1 Product Information

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<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Product Information</td>
<td>2</td>
</tr>
<tr>
<td>2 Publication History</td>
<td>5</td>
</tr>
<tr>
<td>3 Introduction</td>
<td>6</td>
</tr>
<tr>
<td>3.1 About PerformanceBridge Quality and Productivity</td>
<td>6</td>
</tr>
<tr>
<td>3.2 Purpose and Intended Use of This Document</td>
<td>7</td>
</tr>
<tr>
<td>3.3 Protecting Personal Information</td>
<td>7</td>
</tr>
<tr>
<td>3.4 Browser Compatibility</td>
<td>7</td>
</tr>
<tr>
<td>3.5 Accessing the Application</td>
<td>8</td>
</tr>
<tr>
<td>4 Workflow</td>
<td>9</td>
</tr>
<tr>
<td>4.1 Logging In</td>
<td>9</td>
</tr>
<tr>
<td>4.2 Navigating the User Interface</td>
<td>9</td>
</tr>
<tr>
<td>4.3 User Tools</td>
<td>10</td>
</tr>
<tr>
<td>4.3.1 Application Overview</td>
<td>10</td>
</tr>
<tr>
<td>4.3.2 Using Groupings</td>
<td>11</td>
</tr>
<tr>
<td>4.3.3 Setting the Time Range</td>
<td>12</td>
</tr>
<tr>
<td>4.3.4 Filters</td>
<td>14</td>
</tr>
<tr>
<td>4.3.4.1 Demographic Filter</td>
<td>14</td>
</tr>
<tr>
<td>4.3.4.2 Date/Time Filter</td>
<td>15</td>
</tr>
<tr>
<td>4.3.4.3 Smart Filtering</td>
<td>16</td>
</tr>
<tr>
<td>4.3.4.4 Inclusive and Exclusive Filter Mode</td>
<td>17</td>
</tr>
<tr>
<td>4.3.5 Autopreview Toggle</td>
<td>18</td>
</tr>
<tr>
<td>4.3.6 Performance Warning</td>
<td>19</td>
</tr>
<tr>
<td>4.3.7 Adjusting Table Columns</td>
<td>19</td>
</tr>
<tr>
<td>4.3.8 Drill Down Options</td>
<td>20</td>
</tr>
<tr>
<td>4.3.8.1 Quick Summary View</td>
<td>20</td>
</tr>
<tr>
<td>4.3.8.2 Drill Down Grouping and Subgrouping</td>
<td>21</td>
</tr>
<tr>
<td>4.3.8.3 Exam-level Drill</td>
<td>22</td>
</tr>
<tr>
<td>4.3.9 Navigating Breadcrumbs</td>
<td>23</td>
</tr>
<tr>
<td>4.3.10 Drilling Impact on Filters</td>
<td>24</td>
</tr>
<tr>
<td>4.3.11 Viewing Graphs of Data</td>
<td>24</td>
</tr>
<tr>
<td>4.3.12 Using the Control Interface</td>
<td>25</td>
</tr>
<tr>
<td>4.3.13 Best Practices for the Application</td>
<td>25</td>
</tr>
<tr>
<td>4.3.14 Data Analysis</td>
<td>26</td>
</tr>
<tr>
<td>4.3.14.1 Understanding Percentiles</td>
<td>26</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>4.3.14.2</td>
<td>Percentile Analysis</td>
</tr>
<tr>
<td>4.3.14.3</td>
<td>Statistical Correlation</td>
</tr>
</tbody>
</table>
## 2 Publication History

<table>
<thead>
<tr>
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<tr>
<td>A</td>
<td>2018-11-05</td>
<td>Initial release</td>
</tr>
<tr>
<td>B</td>
<td>2019-03-26</td>
<td>v1.4.0 release and addition of product manufacturer information.</td>
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</table>
3 Introduction

3.1 About PerformanceBridge Quality and Productivity

The PerformanceBridge Quality and Productivity tools can be used to gain visibility into departmental workflow metrics and help to empower imaging leaders to make strategic short- and long-term decisions to improve operational and financial performance. These applications feature easy to understand, self-serve dashboards with essential radiology department performance metrics around exam turnaround time, patient wait, staff performance, financials and more.

