



BEA WebLogic RFID Enterprise Server™

Generating WebLogic RFID Enterprise Server Reports

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Introduction and Roadmap

The following sections describe the contents, audience for, and organization of this guide—*Generating WebLogic RFID Enterprise Server Reports*.

- [“Document Scope and Audience”](#) on page 1-1
- [“Guide to This Document”](#) on page 1-1
- [“Related Documentation”](#) on page 1-2
- [“New Features in This Release”](#) on page 1-3

Document Scope and Audience

This document provides an overview of the WebLogic RFID Enterprise Server Reporting Service and tells how to generate standard reports using the Reporting Service Console.

The audience for this document includes anyone in an organization who needs to generate and view standard reports about RFID assets and events.

Guide to This Document

This document is organized as follows:

- This chapter, [“Introduction and Roadmap,”](#) describes the scope of this guide, summarizes new features, and lists related documentation.

- [Chapter 2, “Generating, Viewing, and Exporting Reports,”](#) provides an overview of available reports and instructions for generating them.
- [Chapter 3, “Generating History Reports,”](#) tells how to specify criteria for generating a history report.
- [Chapter 4, “Generating Missing Assets Reports,”](#) tells how to specify criteria for generating a missing assets report.
- [Chapter 5, “Generating Dwell Time Reports,”](#) tells how to specify criteria for generating a dwell time report.
- [Chapter 6, “Generating Transit Time Reports,”](#) tells how to specify criteria for generating a transit time report.
- [Chapter 7, “Tuning,”](#) tells how to adjust settings to handle large volumes of data.

Related Documentation

This document is a part of the WebLogic RFID Enterprise Server documentation set. The other documents are:

- [WebLogic RFID Enterprise Server Product Overview](#) provides an overview of the features and architecture of WebLogic RFID Enterprise Server.
- [Installing WebLogic RFID Enterprise Server](#) describes how to install and configure WebLogic RFID Enterprise Server.
- [Understanding the Event, Master Data, and Data Exchange Services](#) describes the services that implement the EPC Information Services (EPCIS).
- [Query Subscription Administration Online Help](#) describes how to create queries for retrieving event data and master data from the data repository. Also, how to create subscriptions to retrieve query results on a specified schedule.
- [Master Data Administration Console Online Help](#) describes how to create and work with master data types and master data entries.
- [Edge Server Administration Console Online Help](#) describes how to use the Edge Server Administration Console to view and manage RFID Edge Servers in the enterprise managed by the RFID Enterprise Server.
- [Using the Serial Number Assignment Service](#) describes how to use the Serial Number Assignment Service to provide pools of RFID serial numbers for assigning to EPC tags.

- [*Using the Telemetry Console Extension*](#) describes how to use the Telemetry Console Extension for graphically presenting real-time Edge Server and RFID device telemetry data. The Telemetry Console Extension is part of the Edge Server Administration Console.
- [*WebLogic RFID Enterprise Server Release Notes*](#) lists known problems and workarounds in this release of the RFID Enterprise Server.

New Features in This Release

The Reporting Service is a new feature in this release of WebLogic RFID Enterprise Server.

Introduction and Roadmap

Generating, Viewing, and Exporting Reports

WebLogic RFID Enterprise Server includes the Reporting Service for generating standard reports. You specify selection criteria for the reports and view the reports through the Reporting Service Console, which is a Web-based user interface available to users with access to the enterprise network.

This chapter contains the following sections:

- [“Reports Available from the Reporting Service” on page 2-1](#)
- [“Displaying the Reporting Service Console” on page 2-2](#)
- [“Generating and Viewing Reports” on page 2-2](#)
- [“Exporting Reports” on page 2-3](#)

Reports Available from the Reporting Service

The Reporting Service provides four types of reports, which are accessed via the Reporting Service Console:

- **History:** Where and when were assets seen, and in what context. You can use this kind of report to track how assets flow within a system.
- **Missing Assets:** Which assets have not been seen in a specified period of time, and optionally, at a specified location. You can use this kind of report to track missing assets.
- **Dwell Time:** How long assets remained at a specified location. You can use this kind of report to find out if assets are moving out of locations at the desired rate.

- **Transit Time:** How long it took for assets to move from one read point to another. You can use this kind of report to see if assets are moving through the process at the desired rate.

There is no programmatic access to the Reporting Service; the Reporting Service Console is the only way to generate reports.

Displaying the Reporting Service Console

To display the Reporting Service Console:

1. Start WebLogic RFID Enterprise Server.
2. Open the WebLogic RFID Enterprise Server Home page at `http://server:port/enterprise/`.
3. Click **Reporting Service Console**.

Generating and Viewing Reports

The Reporting Service Console contains one tab for each kind of report. To generate each kind of report:

1. Select the tab for the kind of report you want to generate.
2. Fill in the parameters on which you want to base the report.
3. Click **Run Report**.

The results are displayed in the same tab from in which you specified the parameters for generating the report. You can also export reports to other formats. See [“Exporting Reports” on page 2-3](#).

Every record in a report shows an asset associated with at least one ObjectEvent, TransactionEvent, or AggregationEvent, as well as other information pertinent to the type of report and the options set when generating the report.

