27 SystemMetrics

What	*nameofinstance*.xml
Description	Configuration for the SystemMetrics module
schema location	https://fewsdocs.deltares.nl/schemas/version1.0/systemMetrics.xsd

The significant changes on the Delft-FEWS architecture for the 2017.02 roadmaps has rendered certain elements of the SystemMetrics from the McStatus section meaningless. In below configuration examples it is documented, which configuration elements have been removed from 2017.02 (see *"no longer present in 2017.02 and later"* comments on this page). Note that the SystemMetrics module uses the McStatusView and FssStatusView. Unfortunately these two views have not been available in all the delivered 2017.02 release packages. New versions of McStatusView and FssStatusView will be officially present in 2018.01 again. Ask Fews support if you need the McStatusView and FssStatusView in 2017.02 or use the view_creation script from the latest 2017.02 mc build.

In 2017.02 and later, please remove the following elements from the SystemMetrics module configuration file (parameters and filters should probably cleaned up as well) otherwise errors will be logged:

```
<oclListenerParameterId>M.S.ocl</oclListenerParameterId>
<fslListenerParameterId>M.S.fsl</fslListenerParameterId>
<synchListenerParameterId>M.S.synchL</synchListenerParameterId>
<synchRunnerParameterId>M.S.synchR</synchRunnerParameterId>
<synchTaskListenerParameterId>M.S.synchTL</synchTaskListenerParameterId>
<tmLauncherParameterId>M.S.tmLa</tmLauncherParameterId>
<tmChaserParameterId>M.S.tmC</tmChaserParameterId>
<tmLogProcessorParameterId>M.S.tmLP</tmLogProcessorParameterId>
<sysMonListenerParameterId>M.S.sysmL</sysMonListenerParameterId>
