Ethernet Performance Management Reporting
User Guide
Table of Contents

Overview ........................................................................................................................................... 1
Accessing the EPMR Portal .................................................................................................................. 2
Navigating the EPMR Portal .................................................................................................................. 4
Menu Bar ........................................................................................................................................... 4
Account Settings ................................................................................................................................. 5
EPMR Circuit Manager .......................................................................................................................... 7
Overview Profiles ................................................................................................................................. 7
  Domain Summary ................................................................................................................................. 7
  Domain Maps ..................................................................................................................................... 7
  Circuit Health ...................................................................................................................................... 9
EPMR Report Manager ......................................................................................................................... 14
Report Summary Page Layout .............................................................................................................. 14
Subscribing to Reports ........................................................................................................................... 17
Autogenerated Reports .......................................................................................................................... 18
Performance Reports ............................................................................................................................ 19
SLA Stats ........................................................................................................................................... 19
Packet Loss Stats ................................................................................................................................. 21
Utilization Stats ................................................................................................................................. 23
Network Performance Measurement Points ......................................................................................... 25
Ethernet Performance Measurements ................................................................................................. 25
Glossary ................................................................................................................................................ 26
Overview

Cox Business Ethernet Performance Management Reporting (EPMR) service provides vital information about your Cox Metro Ethernet Service. EPMR is offered in two packages: Essentials and Professional.

- EPMR Essentials provides post utilization reporting that is typically used to assist with network planning, as well as circuit operational status.
- EPMR Professional expands the functionality of EPMR Essentials to include network performance statistics, such as round trip measurements for latency, frame loss, and jitter.

This User Guide contains the following topics:

- Accessing the EPMR Portal
- Navigating the EPMR Portal
- Understanding the EMPR Circuit Manager
- Understanding the EMPR Report Manager
- Generating and Viewing EPMR Reports
Accessing the EPMR Portal

Use the following steps to login to the EPMR portal.

1. Enter **coxbusiness.com** in your web browser.
2. Click the **Sign In MyAccount** drop-down in the top right corner.

   ![Sign In MyAccount drop-down](image)

3. Enter your **User ID** and **Password** in the corresponding fields. *(Note: Click the **Remember User ID** checkbox to automatically populate the **User ID** field with your information the next time you log in.) If you forget your password, click the **Forgot Password** link and follow the prompts. If you forget your User ID, click **Need Help Signing In?** link and follow the prompts.

   ![Sign In page](image)

4. Click the **Sign In** button.

   **Result:** The MyAccount Welcome page appears.

5. Scroll to the My Services section and click the **Networking** link. *(See **Figure 3**.)*
6. Click the **Ethernet Performance** icon.  
**Result:** The EPMR portal Welcome page appears.
Navigating the EPMR Portal

The Welcome page for the EPMR Portal contains links to access Circuit Manager, Report Manager, the EPMR User Guide, and Account Settings.

Figure 4. Welcome page for EPMR

Menu Bar

The Menu Bar is located below the Cox Business logo and at the bottom left of the page. Both places contain links to Circuit Manager and Report Manager.

- Click the Circuit Manager link to view a summary and details of the health of your company’s circuits and networks.
- Click the Report Manager link to create and export availability and performance reports for SLA assurance and compliance.
Account Settings

The Account Settings window allows you to modify your contact information and your portal default values.

Use the following steps to modify your user settings.

1. Login to the EPMR portal. (Refer to the Accessing the EPMR Portal for instructions.)

2. From the Welcome page, click the Account Settings link in the lower left corner. (See Figure 4.)

   Result: The Edit User window displays.

3. Change User Settings field(s) as necessary. (Note: See the bullets below for descriptions of the fields in the right column.)

