

# Create a custom device to monitor remote office traffic

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After deploying the ExtraHop system at your data center, insights about your network quickly emerge. As the ExtraHop system automatically discovers devices that communicate on your network, you can start to identify traffic bottlenecks or troubleshoot slow services. But how do you gather insights about important traffic for remote locations outside of your data center?

By [creating a custom device](#), you can easily learn how remote locations consume services and applications. Custom devices collect metrics from network traffic based on criteria that you specify, such as an IP address subnet, a range of ports, or a virtual LAN (VLAN). With a custom device, you can monitor the following types of traffic:

- Remote location traffic, such as branch offices, stores, and clinics.
- Third-party business partner traffic, such as credit card processors and timekeepers.
- "The internet," where you can collect traffic from a range of known public IP addresses such as 8.0.0.0/7.

You can add a custom device to a dashboard chart as a metric source to easily monitor traffic on the device. A custom device can also be selected as a metric source for triggers and alerts.

A custom device only counts as a single device towards your licensed device limit, which is helpful for keeping device counts low. But it's important to note that custom devices affect system performance if they are not configured properly.

This walkthrough shows you how to create a custom device and monitor remote office traffic by completing the following steps:

- Create a custom device for a subnet of branch office devices.
- Create a dashboard to monitor bandwidth and latency of branch office traffic.

## Prerequisites


You must have a user account with full system or full write privileges.

Here are some guidelines about configuring custom devices:

- Avoid creating multiple custom devices for the same IP addresses or ports. Overlapping custom devices might affect system performance.
- When you configure a custom device from a Command appliance or Reveal(x) 360, you must specify a sensor (Discover appliance). The custom device is available only to the specified sensor.

## Create a custom device

Let's start building a custom device for our Seattle branch office.

1. Log in to the ExtraHop system through `https://<extrahop-hostname-or-IP-address>`.
2. Click the System Settings icon  in the top right corner of the page, and then click **Custom Devices**.
3. At the top of the page, click **Create**.
4. In the **Name** field, type a name for your device. For example, name your device with the branch office region. In this example, you'll name the device `Seattle`.
5. In the **Discovery ID** field, type a unique identifier for the device, such as a store or office number. In this example, you'll type `Store_09045` for the Discovery ID.

**NAME**

Seattle

**DISCOVERY ID**

Store\_09045

Custom Device Enabled



**Tip:** If left blank, the Discovery ID is generated from the custom device name. The Discovery ID cannot contain spaces and cannot be changed after the custom device is saved.

6. In the **Description** field, type information that will help identify this remote network in future searches. For example, type the branch office address so that you can search for this custom device by city or zip code.
7. (Command appliance or Reveal(x) 360 only) From the **Sensor** drop-down list, select the sensor (Discover appliance) that you want to associate with the custom device.
8. Click **Add Criteria** to specify the IP addresses of the devices you will collect metrics for.
9. In the **IP Address** field, type a CIDR notation for the Seattle branch office subnet. For this example, you will type `10.8.22.0/24`. You can leave the port and VLAN fields blank.

**MATCH CRITERIA**

**IP Address** ^ x

10.8.22.0/24

**Destination Port Range**

Min. – Max.

**Source Port Range**

Min. – Max.

**VLAN Range**

Min. – Max.



10. Click **Save**.

Your custom device is created! It will take a few minutes for the custom device to discover devices on the remote network. As the ExtraHop system observes traffic that meets the match criteria (for example, the 10.8.22.0/24 subnet), metrics will become available for this custom device.

Next, let's create a dashboard to easily monitor custom device metrics.

## Create a dashboard

You can create a dashboard to display specific charts and data for the custom device you created.

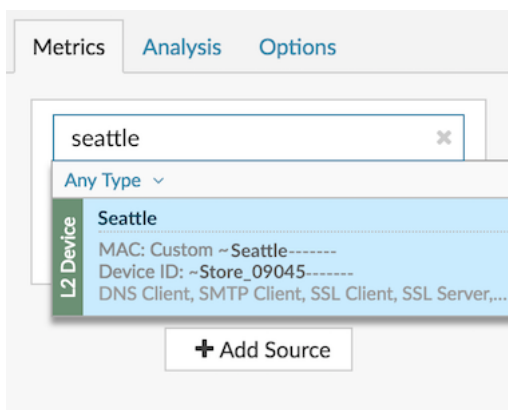
1. At the top of the page, click **Dashboards**.
2. Click the command menu  in the upper right corner and select **New Dashboard** to create an empty dashboard.
3. Type a name for your dashboard in the **Title** field. For this walkthrough, type `Seattle Branch Office Traffic`.
4. Click **Create**. When you create a new dashboard, a workspace opens in an editable layout mode. This workspace contains a single region and two empty widgets: a chart and a text box.
5. Text box widgets can include custom explanatory text about a dashboard or chart. For this walkthrough, however, you won't be adding text. Delete the text box by completing the following steps:
  - a) Click the command menu  in the upper right corner of the text box widget and click **Delete**.
  - b) Click **Delete Widget**.

