

Whitepaper

Connecting Power BI to OBIEE: DIY Tips to Improve **Query Performance**



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Introduction

All organizations using OBIEE face challenges in equipping users with self-service analytics. In order to overcome the challenge, most of these organizations connect data visualization tools such as Power BI to OBIEE.

BI Connector helps organizations to connect Power BI to OBIEE (and OAC/OAS), and checks the box (in any combination) for the possible scenarios listed below:

1. Connect Power BI to both OBIEE Subject Areas and Reports
2. Retain the existing OBIEE joins for reuse in Power BI
3. Work seamlessly in both Import and Direct Query modes
4. Support both Power BI Desktop and Server editions
5. Eliminate Power BI/OBIEE version compatibility issues

When connecting Power BI to OBIEE, query performance issues are most likely to occur. However, with BI Connector's DIY tips, one can improve the query performance drastically.

In this whitepaper, we'll take a quick look at the factors affecting the query performances of Power BI and OBIEE, along with the DIY tips to improve the query performance when connecting both via BI Connector.

Factors Affecting OBIEE Query Performance

The 2 major factors affecting OBIEE's query performance are:

1. Large datasets
2. Concurrent usage

Large Datasets

OBIEE, as a traditional BI platform, is mostly used by large enterprises. Most of these organizations, in fact, view OBIEE as a single source of truth.

The data handled in OBIEE are usually several years or even decades old. The data sources range from simple excel/CSV files to complex data warehouses or data marts, and applications.

Some OBIEE reports have millions of rows and take a long time to fetch the result even for simple queries run on subject areas with a star schema data model.

Therefore, the volume of the data queried is one of the major factors affecting OBIEE's query performance.

Concurrent usage

OBIEE, as an enterprise analytics platform, is generally used by a large user-base.

Therefore, the same OBIEE report can be accessed concurrently by multiple users, provided they had the necessary access.

This concurrent usage, though rare, could also have a negative impact on the query performance.

Factors Affecting Power BI Query Performance

In Power BI, the query performance is primarily affected by the below factors:

1. Connectivity mode
2. Data previews
3. Number of visuals/filters used

Connectivity mode

Power BI offers import and direct query modes to connect to data sources.

When the direct query mode is used on slower queries (in the connected data source), the query performance takes a hit.

Similarly, in the case of using import mode, the query performance is affected if the dataset imported is too large.

Data previews

When connecting any data source, Power BI offers the users with an option to preview the data. When the users connect Power BI to OBIEE via BI Connector, this preview option still shows up.

The OBIEE reports could have millions of rows, and hence the preview step could cause unnecessary delays.

When the users choose to preview the data, it affects the query performance, especially if the dataset is large or if the query is a complex one.

Number of visuals/filters used

This factor is probably known to most Power BI users.

When the number of visuals in a Power BI report is more, the query performance could take a hit, as Power BI executes separate queries for each visual.

If each page/visual in the report has separate filters, the performance would be affected further.

BI Connector's DIY Tips to Improve Query Performance

When connecting Power BI to OBIEE via BI Connector, the factors listed above still affect the query performance.

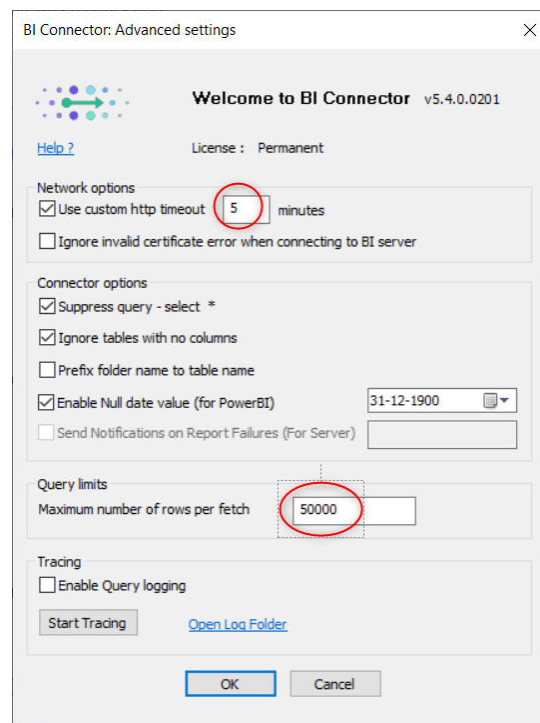
However, the query performance will improve significantly by applying the simple DIY tips, especially when OBIEE is used as a data source in Power BI.