   - **Timezone**: Select the time zone of your location. (Note: The zone you set here correlates to the time in which data is captured for reports.)
   - **Default Level**: Select the view you want to see when you open the portal. The values are EPMR and IPMR (Internet Performance Management Reporting).
   - **Default Domain**: Select the domain you want to see immediately when you access the portal. For example, if the Default Domain value is “My Circuits,” all circuits in a domain will display.
   - **View Unmanaged**: Uncheck the box to eliminate unmanaged circuits from view.
   - **Enable Location Change Notifications**: Check the box to be alerted when the IP and/or location changes from the last login.
   - **Include HTML Report in Email**: Select whether you want a report in HTML included in the email with the autogenerated report.
• **Attach Report**: Select how you want reports sent to you: compressed (zipped) or not compressed. The options are: **Company Default** (which is Uncompressed), **Yes** (a Compressed file, but not the default format used by your company), **Yes (Uncompressed)**, and **No**. **(Note**: If you select **Yes (Compressed)**, you are required to create a Password that other readers must enter before they can see the report.)

4. Click the **Save Settings** button.
EPMR Circuit Manager

The Circuit Manager section includes two default profiles: **Overview Profiles** and **Overview Domain**.

**Overview Profiles**

The Overview Profiles section provides information on the health and performance of circuits. See *Figure 6* for a list of areas included.

**Domain Summary**

The Domain Summary includes an expandable dashboard that depicts a general overview of circuit health grouped in a business's domains and/or sub-domains (if present).

In *Figure 6*, the Domain Summary list is collapsed to show only parent domains. If any sub-domains are present under a domain, the domain name displays a gray arrow on the left. When you click the arrow, the domain expands so you can view the overall health of each sub-domain.

Click the **Expand All** link to view every sub-domain. If any sub-domains contain one or more circuits with an event during the Past Day or Recent time periods while the sub-domains are hidden, the domain displays a red warning icon next to the arrow. (**Note**: In the figure below, the Domain Summary page is set to refresh data every 15 minutes.)

*Figure 6.*  Circuit Manager – Domain Summary window

**Domain Maps**

Domain Maps display circuit health by geographical location. Locations are configured during the provisioning process by Cox Business.

You can look at the geographical view of the circuits when you click the icon. Domain mapping only displays circuits with locations defined on the nodes.

Use the steps below to view circuit information.
1. Login to the EPMR portal. (Refer to the *Accessing the EPMR Portal* for instructions.)

2. Click the **Circuit Manager** link in the top toolbar.

3. Click the **Maps icon** in the table. (Note: Domains that do not have an icon are not configured for mapping.)
   **Result:** A map appears that displays circuits in a domain within a geographic area. See *Figure 7*.

4. Click the “+” icon repeatedly in the lower right corner of the map to zoom in on a circuit’s specific location and view additional details about the circuit.
   **Result:** Building ‪ and cell tower icons* (nodes) appear and display the circuit line connection (a green line) between each. See *Figure 7*.

5. Click on a circuit line to view a pop up that displays the:
   - Circuit’s alias; e.g., 25.CUXX.078220.002.COX
   - Status of the circuit’s health
   - Latency and Jitter
   - Data Delivery Ratio (DDR)
   - Data’s Input and Output Accept Avg speed
   - Distance**

   **Figure 7.**  **Domain Map**

   ![Domain Map Image](image)

   **Note:** The **Distance** field displays the average distance of all routes available for the selected circuit. If driving distance cannot be found, the maps will display distance as the crow flies.

   Double click the Distance line to view details about a Circuit Details. If there is more than one circuit between two locations, a drop-down menu appears. Here, you can select the circuit you want to view.

   *Cell tower icons do not apply to retail customers.*
The circuit line displays the latest health status of the circuit. Thicker lines represent multiple circuits on the line. When you click a circuit line, a pop up dialog box provides additional details.

6. Hover over a node and click to view the Common Language Location Identifier Codes (CLLI, pronounced “silly”) location; e.g., WCHVKSOS shown in Figure 7. This term is used in the North American telecommunications industry to specify the location and function of telecommunications equipment.