Next, you'll add throughput metrics about traffic volumes to the empty chart.

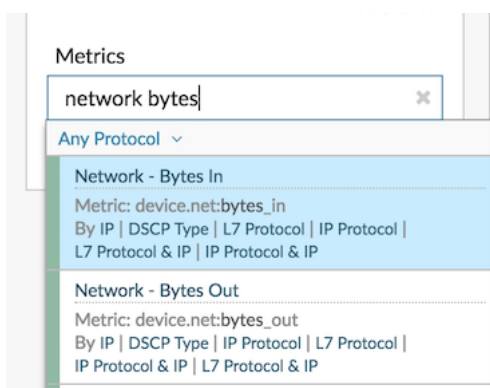
## Add network throughput to your dashboard

Let's monitor the amount of network bytes coming into and out of the remote network.

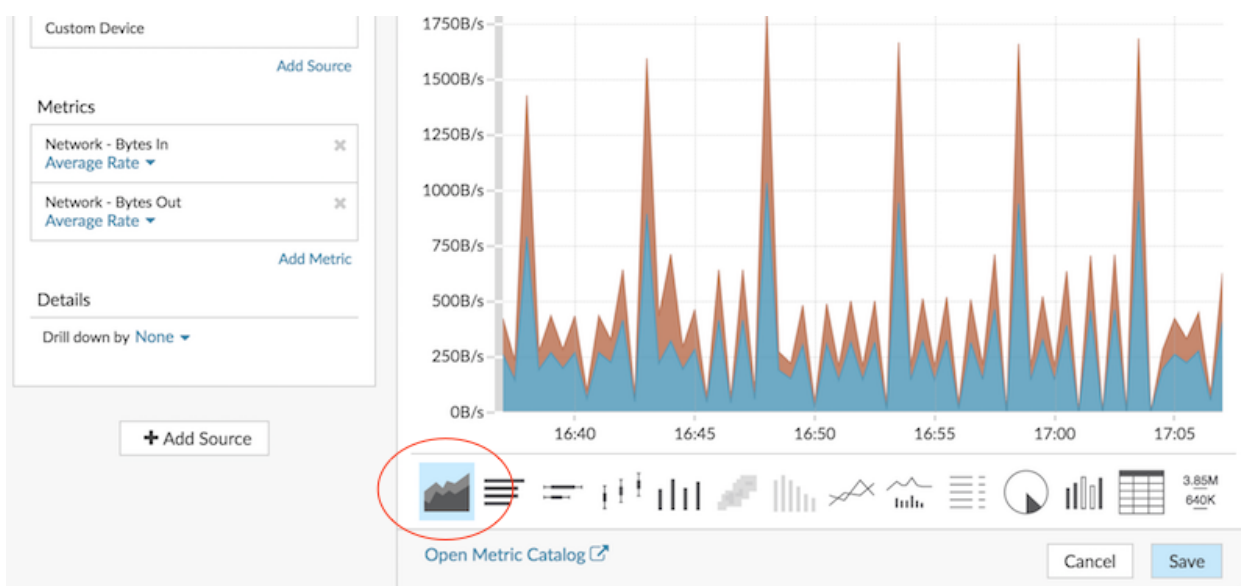
1. Click the empty chart widget in your newly created dashboard to open the Metric Explorer.
2. Click **Add Source**.
3. In the Sources field, type `Seattle`, and then select that custom device from the results, as shown in the following example.



4. In the Metrics field, type `network bytes`, and then select **Network - Bytes In** from the results, as shown in the following example.



5. Click **Add Metric**, type `network bytes`, and then select **Network - Bytes Out** from the results.
6. Click the **Area** chart.