PerformanceBridge Quality and Productivity tools rapidly provide visibility to departmental metrics, allowing imaging leaders to make near real-time and longer-term strategic planning decisions that can drive efficiencies and enhance staff and patient experiences. These tools are built for day-to-day use by radiology administrators and modality managers who need self-service business intelligence tools that can integrate across diverse data streams, with a user interface that’s tailored to radiology operations.

Intended Use

PerformanceBridge Quality and Productivity tools feature comprehensive self-service dashboard tools that allow operational managers to create and monitor their own performance metrics with their own department’s data. The tools enable users to drill down to a graphical or table view of operational metrics of their choice.

The goal of the PerformanceBridge Productivity tool is to provide an easy, interactive spreadsheet-like tool with drill down capabilities to allow the user to easily create and understand operational metrics to improve department efficiency and productivity. The PerformanceBridge Quality tool offers a similar goal, but by providing a view that utilizes more graphical visualizations.

The principle of the system overall is that it enables operational improvements by using data discovery techniques that allow users to click on the spreadsheet elements or charts to filter and drill down on items of interest. The system tracks utilization of department resources and is a platform for continuous quality improvement. Customers are able to get a strategic view of the entire department’s metrics.
3.2 Purpose and Intended Use of This Document

This manual is intended for modality managers, radiology operational staff, and clinical administration using the PerformanceBridge Productivity application.

3.3 Protecting Personal Information

It is recommended that customers have policies and procedures for the proper handling of personal or sensitive information, ePHI (electronic protected health information) and PHI (protected health information), which will maintain the confidentiality, integrity, and the availability of these types of data. Any organization using this product should implement the required protective means necessary to safeguard personal information consistent with each applicable country law, code and regulation; and consistent with their developed and maintained internal policies and procedures. While handling personal information is outside the scope of this document; in general, each organization is responsible for identifying:

- Who has access to personal data and under what conditions an individual has authorization to use that data.
- What security controls are in place to protect personal and sensitive data.
- How the data is stored and the conditions by which it is stored.
- How the data is transmitted and the conditions under which that data is transmitted.

Protecting personal health information is a primary component of a security strategy. Personal and sensitive information should be protected according to the applicable laws, regulations and directives, such as HIPAA, PIPEDA and/or GDPR EU 2016/679.

3.4 Browser Compatibility

To make sure you have the best experience, use one of the following supported browsers versions:

- Chrome (>=42.x)
- Safari (>=8.x)
  Validated for use on the Apple iPad using the Safari browser.
- Firefox (>=37.x)
- Internet Explorer (>=9)
The system relies on HTML5, CSS3, JavaScript and other web standards. Each web browser may implement part or all of these standards. The system has also been tested and validated for use on Apple iPads using the Safari browser.

3.5 Accessing the Application

The PerformanceBridge Application Suite is entirely web-based and located as a launch-able link from your organization’s Philips PerformanceBridge Application Suite portal page.
4 Workflow

4.1 Logging In

The Application Suite is capable of displaying patient health information and requires a user to login to the system via the main portal page with their enterprise login ID. The system does not directly manage user names and passwords but delegates that function to your institution’s central enterprise directory system. All page views are logged in the auditing system based on the authorized user ID.

Figure 1: Login Screen

4.2 Navigating the User Interface

The user interface is designed for smooth navigation between the different functions of the application. Once you have logged in to the system, you are directed to the landing page with the navigation bar located at the top right-hand side of the screen. The navigation bar is used to access the different sections of the application.
4.3 User Tools

4.3.1 Application Overview

The image below displays the key features of the Productivity application.

Figure 2: Productivity Navigation Bar
Number | Description
--- | ---
1 | Groupings displayed in menu
2 | Drill down of applicable filters
3 | Icon used to update table columns
4 | Filter options
5 | Summary view of data

### 4.3.2 Using Groupings

The key to successful use of the Productivity application is based on the concept of groupings and filters. Groupings are topics of interest for a particular area of focus.