Circuit Health

The Circuit Health window displays a status of the circuit’s condition in a domain. See Figure 8. It also provides information about the circuit, such as:

- the name of the domain to which the circuit belongs
- the circuit’s identifier
- a description of the circuit (if provided)
- a visual representation (green line) of the health of the circuit between two nodes

![Figure 8. Circuit Health (sample)](image)

There are two icons that could represent your circuits depending on the type of type of topology that has been deployed:

Represents a Network for Point-to-Point Topology that shows an end point terminating at a far end endpoint. This type of network is sometimes called an “E-Line” and provides a “customer-premise-to-customer-premise” view.
Represents the Access Network for Multipoint Topology that shows an end point terminating in a Cloud. This type of network is sometimes called an "e-LAN" and can be configured in a full or partial mesh environment. It provides a “customer-premise-to-Cloud” view on network performance.

The health of a circuit is identified by the color of the circuit in the Status column, as is shown in Figure 9. Place the cursor over the image to see details of the status.

**Figure 9. Circuit Topology icons**

Use the following steps to open and view the Circuit Health page.

1. Login to the EPMR portal. Login to the EPMR portal. (Refer to the Accessing the EPMR Portal for instructions.)
2. Click the Circuit Manager link in the top toolbar.
3. Click the Circuit Health link in the left menu bar.
4. From the Status column, place your mouse over the connector symbol. **Result:** A dialog box displays:
   - the circuit’s health status
   - the date and time that Ethernet and Utility Statistics were last updated
   - the current latency average between nodes
   - the current jitter average between nodes.

The Circuit Overview page refreshes automatically every 15 minutes.
**Circuit Details**

**Figure 10. Circuit Details (part 1)**

The top portion of the Circuit Details page *(Circuit Details (part 1))* displays:

- the domain to which the circuit belongs
- the circuit’s identifier
- a description of the circuit (if provided); technically known as the Ethernet Virtual Connection (EVC)
- the identifiers and physical locations for a circuit’s System A and System Z points; technically known as User Network Interfaces (UNIs)
- Committed Information Rate (CIR), the average transmission rate in megabits per second (Mbs) for a virtual circuit
- a visual representation of the health of the circuit between two points
The second half of the Circuit Details page (Figure 11) displays graphs of a circuit’s latency, jitter, utilization, packet loss, and data delivery ratio. A description of each graph is shown below.

**Figure 11. Circuit Detail graphs (part 2)**

- **2-Way Latency Avg**: the average time required to transmit and receive Ethernet service frames for the past hour.
• **Utilization (System A to System Z):** the amount of usage from System A point to System Z point (you can only see a utilization graph if the circuit is an essentials circuit. You can see all graphs if you have a professional package (pro circuit).

• **2-Way Jitter Avg:** the average variation in the delay between consecutive Ethernet service frames for the past hour

• **Packet loss:** the ratio, expressed as a percentage, of the number of test packets lost to the number of test packets transmitted

• **Data Delivery Ratio (DDR) (%):** the percentage of the number of test packets received successfully in relation to the number of test packets transmitted

Use the following steps to access **Circuit Details**.

1. Login to the EPMR portal. (Refer to the *Accessing the EPMR Portal* for instructions.)

2. Click the **Circuit Manager** link in the top toolbar.

3. Click the **Circuit Health** link in the left menu bar.

4. From the **Overview Domain** section in the left navigation bar, click the **My Circuits** link.

   **Result:** A table containing Circuits in a Domain appears. (See *Figure 9.*)

5. Click any **Circuit ID** in the table; e.g.,

   **Result:** The Circuit Details page appears.
EPMR Report Manager

Report Manager provides summaries for service level availability and performance of individual and groups of circuits based on a selected domain. Users can open any report listed on the Report Summary Page and see all reports executed by users within their user level.

**Figure 12. Report Summary page**

Use the following step to access Report Manager.

1. Login to the EPMR Portal. (Refer to the *Accessing the EPMR Portal* for instructions.)
2. Click the **Report Manager** link in the top toolbar.
   **Result:** The Report Summary page appears.

**Report Summary Page Layout**

The table below describes the information shown on the Report Summary.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reports requested by the user appear in the My Reports tab. Reports for the company, including its users, display in the All Reports tab.</td>
</tr>
</tbody>
</table>
## Report Types

**Performance Reports**: Performance Reports are gathered from circuit data to calculate performance based on administrator-defined thresholds. Users may subscribe to this type of report to receive the nightly auto generated report emailed directly to the subscribers. Additionally, users with access to the reports may dynamically run the reports within a time range of their choice.