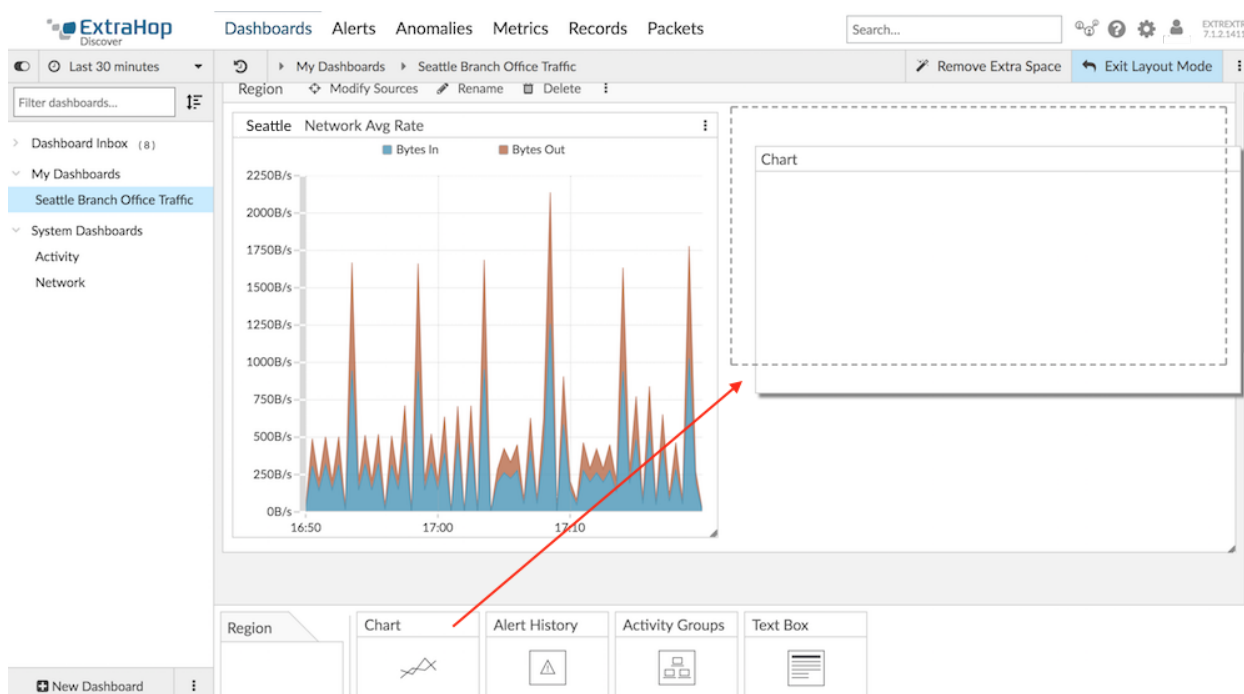
7. Click **Save**.

Next, you'll add the Round Trip Time metric to monitor network latency.

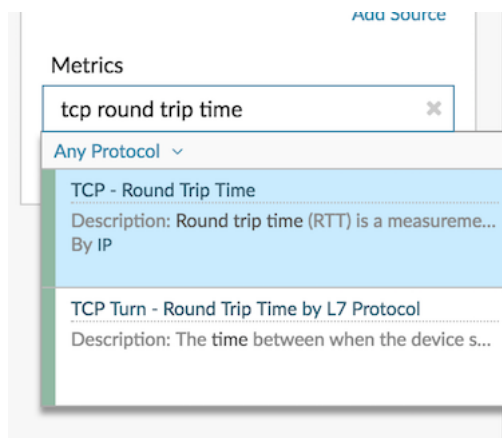
## Add network latency to your chart

Now let's now monitor whether network latency is affecting the remote network.