To begin using the application, select a grouping from the menu at the top of the page. For example, to understand volumes by site, select **Site**. Once selected the data displays in the summary view. It is important to note that an exam must be performed and not canceled to be included in a grouping. Additionally, the date range is based on the date of service.

To refine the data for a grouping, select from filters on the left side of the page. For example, to modify date ranges, select the **Date/Time** filter. To sort the table data in the summary view, click the column heading.
4.3.3 Setting the Time Range

Filter exams by day of week and time of day. This is commonly used to display only exams that occurred during nights and weekends.

To set up a time range, follow these steps:

1. Select a Timestamp. The default is displayed as **End Exam**.
NOTE

Your timestamp selection affects the time groupings. For example, if the time grouping is set to Month of Year and the timestamp is set to End Exam, changing the timestamp to Final Report results in the data being grouped by Final Report Month of Year.

2. Select a Time Unit. The time unit is used for the relative start or stop date which is displayed below the drop down menu.

3. Select a Time Range:
   - **Relative**: This time range is sliding, creating a KPI for a period of time relative to the current date and time (e.g. 5 months ago to 1 month ago). Whenever this KPI is viewed, it will display data relative to the present date and time offset by the selection.
   - **Fixed**: This time range is static, creating a KPI for a fixed period of time (e.g. Jan 2015 – April 2015). Whenever this KPI is viewed, it will display data for the period of time selected (regardless of the current date and time).
4.3.4 Filters

4.3.4.1 Demographic Filter

There are various filters available in the application that allow you to customize the displayed data.
Figure 7: Demographic Filter

To add a filter for a demographic, follow these steps:

1. Open the panel for the desired demographic filter.
2. Search for a demographic (e.g. for the Procedure filter, type “head” to search for results that contain “head” in the description).
3. Click each item or click Add All to apply the filter(s).
4. Use the include and exclude buttons to either show all data related to the selected demographics, or all data that does not match the selected demographics.
5. To remove an individual demographic, click it in the list of already selected items.

4.3.4.2 Date/Time Filter

The date/time filter is used to filter exams based upon the day of week or time of day they were completed.
To use the date/time filter, follow these steps:

1. Select the days of the week and the time range you would like the exam to fall between.

   **NOTE**
   
The system uses a 24-hour clock, which cannot be changed.

2. Click + to add the date/time filters.

### 4.3.4.3 Smart Filtering

The default mode for filtering is called smart filtering, which allows filters to be selected only when there is data to support those filters. The goal of smart filtering is to create a simpler and more precise filtering interface so that the user can quickly find and add appropriate filters from a parsed list.
4.3.4.4 Inclusive and Exclusive Filter Mode

By default, the filters are set to be included as indicated by the blue include indicator. Clicking the exclude button results in the exclusion of any exams with the specified modality. It also updates the Resources available to be those without modality ‘CT’.
4.3.5 Autopreview Toggle

By default, each change to a filter or metric recalculates and redraws the results table and any open filters, which will be validated with smart filtering (if enabled). When making multiple changes quickly, these redraw /query waits can slow down advanced users, so there is an option to toggle this functionality above the Control Interface.

The results of your filtered topic are displayed at the top in the Filter Summary. Configurable performance metrics for the filtered results are also included.
4.3.6 Performance Warning

When the current filter combination generates a return with a large amount of data, the system displays a Performance Warning message and suggests changing date ranges. These messages can be disabled per login session.

4.3.7 Adjusting Table Columns

To add a table column, follow these steps:

1. Click the ”+” icon on the right side of the header.

2. For further analysis, select **Average**, **Percentile**, **Standard Deviation**, **Max**, or **Min**.
To edit a table column, follow these steps:
1. Click "edit" (pencil and paper icon) to edit the metric.

To delete a metric, follow these steps:
1. Click the "x" icon to delete the metric.
2. The metric will then delete and a new metric can be added.