Let's see the tips now.

Use BI Connector Advanced Settings

In BI Connector's advanced settings window, the users can adjust the HTTP time-out (in minutes) setting to avoid time-out errors.

This setting must be greater than the value in the `UnaccessedRunningTimeoutMinutes` parameter of the OBIEE instance config file.



Similarly, the number of rows per fetch parameter must be less than the `ResultRowLimit` in the instance config file.

When BI Connector deals with large data volumes, it automatically changes the number of rows per fetch setting and attempts to re-fetch the data from OBIEE. However, if BI

Connector's attempts to re-fetch the data fails repeatedly, the users must change the setting manually.

The end-users can get the information on these parameters from the OBIEE/network admin.

Choose the right connectivity mode

In Power BI, choosing the right connectivity mode for the right use case will improve the query performance irrespective of the data source.

When connecting Power BI to OBIEE via BI Connector, use the direct query mode for faster OBIEE queries.

On the other hand, use the Import mode for slower OBIEE queries. This will help in improving the query performance as Power BI queries from its in-memory and eliminates the time of interaction with the data source. The dataset can be updated via scheduled refresh or manual refresh based on user preferences.



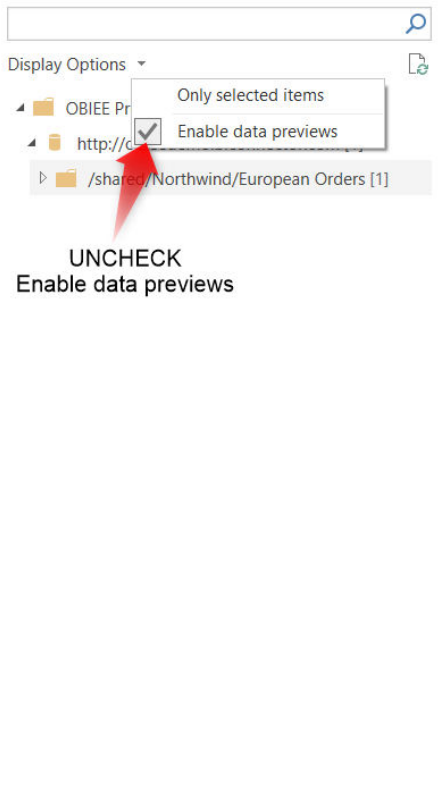
Note: If the user is not aware of the speed of execution of an OBIEE query, they must run the query in the OBIEE environment first.

Disable data previews in Power BI

Regardless of the data source (OBIEE subject areas or reports), the preview option in Power BI runs queries even before the users arrive at the reporting canvas.

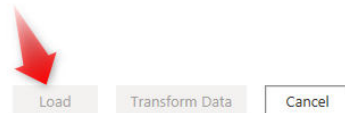
Hence, it is highly recommended to uncheck the Enable data preview option (as indicated in the below image) when connecting Power BI to OBIEE via BI Connector.

Navigator



No items selected for preview

USE the Load button.
Highly recommended to
AVOID Transform Data
button UNLESS needed