Taking Advantage of Master Data

When master data is defined for business locations, business steps, dispositions, EPC classes, or read points that appear in the fields of a report, the master data values are displayed in those fields instead of “raw” identifiers such as a URNs. The master data value that is displayed is the value of the first attribute defined for that type of data.

For example, consider an event that occurs at a read point whose URN is `urn:bea:readPoint27`. The first attribute defined for read points in the master data repository is Name, and the value assigned to the Name attribute for the read point in this example is “South loading dock.” Therefore, whenever that read point is shown in a report, the string “South loading dock.” is shown, not `urn:bea:readPoint27`.

Master data values, if they exist, are also included in exported CSV reports. See [“Exporting in Comma-Separated Value \(CSV\) Format” on page 2-3](#).

For more information about master data, see [“Master Data”](#) in *Understanding the Event, Master Data, and Data Exchange Services*.

Navigating Through Multi-page Reports

A report may contain more entries than can be displayed on a single page in the Console. In that case, use the controls at the top or bottom of the report to navigate to the other pages:

| < Go to: > >|

To go directly to a page, enter the number of the page in the **Go to:** field and click **Go to:**.

Sorting Data in a Report

When you specify the selection criteria for a report, you can select an initial sort order from the **Sort By** list in the **Set Report Options** section the page.

After you generate the report and are viewing it online, you can re-sort the records by clicking on any column header label that appears as a hyperlink. For example, you might sort by EPCs in the initial run of the report. But while you are viewing the report, you can click the **Event Type** column header label to sort by event type.

Exporting Reports

You can export reports in CSV and XML formats, as explained below. In either case, when you choose to export the report, you may be prompted to choose a location for saving the file or you may be prompted to open the report in an application, depending on your Web browser.

Exporting in Comma-Separated Value (CSV) Format

Click **Export as CSV** to save the report to a file in Comma-Separated Value (CSV) format. Each record appears on a separate line, and each item in a record is separated by a comma. The CSV

data is displayed in the same order they appear in the Console. CSV files can be opened in Microsoft Excel and compatible spreadsheet applications.

[Listing 2-1](#) shows a fragment of an XML history report with an `ObjectEvent` and an `AggregationEvent`.

Listing 2-1 Fragment of a Report in CSV Format

```
urn:epc:id:gid:1111.1110.1,Product 12H87,OBJECT,12/17/2001
4:30,urn:company:warehouse1,San Jose
Warehouse,,,,,urn:company:warehouse1:taggingStation23,Slap and ship station

urn:epc:id:gid:1111.1110.1,Product 12H87,AGGREGATION with parent
urn:epc:id:gid:1111.1110.5,12/18/2001 4:30,urn:company:warehouse1,San Jose
Warehouse,,,,,urn:company:warehouse1:dockDoor23,Dock Door 7 EAST
```

When master data exists for an option, for example business location or disposition, the master data value follows the URI in the record (separated by a comma). For example, in [Listing 2-1](#), “San Jose Warehouse” is the master data value for the business location

```
urn:company:warehouse1.
```

Exporting in XML Format

Click **Export as XML** to save the report as an XML file.

The entire report is defined in an `<epcisReport>` element. Each record in the report is defined in a `<reportEntry>` element, which contains an `<epc>` element and an `<EventList>` element:

- The `<epc>` element contains the EPC that identifies the reported asset.
- The `<EventList>` element and its children contain information about the reported event associated with the asset in this record.

The `<EventList>` element and its children are defined in the EPCglobal version 1.0 XML Schema Definition (XSD), which defines the XML used by RFID Enterprise Server to format EPCIS event data for transfer and storage. For more information, see “[Event Service](#)” in *Understanding the Event, Master Data, and Data Exchange Services*.

[Listing 2-2](#) shows the XSD that defines the XML exported by the Reporting Service.

Listing 2-2 XSD for Reports Exported as XML

```

<xsd:element name="EventReport" type="EventReportType"/>
  <xsd:complexType name="EventReportType">
    <xsd:element name="ReportEntry" type="ReportEntryType"
      minOccurs="1" maxOccurs="unbounded"/>
  </xsd:complexType>
  <xsd:complexType name="ReportEntryType">
    <xsd:sequence>
      <xsd:element name="epc" type="epcglobal:EPC"
        minOccurs="1" maxOccurs="1"/>
      <xsd:element name="EventList" type="epcis:EventListType"
        minOccurs="1" maxOccurs="1"/>
      <xsd:any namespace="##other" processContents="lax"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
    <xsd:anyAttribute processContents="lax"/>
  </xsd:complexType>

```

[Listing 2-3](#) shows a fragment of an XML report with two assets, one associated with an ObjectEvent and another associated with an AggregationEvent.

