BLACKDUCK

BY SYNOPSYS®

Report Database

Version 2019.10.3

This edition of the *Report Database* refers to version 2019.10.3 of Black Duck.

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Please send your comments and suggestions to:

Synopsys
800 District Avenue, Suite 201
Burlington, MA 01803-5061 USA

Contents

Black Duck documentation

The documentation for Black Duck consists of online help and these documents:

Title	File	Description
Release Notes	release_notes.pdf	Contains information about the new and improved features, resolved issues, and known issues in the current and previous releases.
Installing Black Duck using Docker Compose	install_compose.pdf	Contains information about installing and upgrading Black Duck using Docker Compose.
Installing Black Duck using Docker Swarm	install_swarm.pdf	Contains information about installing and upgrading Black Duck using Docker Swarm.
Installing Black Duck using Kubernetes	install_kubernetes.pdf	Contains information about installing and upgrading Black Duck using Kubernetes.
Installing Black Duck using OpenShift	install_openshift.pdf	Contains information about installing and upgrading Black Duck using OpenShift.
Getting Started	getting_started.pdf	Provides first-time users with information on using Black Duck.
Scanning Best Practices	scanning_best_practices.pdf	Provides best practices for scanning.
Getting Started with the SDK	getting_started_sdk.pdf	Contains overview information and a sample use case.

Title	File	Description
Report Database	report_db.pdf	Contains information on using the report database.
User Guide	user_guide.pdf	Contains information on using Black Duck's UI.

Black Duck integration documentation can be found on Confluence.

Customer support

If you have any problems with the software or the documentation, please contact Synopsys Customer Support.

You can contact Synopsys Support in several ways:

- Online: https://www.synopsys.com/software-integrity/support.html
- Email: software-integrity-support@synopsys.com
- Phone: See the Contact Us section at the bottom of our support page to find your local phone number.

Another convenient resource available at all times is the online customer portal.

Synopsys Software Integrity Community

The Synopsys Software Integrity Community is our primary online resource for customer support, solutions, and information. The Community allows users to quickly and easily open support cases and monitor progress, learn important product information, search a knowledgebase, and gain insights from other Software Integrity Group (SIG) customers. The many features included in the Community center around the following collaborative actions:

- Connect – Open support cases and monitor their progress, as well as, monitor issues that require Engineering or Product Management assistance
- Learn – Insights and best practices from other SIG product users to allow you to learn valuable lessons from a diverse group of industry leading companies. In addition, the Customer Hub puts all the latest product news and updates from Synopsys at your fingertips, helping you to better utilize our products and services to maximize the value of open source within your organization.
- Solve – Quickly and easily get the answers you're seeking with the access to rich content and product knowledge from SIG experts and our Knowledgebase.
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Access the Customer Success Community. If you do not have an account or have trouble accessing the system, click here to get started, or send an email to community.manager@synopsys.com.

Training

Synopsys Software Integrity, Customer Education (SIG Edu) is a one-stop resource for all your Black Duck education needs. It provides you with 24x7 access to online training courses and how-to videos.

New videos and courses are added monthly.

At Synopsys Software Integrity, Customer Education (SIG Edu), you can:

- Learn at your own pace.
- Review courses as often as you wish.
- Take assessments to test your skills.
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Chapter 1: About the report database

Reporting schemas in the PostgreSQL database, `bds_hub`, provide access to Black Duck data for reporting purposes. Use any reporting tool that supports JDBC connections, such as Jasper Reports, to access the data.

With the report database, for example, you can:

- Create a report of the components in a project version.
- Create a report of the vulnerabilities in a component version.
- Query the database to obtain similar information across all of your projects, such as:
  - Selecting all projects with a particular license, phase, and/or distribution.
  - Selecting all components using a particular license.
  - Selecting all project/project versions having a particular component/component version.

Note the following:

- Database name: `bds_hub`
- Username: blackduck_reporter. This user only has read-only access to the reporting schema of the database.
- Exposed port: 55436

  If your Black Duck server is hosted by Black Duck Software, the exposed port is 5432.
- Password for blackduck_reporter.
  - If using the database container that is automatically installed by Black Duck, set the password before connecting to the database. For more information, see the installation guide for the orchestration tool you used to install Black Duck.
  - If using an external PostgreSQL database, use your preferred PostgreSQL administration tool to configure the password.