<sysMonMonitorParameterId>M.S.sysmM</sysMonMonitorParameterId>
<sysMonHeartbeatParameterId>M.S.sysmH</sysMonHeartbeatParameterId>
```

The significant changes on the Delft-FEWS architecture for the 2018.02 roadmaps has rendered the FssStatus section meaningless. In below configuration examples it is documented, which configuration elements have been removed from 2018.02 (see *"no longer present in 2018.02 and later"* comments on this page).

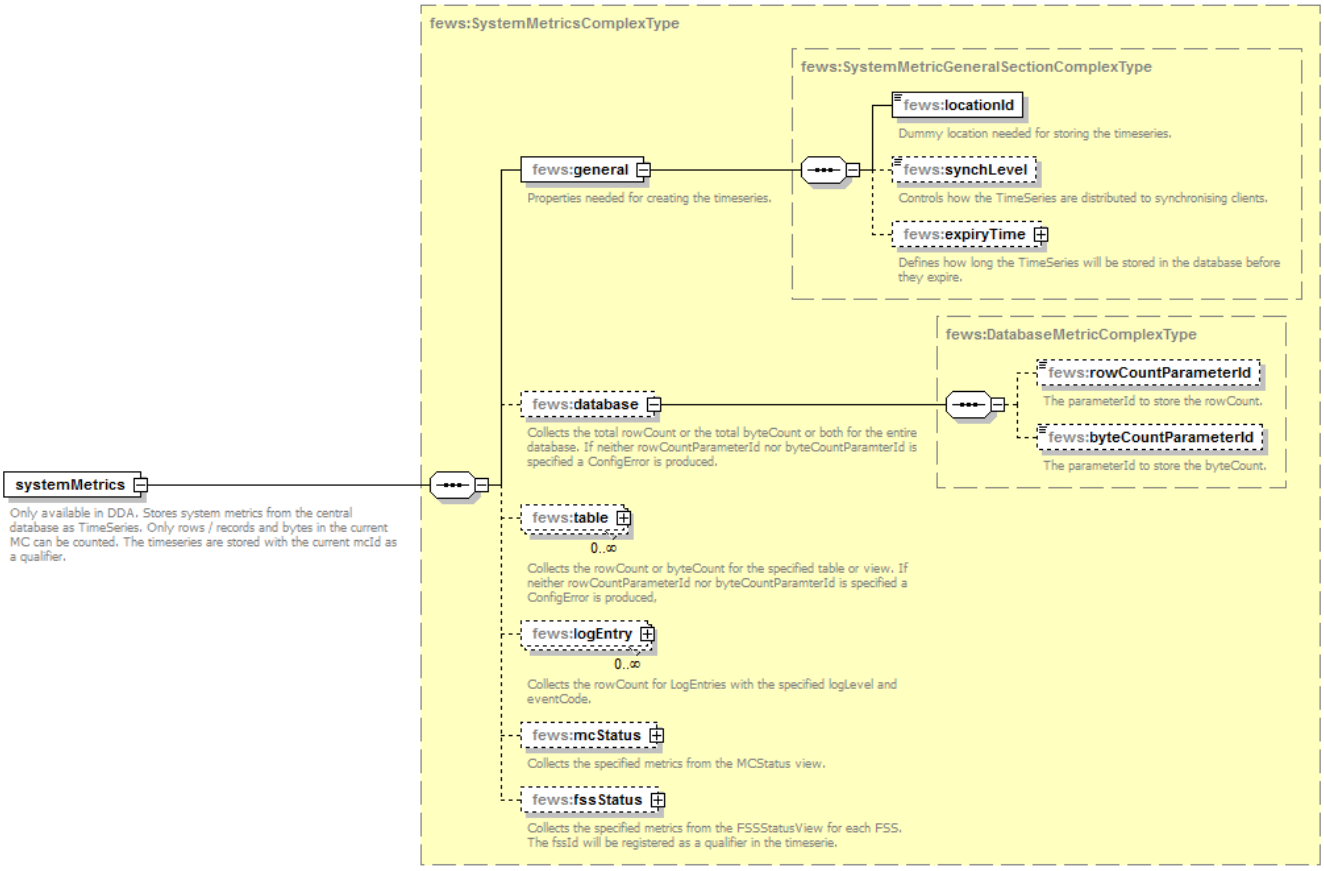
