Metrics Collection - Crunchy Containers for PostgreSQL

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Collected Metrics

Description

Postgresql metrics are collected by the crunchy-collect container. To start collection of metrics on a Postgres database, you add the crunchy-collect container into the pod that holds the crunchy-pg container.

Requirements

Metrics are stored in the crunchy-prometheus container. crunchy-prometheus runs the prometheus time series database. The prometheus pushgateway is found within the crunchy-promgateway container, and the grafana web application is foud within the crunchy-grafana container. An example of starting the metrics containers is in examples/openshift/scope.json.

To start the crunchy-scope container, run the following:

```
examples/openshift/metrics/run.sh
```

The crunchy-prometheus data in this example is stored in emptyDir volume types. To persist the data and grafana templates long term, you will want to use NFS volume types as specified in examples/openshift/metrics/run-nfs.sh

When running crunchy-scope, the following ports are available: * crunchy-prometheus:9090 - the prometheus web user interface * crunchy-promgateway:9091 - the prometheus pushgateway REST API * crunchy-grafana:3000 - the grafana web user interface

crunchy-collect Environment Variables

- POLL_INT - number of minutes to sleep until metrics are collected. defaults to 15 minutes
- PROM_GATEWAY - the http URL of the prometheus pushgateway into which the metrics will be pushed. defaults to http://crunchy-promgateway:9091

Example

An example of using crunchy-collect is stored in examples/openshift/master-collect.json

This example collects metrics for the pg-master database. Run the example as follows:

```
oc process -f master-collect.json | oc create -f -
```

Collected Metrics

Table 1. Table Connection Metrics

Metric	Description	Scope	Unit
crunchy_connections	the number of active connections	database/cluster	count

Table 2. Table Connection Utilization Metrics

Metric	Description	Scope	Unit
crunchy_connectionutil	the percent utilization of max connections	cluster	percent

Table 3. Table Database Size Metrics

Metric	Description	Scope	Unit
crunchy_databasesize	the size in Megabytes of a database	database	megabytes

Table 4. Table pg_stat_database Metrics

Metric	Description	Scope	Unit
crunchy_xact_commit	Number of transactions in this database that have been committed	database	count
crunchy_xact_rollback	Number of transactions in this database that have been rolled back	database	count
crunchy_tup_returned	tup_returned	database	count
crunchy_tup_fetched	tup_fetched	database	count
crunchy_tup_inserted	tup_inserted	database	count
crunchy_tup_updated	tup_updated	database	count
crunchy_tup_deleted	tup_deleted	database	count
crunchy_conflicts	conflicts	database	count
crunchy_temp_files	temp_files	database	count
crunchy_temp_bytes	temp_bytes	database	count
crunchy_deadlocks	deadlocks	database	count
crunchy_blks_read	blks_read	database	count
crunchy_blks_hit	blks_hit	database	count
crunchy_hit_ratio	hit_ratio	database	percent

Metric	Description	Scope	Unit
crunchy_blk_read_time	blk_read_time	database	time
crunchy_blk_write_time	blk_write_time	database	time

Table 5. Table bgwriter Metrics

Metric	Description	Scope	Unit
crunchy_checkpoints_timed	checkpoints_timed	cluster	count
crunchy_checkpoints_req	checkpoints_req	cluster	count
crunchy_checkpoint_write_time	checkpoint_write_time	cluster	count
crunchy_checkpoint_sync_time	checkpoint_sync_time	cluster	count
crunchy_buffers_checkpoint	buffers_checkpoint	cluster	count
crunchy_buffers_clean	buffers_clean	cluster	count
crunchy_maxwritten_clean	maxwritten_clean	cluster	count
crunchy_buffers_backend	buffers_backend	cluster	count
crunchy_buffers_backend_fsync	buffers_backend_fsync	cluster	count
crunchy_buffers_alloc	buffers_alloc	cluster	count

Table 6. Table Table Size Metrics

Metric	Description	Scope	Unit
crunchy_database_size	database_size in megs	database	megabytes
crunchy_table_size	table size in megs	database	megabytes
crunchy_index_size	index size in megs	database	megabytes
crunchy_total_size	total size in megs	database	megabytes

