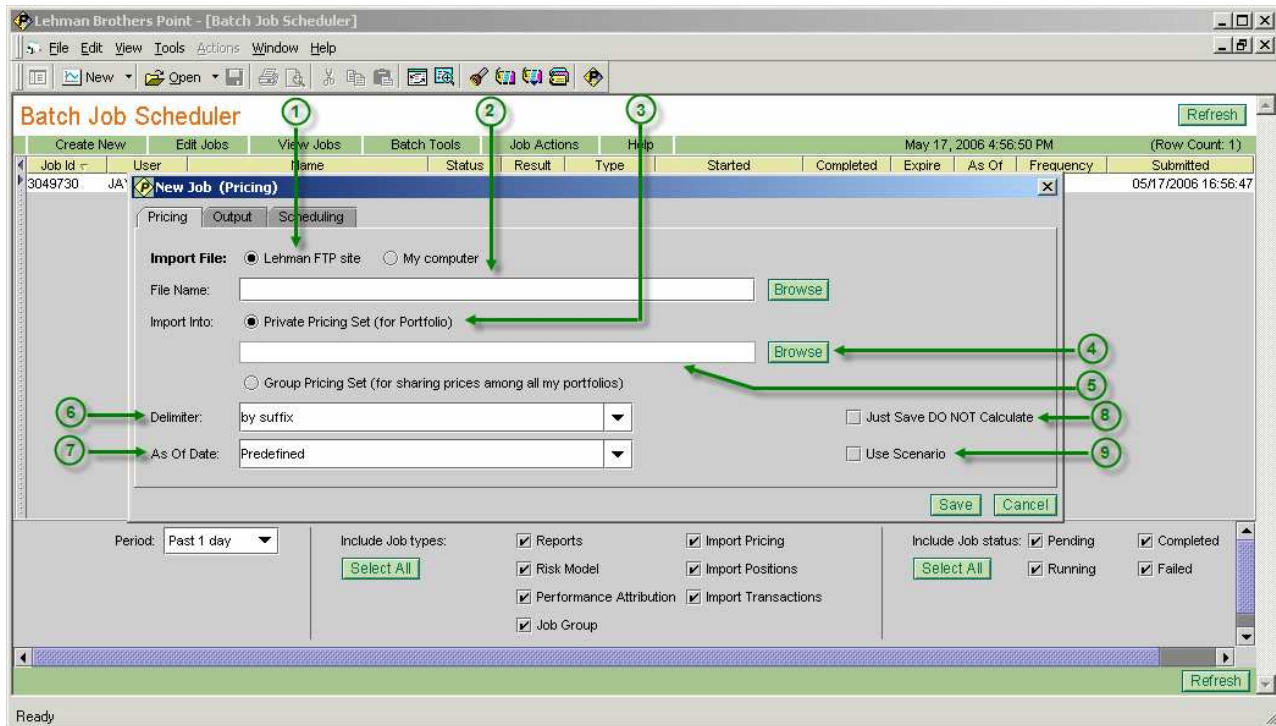
To define the import job, fill in the settings in the different tabs of the *New Job (Pricing)* dialog. The numbered items in this example refer to the numbered instructions and definitions below.

To complete the pricing job definition dialog, enter these settings:

Under the *Pricing* tab,

1. To import from the Lehman Brothers FTP site, select the *FTP* setting.
2. Type in the name of the file on the FTP site in the space next to *File Name*.
3. Check the option that reads *Private Pricing Set (for Portfolio)* to import the prices for one portfolio only. This will expand the line so that a portfolio can be selected.
4. To select a portfolio, click on the second *Browse* button. The system displays the name of the portfolio that has been selected
5. The system displays the name of the portfolio that has been selected.
6. The *Delimiter* option can be used to specify the format of the upload file. If left set to *by suffix* the system will determine the file format automatically.
7. Use the *As of Date* setting to define the effective date for the imported prices. If the date is defined in the pricing file (as in our example) leave the field set to *Predefined*.
8. The *Just Save DO NOT Calculate* setting determines whether analytic calculations will be processed. In this example, *do not select* (or, if necessary, *deselect*) the *DO NOT Calculate* setting. The system will use the LehmanLive standard models to calculate analytics based on the quote type in the import file.

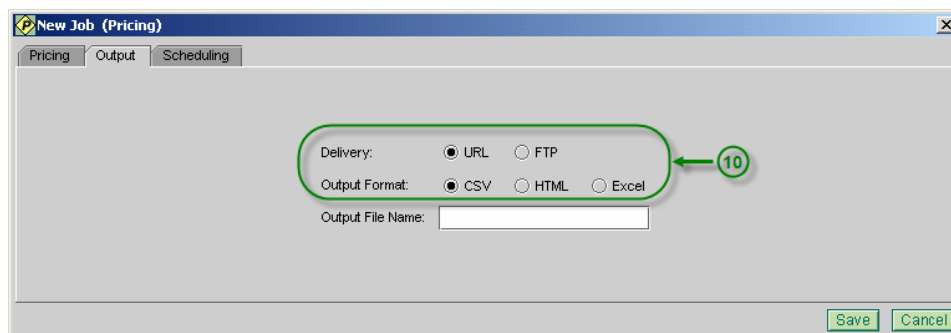
9. The *Use Scenario* setting determines whether analytic calculations will be performed for specified economic scenarios. Selecting this setting creates another tab *Scenario Details* visible within the pricing dialog. In this example, *do not select* (or, if necessary, deselect) the *Use Scenario* setting.



Import Prices Job Dialog

Under the *Output* tab,

10. Use these fields to specify the *Delivery* method and the *Output Format* of the output file.



Under the *Scheduling* tab,

11. Use these fields to schedule the job:

- The *Frequency* field defines the batch job frequency: once, daily, weekly, etc.
- The *Scheduled Start* setting determines the first run date of the batch job. Any recurring jobs will run on the frequency chosen from the start date. For example, if you want a job to run monthly on the first of each month, you must specify the *Frequency* to be monthly and the *Scheduled Start* to be the first day of the next month. If a job is set to run on a date in the past, it will begin processing immediately.