In 2018.02 and later, please remove the following elements from the SystemMetrics module configuration file (parameters and filters should probably cleaned up as well) otherwise errors will be logged:

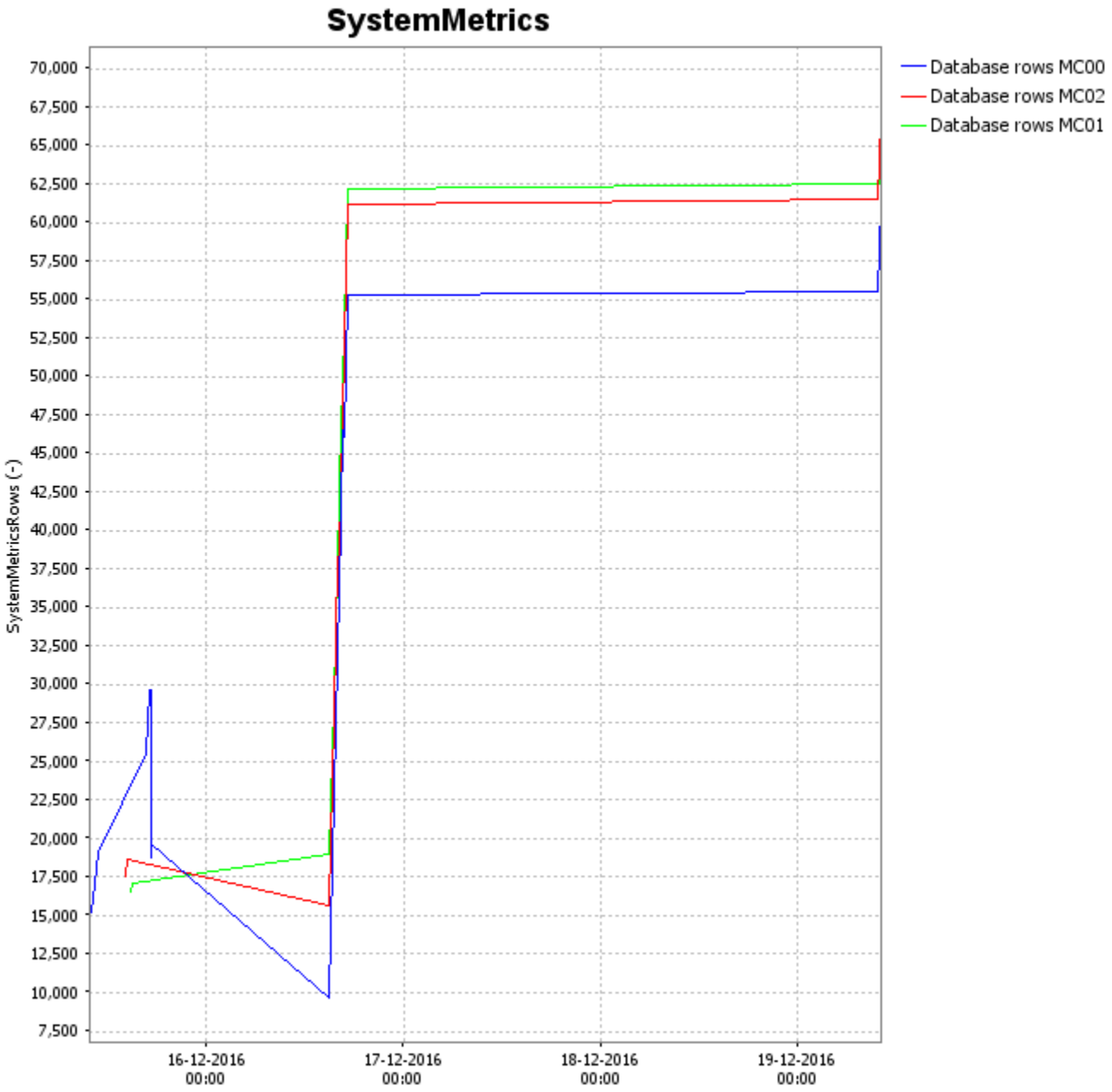
<buildVersionParameterId>M.N.build</buildVersionParameterId>
<queueLengthParameterId>M.N.fsQL</queueLengthParameterId>
<downParameterId>M.N.fsDown</downParameterId>

Introduction to SystemMetrics

The SystemMonitor in the client and the Admin Interface provide monitoring of the Delft-FEWS live system. In addition, the Delft-FEWS SystemMetrics module can be run regularly