Listing 2-3 Fragment of a Report in XML Format

```

<?xml version="1.0" encoding="UTF-8"?>
<epcisReport
xmlns="http://www.bea.com/ns/rfid/enterprise/epcis-reports/xsd/2.0">
<reportEntry>
  <epc>urn:epc:id:gid:1111.1110.1</epc>
  <ns5:EventList
xmlns:ns4="http://www.bea.com/ns/rfid/enterprise/epcis-capture/xsd/2.0/"
xmlns:ns7="http://www.bea.com/ns/rfid/enterprise/epcis-masterdata/xsd/2.0"
xmlns:ns3="http://www.unece.org/cefact/namespaces/StandardBusinessDocument
Header" xmlns:ns5="urn:epcglobal:epcis:xsd:1"
xmlns:ns2="urn:epcglobal:epcis-query:xsd:1"

```

Generating, Viewing, and Exporting Reports

```
xmlns:ns6="urn:epcglobal:epcis-masterdata:xsd:1">
  <ObjectEvent>
    <eventTime>2001-12-17T04:30:47.000-05:00</eventTime>
    <recordTime>2006-09-25T12:33:40.859-04:00</recordTime>
    <epcList>
      <epc>urn:epc:id:gid:1111.1110.1</epc>
      <epc>urn:epc:id:gid:1111.1110.2</epc>
      <epc>urn:epc:id:gid:1111.1110.3</epc>
      <epc>urn:epc:id:gid:1111.1110.4</epc>
      <epc>urn:epc:id:gid:1111.1110.5</epc>
    </epcList>
    <action>ADD</action>
    <bizStep></bizStep>
    <disposition></disposition>
    <readPoint>
      <id>urn:company:warehouse1:taggingStation23</id>
    </readPoint>
    <bizLocation>
      <id>urn:company:warehouse1</id>
    </bizLocation>
    <bizTransactionList/>
  </ObjectEvent>
</ns5:EventList>
</reportEntry>
<reportEntry>
  <epc>urn:epc:id:gid:1111.1110.1</epc>
  <ns5:EventList
xmlns:ns4="http://www.bea.com/ns/rfid/enterprise/epcis-capture/xsd/2.0/"
xmlns:ns7="http://www.bea.com/ns/rfid/enterprise/epcis-masterdata/xsd/2.0"
xmlns:ns3="http://www.unece.org/cefact/namespaces/StandardBusinessDocument
Header" xmlns:ns5="urn:epcglobal:epcis:xsd:1"
xmlns:ns2="urn:epcglobal:epcis-query:xsd:1"
xmlns:ns6="urn:epcglobal:epcis-masterdata:xsd:1">
  <AggregationEvent>
    <eventTime>2001-12-18T04:30:47.000-05:00</eventTime>
    <recordTime>2006-09-25T12:33:42.531-04:00</recordTime>
    <parentID>urn:epc:id:gid:1111.1110.5</parentID>
    <childEPCs>
```

```
        <epc>urn:epc:id:gid:1111.1110.2</epc>
        <epc>urn:epc:id:gid:1111.1110.3</epc>
        <epc>urn:epc:id:gid:1111.1110.1</epc>
    </childEPCs>
    <action>ADD</action>
    <bizStep></bizStep>
    <disposition></disposition>
    <readPoint>
        <id>urn:company:warehouse1:dockDoor23</id>
    </readPoint>
    <bizLocation>
        <id>urn:company:warehouse1</id>
    </bizLocation>
    <bizTransactionList/>
</AggregationEvent>
</ns5:EventList>

</reportEntry>
<!-- Other report entries -->
</epcisReport>
```

Generating, Viewing, and Exporting Reports

Generating History Reports

History reports show where and when assets were last seen and in what context they were seen. This chapter contains the following sections:

- [Generating History Reports](#)
- [Setting History Report Options](#)
- [Contents of a History Report](#)

Generating History Reports

To generate a history report:

1. In the Reporting Service Console, select the **History** tab.
2. Specify settings for the report, as described below under “[Setting History Report Options](#).”
3. Click **Run Report**.

The results are displayed in your Web browser. If you want to print the report, print it from the browser.

Setting History Report Options

To prepare a history report, specify values for the desired selection criteria, as follows.

- [Set Asset Selection Criteria](#)

- [Set Location Selection Criteria](#)
- [Set Start Time and End Time](#)
- [Set Include Options](#)
- [Set Report Display Options](#)

There are no specific dependencies among the categories of selection criteria. That is, you can set criteria for none, one, several, or all of the categories.

In some sections on this page, you can enter items (EPCs, GTINs, location URNs, etc.) directly in the field provided for that type of item. You can list multiple items by separating each one with a space or a carriage return.

Set Asset Selection Criteria

Set options in this section to limit the report to assets of the specified types. If you set no options, the default criterion **Select All Assets** is used.

To specify a type of asset on which to report, select the type from the drop-down list. The choices are:

- **Select All Assets.** Select this option to report on assets of all types.
- **Specify EPCs.** After selecting this type, enter the Electronic Product Codes (EPCs) of the assets to report. You do not have to include the `urn:epc:id/urn:epc:idpat` portion of the EPC. For example:

```
sgtin:1234567.000001.600
sgtin:1234567.000001.780
sgtin:1234567.*.*
```

- **Specify GTINs.** After selecting this type, enter one or more 14-digit Global Trade Item Numbers (GTINs) of assets to report. For example:

```
10054000217255 10037000308048
```

- **Specify Company Prefixes.** After selecting this type, enter the GS1 Company Prefixes of assets to report. For example:

```
1234567 0037000
```

Note: You can configure RFID Enterprise Server to use a custom company prefix lookup table.

- **Specify EPC Classes.** When you select this type, a second drop-down list appears. Do one of the following:

- Choose **List EPC Classes** to enter EPC class patterns directly, as URIs. You do not have to include the `urn:epc:idpat` portion of the EPC class pattern. For example:

```
sgtin:1234567.000001
```

```
sgtin:1234567
```

The report will be limited to assets of the specified EPC classes, where the EPC class pattern exactly matches or includes the string entered here.