### Generated report (sample)

A description of each section is listed below starting from left to right.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| 2    | **Report Types**  
**Performance Reports**: Performance Reports are gathered from circuit data to calculate performance based on administrator-defined thresholds. Users may subscribe to this type of report to receive the nightly auto generated report emailed directly to the subscribers. Additionally, users with access to the reports may dynamically run the reports within a time range of their choice. |
| 3    | **Generated report (sample)**  
A description of each section is listed below starting from left to right.  
- The yellow icon indicates the report type, in this case it's SLA Performance. (See the legend in [*Figure 12.*](#))  
- The name of the report and the domain on which the report is based; e.g., SLA Performance for My Circuits. (Click the name of the report to view details, download the report to a CSV file, or Export to PDF.)  
- The pencil icon allows you to edit the name of the report and add a description.  
- The buttons to the right of the report name, such as **Auto** and **Maint**, indicate that the report is automatically generated, and maintenance tickets have been submitted for the data contained in the report.  
- The date and time the report was generated. (*Note*: The value below the report generation time indicates when the user wants to be emailed a copy of the report. In the example, the user wants the report automatically sent on a weekly basis.)  
<p>| 4    | Click the <strong>download</strong> icon to display a report and save (optional). Click the <strong>trashcan</strong> icon to delete the report; and click the <strong>share</strong> icon to include it an email to another person. |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| 5 | **User Subscriptions**  
Upon completion of a report, the email sent to the User will include a URL which will navigate the User to access the report. If the user is not logged into EPMR, the User will be required to enter his/her username/password from the EPMR login page to view the report. Should the User be signed into EPMR, the URL will navigate the User directly to the completed report.  
For increased security, reports that are emailed may be compressed with the option for the User to set a password and request a link to download the report. An administrator may set the Default Settings by selecting “Yes” within the Company Settings which is located within the Admin Manager.  
Each user may update his/her settings by selecting Account Settings near the bottom of the EPMR Portal. Once selected, the user will be presented with his/her User Settings. Within the right side of the User Setting, the user may choose the:  
- Include HTML Report in Email (Company Default, Yes, or No)  
- Attach Report  
- No compression: a CSV file will be attached  
- Compression: a gzip file will be attached  
- Encrypted: a password protected gzip will be attached, requiring you to enter the set password to view the file. (Passwords are set up in the *Account Settings* page.) |
| 6 | **Performance Report Types**  
Performance reports include **SLA stats**, **Packet loss stats**, and **Utilization stats**. These reports use data gathered from circuits to calculate performance that is based on administrator-defined thresholds. Users may subscribe to receive the nightly autogenerated report which is emailed directly to the subscribers. Additionally, users with access to the reports may dynamically run the reports using a user-defined time range.  
They can be generated on demand. The report can be downloaded, shared, and exported to a PDF or CSV format.  
When you click the link for a report, the system defaults to capture data over the last 24 hours; however, you can change the time and date range to your preference when you use the date field and time drop-down menus. You can also sort the data when you click the up and down arrows to the right of the column headings. |
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| 7 | **Overview Domain**  
Displays the number of circuits and networks in a domain. *(Note: If a heading contains multiple entries, a plus icon displays. Click the icon to view additional details.)* |
| 8 | **Circuit ID Search field**  
Enter a circuit’s identifier to quickly locate a specific circuit. |

**Subscribing to Reports**

The User Subscriptions function enables you to sign up for daily, weekly, and monthly reports. When you subscribe to a report, you will receive an email that contains the report and a CSV formatted version *when the report is autogenerated*.

**Figure 13. User Subscriptions**

Use the following steps to subscribe and receive autogenerated reports during a time range that you specify.