To reorder the columns, click on the column header and drag the column to the desired location.

4.3.8 Drill Down Options
4.3.8.1 Quick Summary View

Selecting an individual metric from the summary view displays summary and trending information for that metric over the data range selected. Click Export to export the table view of the data for further analysis.
4.3.8.2 Drill Down Grouping and Subgrouping

The application features additional drill down and grouping capabilities, which can be accessed by selecting an item from the bolded list of groupings on the left-hand side of the filter summary page.

Clicking on the filter grouping results in further grouping capabilities for an individual data result. Select another grouping to further sort results.
**NOTE**

Sub-grouping can be completed more than once and best results are typically achieved by continuing to drill down and group data.

The list of grouping topics will vary based on available data in the system and which groupings have already been drilled.

**NOTE**

The timestamp selected under the time component section must be connected to a time component to drill down into the data. For example, after selecting **First Report** from the menu, a time component must also be selected (i.e. Day of Month, Day of Week, etc.).

## 4.3.8.3 Exam-level Drill

You can drill into exam-level details and get a paginated view of the specific exams that meet the filter criteria. For example, if you wanted to look at the specific list of exams for this filter set, you can drill into exams and get this table:

![Performance Bridge | Productivity](image)

<table>
<thead>
<tr>
<th>KPIs</th>
<th>Controls</th>
<th>View</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KPIs</strong></td>
<td><strong>Controls</strong></td>
<td><strong>View</strong></td>
</tr>
<tr>
<td><strong>Metrics</strong></td>
<td><strong>Performance</strong></td>
<td><strong>Productivity</strong></td>
</tr>
<tr>
<td><strong>Data</strong></td>
<td><strong>Time</strong></td>
<td><strong>Grouping</strong></td>
</tr>
<tr>
<td><strong>Grouping</strong></td>
<td><strong>Patient</strong></td>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>Patient</strong></td>
<td><strong>Type</strong></td>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td><strong>Priority</strong></td>
<td><strong>Radiologist</strong></td>
</tr>
<tr>
<td><strong>Priority</strong></td>
<td><strong>Radiologist Specialty</strong></td>
<td><strong>Reportable</strong></td>
</tr>
<tr>
<td><strong>Radiologist</strong></td>
<td><strong>Resource</strong></td>
<td><strong>Resident</strong></td>
</tr>
<tr>
<td><strong>Radiologist Specialty</strong></td>
<td><strong>Site</strong></td>
<td><strong>Technologist</strong></td>
</tr>
</tbody>
</table>

**Figure 17: Exam-drill level**
This adds columns for patient name, MRN, and accession number in addition to the metrics that have been selected. You can additionally add filters as columns (dimensions) at this level to build custom reports. Similar to adding a metric, you can add a dimension by clicking the plus button, then selecting a dimension:

![Figure 18: Adding a Dimension](image)

The selected dimension will be added to the table. Once drilled down to the exam level with metrics and dimensions, you can also sort the columns by clicking the top of the column. You can also export these tables to Excel format (however, these exports may take a long time if they are large).

### 4.3.9 Navigating Breadcrumbs

![Figure 19: Navigating Breadcrumbs](image)

Use the Back button to go back one breadcrumb, which you can find at the top of the Productivity table, as shown above. It is also possible to click on one of the breadcrumbs to jump directly back to that drill level.
4.3.10 Drilling Impact on Filters

Figure 20: Drilling Impact on Filters

Filter choice is blocked by a drill selection, since drilling into a topic automatically acts as a filter based on the drill selection.

4.3.11 Viewing Graphs of Data

Figure 21: Jumping to Quality

For any given metric, you can jump into a graphical dashboard view of the data using the Quality tool. Quality has a very similar interface and function to Productivity, but allows you to view the data in a graphical way with upper and lower controls and quick navigation between KPIs (the Quality equivalent of a view).