- Choose **Search EPC Classes** to search for assets based on master data attributes defined for the EPC class to which the assets belong. (This option is available only when master data has been defined for EPC classes.)

When you choose this option, a table is displayed for specifying the search criteria. Enter criteria as follows:

- Select an attribute from the **Attribute** column.
- Enter a value for the selected attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the EPC class of a reported asset, the master data value for the EPC class attribute is displayed in the report, whether you used the **List EPC Classes** option or the **Search EPC Classes** option. If master data does not exist, the URI that identifies the EPC class is displayed.

Set Location Selection Criteria

Set options in this section to limit the report to assets associated with events that occurred in the specified business locations. If you set no options in this section, business locations are ignored when generating the report.

If a specified business location includes “child” business locations (for example, a warehouse might contain several portals), all the locations in the hierarchy are evaluated when generating the report.

To specify a location, select an option from the drop-down list. The choices are:

1. **List Locations.** After selecting this option, enter the business location identifiers on which to report. Specify a business location identifier as a URN, for example:

```
urn:epc:sgln:1234567.123
```

Separate each business location identifier in a list with a space or a carriage return.

2. **Search Locations.** This option is available when master data has been defined for business locations. Choose this option to search for assets associated with events occurring at a specified business location. When you select this option, a table is displayed for specifying search criteria. Enter criteria as follows:
 - a. Select an attribute from the **Attribute** column. The attributes listed are from master data associated with business location identifiers.
 - b. Enter a value for the attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the business location included in a record, the master data entry value is displayed in the report, whether you used the **List Locations** option or the **Search Locations** option. If master data does not exist, a URI is displayed.

Set Start Time and End Time

Specify options in this section to report only on assets associated with events that occurred during the period bounded by the specified start and end time ranges. You can specify a start time only, an end time only, both, or neither.

If you set no options in this section, time ranges are ignored when the report is generated.

If you want to specify a start time or end time, you must at least enter a year. The other values are optional:

- If you do not set a month, the default is January.
- If you do not set a day, the default is 1 (the first of the month).
- If you do not set a time, the default is as it appears in the Console, for example, 12:00 A.M.

Set Include Options

Specify options in this section to limit the report to assets associated with the specified types of event.

You can select one, two, or all three of the events. Selecting none means the same as selecting all.

- Select **OBJECT** to report on assets involved in ObjectEvents.
- Select **AGGREGATION** to on assets involved in AggregationEvents.
- Select **TRANSACTION** to on assets involved in TransactionEvents.

Set Report Display Options

Set display options as follows:

- Select a number from the **Rows per page** drop-down list to set the number of results to be listed per page.
- From the **Sort By** drop-down list, select the column on which you want to sort the results when the report is first displayed.

Note: You can resort the report by clicking any column header label that is displayed as a hyperlink.

Contents of a History Report

The columns in a history report are described in [Table 3-1](#), below. Each row in the table shows an asset (identified by an EPC) associated with an event. It also shows other attributes of the asset and associated event, according to the options specified for this run of the report.

If master data has been defined for assets in the report, the master data values are shown in the appropriate fields in the report, instead of more technical (and less readable) identifiers. The fields where that can happen are identified by a **Yes** in the **Display Master Data** column.

Table 3-1 History Report Contents

Column Name	Description	Display Master Data?
EPC	The Electronic Product Code (EPC) that uniquely identifies the asset.	No
Asset Description	A description of the asset, specified as master data.	Yes If no master data exists for this asset, this field is blank.
Event Type	<p>The type of event that occurred. Event types include AggregationEvent, TransactionEvent, and ObjectEvent.</p> <p>If the asset is a child in an AggregationEvent, this field identifies its parent. If the asset is the parent in an AggregationEvent, it is identified as a parent.</p> <p>AggregationEvents are displayed as hyperlinks. Click the link to display information about the aggregation, including a list of the assets associated with this aggregation event.</p>	No
Event Time	The time the event took place. The time is locale-specific. That is, it reflects the time zone where the event took place.	No
Business Location	The business location where the event occurred.	Yes If no master data exists for this business location, the location is displayed as a URI.
Business Step	The business step associated with this asset and event.	Yes If no master data exists for this business step, the step is displayed as a URI.

Table 3-1 History Report Contents

Column Name	Description	Display Master Data?
Disposition	The disposition, or business state, associated with this asset following this event. (For example, an item can be “available for sale” or “sold.”)	Yes If no master data exists for the disposition, the disposition is displayed as a URI.
Read Point	The read point where the event associated with this asset occurred.	Yes If no master data exists for this read point, the read point is displayed as a URI.

Generating History Reports

Generating Missing Assets Reports

Missing assets reports show which assets have not been seen within a specified number of days, and optionally, at the specified location. You can also use the missing assets reports to report the current location of specified assets (see [“Set Missing Time Threshold” on page 4-5](#)).

This chapter contains the following sections:

- [Generating Missing Assets Reports](#)
- [Setting Missing Assets Report Options](#)
- [Contents of a Missing Assets Report](#)

Generating Missing Assets Reports

To generate a missing assets report:

1. In the Reporting Service Console, select the **Missing Assets** tab.
2. Specify settings for the report, as described below under [“Setting Missing Assets Report Options.”](#)
3. Click **Run Report**.

