

Storing Vasont Data & Indexes on Separate Disks

On Database Servers that do not have a RAID disk configuration, separating the Vasont Data and Indexes onto separate disks can improve performance. This is especially true if the disks in questions are also on separate disk controllers. Splitting the Data and Indexes onto separate disks allows Oracle to write updates to the tables and indexes simultaneously, taking advantage of multiple controllers and minimizing disk head movement on a particular disk.

The splitting of the Vasont Data and Indexes onto separate disks is accomplished by creating two distinct Oracle Tablespaces (one for the data and one for the indexes). The datafile(s) that underly these Tablespaces are located on the distinct disks. The following procedure is used to rearrange the Vasont Schema to use the multiple Tablespace configuration.

Export the Vasont Data and Drop the Vasont Schema

1. Using the Oracle Export Utility, perform a user export for the Vasont Schema. The syntax for this export will be similar to:

```
exp vasont/vasont@vasont file=vasont.dmp log=exp.log owner=vasont
```

2. Verify that the export was successful by examining the screen output from the Export Utility (or the Export log file, if one was specified).
3. Drop the Vasont user, being sure to use the CASCADE option (this ensures that all Objects owned by Vasont are dropped along with the user account).

Create the Vasont Data and Index Tablespaces

During the following process, make note of whether you opted for Locally Managed (or Dictionary Managed) Tablespaces. In general, Locally Managed Tablespaces are preferable and will simplify this process. However, Locally Managed Tablespaces are only available in Oracle8i (Oracle 8.1.7) and above.

4. Create a tablespace to hold the Vasont Data (e.g., VASONT_DATA_TS), specifying the location (disk) for the corresponding datafile.

NOTE: The original Vasont Tablespace can be used for the Vasont Data, if desired.

5. Create a tablespace to hold the Vasont Indexes (e.g., VASONT_IDX_TS), being sure to specify a different location (disk) for the corresponding datafile.

Recreate and Configure the Vasont User

6. Recreate the Vasont user account, taking care to set the following properties:

Default Tablespace: *{your Vasont Data Tablespace}* (e.g., VASONT_DATA_TS)

Temporary Tablespace: *{your Temporary Tablespace}* (e.g., TEMP)

Role: DBA

Quotas: "Unlimited" on *{your Vasont Data Tablespace}* (e.g., VASONT_DATA_TS)

"Unlimited" on *{your Vasont Index Tablespace}* (e.g., VASONT_IDX_TS)

"Unlimited" on *{your Rollback Tablespace}* (e.g., RBS)

"Unlimited" on *{your Temporary Tablespace}* (e.g., TEMP)

CAUTION: After recreating the Vasont user, ensure that the Vasont user **does not** have the "UNLIMITED TABLESPACE" System Privilege before proceeding (Oracle Enterprise Manager will add this privilege during the user creation, even though you did not specify it). If this privilege is defined, the split process will not be performed during subsequent steps!

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Import the Vasont Table Data

7. Perform an Import on the Vasont Schema (without the Vasont Indexes) using the Oracle Export file created in Step 1 above. The syntax for this import will be similar to:

```
imp vasont/vasont@vasont buffer=9000000 file=vasont.dmp log=imp.log fromuser=vasont
touser=vasont indexes=n commit=y
```

8. Verify that the import was successful by examining the screen output from the Import Utility (or the Import log file, if one was specified).

Disable Vasont Integrity Constraints

Certain Vasont integrity constraints (e.g., Primary Keys, Unique Keys, etc.) are enforced using an index, which needs to be placed in the Vasont Index Tablespace. After importing the Vasont Tables, however, these constraint indexes are placed in the Vasont Data Tablespace. The following steps disables these constraints, dropping all of the associated indexes:

NOTE: The steps in this section (as well as subsequent sections) refer to the Oracle Enterprise Manager SQLPlus Worksheet application. If the Oracle Enterprise Manager is not installed, the steps can be performed using SQL*Plus and its spooling capabilities.

