

# IBM Tivoli Netcool Performance Manager V1.3.1, Wireless Component

Overview of investigating Tivoli Common Reporting  
and Cognos reporting issues



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IBM Tivoli® Netcool® Performance Manager V1.3.1, Wireless Component, Overview of investigating Tivoli Common Reporting and Cognos® reporting issues.

## Objectives

After you complete this module, you can perform these tasks:

- Describe the main Tivoli Common Reporting and Cognos reporting sample issues (integrated Tivoli Netcool Performance Manager, Wireless Component) that are present
- Perform an initial investigation and solve the issues in key areas when reporting issues are present

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This module provides you with a basic understanding of the Tivoli Common Reporting and Cognos reporting component within the Tivoli Netcool Performance Manager, Wireless Component product. With this understanding, you can review and investigate reporting performance issues and reporting errors.

## Agenda

- Overview of Tivoli Common Reporting and Cognos reporting
- Tivoli Common Reporting and Cognos reporting sample issues (integrated Tivoli Netcool Performance Manager, Wireless Component)
- Key areas to investigate for these sample issues

This presentation covers three topics:

- An overview of Tivoli Common Reporting and Cognos reporting, which is integrated with the Tivoli Netcool Performance Manager product, V1.3.1. This overview provides sample scenarios implemented at a customer site.
- A few of the Tivoli Common Reporting and Cognos reporting sample issues that are noticed within the integrated Tivoli Netcool Performance Manager, Wireless Component product. Most of these issues relate to overall performance issues noticed in reporting. This module does not present an exhaustive list of issues.
- The key areas to investigate when you notice such issues.

## Overview of Tivoli Common Reporting and Cognos Reporting

- Tivoli Common Reporting integration is an optional feature. Tivoli Common Reporting is a reporting tool available to users of Tivoli products
- Tivoli Common Reporting is typically installed on most Tivoli Netcool Performance Manager Wireless Component customer sites (referencing V1.3.1 in this presentation). There are two integration deployment scenarios:
  - Tivoli Common Reporting is installed as part of the Tivoli Netcool Performance Manager, Wireless component installation
  - Stand-alone Cognos BI Server 8.4, Tivoli Common Reporting is installed as a stand-alone application
- Customers can create reports with the Cognos Report or Query Studio
- The SQL from the report and query studio comes from Cognos models that 1.3.1 Cognos tools create

This section reviews details of the Tivoli Common Reporting and Cognos reporting feature available within the Tivoli Netcool Performance Manager, Wireless Component product. This section highlights very high-level details on how this solution is integrated and deployed in a live customer environment.

As a note, from an IBM Support perspective, there is an influx of customer environments using Tivoli Common Reporting 2.1 (with IBM Cognos 8.4.1 integrated) in the Tivoli Netcool Performance Manager V1.3.1 product release, which can use Microsoft Internet Explorer® V7 on Microsoft Windows® 7 to develop common reporting.

To connect Tivoli Common Reporting to the Tivoli Netcool Performance Manager Wireless database, an Oracle client must be installed. The Oracle client is typically installed on the same server as Tivoli Common Reporting. A wireless report, when started in Tivoli Common Reporting, searches for the relevant entries, and this in turn caters to the need to set up database connectivity for the reporting database.

This connection is performed using IBM Cognos 8, where the only service that accesses the query database (also known as the reporting database) is the reporting engine that runs reports. It is the reporting engine to support queries.

## Sample issues

- The supported Cognos 1.3.1 Tools do not generate the Cognos model used
- Slow reporting is noticed due to stitch queries
- No relationship exists between tables (query subjects) in the Cognos model
- A failure to include partition pruning in the report SQL
- There are DPR-ERR-2002 errors in reports

This slide lists sample common issues noticed for Tivoli Common Reporting and Cognos reports within a Tivoli Netcool Performance Manager, Wireless Component system.

- 1) Note that at times clients can use Cognos models that can be generated with Cognos Universe Generator tool. IBM Tivoli Netcool Performance Manager, Wireless Component Product management has stated that this tool was a POC tool that was not productized and is not supported. Clients need to be urged to migrate or create models using the Cognos 1.3.1 tools.
- 2) Slow reporting inevitably is noticed on most client systems. If slow reporting takes place, determine the SQL that is running to produce the report, and then review the SQL queries. You might notice stitch queries in place and this can contribute to an increase in running times.
- 3) In addition, if no relationship is present in a report backend SQL query, it can be due to the fact that no relationship is declared in the model. A relationship is needed between specific tables present in the SQL query (be it hierarchy, raw, or NC tables). When an appropriate relationship is declared, it can improve the report performance.
- 4) If partition pruning is not used, then the SQL code might scan all the tables involved in the query, rather than being limited to a single partition. This occurrence can cause a report to take much longer to finish. You can know partition pruning is not used as there might be a "between" clause being used as the time filter.
- 5) There are common errors noticed when a Tivoli Common Reporting or Cognos report is run. At times, failure might be present due to DPR-ERR-2002 type errors. This is an issue that you need to take into account on a live system.

