



EMC® Watch4net®

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Crossed Failover Filter Admin Guide

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Preface

The purpose of this guide is to provide information about the Crossed Failover Filter for APG. It contains all the necessary information to install and configure the filter.

Definitions

This is a list of terms and definitions used in this document.

- source : a source is a sender of raw values.
- active source : for a certain metric, the active source is the main source of raw values, that is the source currently selected by the Crossed Failover Filter. The crossed failover filter does not store raw values coming from the active source, it only let them pass through.
- secondary source : for a certain metric, a secondary source is a source that is not active. The Crossed Failover Filter stores a parametrized number of raw values coming from a secondary source, sending them to the next processing element only when a source switch occurs.
- polling period : for a certain source, the polling period is the time difference between the timestamps of two raw values sent by the source.

Intended Audience

This guide is intended to be read by any *APG* administrator who will configure the Crossed Failover Filter.

Prerequisites

It is assumed that the *APG* application has been properly installed and configured on the server.

Where to get help

EMC support, product, and licensing information can be obtained as follows:

PRODUCT INFORMATION - For documentation, release notes, software updates, or information about EMC products, go to EMC Online Support at:

<https://support.emc.com>

TECHNICAL SUPPORT - Go to EMC Online Support and click Service Center. You will see several options for contacting EMC Technical Support. Note that to open a service request, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.

Product Overview

To ensure a high level of data redundancy, this filter collects raw values coming from several sources, transmits only the raw values coming from the active sources and switches to secondary sources without any loss of raw values if one of the active sources has failed.

Every identical raw value shares the same set of sources. A raw value is identical to another raw value if they share the same variable ID.

The active source of a raw value can change if :

1. The active source has not sent any raw values for a certain period of time.
2. A secondary source is faster (has a shorter polling period) than the active source.

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Configuration

This section describes the different configuration files for the filter. All these files are located in the `<APG Root>/Collecting/Crossed-Failover-Filter/<Instance>/conf` directory. In case some of these files do not exist, they must be created in this folder as well.

Note: The crossed failover can also be configured in the Backend, refer to [APG-Backend-Admin-Guide.pdf](#) for details. It is not recommended to use the crossed failover in a filter and in the Backend at the same time : it would create a redundancy of the main functionality of the crossed failover.

1 Collecting service configuration

The Crossed Failover Filter for APG must be added in the main collecting configuration file (`collecting.xml`). Add the following section if it is not present, and make sure that the *enabled* attribute is set to *true*:

```
<filters>
  ...
```

```
<filter enabled="true" name="CrossedFailoverFilter" next="AlertingBackend" config="Crossed-  
Failover-Filter/Default/conf/crossed-failover.xml"/>  
...  
</filters>
```

2 Filter configuration

This file is the main configuration file for the filter. It contains information about the way the filter defines the sources of each metric, about how many raw values are stored by non-active sources and about how the switch of an active source is triggered. It is up to the administrator to decide how to name this file and to make sure that the selected name is used to configure the filter in `collecting.xml` (see [section 1](#)).

Global structure Here is the global structure of the configuration file:

- `<sources>`: A source sends raw values, is identified by a list of properties coming from raw values and can be switched from active to inactive and back according to certain parameters. Each metric has its set of sources (one active source and an undefined number of secondary sources). All the sources for all the metrics are identified by the same set of properties.
 - `<property>`:
 - * `name`: Name of the properties of a raw value used to find its source. If a property is not present in the raw value a NULL token will be put in the name of the source. It is very important that, for each source of a metric, the values of the properties set in this tag be different so that the sources be distinguish from each other. For exemple, you can used a property tagging filter so that the new property `rvsource` be different for each source : `rvsource=source1`, `rvsource=source2`, ..., `rvsource=sourceN`.
 - `<switch>`: A switch is triggered when the active source does not send any data for a configured period of time or there is a faster secondary source (a source that has a faster polling period than the active source).
 - * `missing-data`: Number of raw values that the active source has missed before switching sources (in case the active source is down) or number of raw values the inactive source has to send before switching sources (in case the inactive source is faster than the active source).
Missing data must be set to a value of 2 or higher.

- * speed-factor: The speed factor is used in a calculation to determine if a secondary source is faster than the active source. To trigger the source switch, the ratio between the active source's polling period and the current source's polling period must be greater or equal to the speed factor.
The speed factor must be higher than 1.
- * duplicate-data-interval: When a source switch is performed, the duplicate data interval determines if a stored raw value has to be sent to the handler. To compute the period of time during which the timestamp of a raw value is too close to the timestamp of the last received raw value, the duplicate data interval will be multiplied by the polling period of the old active source.
It is recommended to set the duplicate data interval to a value between 0 and 1. Because a value greater than 1 represents more than a full polling period of the old active source, some raw values can be missed in a source switch.
- <data-buffer>: OPTIONAL
 - * size: Number of raw values stored by a non-active source. If this parameter is not present, the missing-data parameter will be used.
- <data-period-calculation>: OPTIONAL
 - * sampling: Number of raw values used to calculate the polling period of a source. The polling period of a source is an average of the difference between the timestamps of the raw values received from the source. If this parameter is not present, the missing-data parameter will be used. This parameter is independent from the number of raw values stored by a non-active source (<data-buffer>).
- <logging-aggregation>:
 - count-threshold: Maximum number of source switches allowed in a certain time frame for the logger to individually log all source switches regardless of their metrics. When this number is exceeded in the time frame, the logger logs an aggregated message.
The count threshold must be set to a value of 1 or higher.
- <data-cleanup>: OPTIONAL
 - timeout: If a metric has not received any raw values for the timespan of one timeout, it is removed from the failover. If this parameter is not present, a value of 2 hours will be used.
The data-cleanup is run by a task that is executed every 1 hour by default. The delay of the task is set in seconds in the crossed-failover.metric-failover-cleanup.delay system property.

- <property-refresh-action>: Only the action of the raw value is concerned by the property-refresh-action parameter, not the whole raw value.
 - timeout-window: When a raw value with a refresh of properties is received from a secondary source, the timeout-window is activated stopping all other refreshes of properties coming from secondary sources from being sent to the handler. The refresh of properties is sent to the handler by the active source after the expiration of the timeout-window.
 - invalid-window (OPTIONAL): When a raw value with a refresh of properties is sent to the handler by the active source, the invalid-window is activated stopping all other refreshes of properties coming from secondary sources from being sent to the handler and flushing all refreshes of properties stored by secondary sources that were waiting to be sent. Only a refresh of properties coming from the active source can be sent during the invalid-window, pushing it back. If the invalid-window is not supplied, the timeout-window will be used.

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Appendix A

1 Configuration Example

```
<?xml version="1.0" encoding="UTF-8"?>
<config xmlns="http://www.watch4net.com/crossed-failover-ts" xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance" xsi:schemaLocation="http://www.watch4net.com/crossed-failover-ts_
crossedfailoverconfiguration.xsd">
  <sources>
    <property name="source" />
    <property name="part" />
    <switch missing-data="2" speed-factor="1.25" duplicate-data-interval="0.25"/>
    <data-buffer size="2" />
    <data-period-calculation sampling="2" />
  </sources>
  <logging-aggregation count-threshold="5" />
  <data-cleanup timeout="2h" />
  <property-refresh-action timeout-window="1h" invalid-window="1h" />
</config>
```