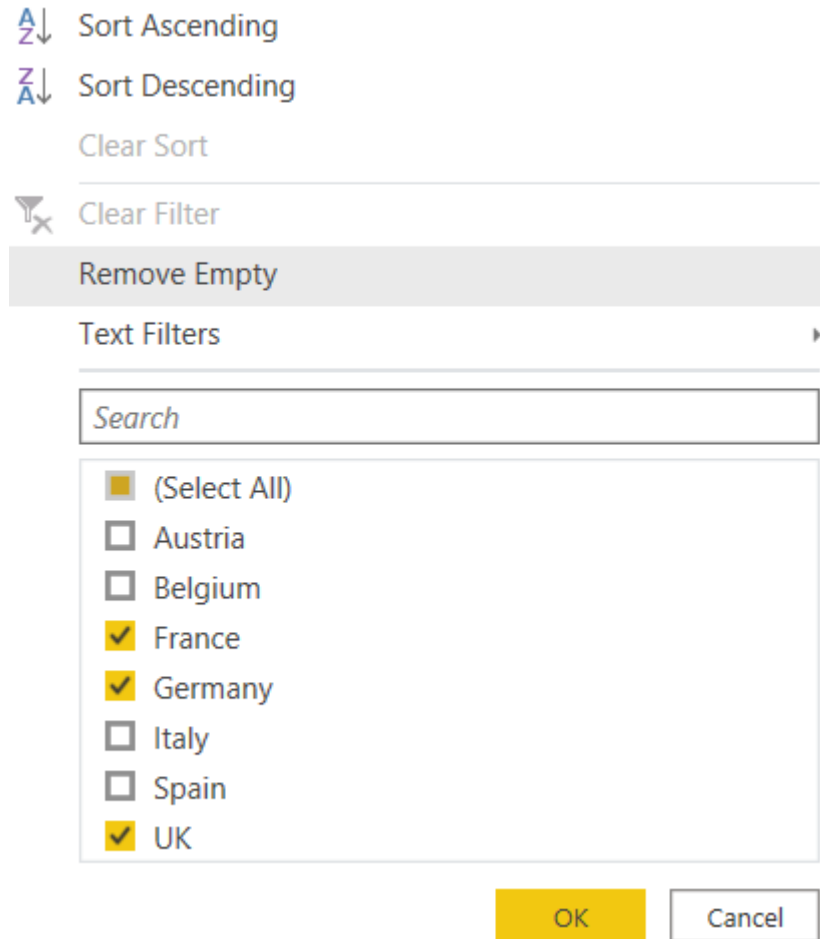
Also it is good to avoid the Transform Data option, unless the users are connecting a Subject Area via import mode (where the users will have to execute some steps to retain OBIEE joins) or to apply filters before loading the data.

This way the users can save time by directly connecting or importing data, especially when connecting to OBIEE reports.

Use filters (to minimize the analyzed dataset)

When connecting Power BI to OBIEE via BI Connector, the users can apply filters in the Power BI end as well to improve the query performance.

By applying filters, the users can narrow down the data they need for analysis.



The filters must be applied to the entire dataset before loading data in Power BI.

Minimize the number of visuals/filters in reports

Power BI offers three types of filters - report level, page level and visual level.

The number of visuals in a page and the filters in the visuals, when minimized will improve the query performance, as the need for fetching the underlying data for multiple queries (with different filters) is eliminated.