12. Confirm that the email address listed is correct. To have the output sent to multiple email addresses, list them here separated by semicolons.

13. Click on the *Save* button to initiate the batch job processing. The system creates a batch job record, places the job in the batch job queue, and runs the job on the specified date. The saved job appears in the job queue on the Batch Scheduler screen.

The screenshot shows a software window titled "New Job (Pricing)". It has three tabs: "Pricing", "Output", and "Scheduling". The "Scheduling" tab is selected. Inside the window, there are three input fields. The first is a dropdown menu labeled "Frequency" with "Once" selected; a green circle with the number 11 points to it. The second is a date field labeled "Scheduled Start" with the date "05/11/2006"; a green circle with the number 12 points to it. The third is a text field labeled "Email" with the address "smith@xyz.com"; a green circle with the number 13 points to it. At the bottom right of the window are two buttons: "Save" and "Cancel". A green circle with the number 13 also points to the "Save" button.

Step 4: Check the Batch Job Results

You can use the job queue and associated tools for checking the status of the batch job while it is running, determine when the job has completed, and check the job status after it has completed. (See *Example 4: Checking Job Status* on page 13).

Step 5: Check the Import Results

A successful batch job completion status does not necessarily indicate that all of the prices in the import file have been imported successfully. You still need to check the portfolio results and decide how to address failed analytic calculations. This process is explained in the *Point User Guide*, in the chapter *Using Portfolios*, pages 31-52.

Example 2: Batch Reporting

We have illustrated the procedure for creating a market structure report (in the *Using Reports* chapter of the *POINT User Guide*). Now, we would like to schedule an automated job to run the same report at designated times.

Step 1: Create the Report Template

Set up a report template file in the desired format. (See the chapter on *Using Reports*.) You will need to *Save* the report in order to run it in Batch.

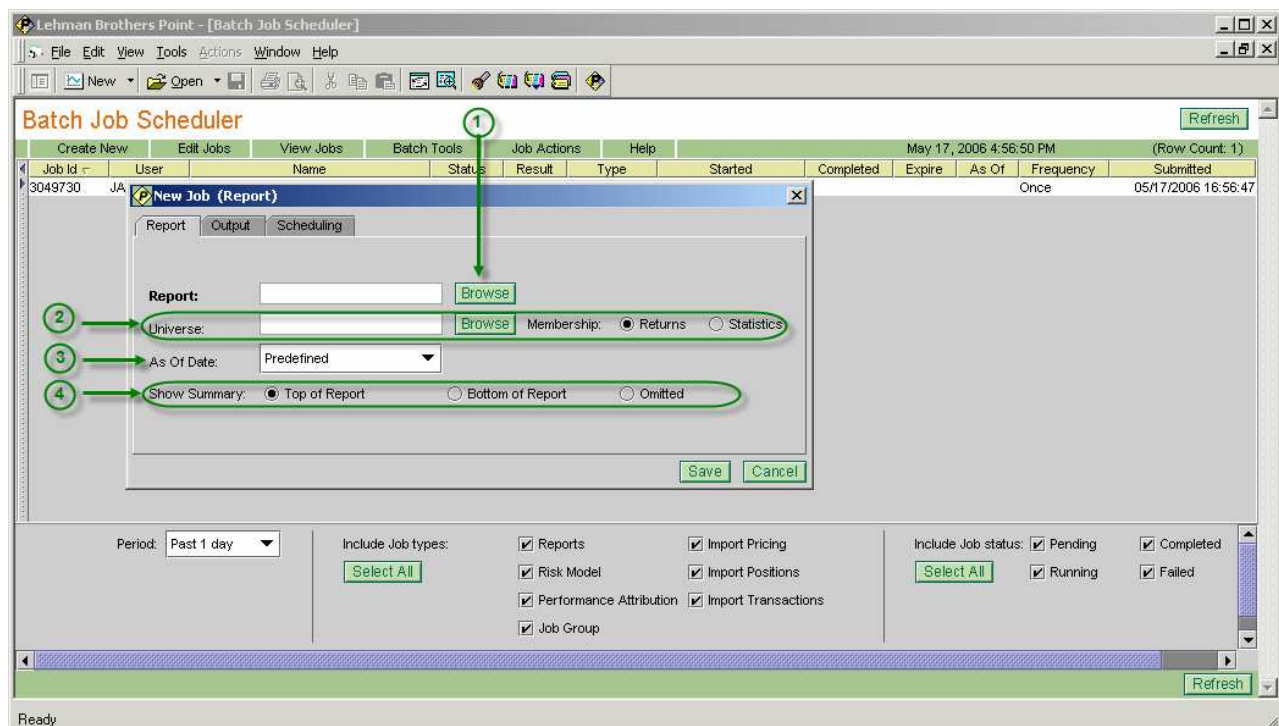
Step 2: Define the Report Job Template

To define the report job, select *Create New > Report*, and fill in the settings on the *New Job (Report)* batch job definition dialog. The numbered items refer to the numbered instructions and definitions.

To complete the report job definition dialog, enter these settings:

Under the *Report* tab,

1. Click on the *Browse* button next to where it says *Report*. The system displays the *Open Report* dialog box and allows you to select a predefined and saved report. Select a saved Market Structure report.
2. The *Universe* settings can be omitted if the report is already defined with a universe. For an *Index Contents* report or a *Portfolio Positions* report, if a universe is set in this field, it will override the universe defined in the report. This allows users to save time by setting up a report format once, and then reusing it for additional universes. This will not work for a *Market Structure* report.
3. Use the *As of Date* setting to select the date of the report. If the date is specified in the report, leave the setting at *Predefined*. Setting a date here will also override the date in the report for *Portfolio Positions* or *Index Contents*.
4. The *Show Summary* option allows the user to choose where summary information about the report will be displayed.