  Once the password is set you can connect to the report database. For example, using psql:

  ```
  psql -U blackduck_reporter -p 55436 -h localhost -W bds_hub
  ```

> **Note:** There will be a delay for any changes made in Black Duck to appear in the report database. The length of time for this delay depends on the value you specified for the BLACKDUCK_ REPORTING_DELAY_MINUTES environment variable, which by default, equals 8 hours. For more information, see the installation guide for the orchestration tool you used to install Black Duck.

- The schemas are created automatically when you install or upgrade Black Duck. You will not be able to query the views until after the first run of the report database job - the ReportDatabaseTransferJob. To determine if a view is populated, run the following command:

  ```
  SELECT ispopulated FROM pg_catalog.pg_matviews WHERE schemaname =
  'reporting' AND matviewname = ViewName
  ```

  where `ViewName` is the name of the view that interests you.

  For example, to determine if the component policies view is populated, run the following command:

  ```
  SELECT ispopulated FROM pg_catalog.pg_matviews WHERE schemaname =
  'reporting' AND matviewname = component_policies
  ```

- Synopsys recommends that you write queries with the assumption that columns will be added in the future; select specific columns, instead of using the all-columns "*" selection method.

- While Black Duck provides the blackduck_reporter user which only has read-only access to the reporting schemas of the `bds_hub` database, you can configure additional users which have the same permissions as the blackduck_reporter.

  Run the following commands, replacing `blackduck_reporter` with the username:

  ```
    GRANT USAGE ON SCHEMA reporting TO ${blackduck_reporter};
    GRANT SELECT ON ALL TABLES IN SCHEMA reporting TO ${blackduck_
    reporter};

    REVOKE INSERT, UPDATE, TRUNCATE, DELETE, REFERENCES ON ALL TABLES IN
    SCHEMA reporting FROM ${blackduck_reporter};
    REVOKE ALL ON SCHEMA st FROM ${blackduck_reporter};
  ```

Report database schema

The following section lists the tables in the report database and associated view name.

Component Table (`component`)

Column	Type	Description
`id`	bigint	ID.
`project_version_id`	UUID	Project version ID.
`component_id`	UUID	Component ID.
`component_version_id`	UUID	Component version ID.
`component_name`	text	Component name.
`component_version_name`	text	Component version name.
`version_origin_id`	UUID	Version origin ID.

Column	Type	Description
origin_id	text	Origin ID. Note that origin ID is blank if the component does not have a distribution.
origin_name	text	Name of the distribution (origin).
ignored	boolean	Indicates whether the component is ignored: • "t" indicates that the component is ignored. • "f" indicates that the component is not ignored.
policy_approval_status	text	One of the following values: • IN_VIOLATION • NOT_IN_VIOLATION • IN_VIOLATION_OVERRIDDEN

Component License Table (component_license)

Column	Type	Description
project_version_id	UUID	Project version ID.
id	bigint	ID.
component_table_id	bigint	id field in the Component table.
license_display	text	License name when it is a single license; license display when it is a complex license. For example, (License A OR license B).

Component Match Type Table (component_match_types)

Column	Type	Description
project_version_id	UUID	Project version ID.
component_id	bigint	id field in the Component table.
match_type	text	One of the following values: • BINARY • FILE_FILES_ADDED_DELETED_AND_MODIFIED • FILE_DEPENDENCY • FILE_DEPENDENCY_DIRECT • FILE_DEPENDENCY_TRANSITIVE • FILE_EXACT • FILE_EXACT_FILE_MATCH

Column	Type	Description
		- FILE_SOME_FILES_MODIFIED - MANUAL_BOM_COMPONENT - MANUAL_BOM_FILE - PARTIAL_FILE - SNIPPET

Component Matches Table (`component_matches`)

Column	Type	Description
`project_version_id`	UUID	Project version ID.
`component_table_id`	bigint	`id` field in the Component table.
`match_id`	bigint	Match ID.
`match_type`	text	One of the following values: - BINARY - FILE_FILES_ADDED_DELETED_AND_MODIFIED - FILE_DEPENDENCY - FILE_DEPENDENCY_DIRECT - FILE_DEPENDENCY_TRANSITIVE - FILE_EXACT - FILE_EXACT_FILE_MATCH - FILE_SOME_FILES_MODIFIED - MANUAL_BOM_COMPONENT - MANUAL_BOM_FILE - PARTIAL_FILE - SNIPPET
`match_path`	text	Path.
`match_file_name`	text	File name

Component Policies (`component_policies`)

Column	Type	Description
`project_version_id`	UUID	Project version ID.
`component_table_id`	UUID	`ID` field in the Component table..
`policy_id`	UUID	Project version name.
`policy_name`	text	Name of the policy.

