

1. Introduction

This document contains a detailed description with examples on how APTARE StorageConsole® provides reporting and monitoring for Oracle, specifically RMAN backups.

2. Overview

APTARE StorageConsole provides extensive reporting and monitoring for VERITAS NetBackup enterprise backup and recovery environments. This reporting and monitoring extends beyond standard or file-system level reporting and provides detailed reporting and monitoring for NetBackup agent backups, specifically the following:

- Apollo
- Oracle
- Informix On-Bar
- Sybase
- Netware
- DataTools-SQL-BackTrack
- MS-SQL Server
- MS-Exchange Server
- SAP
- NDMP
- FlashBackup
- Split-Mirror
- AFS
- DataStore
- Lotus Notes
- NCR-Teradata

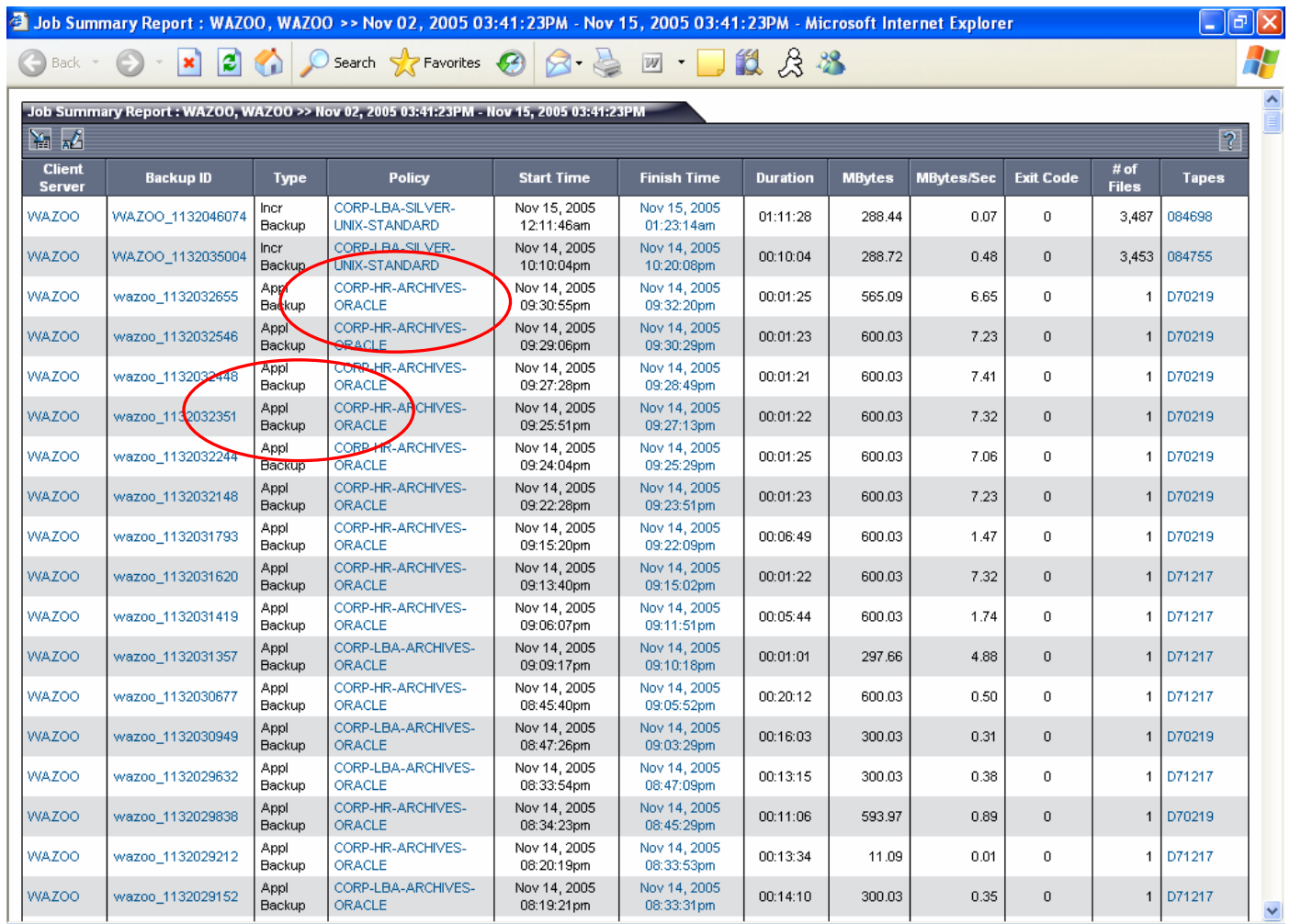
At the completion of a backup job, the APTARE StorageConsole Agent runs the NetBackup command called “bpimagelist” to gather detailed information pertaining to the completed backup event. In addition, every 5-10 minutes, the command “bpdjobs” is run on the NetBackup master server to extract detailed job information such as the exact pathname of the objects being backed up. This information is compressed and sent via HTTP or HTTPS to the APTARE StorageConsole Portal server for display in it’s various dashboards and reports.