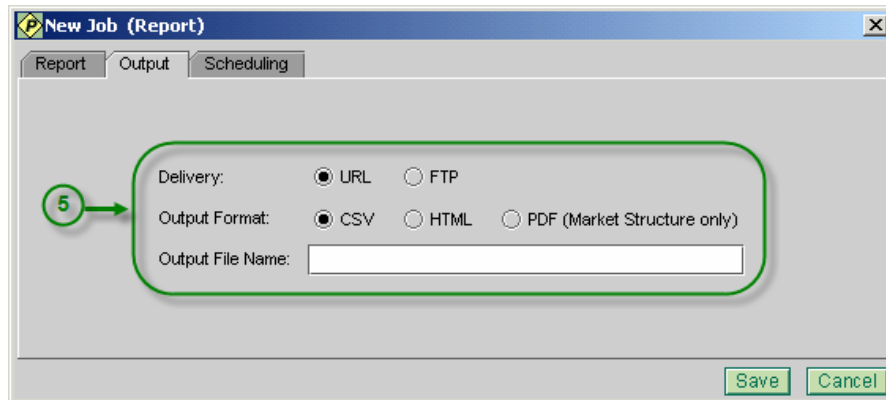


Report Job Dialog

Under the *Output* tab,

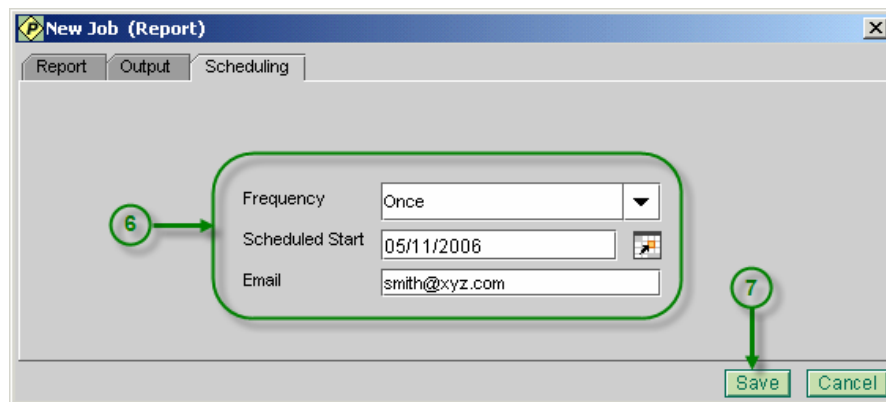
5. Use these fields to specify the *Delivery* options:

- The *Delivery* setting defines the delivery method for the output file.
- The *Format* setting determines the format of the output file.
- The *Output* field allows the user to append a name to the standard output file name.



Under the *Scheduling* tab,

6. Use these fields to schedule the job:
 - The *Frequency* field defines the batch job frequency: daily, weekly, etc.
 - The *Scheduled Start* setting determines the first run date of the batch job.
 - The *Email* setting determines where the output will be sent. Separate multiple addresses by semicolons.
7. Click on the *Save* button to initiate the batch job processing. The system creates a batch job record, places the job in the batch job queue, and runs the job on the specified date. The saved job appears in the job queue on the Batch Scheduler screen.



Step 4: Check the Batch Job Results

When you create a batch job the system automatically places it in the batch queue for processing. You can use various tools for checking the status of the batch job while it is running, determining when the job has completed, and checking the job status after it has completed. (See *Example 4: Checking Job Status* on page 13.)

Step 5: Check the Report Results

A successful batch job completion status does not necessarily indicate that the report has completed successfully. For example, running a batch report on a portfolio with no contents will result in a batch message indicating that the job completed successfully, but the report will still be empty. For this reason, it is advisable to examine the completed report and verify that the content, specification, and formatting are correct.

Example 3: Job Grouping

You can batch jobs into job groups and define the job sequence within the group. In effect, each job in the group is a prerequisite for the next job in the sequence.

For example, suppose that you need to run a weekly process that updates a given portfolio with prices and then runs specified reports. You would create a job group, specifying a pricing upload and then the reporting jobs. If the pricing job fails, the job group processing will be halted.

Step 1: Create the Input Files

Set up or verify the requisite input files for the batch jobs that you want to include in the group. For example, if you want to include a batch Import Prices job, set up the import pricing import file (See *Example 1: Batch Importing* on page 4).

Step 2: Verify the Input File Locations

There are two ways to import or select input files: from your computer, or from the Lehman FTP Site. Verify the location for each requisite input file.

Step 3: Define the Batch Job Group Template

The batch job template contains the selections and options that define a particular batch job group. The system uses this template to create and run the batch job for the job group. Once the job group has been run, you can use the template to rerun the job, or to edit the settings and run the revised job.

To define the template, click on *Create New > Job Group*. Then perform these steps:

Task 1: Create the Job Group

Within the job group definition dialog that has opened up, enter these settings:

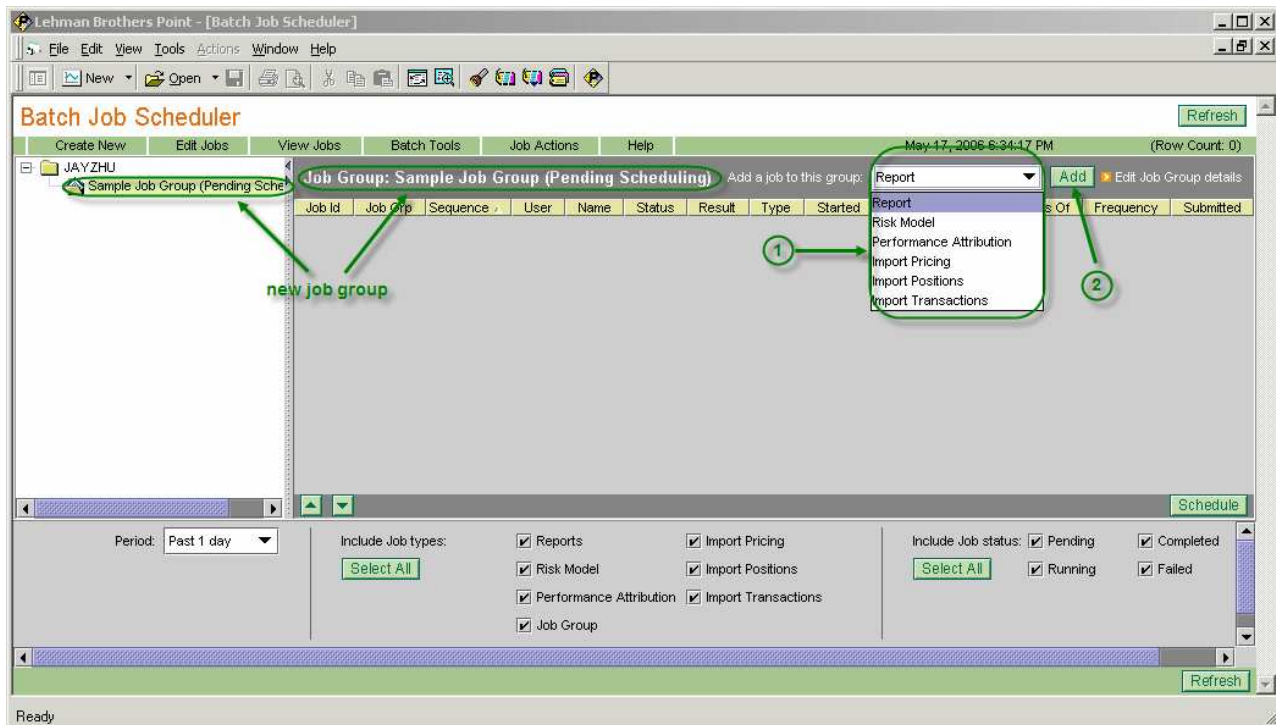
The screenshot shows a dialog box titled "New Job (Job Group)". It has a "Scheduling" tab. The fields are: "Job Name" with the value "Sample Job Group", "Frequency" with a dropdown set to "Once", "Scheduled Start" with the date "05/11/2006", and "Email" with the address "smith@xyz.com". At the bottom are "Save" and "Cancel" buttons. Three green callouts with numbers 1, 2, and 3 are present: callout 1 points to the "Job Name" field, callout 2 points to the "Frequency" and "Scheduled Start" fields, and callout 3 points to the "Save" button.

1. Enter the *Job Group Name*. This name will be used to identify this job in the batch queue.
2. Use the *Frequency* and *Start Date* fields to schedule the job:
3. Confirm that the email address(es) is correct.
4. Click on the *Save* button.

Task 2: Add the Batch Jobs to the Job Group

The job group definition dialog disappears. An empty job group is added to the folder panel on the left side of the Batch Scheduler screen, and is automatically selected. (The job group appears with a special icon, to distinguish from other job folders.) The main job queue (the right panel) is placed in job group mode to display only the sub jobs under

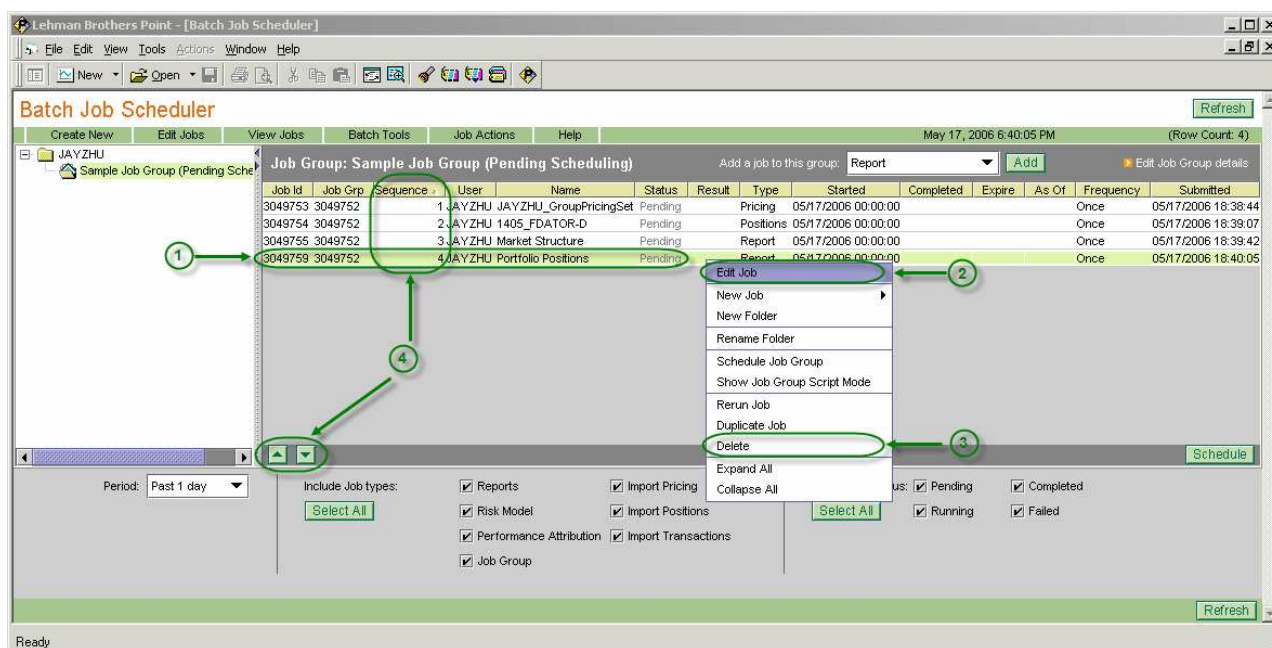
the currently selected job group. Since no batch job has been defined under the new job group yet, the queue is currently empty.