1. Login to the EPMR Portal. Login to the EPMR portal. (Refer to the *Accessing the EPMR Portal* for instructions.)
2. Click the **Report Manager** link in the top toolbar.  
**Result:** The Report Manager main page appears.
3. From the **Report Manager** menu, click the **User Subscriptions** link in the left navigation bar.  
**Result:** The User Subscriptions page appears.
4. Choose the type of report you want to generate (Packetloss Performance, SLA Performance, or Utilization Performance) and click the **Add** button under the timeframe you want to receive the report: **Daily**, **Weekly**, and/or **Monthly**.  
**Result:** A dialog box will prompt you to choose a domain.
5. Select a domain and click the **OK** button. (See *Figure 14.*
6. (Note): In Figure 13, the SLA Performance stats report for Metro Networks will be emailed Weekly.
   **Result:** A confirmation message will appear confirming the addition.

7. If you want to unsubscribe from a report, click the X icon.

**Figure 15. Unsubscribe from Report**

**Autogenerated Reports**

In addition to being able to run reports on demand, *Performance Reports* are pre-configured to run automatically. These reports are automatically executed on daily, weekly and monthly intervals, based on the radio button that you select.
Performance Reports

**SLA Stats**

(Included with EPMR Professional only)

The **SLA Stats** report displays the Service Level Agreement of a mutually agreed upon type of performance between a customer and service provider. The report shown in Figure 16 displays the amount of one-way and two-way latency and jitter between points A-Z that must fall within the pre-determined level of acceptance within the defined time range.

**Figure 16. SLA Performance page (sample)**

Use the following steps to access the **SLA Stats** report.

1. Login to the EPMR Portal. Login to the EPMR portal. (Refer to the Accessing the EPMR Portal for instructions.)

2. Click the **Report Manager** link in the top toolbar.
   **Result**: The Report Manager main page appears.

3. Scroll to the Performance Reports section in the left navigation panel and click the **SLA stats** link.
   **Result**: The **SLA Performance** data displays.
4. To generate a new report, click the date field and/or time field to create the range you want to view and click the Filter button.  
**Result:** A confirmation dialog states that the report will run in the background and you will be notified when it’s completed.

   a. Click the Yes or No button to proceed.  
      **Result:** A confirmation dialog states that the report has been added to the queue and a copy will be emailed to you.

   b. Click the OK button.

5. (Optional) Click the PDF icon to view the report in a PDF format.

**Figure 17.** SLA Performance Report (sample)
**Packet Loss Stats**

(Included with EPMR Professional only)

The Packet Loss Stats report displays the percentage of test packets lost (for a specific circuit ID) in relation to the Minimum Packet Loss and the Maximum Packet Loss allowed.

This report is viewable within the portal or may be exported into a CSV file.

![ Packet Loss Stats Report](image)

**Figure 18. Packet Loss Performance (summary page)**

Use the following steps to access the **Packet loss Performance** report.

1. Login to the EPMR portal. Login to the EPMR portal. (Refer to the Accessing the EPMR Portal for instructions.)

2. Click the **Report Manager** link in the top toolbar.

3. Scroll to the Performance Reports section in the left navigation panel and click the **Packet Loss stats** link.

   **Result:** The percentage of a circuit’s packet loss from Point Z to Point A appears, as well as the percentages for Minimum Packet Loss and Maximum Packet Loss.

4. To generate a new report, click the date field and/or time field to create the range you want to view and click the **Filter** button.

   **Result:** A confirmation dialog states that the report will run in the background and you will be notified when it’s completed.

   a. Click the **Yes** or **No** button to proceed.

      **Result:** A confirmation dialog states that the report has been added to the queue and a copy will be emailed to you.

   d. Click the **OK** button.
5. (Optional) Click the PDF icon to view the report in a PDF format.
6. (Optional): Click the Export CSV icon to transfer the data to a spreadsheet

**Figure 19. Packetloss Stats Report (summary)**

![Packetloss Stats Report](image)
Utilization Stats
(Included with EPMR Essentials and EPMR Professional)

The Utilization Stats report provides information on a network’s traffic, such as the minimum, average, and maximum throughput (accept rate) of a circuit—displayed in megabits per second (Mbps)—over a certain time period.

The data gathered reflects the “A” site only. The last column, EVC%, takes the Accept Average Rate and divides by the bandwidth purchased to determine usage.