Figure 22: Jump to Quality Button
To jump into the Quality view, click the blue arrow with Show in Quality hover in a metric header column or the Quality button in the summary view. You can use the back button or the Quality jump button to return to Productivity. Right click on the button launch Quality in a new window or tab depending on your browser configuration.

### 4.3.12 Using the Control Interface

![Control Interface](image)

**Figure 23: Control Interface**

<table>
<thead>
<tr>
<th>Control Interface</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Apply</strong></td>
<td>Refreshes the table to apply current filters.</td>
</tr>
<tr>
<td><strong>Export</strong></td>
<td>Exports a copy of the view in Excel format.</td>
</tr>
<tr>
<td><strong>Save</strong></td>
<td>Saves the KPI and moves the KPI to the dashboard. You cannot save a view someone has shared with you, but you can make a copy with the Save As button.</td>
</tr>
<tr>
<td><strong>Save As</strong></td>
<td>Saves a copy if you are editing an existing saved view and would like to save your changes as a new view instead of overwriting the original.</td>
</tr>
<tr>
<td><strong>Share</strong></td>
<td>Share the saved view with other members of your organization. Search for a user using the Share interface. Once the view is shared, users who have received a share will be able to see the view you have created, but will not be able to edit or change it. Users without permission to access the application will have the no access icon displayed next to their username.</td>
</tr>
<tr>
<td><strong>Reset</strong></td>
<td>Removes all choices in name, metric, groupings, and filters without saving (helpful if you want a clean start when building a new view). By default, the builder will retain the settings previously used unless you reset.</td>
</tr>
</tbody>
</table>

### 4.3.13 Best Practices for the Application

1. Always start by choosing a grouping
The grouping list at the top of the page lists common subjects that a typical user may want to measure or report on. Ask yourself what question you are trying to answer first. For example, to answer the question of Volume by Site, select the Site grouping. To answer the question of Volume by Radiologist, select the Radiologist grouping.

2. **Apply Filters**

Initial results are typically broad and frequently require filtering. Think about your question and how to narrow the criteria for the best results. For example, once overall Volume for Hospital 1 is calculated, filtering by patient type (such as Outpatient or ED) may provide further insight. Additionally, use the power of metrics as filters to identify/exclude poor quality data: e.g. most exams shouldn’t have a duration > 24 hours, so by excluding exams with a > 24 hour duration, you will get a more accurate utilization metric.

3. **Drill down by grouping**

One appropriate filters are applied, drill down into summary results to apply better grouping. Select the **bolded** grouping results to further drill down into results to provide supporting information down to exam level detail.

4. **Save and share regular views of filters**

For those views of data that would be useful to evaluate on an ongoing basis, take advantage of saving and sharing filters. This feature allows for saved filters to be rapidly cycled as part of a regular quality meeting or process improvement team efforts.

**4.3.14 Data Analysis**

**4.3.14.1 Understanding Percentiles**

![New Metric]

**Figure 24: Drop down options in Quality and Productivity**

For some metrics in the Quality and Productivity applications, users will be presented with an additional drop-down menu to provide options for further analysis, including Average and Percentile values. Application users can fine-tune their KPI monitors by using Percentile or Average to help qualify results.
4.3.14.2 Percentile Analysis

Percentile analysis is a statistical method used in the PerformanceBridge Quality and Productivity applications to help users understand where any result falls within a range of potential results in the dataset. For example, the 90th percentile of any metric (such as turn-around time) displays the value for which 90% of the data results are contained. Measuring performance metrics in this way can be very useful, as they provide insight into what is happening within the percentile that’s been selected. From the example, above, the 90th percentile calculation tells you what turn-around time is 90% of the time.

4.3.14.3 Statistical Correlation

In general, percentiles can represent an area under a normal data curve, with values increasing from left to right. When considered this way, each fixed percentile can be represented as a standard deviation.

- **Calculating Average Values:**
  Simply select “Average” in the drop-down menu to see the average result for the selected metric.

- **Calculating Median Values:**
  For users wishing to calculate the Median data value, simply enter 50% in the Percentile field. The Median or middle result will represent the value that occurs in the middle of the sorted set of values.