To add a batch job to the group:

1. Select from the drop down the *Job Type* to be defined.
2. Click on the *Add* button.
3. The system displays job template settings for the specified job type. Enter the appropriate settings and save the job. The saved batch job appears in the job queue as a sub job of the currently selected job group. Under the sequence header, the first job will show the value 1.
4. Repeat steps 1 – 3 to add additional batch jobs to the job group. As you continue to add more jobs they will be given a sequence number according to the order in which they were set up.

Task 3: Edit the Job Group



Editing the Job Group List

To edit the contents or sequence of jobs in the job group, click on the name of the job group in the left panel. This will bring up the queue of sub-jobs within the job group.

1. Click on the job record to be edited. The system highlights the selected record.
2. To modify the definition of the selected job record, right-mouse-click and select *Edit Job* from the popup menu.
3. To delete the selected job, right-mouse-click and select *Delete* from the popup menu.
4. To change the sequence of the job in the group list, highlight the job you wish to move and then use the up/down arrow keys in the bottom left of the screen to move the job to the desired position. The queue will be rearranged automatically and the sequence numbers will be updated.
5. To detach a job from the group so that it can be run alone, drag and drop the job from the job table to a folder (such as your ID) under the folder panel on the left. The system places the job in the *Pending* state, waiting to be run.

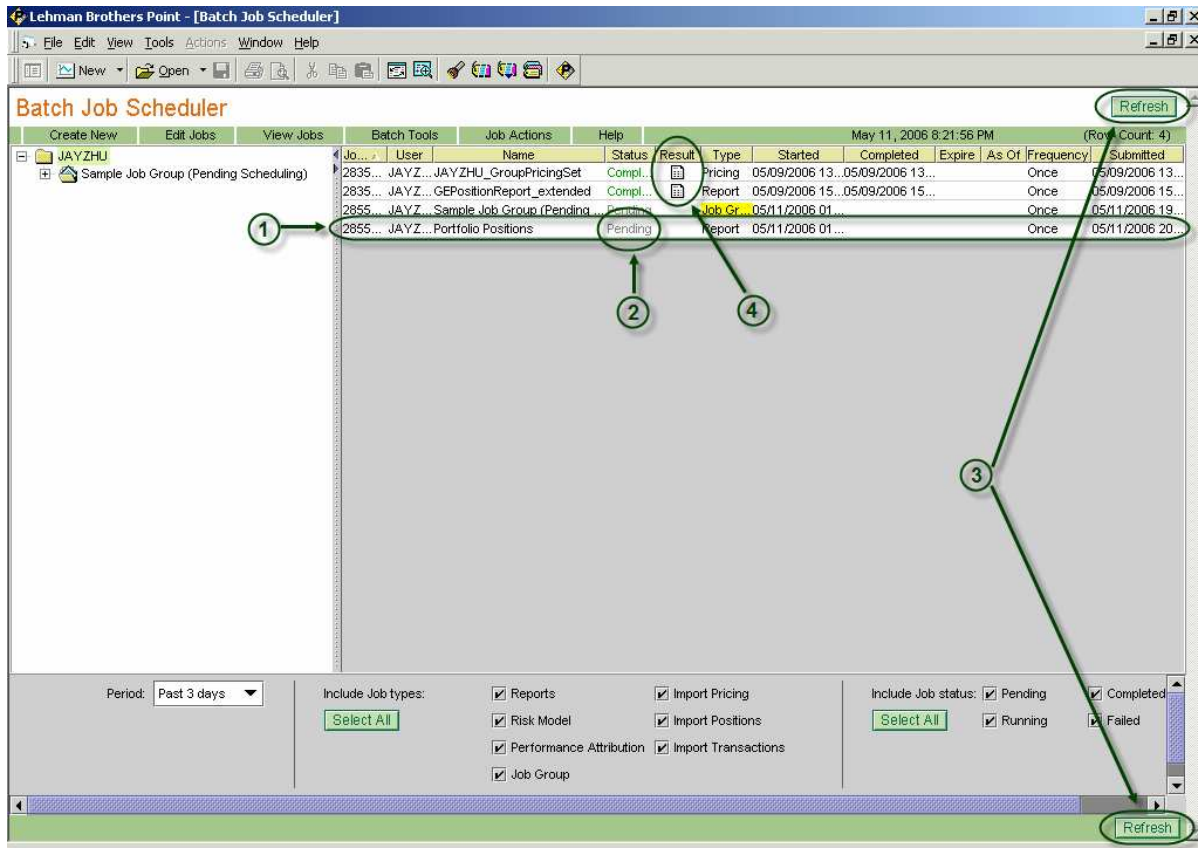
Task 5: Initiate the Job Group

1. Once all necessary modifications have been completed the job can be scheduled to run. To initiate the batch job group, click on the *Schedule* button (in the bottom right of the job table).
2. The system places the job group into a pending state, and runs the job group on the date specified in the *New Job* dialog.

Example 4: Checking Job Status

When you initiate a batch job, the system creates a batch job record and places it in the batch job queue for processing. All jobs that have been scheduled are listed in the job queue table in the Batch screen. All jobs that exist in child-folders will appear at the top folder level, the folder titled with your ID. Job groups will be displayed as a single line item; to view the job group details, click on the group name from the left panel.

As soon as you create a batch job, you can check the job queue to view its status.



Monitoring a Job

To check the run status of the pending job in the job queue:

1. Once a new batch job is saved, it is added to the job queue, and automatically selected. Since by default the job queue is sorted on job ID, the last saved job usually appears at the bottom of the queue.
2. The *Status* column displays the current status of the batch job.
3. To retrieve the latest job status, click on one of the *Refresh* buttons to refresh the job queue.
4. If a report type job completed successfully the status will read *Completed* and you will be able to click on the report icon under the *Result* column to view the report result. If the status is *Failure* clicking on the icon in the results column will open the batch log which can be used to diagnose the problem.