The results are displayed in your Web browser. If you want to print the report, print it from the browser.

Setting Missing Assets Report Options

To prepare a missing assets report, specify values for the desired selection criteria, as follows.

- [Set Asset Selection Criteria](#)
- [Set Events Start Time Range](#)
- [Set Location Selection Criteria](#)
- [Set Missing Time Threshold](#)
- [Set Report Display Options](#)

You must specify a number of days under **Set Missing Time Threshold**. Other than that, there are no specific dependencies among the other criteria. You can set criteria for none, one, several, or all of the remaining categories.

In some sections on this page, you can enter items (EPCs, GTINs, location URNs, etc.) directly in the field provided for that type of item. You can list multiple items by separating each one with a space or a carriage return.

Set Asset Selection Criteria

Set options in this section to limit the report to assets of the specified types. If you set no options, the default criterion **Select All Assets** is used.

To specify a type of asset on which to report, select the type from the drop-down list. The choices are:

- **Select All Assets.** Select this option to report on assets of all types.
- **Specify EPCs.** After selecting this type, enter the Electronic Product Codes (EPCs) of the assets to report. You do not have to include the `urn:epc:id/urn:epc:idpat` portion of the EPC. For example:

```
sgtin:1234567.000001.600  
sgtin:1234567.000001.780  
sgtin:1234567.*.*
```

- **Specify GTINs.** After selecting this type, enter one or more 14-digit Global Trade Item Numbers (GTINs) of assets to report. For example:

```
10054000217255 10037000308048
```

- **Specify Company Prefixes.** After selecting this type, enter the GS1 Company Prefixes of assets to report. For example:

```
1234567 0037000
```

- **Specify EPC Classes.** When you select this type, a second drop-down list appears. Do one of the following:

- Choose **List EPC Classes** to enter EPC class patterns directly, as URIs. You do not have to include the `urn:epc:idpat` portion of the EPC class pattern. For example:

```
sgtin:1234567.000001
```

```
sgtin:1234567
```

The report will be limited to assets of the specified EPC classes, where the EPC class pattern exactly matches or includes the string entered here.

- Choose **Search EPC Classes** to search for assets based on master data attributes defined for the EPC class to which the assets belong. (This option is available only when master data has been defined for EPC classes.)

When you choose this option, a table is displayed for specifying the search criteria. Enter criteria as follows:

- Select an attribute from the **Attribute** column.
- Enter a value for the selected attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the EPC class of a reported asset, the master data value for the EPC class attribute is displayed in the report, whether you used the **List EPC Classes** option or the **Search EPC Classes** option. If master data does not exist, the URI that identifies the EPC class is displayed.

Set Events Start Time Range

Specify a start time to limit the report to assets associated with events that occurred since the specified time. If you do not set a start time, start time is ignored when generating this report.

You can use this parameter to reduce the number of events that will be considered for generating the report. Only events with time greater than or equal to the start time will be used to generate the report.

If you want to set a start time, you must at least enter a year. The other values are optional:

- If you do not set a month, the default is January.
- If you do not set a day, the default is 1 (the first of the month).
- If you do not set a time, the default is as it appears in the Console, for example, 12:00 A.M.

Set Location Selection Criteria

Set options in this section to limit the report to assets associated with events that occurred in the specified business locations. If you set no options in this section, business locations are ignored when generating the report.

If a specified business location includes “child” business locations (for example, a warehouse might contain several portals), all the locations in the hierarchy are evaluated when generating the report.

To specify a location, select an option from the drop-down list.

The choices are:

1. **List Locations.** After selecting this option, enter the business location identifiers on which to report. Specify a business location identifier as a URN, for example:

```
urn:epc:sgln:1234567.123
```

Separate each business location identifier in a list with a space or a carriage return.

2. **Search Locations.** This option is available when master data has been defined for business locations. Choose this option to search for assets associated with events occurring at a specified business location. When you select this option, a table is displayed for specifying search criteria. Enter criteria as follows:
 - a. Select an attribute from the **Attribute** column. The attributes listed are from master data associated with business location identifiers.
 - b. Enter a value for the attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the business location included in a record, the master data entry value is displayed in the report, whether you used the **List Locations** option or the **Search Locations** option. If master data does not exist, a URI is displayed.

Set Missing Time Threshold

Specify a missing time threshold to indicate how many days an asset can be missing before it is listed on this report.

To specify the threshold, enter a number of days. Any item missing longer than this period (and fulfilling the other criteria for this report) will be included in the report.

The missing time threshold can be 0 (zero) or greater number of days. Fractional days are not allowed.

Tip: Enter 0 days to report the current location of assets that meet the other criteria set on this page.

Set Report Display Options

Set display options as follows:

- From the **Rows per page** drop-down list, select a number to set the number of results to be listed per page.
- From the **Sort By** drop-down list, select the column on which you want to sort the results when the report is first displayed.

Note: You can resort the report by clicking any column header label that is displayed as a hyperlink.

Contents of a Missing Assets Report

The columns in a missing assets report are described in [Table 4-1](#), below. Each row in the table shows an asset (identified by an EPC) plus information to describe when it was last seen and its state when it was last seen, according to the options specified for this run of the report.