Column	Type	Description
policy_status	text	Project Distribution
overridden_by	UUID	Project release date.
override_comment	text	Notes about this version of the project.

Component Usage Table (component_usages)

Column	Type	Description
component_id	bigint	id field in the Component table.
usage	text	One of the following values: • DYNAMICALLY_LINKED • STATICALLY_LINKED • SOURCE_CODE • DEV_TOOL_EXCLUDED • SEPARATE_WORK • IMPLEMENTATION_OF_STANDARD

Component Vulnerability Table (component_vulnerability)

Column	Type	Description
component_table_id	bigint	ID field in the Component table.
vuln_id	text	Vulnerability ID, such as CVE-2017-1234 or 12345.
severity	text	One of the following values: • HIGH • MEDIUM • LOW

Column	Type	Description
remediation_status	text	Lists the remediation status. One of the following values: • NEW • NEEDS_REVIEW • REMEDIATION_REQUIRED • REMEDIATION_COMPLETE • DUPLICATE • MITIGATED • PATCHED • IGNORED
target_date	timestamp with time zone	Target date to remediate the vulnerability
actual date	timestamp with time zone	Actual date the vulnerability was remediated.
comment	text	Comments entered when remediating the vulnerability.
description	text	Description of the vulnerability.
base_score	numeric	Base score of the vulnerability. This score reflects the overall basic characteristics of a vulnerability that are constant over time and user environments.
exploit_score	numeric	Exploitability score of the vulnerability. This score measures how the vulnerability is accessed and if extra conditions are required to exploit it, taking into account access vector, complexity, and authentication.
impact_score	numeric	Impact score of the vulnerability. This score reflects the possible impact of successfully exploiting the vulnerability, considering the integrity, availability, and confidentiality impacts.
related_vuln_id	text	Empty except when BDSA has a related CVE vulnerability. If a BDSA vulnerability is mapped to a CVE, the related CVE is listed here; the BDSA vulnerability is listed in the vuln_id column.

Project Table (project)

Column	Type	Description
project_id	UUID	Project ID.
project_name	text	Project name.
owner	UUID	User ID in Black Duck.
tier	int	Project tier. A value between 1 -5.
description	text	Project description.

Project Mapping Table (project_mapping)

Column	Type	Description
project_id	UUID	Project ID.
application_id	text	Application ID.

Project Version Table (project_version)

Column	Type	Description
project_id	UUID	Project ID.
version_id	UUID	Project version ID.
version_name	text	Project version name.
phase	text	Project phase: • PLANNING • DEVELOPMENT • PRERELEASE • RELEASED • DEPRECATED • ARCHIVED
distribution	text	Project Distribution: • EXTERNAL • SAAS • INTERNAL • OPENSOURCE
released_on	timestamp without time zone	Project release date.

Column	Type	Description
notes	text	Notes about this version of the project.
nickname	text	Nickname for the project version.

Project Version Code Location Table (project_version_code_location)

Column	Type	Description
project_version_id	UUID	Project version ID.
id	UUID	ID.
name	text	Code location name
last_scan_time	bigint	Time of last scan.

Chapter 2: Using Excel with the report database

Excel is a tool you can use for viewing data.

The following examples show how you can use Excel to retrieve and display data from the report database.

> **Note:** The procedures you use to obtain and display data using Excel may be different than what is shown here as the process depends on your system and version of Excel. Refer to your Excel documentation for more information on using this application.

Since Excel requires an ODBC driver to access the report database, download, install, and configure the ODBC driver.

Download and install the ODBC driver

Excel requires an ODBC driver to access the report database.

1. Download and install the ODBC driver.

    - Windows: https://odbc.postgresql.org/

      Download the 32- or 64-bit version of the driver, depending on your system, and install it.