Rerunning Jobs

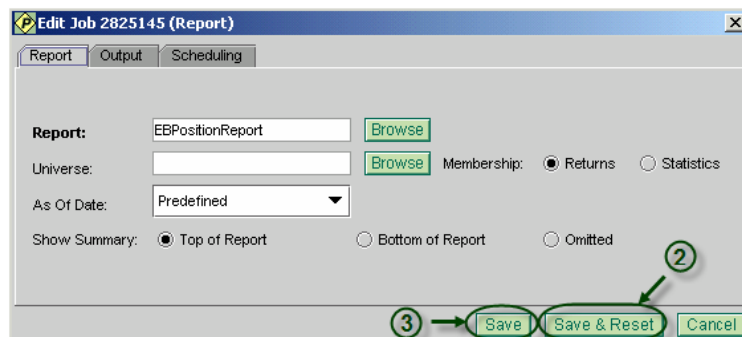
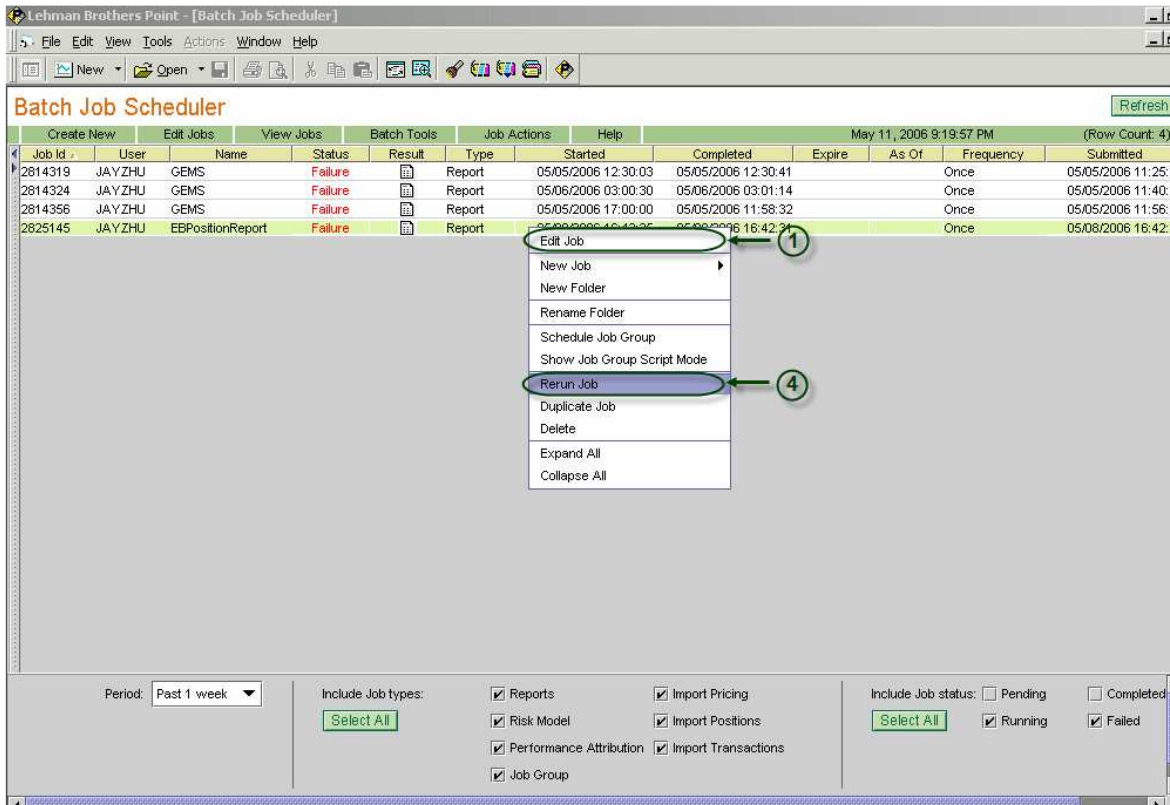
You can rerun an existing job instead of creating a new job definition from scratch. For example, if a batch job fails to complete successfully and you fix the problem, you can edit the exiting job definition and rerun the job.

To modify or correct a completed job and run it again:

1. In the job queue table, select the failed job, right-mouse-click on the job and select *Edit Job* from the popup menu.
2. After modifying settings within the job dialog, click on the *Save & Reset* button to save the modifications and rerun the job.

Or,

3. After modifying settings within the job dialog, click on the *Save* button to save the modifications.
4. To rerun the job, select the modified job in the job queue, right-mouse-click on the job and select *Rerun Job* from the popup menu.