If master data has been defined for assets in the report, the master data values are shown in the appropriate fields in the report, in place of more technical (and less readable) identifiers. The fields where that can happen are identified by a **Yes** in the **Display Master Data** column.

Table 4-1 Missing Assets Report Contents

Column Name	Description	Display Master Data?
EPC	The Electronic Product Code (EPC) that uniquely identifies the asset.	No
Asset Description	A description of the asset, specified as master data.	Yes If no master data exists for this asset, this field is blank.
Days Since Last Sight	Number of days since an event was reported to be associated with this asset.	No
Last Seen Time	Time when the most recent event associated with this report occurred.	No
Event Type	The type of event that occurred. Event types include AggregationEvent, TransactionEvent, and ObjectEvent. If the asset is a child in an AggregationEvent, this field identifies its parent. If the asset is the parent in an AggregationEvent, it is identified as a parent. AggregationEvents are displayed as hyperlinks. Click the link to display information about the aggregation, including a list of the assets associated with this aggregation event.	No
Business Location	The business location where the event occurred.	Yes If no master data exists for this business location, the location is displayed as a URI.

Table 4-1 Missing Assets Report Contents

Column Name	Description	Display Master Data?
Disposition	The disposition, or business state, associated with this asset following the most recent event. (For example, an item can be “available for sale” or “sold.”)	Yes If no master data exists for the disposition, the disposition is displayed as a URI.
Business Step	The business step associated with this asset and the most recent event.	Yes If no master data exists for this business step, the step is displayed as a URI.
Read Point	The read point where this asset was most recently read.	Yes If no master data exists for this read point, the read point is displayed as a URI.

Generating Missing Assets Reports

Generating Dwell Time Reports

Dwell time reports show how long assets have remained at a specified business location.

This chapter contains the following sections:

- [Generating Dwell Time Reports](#)
- [Setting Dwell Time Report Options](#)
- [Contents of a Dwell Time Report](#)

Generating Dwell Time Reports

To generate a dwell time report:

1. In the Reporting Service Console, select the **Dwell Time** tab.
2. Specify settings for the report, as described below under “[Setting Dwell Time Report Options](#).”
3. Click **Run Report**.

The results are displayed in your Web browser. If you want to print the report, print it from the browser.

Setting Dwell Time Report Options

To prepare a dwell time report, specify values for the desired selection criteria, as follows.

- [Set Asset Selection Criteria](#)
- [Set Start Time and End Time](#)
- [Set Location Selection Criteria](#)
- [Set Report Display Options](#)

You must specify a location under **Location Selection Criteria**. Other than that, there are no specific dependencies among the other criteria. You can set criteria for none, one, several, or all of the remaining categories.

In some sections on this page, you can enter items (EPCs, GTINs, location URNs, etc.) directly in the field provided for that type of item. You can list multiple items by separating each one with a space or a carriage return.

Set Asset Selection Criteria

Set options in this section to limit the report to assets of the specified types. If you set no options, the default criterion **Select All Assets** is used.

To specify a type of asset on which to report, select the type from the drop-down list. The choices are:

- **Select All Assets.** Select this option to report on assets of all types.
- **Specify EPCs.** After selecting this type, enter the Electronic Product Codes (EPCs) of the assets to report. You do not have to include the `urn:epc:id/urn:epc:idpat` portion of the EPC. For example:

```
sgtin:1234567.000001.600
```

```
sgtin:1234567.000001.780
```

```
sgtin:1234567.*.*
```

- **Specify GTINs.** After selecting this type, enter one or more 14-digit Global Trade Item Numbers (GTINs) of assets to report. For example:

```
10054000217255 10037000308048
```

- **Specify Company Prefixes.** After selecting this type, enter the GS1 Company Prefixes of assets to report. For example:

```
1234567 0037000
```

- **Specify EPC Classes.** When you select this type, a second drop-down list appears. Do one of the following:

- Choose **List EPC Classes** to enter EPC class patterns directly, as URIs. You do not have to include the `urn:epc:idpat` portion of the EPC class pattern. For example:

```
sgtin:1234567.000001
```

```
sgtin:1234567
```

The report will be limited to assets of the specified EPC classes, where the EPC class pattern exactly matches or includes the string entered here.

- Choose **Search EPC Classes** to search for assets based on master data attributes defined for the EPC class to which the assets belong. (This option is available only when master data has been defined for EPC classes.)

When you choose this option, a table is displayed for specifying the search criteria. Enter criteria as follows:

- Select an attribute from the **Attribute** column.
- Enter a value for the selected attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the EPC class of a reported asset, the master data value for the EPC class attribute is displayed in the report, whether you used the **List EPC Classes** option or the **Search EPC Classes** option. If master data does not exist, the URI that identifies the EPC class is displayed.

Set Start Time and End Time

Specify options in this section to report only on assets associated with events that occurred during the period bounded by the specified start and end time ranges. You can specify a start time only, an end time only, both, or neither.

If you set no options in this section, time ranges are ignored when the report is generated.

If you want to specify a start time or end time, you must at least enter a year. The other values are optional:

- If you do not set a month, the default is January.
- If you do not set a day, the default is 1 (the first of the month).

- If you do not set a time, the default is as it appears in the Console, for example, 12:00 A.M.

Set Location Selection Criteria

Set options in this section to limit the report to assets associated with events that occurred in the specified business locations. If you set no options in this section, business locations are ignored when generating the report.