    - Mac: http://macappstore.org/psqlodbc/

Configure the ODBC driver

1. Open the ODBC Data Source Administrator dialog box.

   The method to open the dialog box depends on whether you are using a Mac or the version of Windows.

   For example, one way to open the ODBC Data Source Administrator dialog box in Windows is by selecting **Administrative Tools** from the Control Panel and double-clicking **ODBC Data Source (64-bit)**.

2. Select the **User DSN** tab and click **Add**. The Create New Data Source dialog box appears.

3. Select **PostgreSQL Unicode** or **PostgreSQL ANSI** and click **Finish**. The PostgreSQL Unicode/ANSI ODBC Driver Setup dialog box appears.

4. Complete the fields in this dialog box as follows:
    - **Data Source**: Enter the data source such as **PostgreSQL30** or **PostgreSQL35W**. Those values may already appear here.

- **Database**: Enter **bds_hub**.
- **Server**: Enter the IP address (*x.x.x.x*) or hostname.
- **User Name**: Enter **blackduck_reporter**.
- **SSL Mode**: Select **allow** from the list.
- **Port**: Enter **55436** unless a different port was selected during the install or upgrade process.
- **Password**: Enter the password for the report_database.

5. Exit all dialog boxes: click **Save** in the PostgreSQL Unicode ODBC Driver Setup dialog box **Finish** to exit the Create New Data Source dialog box and then **OK** in the ODBC Data Source Administrator dialog box.

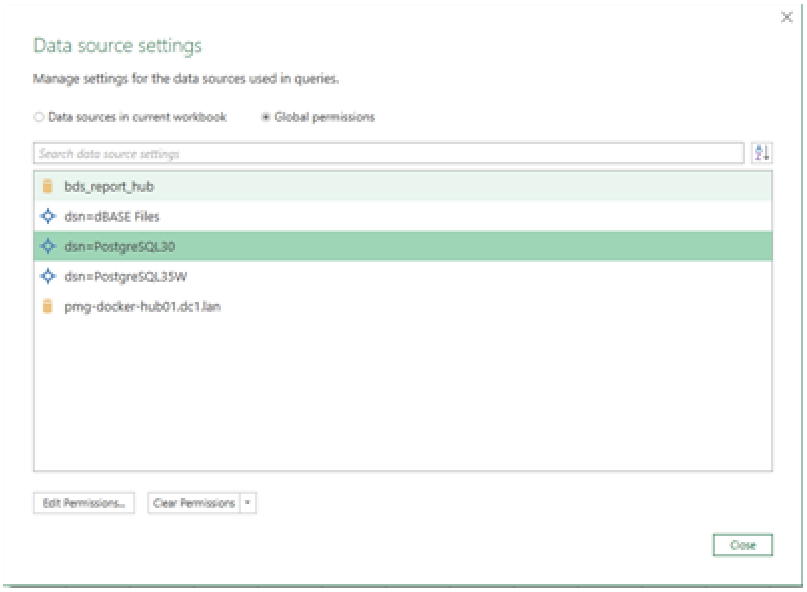
Configuring data source credentials

After configuring the ODBC driver, use Excel to confirm the data source credentials.

1. Open Excel and select to open a new blank workbook.

2. Select **Data** > **Get Data** > **Data Source Settings**.

   The Data source settings dialog box appears.



Data source settings

Manage settings for the data sources used in queries.

○ Data sources in current workbook ● Global permissions

Search data source settings

bds_report_hub

dsn=dBASE Files

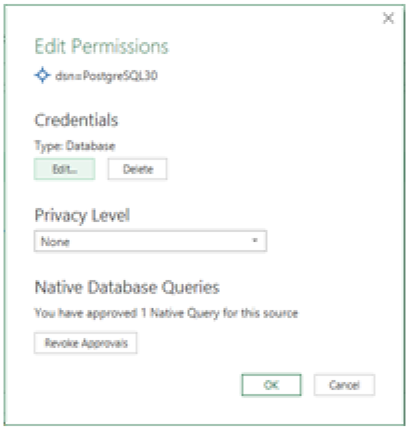
dsn=PostgreSQL30

dsn=PostgreSQL35W

pmg-docker-hub01.dc1.lan

3. Select the data source, as defined when configuring the ODBC driver, to connect to and click **Edit Permissions**.

   The Edit Permissions dialog box appears.