The following sections of this document show examples of how APTARE StorageConsole would monitor and report on Oracle RMAN backup jobs.

3. Backup & Restore Events

The following reports provide a single line summary of each of the backup (or restore) jobs for a selected time period, backup type, server group, etc. The following example illustrates a list of backups performed for an Oracle server called “WAZOO”. For Oracle, RMAN scripts kick off the database backup job that interfaces with RMAN or the scripts execute from within RMAN which in turn interface with the NetBackup API and backup client. The backup client interfaces with the NetBackup master/media server. StorageConsole identifies the policy as a hot or cold backup and the backup type as Appl (Application). Archive type backups are the Oracle Archive logs.

Oracle Archive Logs:



| Client Server | Backup ID | Type | Policy | Start Time | Finish Time | Duration | MBytes | MBytes/Sec | Exit Code | # of Files | Tapes |
|---------------|------------------|-------------|-------------------------------|-------------------------|-------------------------|----------|--------|------------|-----------|------------|--------|
| WAZOO | WAZOO_1132046074 | Incr Backup | CORP-LBA-SILVER-UNIX-STANDARD | Nov 15, 2005 12:11:46am | Nov 15, 2005 01:23:14am | 01:11:28 | 288.44 | 0.07 | 0 | 3,487 | 084698 |
| WAZOO | WAZOO_1132035004 | Incr Backup | CORP-LBA-SILVER-UNIX-STANDARD | Nov 14, 2005 10:10:04pm | Nov 14, 2005 10:20:08pm | 00:10:04 | 288.72 | 0.48 | 0 | 3,453 | 084755 |
| WAZOO | wazoo_1132032655 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:30:55pm | Nov 14, 2005 09:32:20pm | 00:01:25 | 565.09 | 6.65 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132032546 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:29:06pm | Nov 14, 2005 09:30:29pm | 00:01:23 | 600.03 | 7.23 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132032348 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:27:28pm | Nov 14, 2005 09:28:49pm | 00:01:21 | 600.03 | 7.41 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132032351 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:25:51pm | Nov 14, 2005 09:27:13pm | 00:01:22 | 600.03 | 7.32 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132032244 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:24:04pm | Nov 14, 2005 09:25:29pm | 00:01:25 | 600.03 | 7.06 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132032148 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:22:28pm | Nov 14, 2005 09:23:51pm | 00:01:23 | 600.03 | 7.23 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132031793 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:15:20pm | Nov 14, 2005 09:22:09pm | 00:06:49 | 600.03 | 1.47 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132031620 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:13:40pm | Nov 14, 2005 09:15:02pm | 00:01:22 | 600.03 | 7.32 | 0 | 1 | D71217 |
| WAZOO | wazoo_1132031419 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 09:06:07pm | Nov 14, 2005 09:11:51pm | 00:05:44 | 600.03 | 1.74 | 0 | 1 | D71217 |
| WAZOO | wazoo_1132031357 | Appl Backup | CORP-LBA-ARCHIVES-ORACLE | Nov 14, 2005 09:09:17pm | Nov 14, 2005 09:10:18pm | 00:01:01 | 297.66 | 4.88 | 0 | 1 | D71217 |
| WAZOO | wazoo_1132030677 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 08:45:40pm | Nov 14, 2005 09:05:52pm | 00:20:12 | 600.03 | 0.50 | 0 | 1 | D71217 |
| WAZOO | wazoo_1132030949 | Appl Backup | CORP-LBA-ARCHIVES-ORACLE | Nov 14, 2005 08:47:26pm | Nov 14, 2005 09:03:29pm | 00:16:03 | 300.03 | 0.31 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132029632 | Appl Backup | CORP-LBA-ARCHIVES-ORACLE | Nov 14, 2005 08:33:54pm | Nov 14, 2005 08:47:09pm | 00:13:15 | 300.03 | 0.38 | 0 | 1 | D71217 |
| WAZOO | wazoo_1132029838 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 08:34:23pm | Nov 14, 2005 08:45:29pm | 00:11:06 | 593.97 | 0.89 | 0 | 1 | D70219 |
| WAZOO | wazoo_1132029212 | Appl Backup | CORP-HR-ARCHIVES-ORACLE | Nov 14, 2005 08:20:19pm | Nov 14, 2005 08:33:53pm | 00:13:34 | 11.09 | 0.01 | 0 | 1 | D71217 |
| WAZOO | wazoo_1132029152 | Appl Backup | CORP-LBA-ARCHIVES-ORACLE | Nov 14, 2005 08:19:21pm | Nov 14, 2005 08:33:31pm | 00:14:10 | 300.03 | 0.35 | 0 | 1 | D71217 |