## (1 of 3) Key Areas to investigate (In relation to reporting issues present)

- Obtaining SQL for an entire report or query

### Steps

1. To view the SQL for the entire report, from the **Tools** menu, click **Show Generated SQL/MDX**.

This option shows the SQL that is run in the data source. The query and by query result organize the SQL. If a query is used in more than one data container, a query result is generated for each data container.

2. To view the SQL for a specific query, perform these steps:

- a) Pause the pointer over the **query explorer** and click the query.
- b) In the Properties pane, double-click the **Generated SQL/MDX** property.

- Determining why a report stitch query occurs

After the native SQL is obtained, you can determine the possible missing relationships

The previous slide covered main reporting sample issues. This slide reviews the key areas to take into account when you face such problems or issues.

Try to obtain the SQL for the report or determine the query involved when you have reporting issues. You can do this by viewing the SQL or MDX to see what data passes to the database when you run a report.

**Note:** Only SQL is available when using DMR data sources because these data sources were relational.

This option is beneficial if you want to obtain the Native SQL for slow running reports, for example SQL used by Oracle.

The Generated SQL/MDX property shows the SQL or MDX that is started when you view tabular data. For example, from the **Run** menu, click **View Tabular Data**. Tabular data shows the data that is produced by the query in the form of a list. You can use this property to help you build advanced queries.

The SQL or MDX for the query opens in the Generated SQL/MDX window. For SQL, you can choose to view native SQL, which is the SQL that is passed to the database when you start the query, or Cognos SQL, which is a generic form of SQL that Cognos Report Studio uses, for example. Cognos SQL is converted to native SQL before the query is started.

## (2 of 3) Key Areas to investigate (In relation to reporting issues faced)

- Obtaining SQL for an entire report or query

### Steps

1. To view the SQL for the entire report, from the **Tools** menu, click **Show Generated SQL/MDX**.

This option shows the SQL that is run in the data source. The query and by query result organize the SQL. If a query is used in more than one data container, a query result is generated for each data container.

2. To view the SQL for a specific query, perform these steps:

- a) Pause the pointer over the **query explorer** and click the query.
- b) In the Properties pane, double-click the **Generated SQL/MDX** property.

- Determining why a report stitch query occurs

After native SQL is obtained, you can determine the possible missing relationships

Go through the SQL you have obtained, for example, what is noted in the point shown. With this query or the available SQL, you can determine if a report stitch query is in place that might slow report processing.

The report in question might be making two selects from two tables. If so, then the Cognos engine starts a stitch query whereby the two result sets returned are combined. This stitch is slow and typically done as a result of possible missing relationships.

If this is happening, then it is likely that no relationship exists between the two tables. For example, the query subjects in the Cognos model used might have this issue. It can also look like the report SQL runs a full scan of all partitions in a traffic type table. For example, the traffic table is not filtered by time, and thus scans all partitions. The relationships declared in the Cognos model should be as follows, for example:

calendar table <-> traffic table <-> nc table ...

This is an example that can be used as a basis for investigating your actual queries and possible missing relationships, as this issue can contribute to slow reporting or a failure in report running.

### (3 of 3) Key Areas to investigate (In relation to reporting issues faced)

- Ensuring partition pruning is set:
  - Always confirm and review the source query for any reports that contain issues. The time filter of a report must be based on one of the **DATE\_KEY** fields, and the filter must use the greater than or equal ( $\geq$ ) and the less than ( $<$ ) operands. The `to_date()` function is also needed as shown in this snippet:
 

```
[DATE_KEY_30] >= to_date(?paramStartDate?,'SYYYY-MM-DD HH24:MI:SS')
and [DATE_KEY_30] < to_date(?paramEndDate?,'SYYYY-MM-DD HH24:MI:SS')
```
- For reports that display DPR-ERR-2002 type errors, a typical cause is a process unable to run the request because there is no process available within the configured time limit. To resolve the issue, these parameters can be changed:
  - Increase the **queue time limit of report service in seconds** parameter to allow requests to stay in the queue longer
  - The **number of processes** or the **number of connections** can also be increased

To connect to the portal with an administrator account, perform these steps:

1. Click **Tools > Server Administration > Configure Tab**
2. Click **Dispatcher Properties > Settings Tab**

This slide shows the next set of areas to cover.

First, not using partition pruning can cause a report to take much longer in terms of run time as previously mentioned. As show on this slide, you can use the **DATE\_KEY** fields in the Cognos Report Studio by adding the Oracle “`to_date`” function to the filter. This option is not available in Cognos Query studio. Only the Report Studio has the filter option. This option assists in decreasing the report run times.

The second topic is reports failing to run because of DPR-ERR-2002 type errors. Typically, when the process is unable to run the request because there is no process available within the configured time limit, this error occurs.

To try and resolve the issue, these two parameters can be adjusted:

1. You can increase the **queue time limit of report service in seconds** parameter to allow requests to stay in the queue longer.
2. You can increase the number of processes or the number of connections.

Increasing this parameter is not the only solution. The number of processes or the number of connections can also be increased. These parameters have to take into account the machine (number of processors and quantity of RAM available) being used by Cognos, and the number of concurrent users present. It is highly advisable that you proceed to confirm such tuning details with a Cognos specialist to help optimize these parameters.



## Summary

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