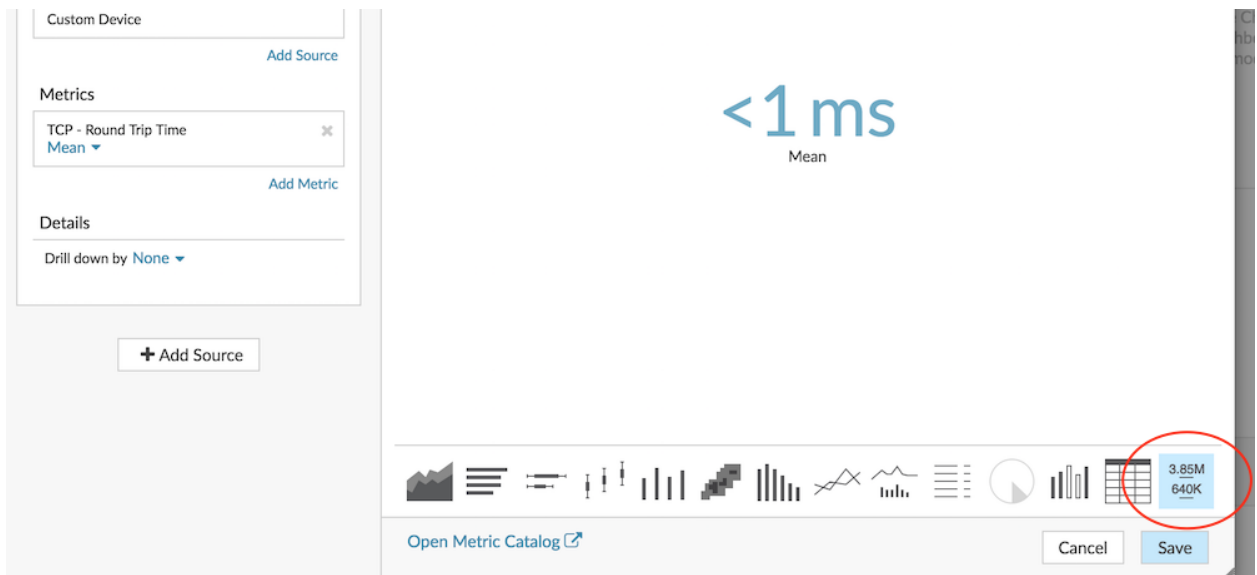
1. From the bottom of the Dashboards page, click and drag a chart widget into the empty space next to the first chart, as shown in the following example.



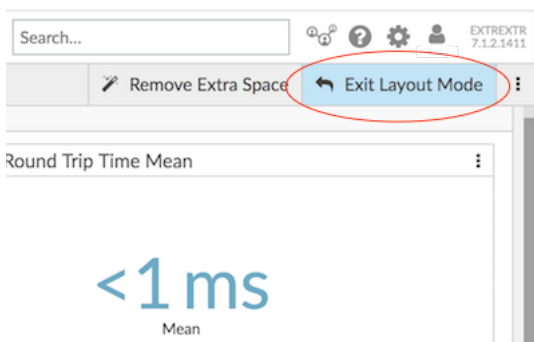
2. Click the empty chart.
3. Click **Add Source**, type `Seattle`, and then select **Seattle** from the results.
4. In the Metrics field, type `tcp round trip time`, and then select **TCP - Round Trip Time** from the results, as shown in the following example.



5. Click the **Value** chart.



6. Click **Save**.
7. In the upper right corner of the page, click **Exit Layout Mode**.



Your dashboard is complete! You can now keep an eye on network performance by completing the following tasks:

- [Share a dashboard](#)
- [Add a dynamic baseline to a chart](#)

## Troubleshoot issues

You now have a couple of charts to consult when slow network performance is reported. The following table includes suggestions for interpreting chart data and then troubleshooting issues.

Potential Issue	Follow Up Action
A sudden increase in traffic	Investigate dashboard chart data to understand what is contributing to traffic.  You can also investigate protocol page data. Click the chart title and then click the custom device name in the Go to... section. A protocol page for the custom device appears. <a href="#">Create an activity map</a> to see device connections and volume of traffic between connections.

Potential Issue	Follow Up Action
Slow application	<p>You can also <a href="#">compare two time intervals</a> from different business hours to see the difference in metric values.</p> <p>Determine if the slow application is related to a client-side issue in the branch office, or if the issue is related to servers in the local data center.</p> <p>Click the chart title and then click the custom device name in the Go to... section. A protocol page for the custom device appears.</p> <p>In the Client Activity section in the left pane, click <b>HTTP, Database, DNS, or ICA</b> (Citrix) to investigate client-side Error metrics.</p> <p>In the Server Activity section, click protocols and investigate metrics such as Errors and Server Processing Time. These metrics show you that servers might be contributing to the issue.</p>
Increase in traffic volume over time	<p><a href="#">Add a dynamic baseline to a chart</a> to view trends in traffic data over time. Note that the ExtraHop system starts to build a dynamic baseline after it is added to the chart. You cannot view a baseline of historic data.</p>
Increase in network congestion or other data transmission issues	<p>Investigate TCP metrics to see how the network is affecting application performance.</p> <p>Click the chart title and then click the custom device in the Go to... section of the drop-down menu. A protocol page for the custom device appears. Look for large values for the following metrics:</p> <ul style="list-style-type: none"> <li>Retransmission Timeouts (RTOs In/Out) for network congestion</li> <li>Round Trip Time (RTT) for network latency</li> <li>Receive Window Throttling and Zero Windows for data transmission issues</li> </ul>