Oracle RMAN Hot or Cold backup:

Job Summary Report : WAZOO, WAZOO >> Nov 02, 2005 03:41:23PM - Nov 15, 2005 03:41:23PM - Microsoft Internet Explorer

| Client | Job ID | Backup Type | Policy Name | Start Time | Finish Time | Duration | Size | Throughput | Errors | Tapes | Tape IDs |
|--------|------------------|-------------|---------------------------|-------------------------|-------------------------|----------|----------|------------|--------|-------|----------|
| WAZOO | wazoo_1131958203 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:50:03am | Nov 14, 2005 12:56:34am | 00:06:31 | 2,864.03 | 7.32 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131957898 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:44:58am | Nov 14, 2005 12:49:52am | 00:04:54 | 1,608.72 | 5.47 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131957423 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:37:03am | Nov 14, 2005 12:44:42am | 00:07:39 | 3,778.03 | 8.23 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131956988 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:29:48am | Nov 14, 2005 12:36:45am | 00:06:57 | 2,820.84 | 6.76 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131956693 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:24:53am | Nov 14, 2005 12:29:32am | 00:04:39 | 1,545.16 | 5.54 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131956088 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:14:48am | Nov 14, 2005 12:24:33am | 00:09:45 | 3,802.91 | 6.50 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131955733 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:08:53am | Nov 14, 2005 12:14:37am | 00:05:44 | 1,849.66 | 5.38 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131955210 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 14, 2005 12:00:08am | Nov 14, 2005 12:08:39am | 00:08:31 | 3,808.28 | 7.45 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131954244 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 13, 2005 11:44:04pm | Nov 13, 2005 11:59:52pm | 00:15:48 | 7,618.53 | 8.04 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131953050 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 13, 2005 11:24:08pm | Nov 13, 2005 11:43:50pm | 00:19:42 | 7,001.47 | 5.92 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131951804 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 13, 2005 11:03:23pm | Nov 13, 2005 11:23:50pm | 00:20:27 | 3,692.78 | 3.01 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131951114 | Appl Backup | CORP-LBA-HOTBACKUP-ORACLE | Nov 13, 2005 10:19:28pm | Nov 13, 2005 11:15:59pm | 00:56:31 | 5,881.03 | 1.73 | 0 | 1 | D70354 |
| WAZOO | wazoo_1131951815 | Appl Backup | CORP-HOTBACKUP-ORACLE | Nov 13, 2005 10:54:03pm | Nov 13, 2005 11:06:34pm | 00:12:31 | 41.53 | 0.06 | 0 | 1 | D70402 |
| WAZOO | wazoo_1131950974 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 13, 2005 10:49:33pm | Nov 13, 2005 11:03:10pm | 00:13:37 | 3,596.22 | 4.40 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131949948 | Appl Backup | CORP-HOTBACKUP-ORACLE | Nov 13, 2005 10:07:55pm | Nov 13, 2005 10:53:44pm | 00:45:49 | 5,770.28 | 2.10 | 0 | 1 | D70402 |
| WAZOO | wazoo_1131948987 | Appl Backup | CORP-HR-HOTBACKUP-ORACLE | Nov 13, 2005 10:16:24pm | Nov 13, 2005 10:49:15pm | 00:32:51 | 8,645.47 | 4.39 | 0 | 1 | D71306 |
| WAZOO | wazoo_1131948530 | Appl Backup | CORP-LBA-HOTBACKUP-ORACLE | Nov 13, 2005 09:54:01pm | Nov 13, 2005 10:19:14pm | 00:25:13 | 2,711.91 | 1.79 | 0 | 1 | D70354 |
| WAZOO | wazoo_1131948836 | Appl Backup | CORP-HOTBACKUP-ORACLE | Nov 13, 2005 10:13:56pm | Nov 13, 2005 10:18:40pm | 00:04:44 | 916.03 | 3.23 | 0 | 1 | D71396 |
| WAZOO | wazoo_1131948783 | Appl Backup | CORP-LBA-HOTBACKUP-ORACLE | Nov 13, 2005 10:13:03pm | Nov 13, 2005 10:15:40pm | 00:02:37 | 419.53 | 2.67 | 0 | 1 | D70402 |
| WAZOO | wazoo_1131947420 | Appl Backup | CORP-HOTBACKUP-ORACLE | Nov 13, 2005 09:27:47pm | Nov 13, 2005 10:07:39pm | 00:39:52 | 7,744.03 | 3.24 | 0 | 1 | D71313 |
| WAZOO | wazoo_1131947627 | Appl Backup | CORP-LBA-HOTBACKUP-ORACLE | Nov 13, 2005 09:27:49pm | Nov 13, 2005 09:56:04pm | 00:28:15 | 355.03 | 0.21 | 0 | 1 | D70354 |