9. In the Oracle Enterprise Manager SQLPlus Worksheet application, connect as the Vasont user and execute the following statements:

```
set linesize 2000;
set pagesize 5000;
SELECT 'ALTER TABLE ' || table_name || ' DISABLE CONSTRAINT ' || constraint_name || ';'
FROM user_constraints
WHERE constraint_type = 'R';
```

10. The lower pane in SQLPlus Worksheet will now contains a series of SQL statements similar to:

```
ALTER TABLE ATTRIBUTE LINK DISABLE CONSTRAINT SYS_C004024;
ALTER TABLE CHECK_OUT DISABLE CONSTRAINT SYS_C004025;

.
.
.

ALTER TABLE WORK_GROUP_USER DISABLE CONSTRAINT SYS_C004163;
ALTER TABLE WRAPPER_RELATION DISABLE CONSTRAINT SYS_C004164;
```

Copy this series of SQL statements to the upper pane of the SQLPlus Worksheet, then execute the statements – a series of “Table altered.” messages will appear in the lower pane.

11. Execute the following statement in SQLPlus Worksheet:

```
set linesize 2000;
set pagesize 5000;
SELECT 'ALTER TABLE ' || table name || ' DISABLE CONSTRAINT ' || constraint name || ';'
FROM user constraints
WHERE constraint_type IN ('P','U');
```

12. The lower pane in SQLPlus Worksheet will now contains a series of SQL statements similar to:

```
ALTER TABLE ACCESS_ALLOWED DISABLE CONSTRAINT XPKACCESS_ALLOWED;
ALTER TABLE ARGUMENT DISABLE CONSTRAINT XPKARGUMENT;

.
.
.

ALTER TABLE WRAPPER DISABLE CONSTRAINT XPKWRAPPER;
ALTER TABLE WRAPPER_RELATION DISABLE CONSTRAINT XPKWRAPPER_RELATION;
```

Copy this series of SQL statements to the upper pane of the SQLPlus Worksheet, then execute the statements – a series of “Table altered.” messages will appear in the lower pane.

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13. Leave the SQLPlus Worksheet application open for now...

Switch Vasont's Default Tablespace to "Index"

14. Alter the Vasont user, changing the Default Tablespace from *{your Vasont Data Tablespace}* (e.g., VASONT_DATA_TS) to *{your Vasont Index Tablespace}* (e.g., VASONT_IDX_TS).

Re-Enable Vasont Integrity Constraints

Enabling Vasont's Integrity Constraints will rebuild the associated indexes. Since the Default Tablespace has been changed to the Vasont Index Tablespace, these indexes will be built in that area. Perform the following steps:

15. In the Oracle Enterprise Manager SQLPlus Worksheet application, connect as the Vasont user and execute the following statements:

```
set linesize 2000;
set pagesize 5000;
SELECT 'ALTER TABLE ' || table name || ' ENABLE CONSTRAINT ' || constraint name || ';'
FROM user constraints
WHERE constraint_type IN ('P','U');
```

16. The lower pane in SQLPlus Worksheet will now contains a series of SQL statements similar to:

```
ALTER TABLE ACCESS_ALLOWED ENABLE CONSTRAINT XPKACCESS_ALLOWED;
ALTER TABLE ARGUMENT ENABLE CONSTRAINT XPKARGUMENT;

.
.
.

ALTER TABLE WRAPPER ENABLE CONSTRAINT XPKWRAPPER;
ALTER TABLE WRAPPER_RELATION ENABLE CONSTRAINT XPKWRAPPER_RELATION;
```

Copy this series of SQL statements to the upper pane of the SQLPlus Worksheet, then execute the statements – a series of “Table altered.” messages will appear in the lower pane.

17. Execute the following statement in SQLPlus Worksheet:

```
set linesize 2000;
set pagesize 5000;
SELECT 'ALTER TABLE ' || table name || ' ENABLE CONSTRAINT ' || constraint name || ';'
FROM user constraints
WHERE constraint_type = 'R';
```

18. The lower pane in SQLPlus Worksheet will now contains a series of SQL statements similar to:

```
ALTER TABLE ATTRIBUTE LINK ENABLE CONSTRAINT SYS_C004024;
ALTER TABLE CHECK_OUT ENABLE CONSTRAINT SYS_C004025;

.
.
.

ALTER TABLE WORK_GROUP_USER ENABLE CONSTRAINT SYS_C004163;
ALTER TABLE WRAPPER_RELATION ENABLE CONSTRAINT SYS_C004164;
```

Copy this series of SQL statements to the upper pane of the SQLPlus Worksheet, then execute the statements – a series of “Table altered.” messages will appear in the lower pane.