Figure 20. Utilization Stats (summary page)

1. Login to the EPMR portal. Login to the EPMR portal. (Refer to the Accessing the EPMR Portal for instructions.)

2. Click the Report Manager link in the top toolbar.
3. Scroll to the Performance Reports section in the left navigation panel and click the **Utilization stats** link.
   **Result:** The Utilization Stats summary page appears.

4. To generate a new report, click the date field and/or time field to create the range you want to view and click the **Filter** button.
   **Result:** A confirmation dialog states that the report will run in the background and you will be notified when it’s completed.
   
   e. Click the **Yes** or **No** button to proceed.
      **Result:** A confirmation dialog states that the report has been added to the queue and a copy will be emailed to you.

   f. Click the **OK** button.
Network Performance Measurement Points

Ethernet Performance Measurements

Ethernet performance statistics are measured between the Cox-provided demarcation devices, which is typically a router or a network interface device (NID).

Performance related statistics, such as Latency, Jitter, and DDR are based on “two-way” or “round trip” measurements.

Figure 21. EPMR Performance Measuring depiction

Note: Network Performance is measured by the time it takes for data to be sent from Point A in the network to when Point B receives it and returns it to Point A. This is also known as a “round trip” measurement.
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Committed Information Rate</td>
<td>Speed purchased by the customer based on their historical or anticipated bandwidth requirements</td>
</tr>
<tr>
<td>(CIR)</td>
<td></td>
</tr>
<tr>
<td>Circuit ID</td>
<td>The alphanumeric identifier of a circuit; e.g., Ethernet Virtual Connection (EVC) in a domain</td>
</tr>
<tr>
<td>DDR</td>
<td>Data Delivery Ratio: The ratio, expressed as a percentage, of the number of test packets received successfully in relation to the number of test packets transmitted (roundtrip)</td>
</tr>
<tr>
<td>Domain</td>
<td>A logical grouping of circuit for purposes of administration</td>
</tr>
<tr>
<td>EPMR</td>
<td>Ethernet Performance Management Reporting. The name of the circuit manager and report manager portal.</td>
</tr>
<tr>
<td>EVC</td>
<td>Ethernet Virtual Circuit is a virtual path in the Cox network</td>
</tr>
<tr>
<td>Excess Information Rate</td>
<td>See the Peak Information Rate definition shown below.</td>
</tr>
<tr>
<td>Rate (EIR)</td>
<td></td>
</tr>
<tr>
<td>IPMR</td>
<td>Internet Performance Management Reporting</td>
</tr>
<tr>
<td>Packet Loss</td>
<td>The ratio, expressed as a percentage, of the number of test packets lost to the number of test packets transmitted (roundtrip)</td>
</tr>
<tr>
<td>Peak Information Rate</td>
<td>Refers to spurts or peaks of bandwidth consumption beyond the committed speed. Bursting is measured in increments of Megabits per second (Mbps)</td>
</tr>
<tr>
<td>RTD</td>
<td>Round Trip Delay (see Latency)</td>
</tr>
<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
</tr>
<tr>
<td>System A</td>
<td>Customer location – Typically the remote location</td>
</tr>
<tr>
<td>System Z</td>
<td>Customer location – Typically the main location</td>
</tr>
<tr>
<td>Two Way Jitter</td>
<td>Measures the average variation in the delay between consecutive Ethernet service frames over a specified time period (in milliseconds, round trip)</td>
</tr>
<tr>
<td>Two Way Performance</td>
<td>Network Performance measurements from Point A in the Network to when it is received at Point B and returned to Point A. This is also known as a “round trip” measurement</td>
</tr>
<tr>
<td>Measurement</td>
<td></td>
</tr>
<tr>
<td>Two Way Latency</td>
<td>Measures Transmit Time from Point A in the Network to when it is received at Point B and returned to Point A (in milliseconds, round trip)</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>UNIs</td>
<td>User-to-Network-Interfaces is the access facility between a subscriber and a provided telecommunications service. Typically a router or modem port.</td>
</tr>
<tr>
<td>Utilization / Throughput</td>
<td>Network utilization is the amount of traffic on the network compared to the peak amount that the network can support. Throughput is the rate at which messages are delivered successfully.</td>
</tr>
</tbody>
</table>

*End of Document*