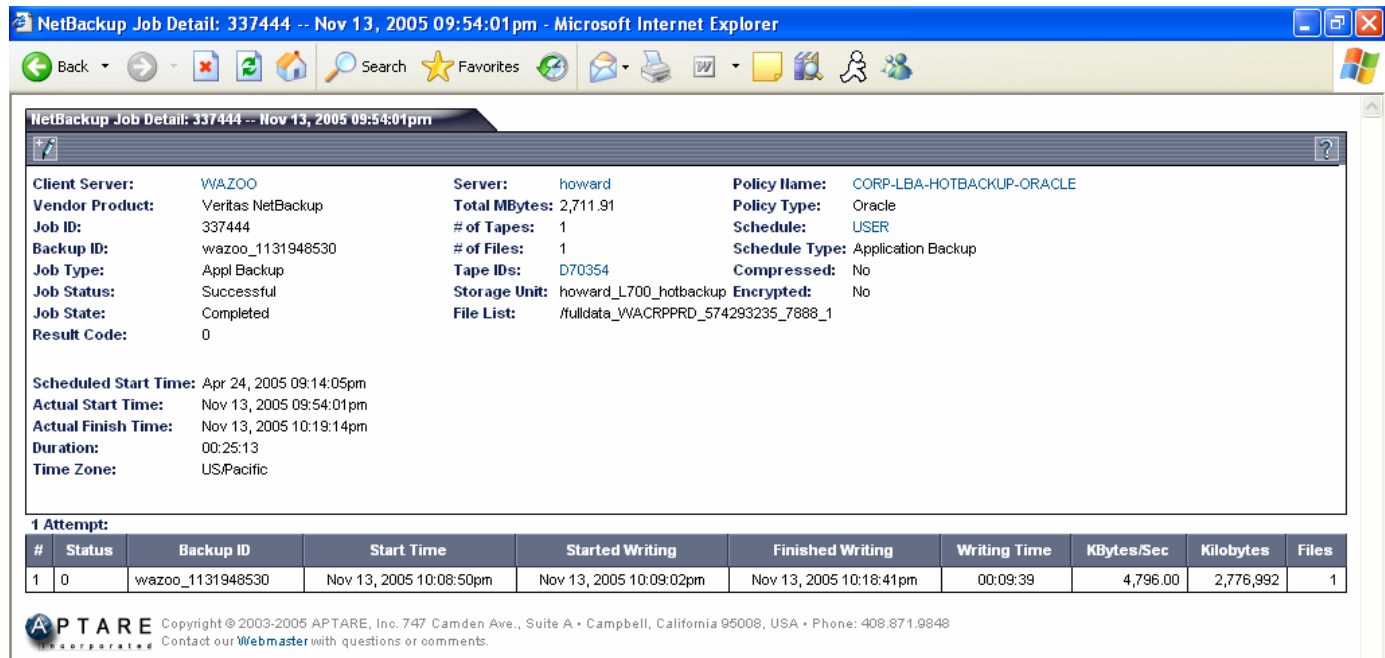
The above example demonstrates standard file-system and hot-database (Oracle RMAN) backups for the same NetBackup client. This “summary” view can be used to see the following information for a group of backups performed on the “WAZOO” server:

- Backup jobs ID, Backup Type, start/finish time
- NetBackup policy name
- Size and performance/throughput statistics
- Final completion status of the backup job
- Number of tapes used during each backup and the NetBackup tape IDs

Users can then drill into further detail by clicking on either the finish time or the Backup ID field. This will take the user to the “Backup Event Detail” screen

4. Backup Event and Job Detail Reports

This report displays detailed information about a completed backup (or recovery) jobs. Using the same examples as above, if a user clicks on one of the Oracle RMAN hot database backup events, additional detail regarding the job would be displayed. A user can drill further into the actual NetBackup jobs that resulted in a final Oracle RMAN backup event. The following screen is an example of a “Job Detail” report for an Oracle RMAN database backup:



NetBackup Job Detail: 337444 -- Nov 13, 2005 09:54:01pm

| | | | | | |
|------------------------|-------------------|----------------------|--------------------------------------|-----------------------|---------------------------|
| Client Server: | WAZOO | Server: | howard | Policy Name: | CORP-LBA-HOTBACKUP-ORACLE |
| Vendor Product: | Veritas NetBackup | Total MBytes: | 2,711.91 | Policy Type: | Oracle |
| Job ID: | 337444 | # of Tapes: | 1 | Schedule: | USER |
| Backup ID: | wazoo_1131948530 | # of Files: | 1 | Schedule Type: | Application Backup |
| Job Type: | Appl Backup | Tape IDs: | D70354 | Compressed: | No |
| Job Status: | Successful | Storage Unit: | howard_L700_hotbackup | Encrypted: | No |
| Job State: | Completed | File List: | /fulldata_VWACRPPRD_574293235_7888_1 | | |
| Result Code: | 0 | | | | |

