

Line Charts from SQL Data

Line charts are used to display trends and changes over time.

In this tutorial, the number of security events per day will be displayed using a line chart.

Step 1 - Create the SQL Query

The following query counts the number of events recorded each day.

```
SELECT

    DATE(event_timestamp) AS event_date,

    COUNT(*) AS total

FROM cyber_security_events

GROUP BY DATE(event_timestamp)

ORDER BY event_date;
```

Example result:

event_date	total
2026-06-01	12
2026-06-02	18
2026-06-03	9
2026-06-04	15

Step 2 - Retrieve the Data with PHP

```
<?php

$sql = "

SELECT

    DATE(event_timestamp) AS event_date,

    COUNT(*) AS total

FROM cyber_security_events

GROUP BY DATE(event_timestamp)

ORDER BY event_date

";

$result = $pdo->query($sql);

$data = [];

while($row = $result->fetch())
{

    $data[] = [

        $row['event_date'],

        (int)$row['total']

    ];

}
```

?>

Step 3 - Create the Chart Container

```
<div id="chart_div"
      style="width:900px; height:500px;">
</div>
```

Step 4 - Create the Line Chart

```
<script>

google.charts.load(
  'current',
  {'packages':['corechart']}
);

google.charts.setOnLoadCallback(drawChart);

function drawChart()
{
  var data =

    google.visualization.arrayToDataTable([

      ['Date', 'Events'],

      ...<?php echo json_encode($data); ?>

    ]);
```

```
var options = {

    title:'Security Events Over Time',

    curveType:'function',

    legend:{position:'bottom'}

};

var chart =

    new google.visualization.LineChart(

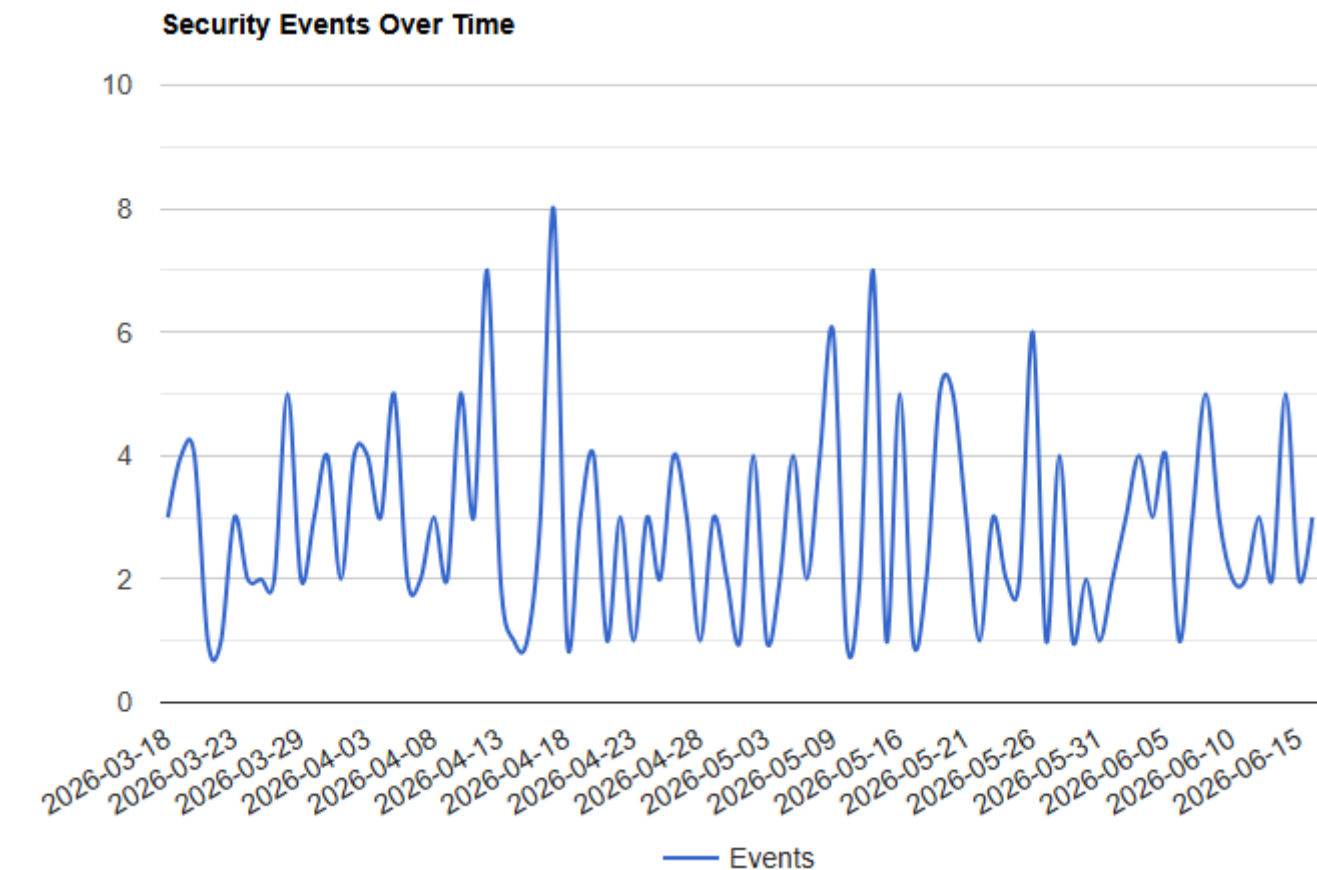
        document.getElementById('chart_div')

    );

chart.draw(data, options);

}
```

```
</script>
```



Understanding the Chart

The horizontal axis displays:

Date

The vertical axis displays:

Number of Security Events

This makes it easier to identify:

- Busy periods
- Trends over time
- Sudden increases in activity
- Patterns in the data

Complete Example

```
<?php

$sql = "

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    DATE(event_timestamp) AS event_date,

    COUNT(*) AS total

FROM cyber_security_events

GROUP BY DATE(event_timestamp)

ORDER BY event_date

";

$result = $pdo->query($sql);

$data = [];

while($row = $result->fetch())
{

    $data[] = [

        $row['event_date'],

        (int)$row['total']

    ];

}

?>
```

```
<!DOCTYPE html>

<html>

<head>

<script src="https://www.gstatic.com/charts/loader.js"></script>

</head>

<body>

<div id="chart_div"
      style="width:900px; height:500px;">
</div>

<script>

google.charts.load(
    'current',
    {'packages':['corechart']}
);

google.charts.setOnLoadCallback(drawChart);

function drawChart()
{

    var data =

        google.visualization.arrayToDataTable([

            ['Date', 'Events'],

            ...<?php echo json_encode($data); ?>

        ]);

    var options = {
```

```
        title:'Security Events Over Time',

        curveType:'function',

        legend:{position:'bottom'}

    };

    var chart =

        new google.visualization.LineChart(

            document.getElementById('chart_div')

        );

    chart.draw(data, options);

}

</script>

</body>

</html>
```

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