Edit Permissions

dsn=PostgreSQL30

Credentials

Type: Database

Privacy Level

None

Native Database Queries

You have approved 1 Native Query for this source

4. Select **Edit** under **Credentials** to open the ODBC driver dialog box.

5. Enter the username and password. Ensure that the values you entered match what was entered when configuring the ODBC driver and click **Connect**.

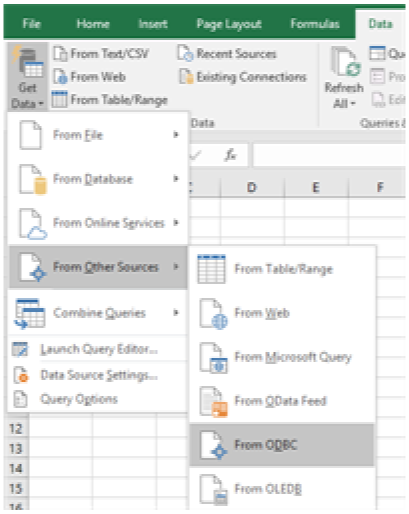
6. Once the connection is confirmed, click **OK** in the Edit Permissions dialog box and click **Close** in the Data source settings dialog box.

Extracting data from the report database

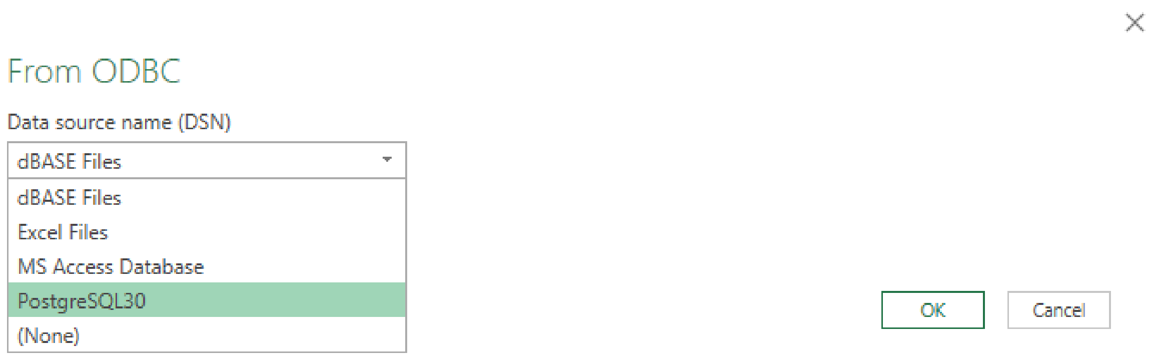
There are several methods to extract data from the report database. You can extract the data directly to Excel or use Microsoft Query to retrieve the data.

Extracting data to Excel

1. In Excel, select **Data** > **Get Data** > **From Other Source** > **From ODBC**.



The From ODBC dialog box appears.



2. Select the database and click **OK**.

   The Navigator window appears.

3. Expand the tables shown by selecting **ODBC** > **bds_hub** > **reporting**.

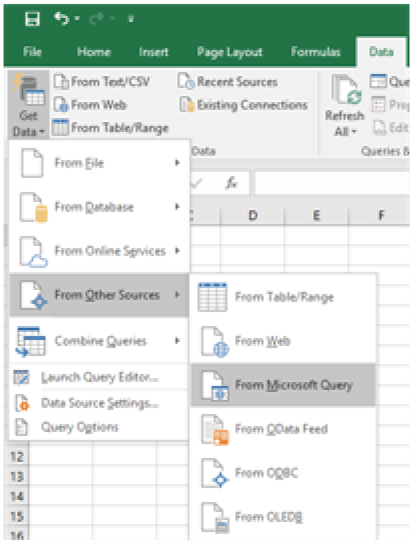
4. Select the table(s) to view and click **Load**.

   The tables are loaded into Excel.

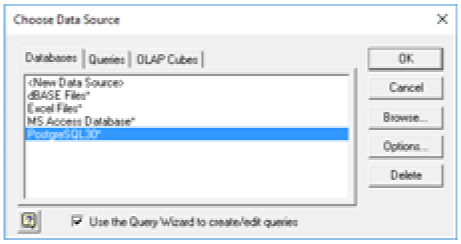
Using Microsoft Query

You can use Microsoft Query to retrieve your data from the report database.