Scheduled Start Time: Apr 24, 2005 09:14:05pm
Actual Start Time: Nov 13, 2005 09:54:01pm
Actual Finish Time: Nov 13, 2005 10:19:14pm
Duration: 00:25:13
Time Zone: US/Pacific

1 Attempt:

| # | Status | Backup ID | Start Time | Started Writing | Finished Writing | Writing Time | KBytes/Sec | Kilobytes | Files |
|---|--------|------------------|-------------------------|-------------------------|-------------------------|--------------|------------|-----------|-------|
| 1 | 0 | wazoo_1131948530 | Nov 13, 2005 10:08:50pm | Nov 13, 2005 10:09:02pm | Nov 13, 2005 10:18:41pm | 00:09:39 | 4,796.00 | 2,776,992 | 1 |

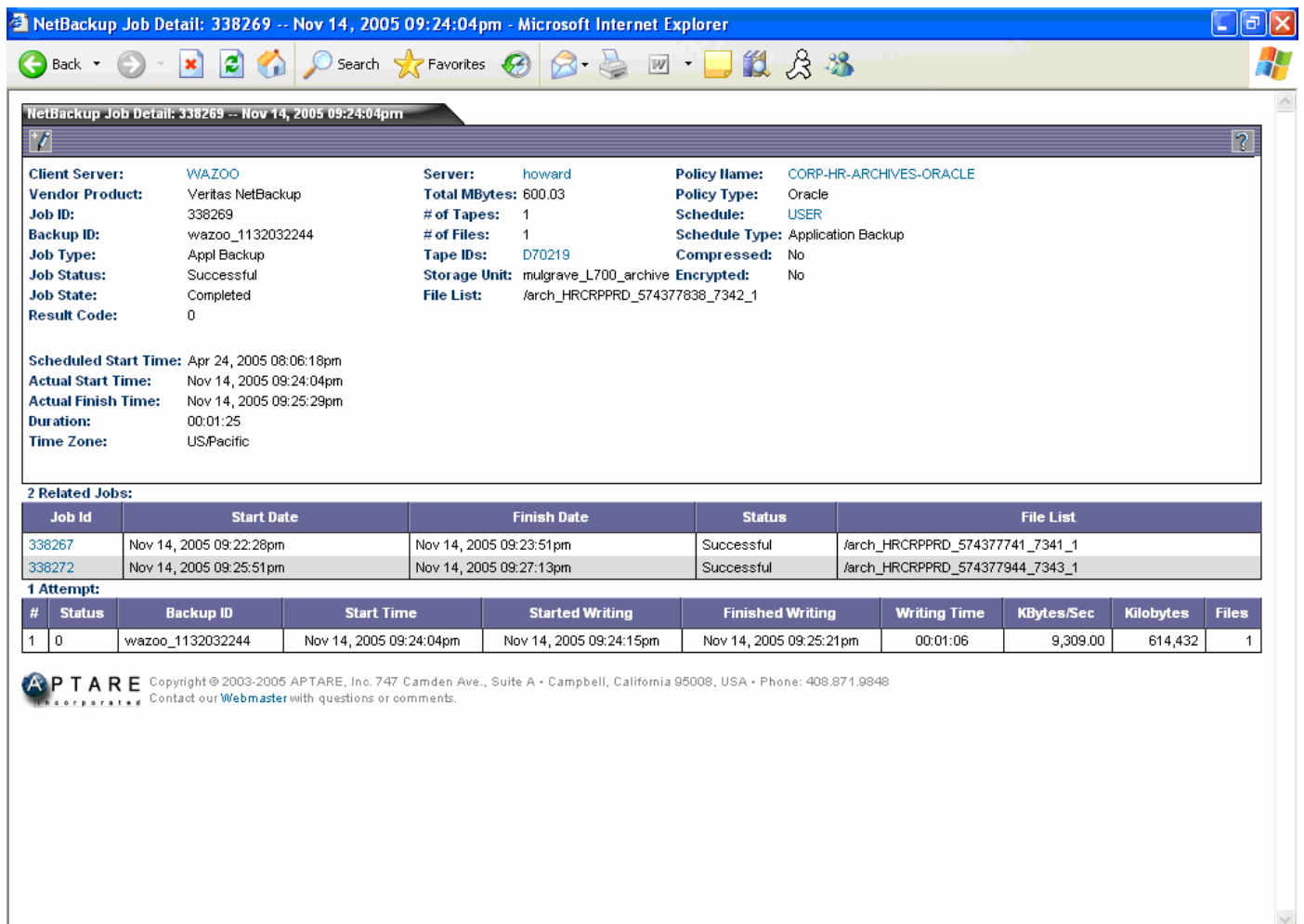
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A user can very easily view and determine the following information from this report / dashboard:

- The exact pathname of the Oracle hot-database file that is being backed up by NetBackup.
- The NetBackup policy, schedule, client and policy attributes such as multi-streaming, compression, etc.
- The list and status of “Related Jobs”. These are defined as database backup or multi-streaming jobs where NetBackup starts multiple separate jobs that are all related to the same client, policy, and schedule.
- Detailed status and write speed/throughput of each job backup attempt. If a job requires multiple attempts before being successful, each attempt and the overall completion status will appear on this report.

5. Parent Jobs and Related Jobs Tracking

This report displays detailed information about a completed backup (or recovery) jobs including Parent Job and Related Jobs tracking. Using the same examples as above, if a user clicks on one of the Oracle RMAN hot database backup events, additional detail regarding the job would be displayed. A user can drill further into the actual NetBackup jobs that resulted in a final Oracle RMAN backup event. The following screen is an example of a “Job Detail” report for an Oracle RMAN database backup with Parent and Related Jobs:



NetBackup Job Detail: 338269 -- Nov 14, 2005 09:24:04pm - Microsoft Internet Explorer

Client Server: WAZOO Server: howard Policy Name: CORP-HR-ARCHIVES-ORACLE
 Vendor Product: Veritas NetBackup Total MBytes: 600.03 Policy Type: Oracle
 Job ID: 338269 # of Tapes: 1 Schedule: USER
 Backup ID: wazoo_1132032244 # of Files: 1 Schedule Type: Application Backup
 Job Type: Appl Backup Tape IDs: D70219 Compressed: No
 Job Status: Successful Storage Unit: mulgrave_L700_archive Encrypted: No
 Job State: Completed File List: /arch_HRCRPPRD_574377838_7342_1
 Result Code: 0

Scheduled Start Time: Apr 24, 2005 08:06:18pm
 Actual Start Time: Nov 14, 2005 09:24:04pm
 Actual Finish Time: Nov 14, 2005 09:25:29pm
 Duration: 00:01:25
 Time Zone: US/Pacific

2 Related Jobs:

| Job Id | Start Date | Finish Date | Status | File List |
|--------|-------------------------|-------------------------|------------|---------------------------------|
| 338267 | Nov 14, 2005 09:22:28pm | Nov 14, 2005 09:23:51pm | Successful | /arch_HRCRPPRD_574377741_7341_1 |
| 338272 | Nov 14, 2005 09:25:51pm | Nov 14, 2005 09:27:13pm | Successful | /arch_HRCRPPRD_574377944_7343_1 |

1 Attempt:

| # | Status | Backup ID | Start Time | Started Writing | Finished Writing | Writing Time | KBytes/Sec | Kilobytes | Files |
|---|--------|------------------|-------------------------|-------------------------|-------------------------|--------------|------------|-----------|-------|
| 1 | 0 | wazoo_1132032244 | Nov 14, 2005 09:24:04pm | Nov 14, 2005 09:24:15pm | Nov 14, 2005 09:25:21pm | 00:01:06 | 9,309.00 | 614,432 | 1 |

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