If a specified business location includes “child” business locations (for example, a warehouse might contain several portals), all the locations in the hierarchy are evaluated when generating the report.

To specify a location, select an option from the drop-down list.

The choices are:

1. **List Locations.** After selecting this option, enter the business location identifiers on which to report. Specify a business location identifier as a URN, for example:

```
urn:epc:sgln:1234567.123
```

Separate each business location identifier in a list with a space or a carriage return.

2. **Search Locations.** This option is available when master data has been defined for business locations. Choose this option to search for assets associated with events occurring at a specified business location. When you select this option, a table is displayed for specifying search criteria. Enter criteria as follows:
 - a. Select an attribute from the **Attribute** column. The attributes listed are from master data associated with business location identifiers.
 - b. Enter a value for the attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the business location included in a record, the master data entry value is displayed in the report, whether you used the **List Locations** option or the **Search Locations** option. If master data does not exist, a URI is displayed.

Set Report Display Options

Set display options as follows:

- From the **Rows per page** drop-down list, select a number to set the number of results to be listed per page.
- From the **Sort By** drop-down list, select the column on which you want to sort the results when the report is first displayed.

Note: You can resort the report by clicking any column header label that is displayed as a hyperlink.

Contents of a Dwell Time Report

The columns in a dwell time report are described in [Table 5-1](#), below. Each row in the table shows an asset (identified by an EPC) plus the information to indicate how long the asset remained in a specified business location, according to the options specified for this run of the report.

If master data has been defined for assets in the report, the master data values are shown in the appropriate fields in the report, in place of more technical (and less readable) identifiers. The fields where that can happen are identified by a **Yes** in the **Display Master Data** column.

Table 5-1 Dwell Time Report Contents

Column Name	Description	Display Master Data?
EPC	The Electronic Product Code (EPC) that uniquely identifies the asset.	No
Asset Description	A description of the asset, specified as master data.	Yes If no master data exists for this asset, this field is blank.
Entry Time	The time the asset entered the specified business location. The time is locale-specific. That is, it reflects the time zone where the event took place.	No
Exit Time	The time the asset exited the specified business location. The time is locale-specific.	No
Dwell Time	The time the asset was in the specified business location. The time is locale-specific.	No

Generating Dwell Time Reports

Generating Transit Time Reports

Transit time reports show how long it takes for assets to move from one read point to another.

This chapter contains the following sections:

- [Generating Transit Time Reports](#)
- [Setting Transit Time Report Options](#)
- [Contents of a Transit Time Report](#)

Generating Transit Time Reports

To generate a transit time report:

1. In the Reporting Service Console, select the **Transit Time** tab.
2. Specify settings for the report, as described below under “[Setting Transit Time Report Options](#).”
3. Click **Run Report**.

The results are displayed in your Web browser. If you want to print the report, print it from the browser.

Setting Transit Time Report Options

To prepare a transit time report, specify values for the desired selection criteria, as follows.

- [Set Source and Destination Read Point Options](#)
- [Set Asset Selection Criteria](#)
- [Set Departure and Arrival Time Range Options](#)
- [Set Report Display Options](#)

You must specify both the source read point and the destination read point under **Set Source and Distinction Read Point Options**. Other than that, there are no specific dependencies among the other criteria. You can set criteria for none, one, several, or all of the remaining categories.

In some sections on this page, you can enter items (EPCs, GTINs, location URNs, etc.) directly in the field provided for that type of item. You can list multiple items by separating each one with a space or a carriage return.

Set Source and Destination Read Point Options

The transit time report shows how long it takes assets to move from one read point (the source read point) to another read point (the destination read point). You must enter both the source read point and the destination read point.

Enter source read points and a destination read points as URNs.

Set Asset Selection Criteria

Set options in this section to limit the report to assets of the specified types. If you set no options, the default criterion **Select All Assets** is used.

To specify a type of asset on which to report, select the type from the drop-down list. The choices are:

- **Select All Assets.** Select this option to report on assets of all types.
- **Specify EPCs.** After selecting this type, enter the Electronic Product Codes (EPCs) of the assets to report. You do not have to include the `urn:epc:id/urn:epc:idpat` portion of the EPC. For example:

```
sgtin:1234567.000001.600
```

```
sgtin:1234567.000001.780
```

```
sgtin:1234567.*.*
```

- **Specify GTINs.** After selecting this type, enter one or more 14-digit Global Trade Item Numbers (GTINs) of assets to report. For example:

10054000217255 10037000308048

- **Specify Company Prefixes.** After selecting this type, enter the GS1 Company Prefixes of assets to report. For example:

1234567 0037000

- **Specify EPC Classes.** When you select this type, a second drop-down list appears. Do one of the following:

- Choose **List EPC Classes** to enter EPC class patterns directly, as URIs. You do not have to include the `urn:epc:idpat` portion of the EPC class pattern. For example:

`sgtin:1234567.000001`

`sgtin:1234567`

The report will be limited to assets of the specified EPC classes, where the EPC class pattern exactly matches or includes the string entered here.

- Choose **Search EPC Classes** to search for assets based on master data attributes defined for the EPC class to which the assets belong. (This option is available only when master data has been defined for EPC classes.)