1. In Excel, select **Data** > **Get Data** > **From Other Sources** > **From Microsoft Query**.



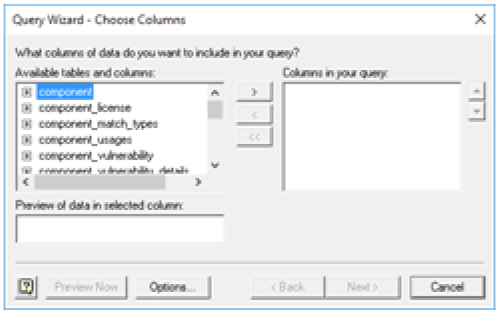
The Choose Data Source dialog box appears.



☑ Use the Query Wizard to create/edit queries

2. Select the data source you entered when configuring the ODBC driver and click **OK**.

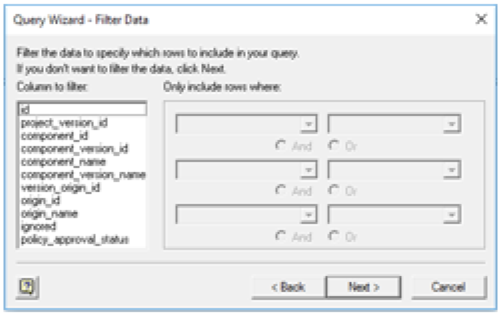
   The Query Wizard - Choose Columns dialog box appears.



What columns of data do you want to include in your query?

3. Select the tables and columns to be viewed by selecting them and clicking **>** to move them to the **Columns in your query** section. Click **Next**.

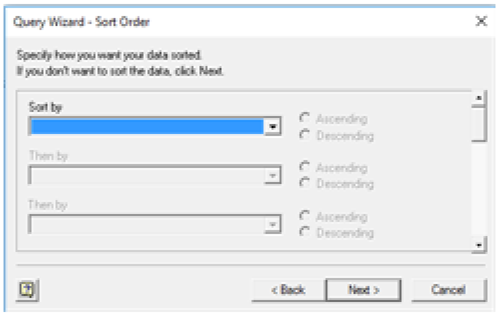
   The Query Wizard - Filter Data dialog box appears.



Filter the data to specify which rows to include in your query.
If you don't want to filter the data, click Next.

4. Select the filters for your query and click **Next**.

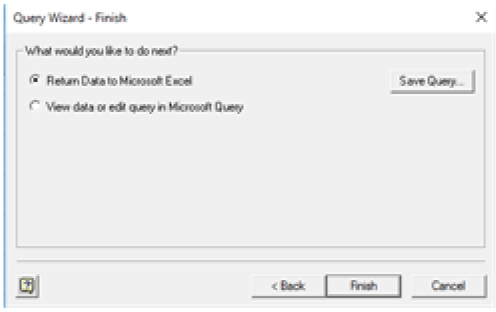
   The Query Wizard - Sort Order dialog box appears.



Specify how you want your data sorted.
If you don't want to sort the data, click Next.

5. Select to sort the data in ascending or descending order and click **Next**.

   The Query Wizard - Finish dialog box appears.



What would you like to do next?

● Return Data to Microsoft Excel

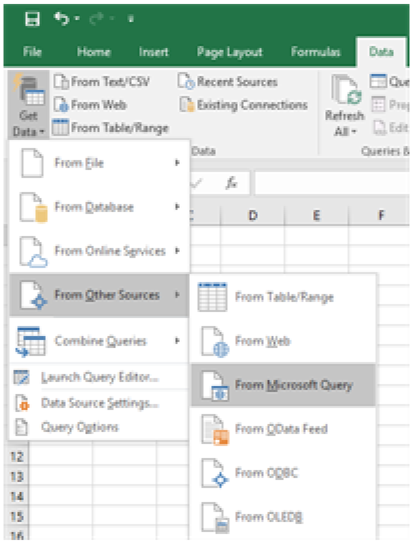
○ View data or edit query in Microsoft Query

6. Select **Return Data to Microsoft Excel** and click **Finish**.

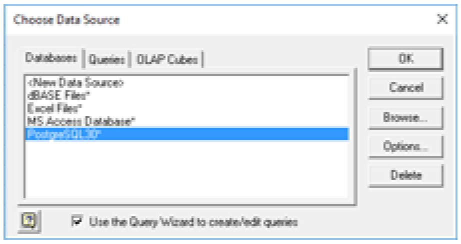
The data displays in Microsoft Excel.