Rerunning a Failed Job

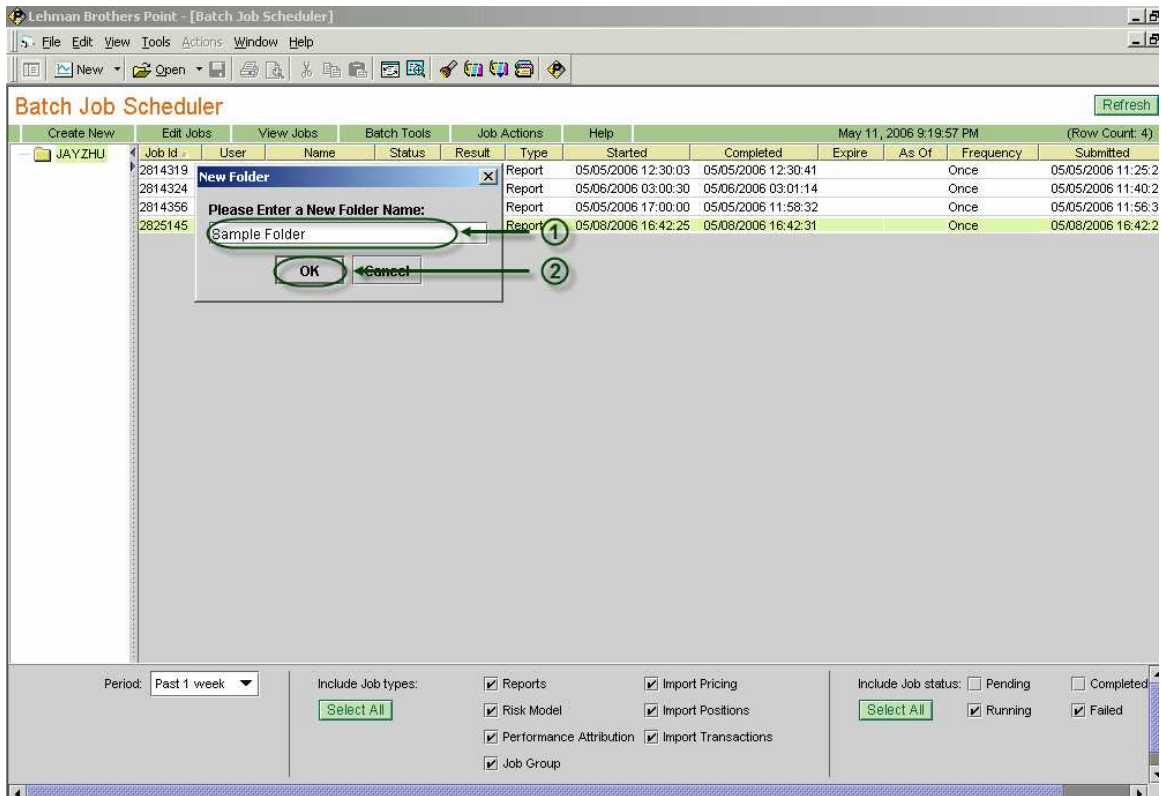
Example 5: Organizing Batch Jobs Using Folders

Batch Scheduler provides a folder system to allow users to better organize batch jobs. Users can define customized folders in which jobs can be defined.

Managing Folders

When you first open Batch, you will see one folder in the left panel with your ID as its title. To define a folder beneath that, first highlight the folder with your ID. Select *Create New > New Folder*,

1. Type in the name of the new folder.
2. Click on *OK* button to save the folder.



Defining a folder

Once additional folders have been set up, you will be able to create folders beneath them by first selecting the folder and following the same process.

To define a job or job group under the new folder,

1. Highlight the new folder in the left panel, select *Create New > {Job Type}*.
2. Choose the job settings and save the job. The new job is now defined under the new folder. All jobs under all folders will always be listed at the highest level folder (your ID).

To move an existing job from one folder into a new folder,

1. Find the job record you intend to move in the job queue table.
2. Drag and drop the job from the job queue table to the new folder in the left panel.

To move one folder into another folder,

1. In the left panel, drag and drop one folder into the other folder.

To delete a folder,

1. In the left panel, select the folder intended for deletion.

2. Right-mouse-click and select *Delete* from the popup menu.
3. Select the *Yes* button in the confirmation dialog.

To rename a folder,

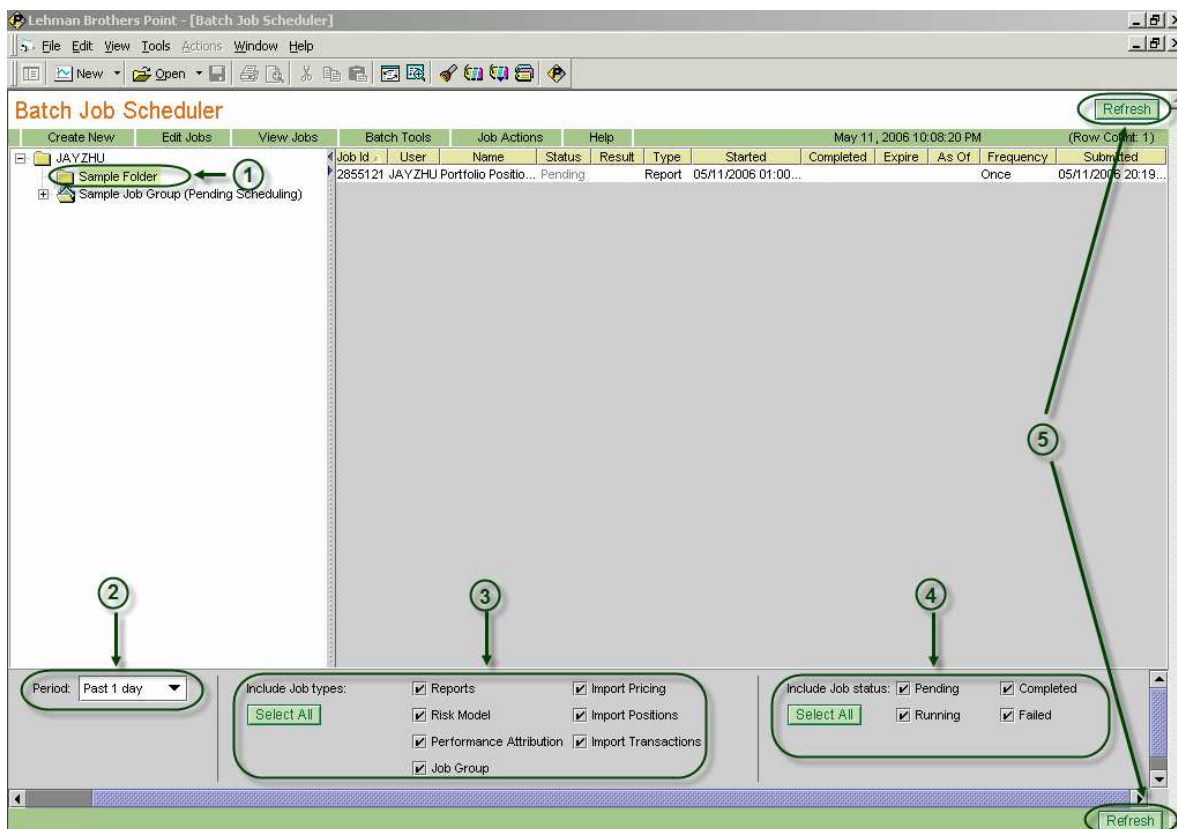
1. In the left panel, select the folder intended for renaming.
2. Right-mouse-click and select *Rename Folder* from the popup menu.
3. Select *Yes* button in the confirmation dialog.