Table 7. Table Dead Rows Metrics

Metric	Description	Scope	Unit
crunchy_pct_dead	percentage dead rows in table	database	item

Table 8. Table Lock Metrics

Metric	Description	Scope	Unit
crunchy_lock_count	locks held for a database	database	count

Table 9. Table pg_xlog Metrics

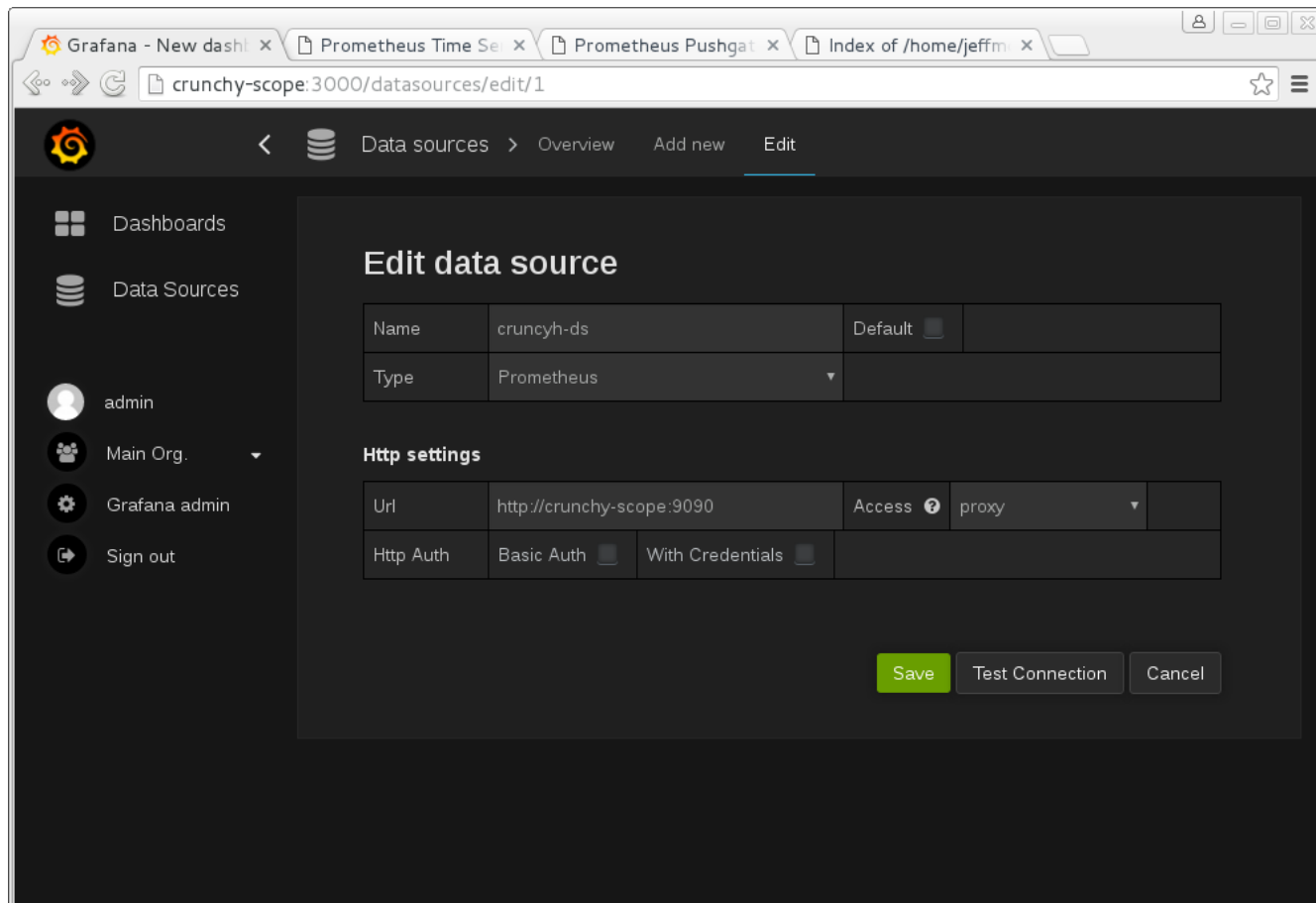| Metric	Description	Scope	unit
crunchy_xlog_count	count of pg_xlog archive files	cluster	count