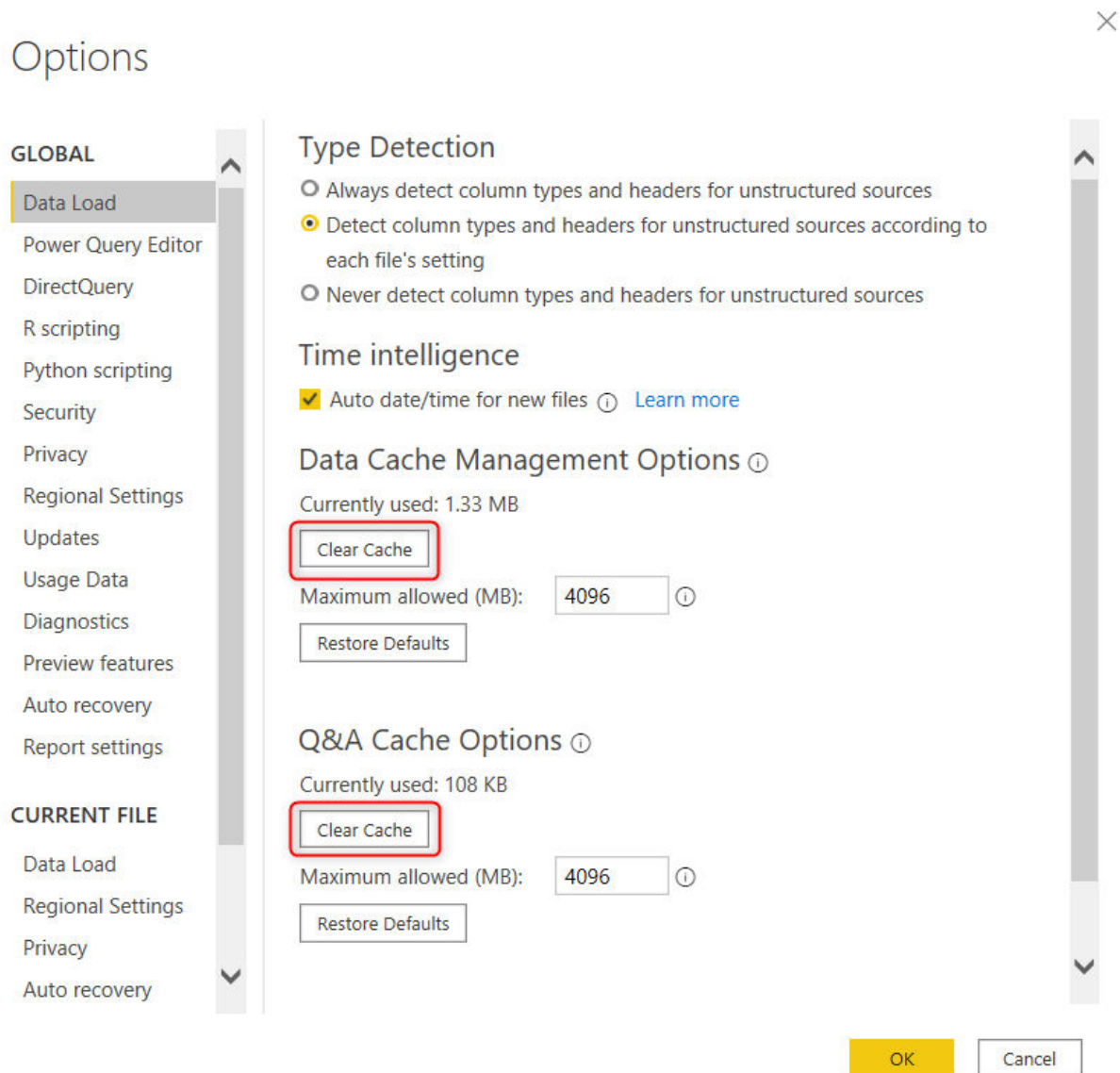
Run the query in OBIEE

When the query performance in Power BI is not satisfactory, it's always good to run the query in the OBIEE end and check if it meets the performance needs.

It is necessary to know the query performance in OBIEE, as this information will help to apply the above tips appropriately.

Bonus tip - Clear Power BI Cache

Whenever connecting Power BI to any data source, it is always good to clear the cache in Power BI.



The screenshot shows the 'Options' dialog box in Power BI. The left sidebar is set to 'GLOBAL' with 'Data Load' selected. The main area is divided into sections: 'Type Detection', 'Time intelligence', 'Data Cache Management Options', and 'Q&A Cache Options'. In the 'Data Cache Management Options' section, the 'Clear Cache' button is highlighted with a red box. Below it, the 'Maximum allowed (MB)' is set to 4096. In the 'Q&A Cache Options' section, the 'Clear Cache' button is also highlighted with a red box, and the 'Maximum allowed (MB)' is also set to 4096. At the bottom right, there are 'OK' and 'Cancel' buttons.

Though this is not related to query performance, it is essential to ensure that the data analysed is not from Power BI cache.

Conclusion

When using BI Connector for connecting Power BI and OBIEE, the query performance issues could be caused in the Power BI end or in OBIEE end.

However, with these simple tips, the users can improve the query performance significantly and experience hassle-free OBIEE (and OAC/OAS) data visualization in Power BI via BI Connector.