Example 6: Managing Batch Jobs

Batch Scheduler provides various filters and utilities for viewing, searching, duplicating, and deleting jobs.

View and Filter Jobs

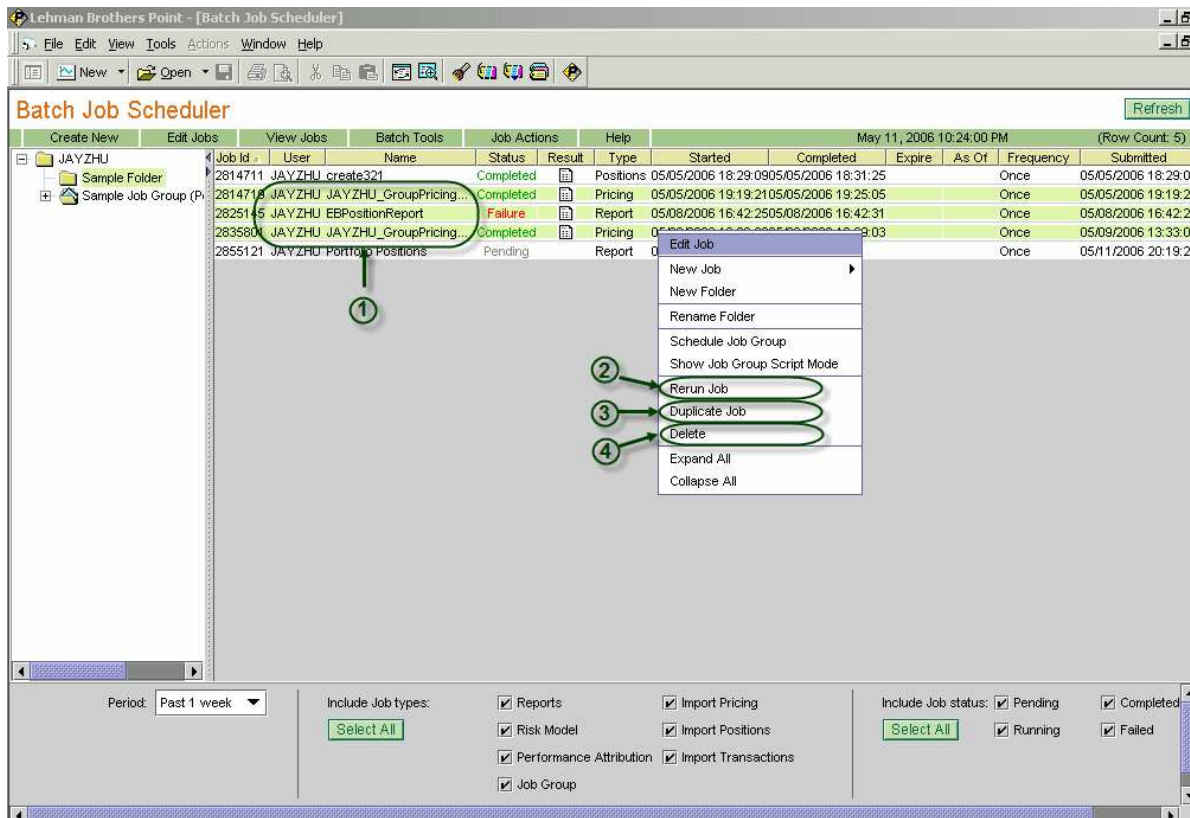
The job queue table displays all user jobs contained under the currently selected folder in the left panel (and any sub folders within it), filtered by the settings in the bottom filtering panel.



Select the folder in the left panel to view the jobs contained under the folder and any nested child folders.

1. Select the time filter to view the jobs with start time earlier than the specified time filter. *Past 1 day* is selected by default.
2. Select the types of jobs to view. All types are selected by default.
3. Select the job statuses to view. All Statuses are selected by default.
4. Click on one of the *Refresh* buttons to refresh the job queue with the effects of the latest folder selection and filter settings.

Rerun, Duplicate and Delete Jobs



1. To perform various functions on more than one scheduled job, hold down left-mouse button and multi-select, or hold down Ctrl key and use left-mouse button to multi-select.
2. To rerun selected job(s), right-mouse-click and select *Rerun Job* from the popup menu.
3. To duplicate a job, right-mouse-click and select *Duplicate Job* to copy the first job among the selected jobs. A job definition dialog is displayed, and user has ability to change any settings before saving the duplicated job.
4. To delete the selected job(s), right-mouse-click and select *Delete* from the popup menu.

For Further Information

In this chapter, we have provided a quick survey of the batch job scheduling process. There are many settings and specifications that can be used to adapt the system capabilities to your processing needs. For further information, please contact your Lehman Brothers sales representative or your regional Help Desk.

Any reports referenced herein published after 14 April 2003 have been certified in accordance with Regulation AC. To obtain copies of these reports and their certifications, please contact Larry Pindyck (lpindyck@lehman.com; 212-526-6268) or Valerie Monchi (vmonchi@lehman.com; 44-(0)207-102-8035).

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