Grafana Dashboard

You can create dashboards of various graphs using the Grafana Dashboard editor:
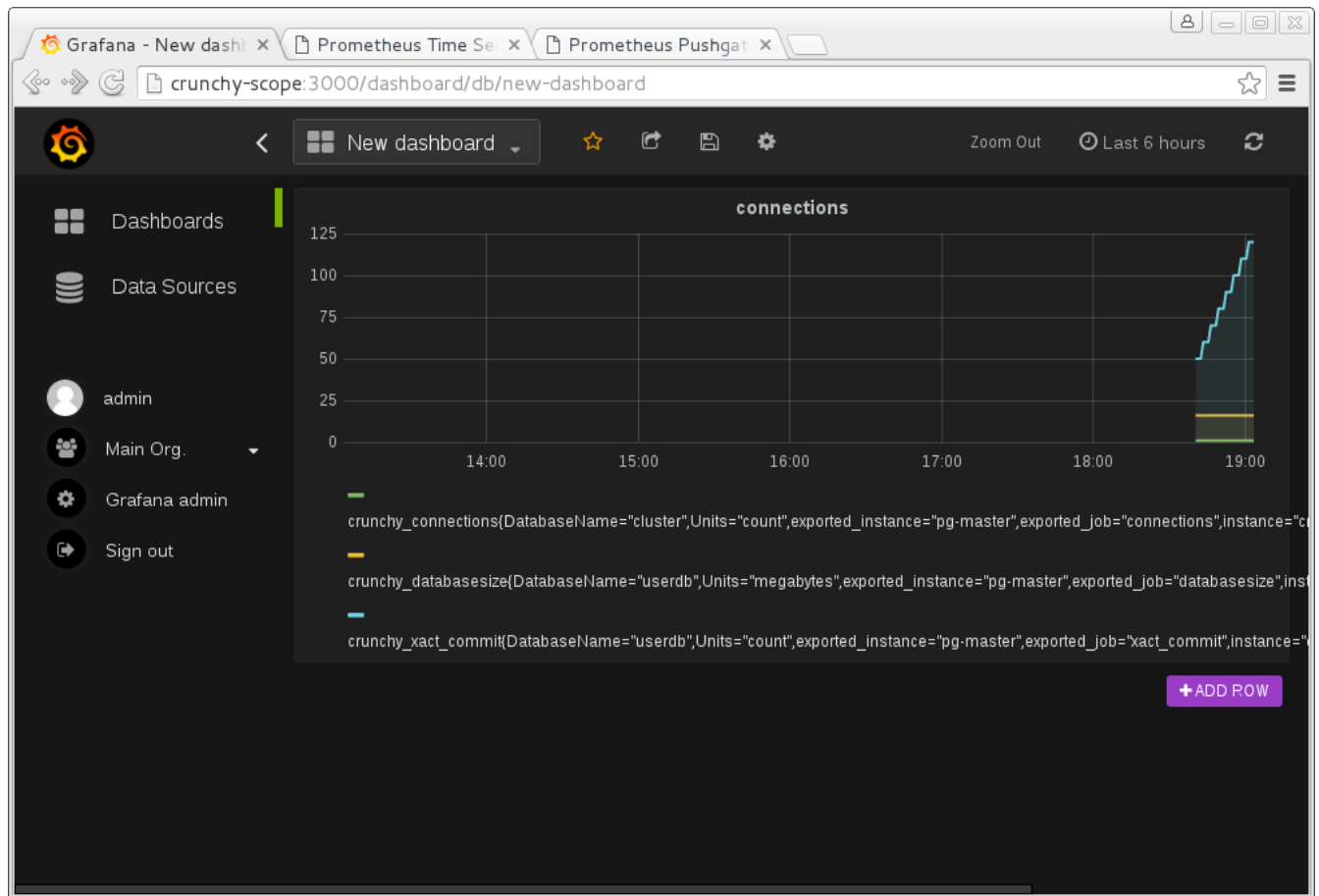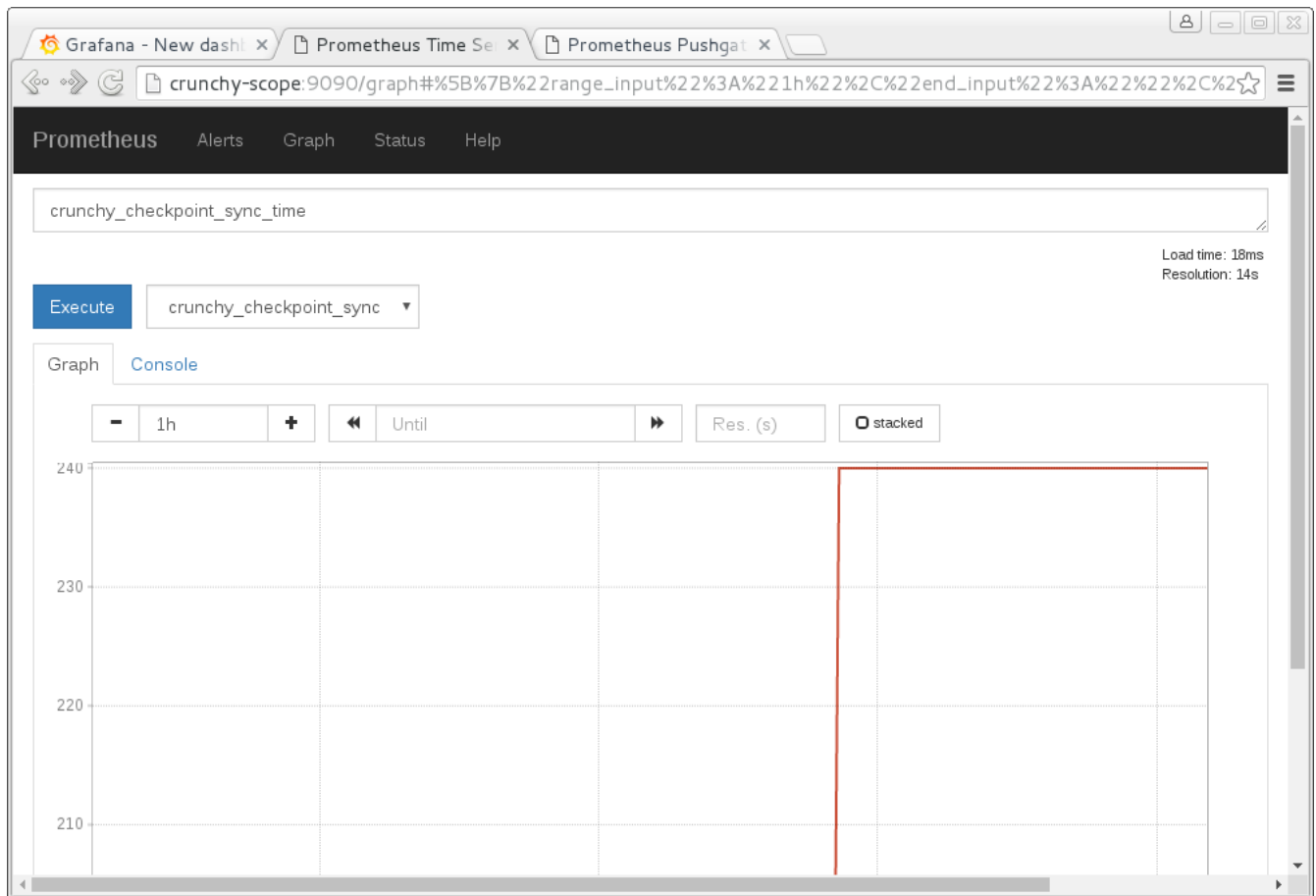
Grafana Data Source

You create a grafana data source that represents the prometheus database running within crunchy-prometheus:

Prometheus Console

You can issue raw queries to prometheus using its web console:

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