19. Exit the SQLPlus Worksheet Application.

Import the Vasont Index Data

20. Perform an Import on the Vasont Schema (excluding rows, excluding constraints and ignoring errors) using the Oracle Export file created in Step 1 above. The syntax for this import will be similar to:

```
imp vasont/vasont@vasont buffer=9000000 file=vasont.dmp log=imp.log fromuser=vasont
touser=vasont ignore=y rows=n constraints=n commit=y
```

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At this point, the Vasont Schema is fully intact and the Data and Indexes have been split into separate tablespaces (and on to separate disks). Further steps are required, however, to ready the Vasont Database for day-to-day operation. Additionally, steps may need to be taken to eliminate the database fragmentation that may have been induced by this process.

Switch Vasont's Default Tablespace to "Data"

NOTE: If you are using Locally Managed Tablespaces, complete these steps.

If you are not using Local Managed Tablespaces (therefore, using Dictionary Managed Tablespaces), bypass these steps and proceed to step 23 below.

21. Alter the Vasont user, changing the Default Tablespace from *{your Vasont Index Tablespace}* (e.g., VASONT_IDX_TS) to *{your Vasont Data Tablespace}* (e.g., VASONT_DATA_TS).
22. Proceed to Step 29 below to ready your Vasont Database for day-to-day usage.

Export the Vasont Data and Drop the Vasont Schema

When Dictionary Managed Tablespaces are used for Vasont, the Data/Index split process outlined above results in fragmentation of the Oracle storage units (segments and extents). This can be very detrimental to Vasont performance, so corrective action needs to be taken to "force" the Vasont data into single segments/extents. This is accomplished by yet another Export/Import cycle, as follows.

23. Using the Oracle Export Utility, perform a user export for the Vasont Schema, being sure to specify that extents should be compressed. The syntax for this export will be similar to:

```
exp vasont/vasont@vasont file=vasont.dmp log=exp.log compress=y owner=vasont
```

24. Verify that the export was successful by examining the screen output from the Export Utility (or the Export log file, if one was specified).
25. Drop the Vasont user, being sure to use the CASCADE option (this ensures that all Objects owned by Vasont are dropped along with the user account).

Recreate and Configure the Vasont User

26. Recreate the Vasont user account, taking care to set the following properties:

Default Tablespace: *{your Vasont Data Tablespace}* (e.g., VASONT_DATA_TS)
Temporary Tablespace: *{your Temporary Tablespace}* (e.g., TEMP)
Role: DBA
Quotas: "Unlimited" on *{your Vasont Data Tablespace}* (e.g., VASONT_DATA_TS)
"Unlimited" on *{your Vasont Index Tablespace}* (e.g., VASONT_IDX_TS)
"Unlimited" on *{your Rollback Tablespace}* (e.g., RBS)
"Unlimited" on *{your Temporary Tablespace}* (e.g., TEMP)

Import the Vasont Schema

27. Perform an Import on the full Vasont Schema using the Oracle Export file created in Step 23 above. The syntax for this import will be similar to:

```
imp vasont/vasont@vasont buffer=9000000 file=vasont.dmp log=imp.log fromuser=vasont  
touser=vasont commit=y
```

This import process will automatically "compress" the Oracle data into single extents, placing the Vasont Data and Indexes into the appropriate Tablespaces (and segmenting them onto separate disks).

28. Verify that the import was successful by examining the screen output from the Import Utility (or the Import log file, if one was specified).

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Prepare the Vasont Database for Day-to-Day Use

A final few steps are required to re-establish the Vasont Database security and ensure that all Vasont Database Objects are compiled and ready for use:

29. Using the Oracle Enterprise Manager SQLPlus Worksheet application (or SQL*Plus itself), connect using the Oracle SYS Account and execute the SQL Script **security1.sql** from the Vasont Installer CD-ROM.
30. Re-connect to Oracle as the Vasont user, then execute the following SQL Scripts in the order specified:
 - **compobj.sql**
 - **setser(MmmYYYY).sql** (where *Mmm* is a Month and *YYYY* a year – e.g., “Dec2002”)
 - **analyze.sql**

Your Vasont Database is once again ready for day-to-day usage.