When you choose this option, a table is displayed for specifying the search criteria. Enter criteria as follows:

- Select an attribute from the **Attribute** column.
- Enter a value for the selected attribute in the **Value** field. This field is case-sensitive, so enter the value using the correct upper- and lowercase letters. Only exact matches to this value will be returned.

To delete an attribute from the search criteria, click **Delete** in that row.

To add a row for entering a new attribute on which to search, click **Add**.

If master data exists for the EPC class of a reported asset, the master data value for the EPC class attribute is displayed in the report, whether you used the **List EPC Classes** option or the **Search EPC Classes** option. If master data does not exist, the URI that identifies the EPC class is displayed.

Set Departure and Arrival Time Range Options

Specify options in this section to limit the report to assets whose transits occurred during the period bounded by the specified departure and arrival time ranges. You can specify a departure time range only, an arrival time range only, both, or neither.

If you set no options in this section, departure and arrival times are ignored when the report is generated.

For departure times and arrival times, you can specify a single time or a range of times. If you want to set one of those times, you must at least enter a year. The other values are optional:

- If you do not set a month, the default is January.
- If you do not set a day, the default is 1 (the first of the month).
- If you do not set a time, the default is as it appears in the Console, for example, 12:00 A.M.

Set Report Display Options

Set display options as follows:

- From the **Rows per page** drop-down list, select a number to set the number of results to be listed per page.
- From the **Sort By** drop-down list, select the column on which you want to sort the results when the report is first displayed.

Note: You can resort the report by clicking any column header label that is displayed as a hyperlink.

Contents of a Transit Time Report

The columns in a transit time report are described in [Table 6-1](#), below. Each row in the table shows an asset (identified by an EPC) plus information to describe its transit from one read point to another, according to the options specified for this run of the report.

If master data has been defined for assets in the report, the master data values are shown in the appropriate fields in the report, in place of more technical (and less readable) identifiers. The fields where that can happen are identified by a **Yes** in the **Display Master Data** column.

Table 6-1 Transit Time Report Contents

Column Name	Description	Display Master Data?
EPC	The Electronic Product Code (EPC) that uniquely identifies the asset.	No
Asset Description	A description of the asset, specified as master data.	Yes If no master data exists for this asset, this field is blank.
Departure Time	The time this asset left the source read point. The time is locale-specific. That is, it reflects the time zone where the event took place.	No
Arrival Time	The time this asset arrived at the destination read point. The time is locale-specific.	No
Transit Time (in Days)	The number of days the asset took to arrive at the destination read point from the departure read point.	No

Generating Transit Time Reports

Tuning

The Reporting Service Console returns a maximum of 100,000 records. If your query returns more than 100,000 records you will be prompted to refine your criteria so that fewer records are returned.

Depending on your system configuration and the size of your event repository, the default settings for database query timeouts may need to be adjusted. If you run a report which results in a timeout exception on the Console, you can modify two settings to give the query more time to run, as explained in the following sections:

- [“Modifying the Transaction Timeout on the EJB” on page 7-1](#)
- [“Modifying the Timeout for Database Transactions” on page 7-2](#)

Modifying the Transaction Timeout on the EJB

In `[BEA_HOME]\user_projects\applications\[DOMAIN_NAME]\epcis-lib.ear\epcis-reports-ejb.jar\META-INF\weblogic-ejb-jar.xml` you can modify the transaction timeout on the Enterprise Java Bean (EJB). By default, this is 30 seconds. To change it, uncomment the `<transaction-descriptor>` element in the deployment descriptor, as shown in [Listing 7-1](#), and set the value to one that is more appropriate for your system and usage.

Listing 7-1 Value to Adjust to Modify the Transaction Timeout on the EJB

```

<weblogic-ear-jar xmlns="http://www.bea.com/ns/weblogic/90"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <weblogic-enterprise-bean>
    <ejb-name>Reports</ejb-name>
    <stateless-session-descriptor />
    <!--<transaction-descriptor>
      <trans-timeout-seconds>30</trans-timeout-seconds>
    </transaction-descriptor-->
    <enable-call-by-reference>true</enable-call-by-reference>
  </weblogic-enterprise-bean>
  <weblogic-compatibility>
    <entity-always-uses-transaction>true
    </entity-always-uses-transaction>
  </weblogic-compatibility>
</weblogic-ear-jar>

```

Modifying the Timeout for Database Transactions

The default timeout for database transactions is 180 seconds. You can adjust that value in the file `[BEA_HOME]\user_projects\applications\[DOMAIN NAME]\kodo.ear\kodo.rar\META-INF\ra.xml`. To modify the timeout, change the `QueryTimeout` value in the `<config-property-value>` element, as shown in [Listing 7-2](#).

Listing 7-2 Value to Adjust to Modify the Timeout for Database Transactions

```

<config-property>
  <description>A comma-separated list of properties used to configure the
  javax.sql.DataSource used as the ConnectionFactory. Each property
  should be of the form "key=value", where "key" is the name of some
  bean-like property of the data source.</description>
  <config-property-name>ConnectionFactoryProperties
  </config-property-name>
  <config-property-type>java.lang.String</config-property-type>
  <config-property-value>MaxActive=60, MaxIdle=10, QueryTimeout=180

```

```
</config-property-value>  
</config-property>
```

Running reports against a high-volume production database may have performance implications. See you BEA representative for more information.

Tuning

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