Manually querying the report database data using Microsoft Query

1. In Excel, select **Data** > **Get Data** > **From Other Sources** > **From Microsoft Query**.

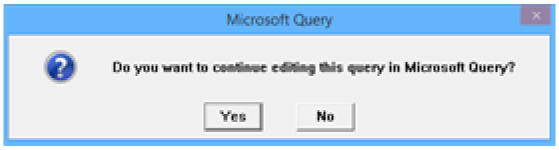


The Choose Data Source dialog box appears. Select the database and click **OK**.



2. Click **Cancel**.

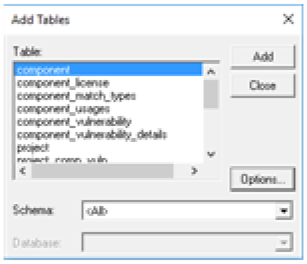
   The following message appears.



Do you want to continue editing this query in Microsoft Query?

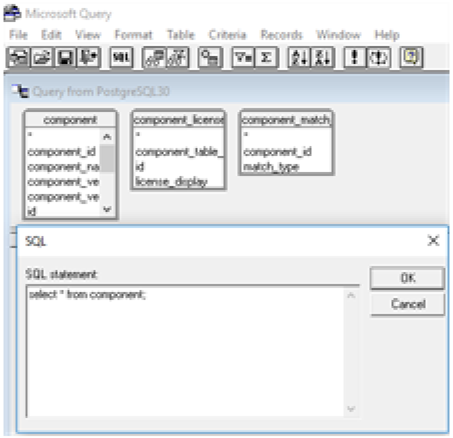
3. Click **Yes**.

   The Add Tables dialog box appears.



4. Select the tables from the list for your query and click **Add**. Once the tables have been selected, click **Close**.

5. Microsoft Query opens. If it does not automatically open, click SQL.



SQL statement:

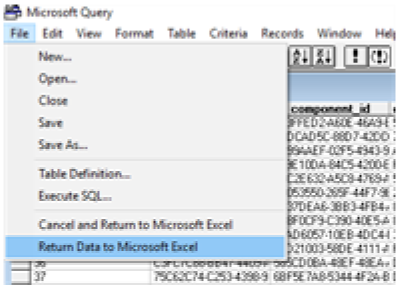
```
select * from component;
```

6. Type the SQL query in the **SQL statement** field and click **OK** to view the results.

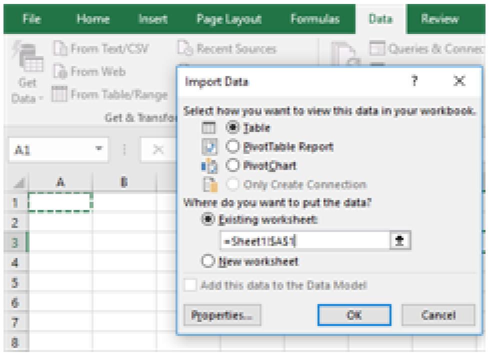
   The results appear in Microsoft Query.

   Click **OK** if a message appears stating that the data can't be represented graphically.

7. To view these results in Excel, in Microsoft Query, select **File** > **Return Data to Microsoft Excel**.


Microsoft Query
File Edit View Format Table Criteria Records Window Help
New...
Open...
Close
Save
Save As...
Table Definition...
Execute SQL...
Cancel and Return to Microsoft Excel
Return Data to Microsoft Excel
component_id
37

8. Excel opens and the Import Data dialog box appears.



Import Data

Select how you want to view this data in your workbook.

● Table
○ PivotTable Report
○ PivotChart
○ Only Create Connection

Where do you want to put the data?

● Existing worksheet
=Sheet1!A1
○ New worksheet

□ Add this data to the Data Model

Properties... OK Cancel

9. Complete the information in the dialog box, select a cell in a workbook where the data should load, and click **OK**.

   The data is loaded into Excel.