

Loki Tools for DevOps MCP Server

This document provides an overview of the Loki tools available in the DevOps MCP Server. These tools allow interaction with a configured Loki instance for log querying and label inspection.

Configuration

The Loki tools require the `LOKI_URL` to be configured. This can be set as an environment variable or in the `config/settings.py` file. The default is `http://localhost:3100` if not otherwise specified. The `LOKI_TIMEOUT` (default 10 seconds) can also be configured.

Available Tools

1. `query_loki_range`

Queries logs from Loki within a given time range using a LogQL query.

Arguments:

- `query` (str, required): The LogQL query string.
 - Example: `{cluster="platformlive", namespace="console"} |= "error"`
- `start` (str, required): The start of the query range. Can be a relative time string (e.g., "1h", "30m"), a Unix timestamp (seconds), or an RFC3339 formatted timestamp.
 - Example: `"1h"` (for one hour ago)
- `end` (str, required): The end of the query range. Can be a relative time string (e.g., "now"), a Unix timestamp (seconds), or an RFC3339 formatted timestamp.
 - Example: `"now"`
- `limit` (int, optional): Maximum number of log lines to return.
 - Default: `100`
 - Max: `5000`
- `direction` (str, optional): Search direction.
 - Allowed values: `"forward"`, `"backward"`
 - Default: `"backward"`
- `step` (str, optional): Query resolution step width for metric queries (e.g., "15s", "1m"). Not typically used for log stream queries.

Returns:

- (str): A JSON string containing the query result from Loki. The structure includes `status`, `data` (with `resultType` and `result` containing log streams or matrix data, and `stats`).

Example Usage (MCP Tool Call):

```
{
  "tool_name": "query_loki_range",
  "arguments": {
    "query": "{app=\\\"your-app\\\"} |= \\\"error\\\"",
```

```
    "start": "15m",
    "end": "now",
    "limit": 50
  }
}
```

2. `get_loki_labels`

Retrieves a list of all label names known to Loki within a given time range.

Arguments:

- **start** (str, optional): The start of the time range to consider for labels. Can be a relative time string, Unix timestamp, or RFC3339. If omitted, recent labels are typically returned based on Loki's default.
 - Example: `"24h"`
- **end** (str, optional): The end of the time range. Can be a relative time string, Unix timestamp, or RFC3339.
 - Example: `"now"`

Returns:

- (str): A JSON string containing a list of label names.
 - Example: `{"status": "success", "data": ["app", "namespace", "pod", "job", ...]}`

Example Usage (MCP Tool Call):

```
{
  "tool_name": "get_loki_labels",
  "arguments": {
    "start": "7d"
  }
}
```

PROF

3. `get_loki_label_values`

Retrieves all unique values for a specific label name within a given time range.

Arguments:

- **label_name** (str, required): The name of the label for which to fetch values.
 - Example: `"namespace"`
- **start** (str, optional): The start of the time range to consider for label values. Can be a relative time string, Unix timestamp, or RFC3339.
 - Example: `"24h"`
- **end** (str, optional): The end of the time range. Can be a relative time string, Unix timestamp, or RFC3339.

- Example: "now"

Returns:

- (str): A JSON string containing a list of unique values for the specified label.
 - Example: {"status": "success", "data": ["default", "kube-system", "monitoring", "loki", ...]}

Example Usage (MCP Tool Call):

```
{
  "tool_name": "get_loki_label_values",
  "arguments": {
    "label_name": "app",
    "start": "3h",
    "end": "now"
  }
}
```