within a workflow to store several of these statistics as timeseries into the database. This workflow is only available in Direct Database Access mode (DDA), and should therefore be provided a workflow mapping to a DDA FSS. There are a number of configuration requirements when using SystemMetrics. It is required to define a dummy location and a number of qualifiers and parameters. Timeseries are stored in non-equidistant timestep: one value for every time the module runs. See the sample configuration below for reference.

Database rows and bytes (MB)




SystemMetrics
SystemMetricsRows (-)
70,000
67,500
65,000
62,500
60,000
57,500
55,000
52,500
50,000
47,500
45,000
42,500
40,000
37,500
35,000
32,500
30,000
27,500
25,000
22,500
20,000
17,500
15,000
12,500
10,000
7,500
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
Database rows MC00
Database rows MC02
Database rows MC01

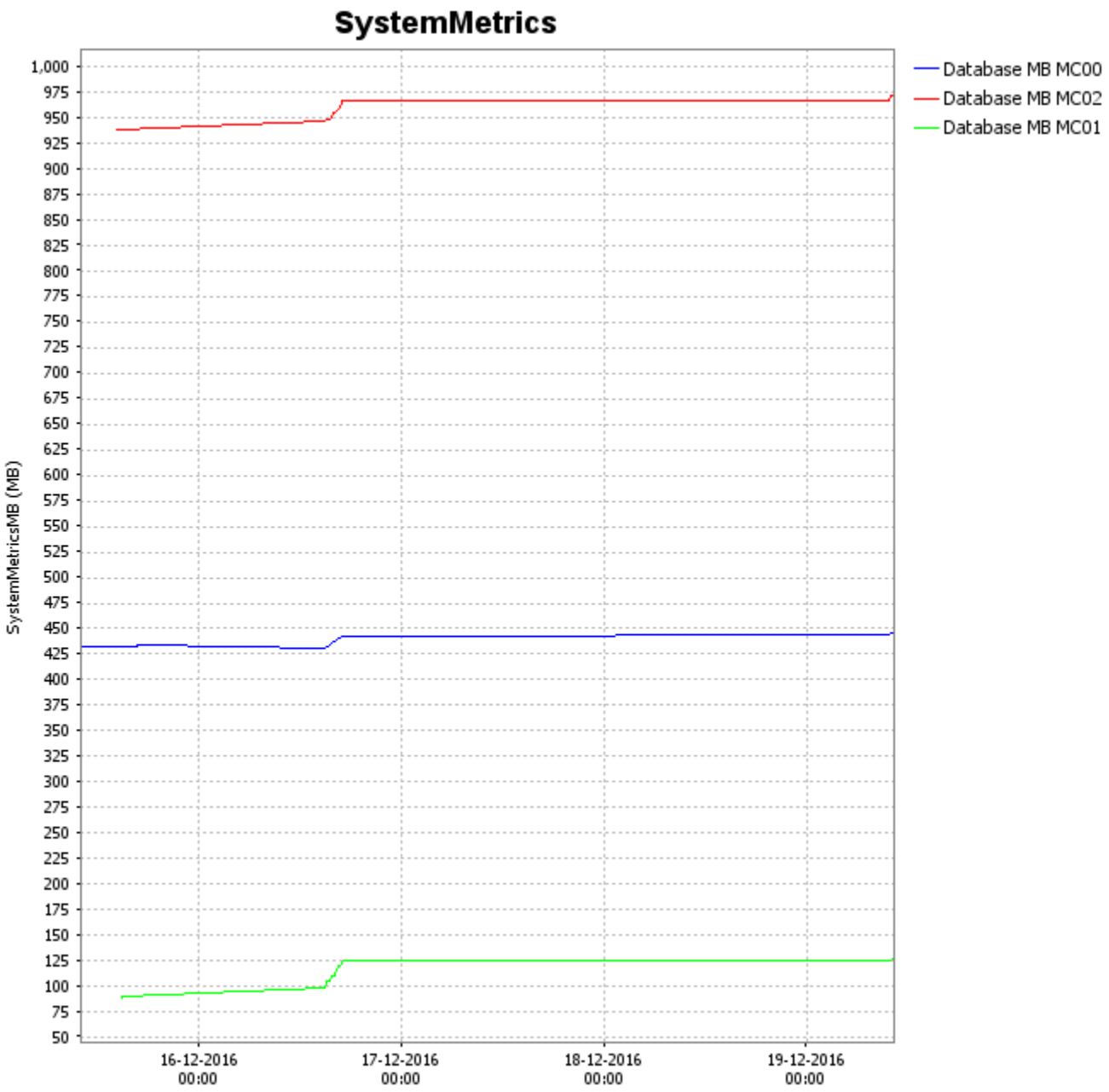
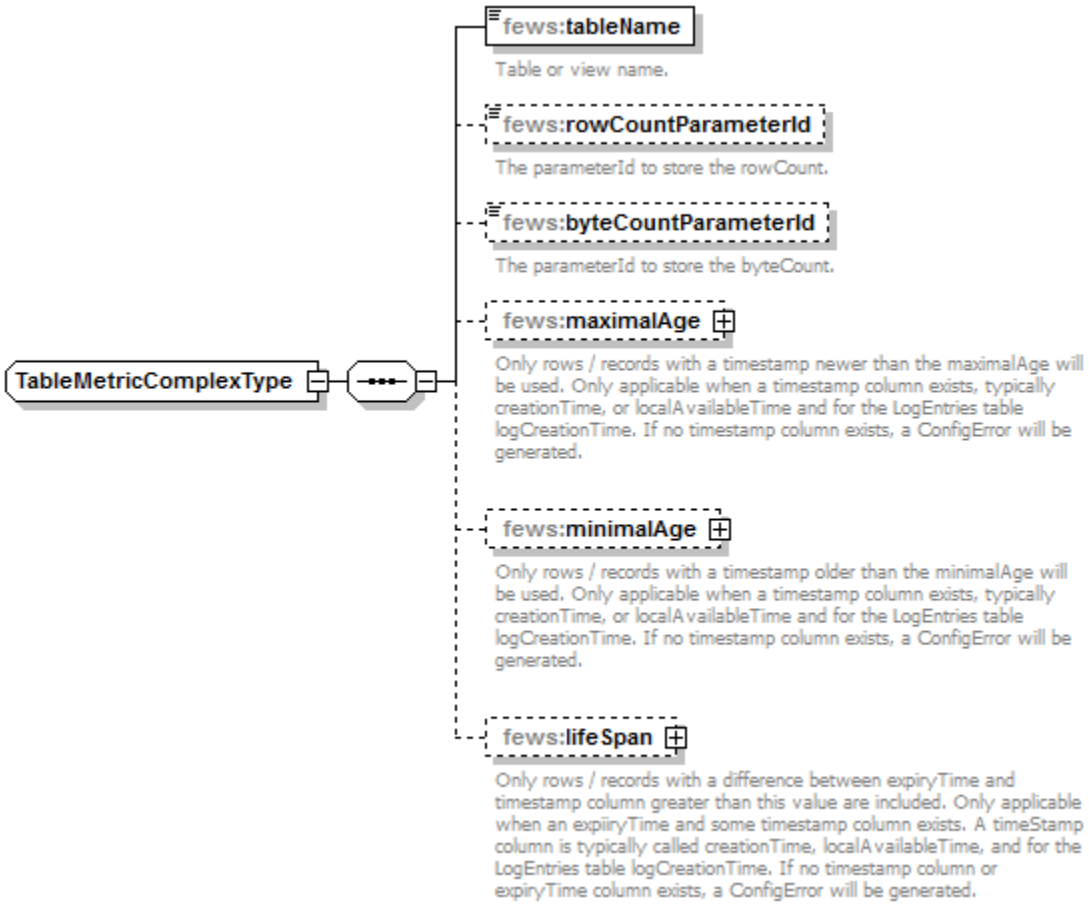
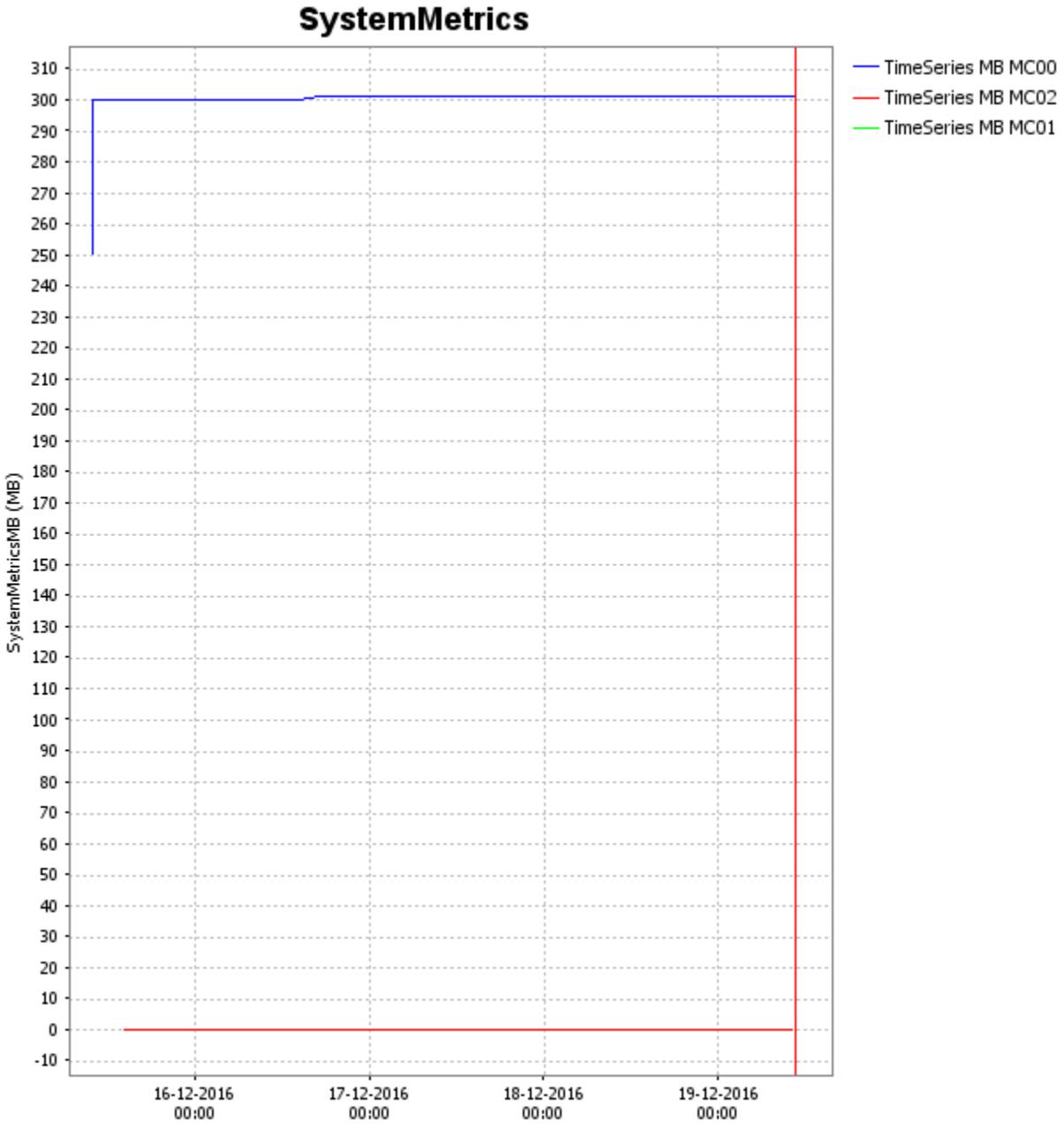
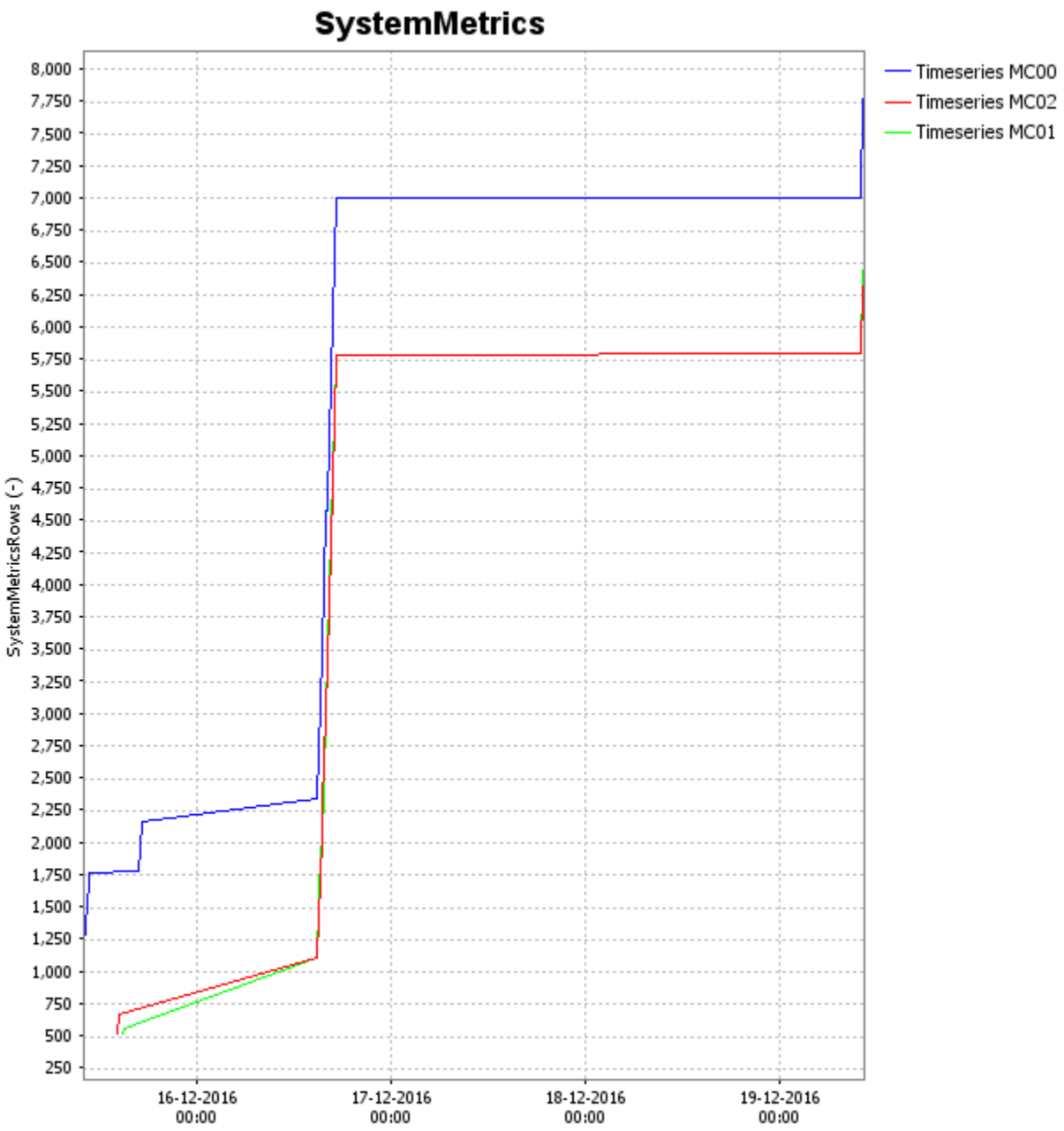


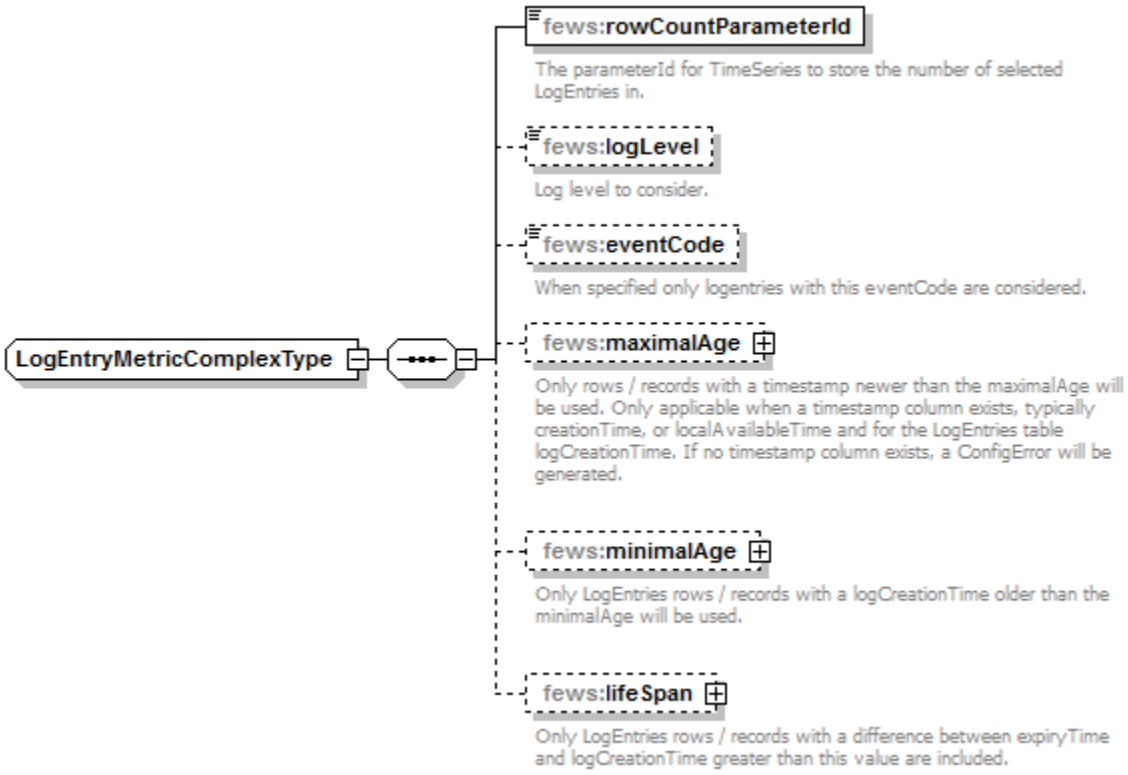
Table rows and bytes (MB)

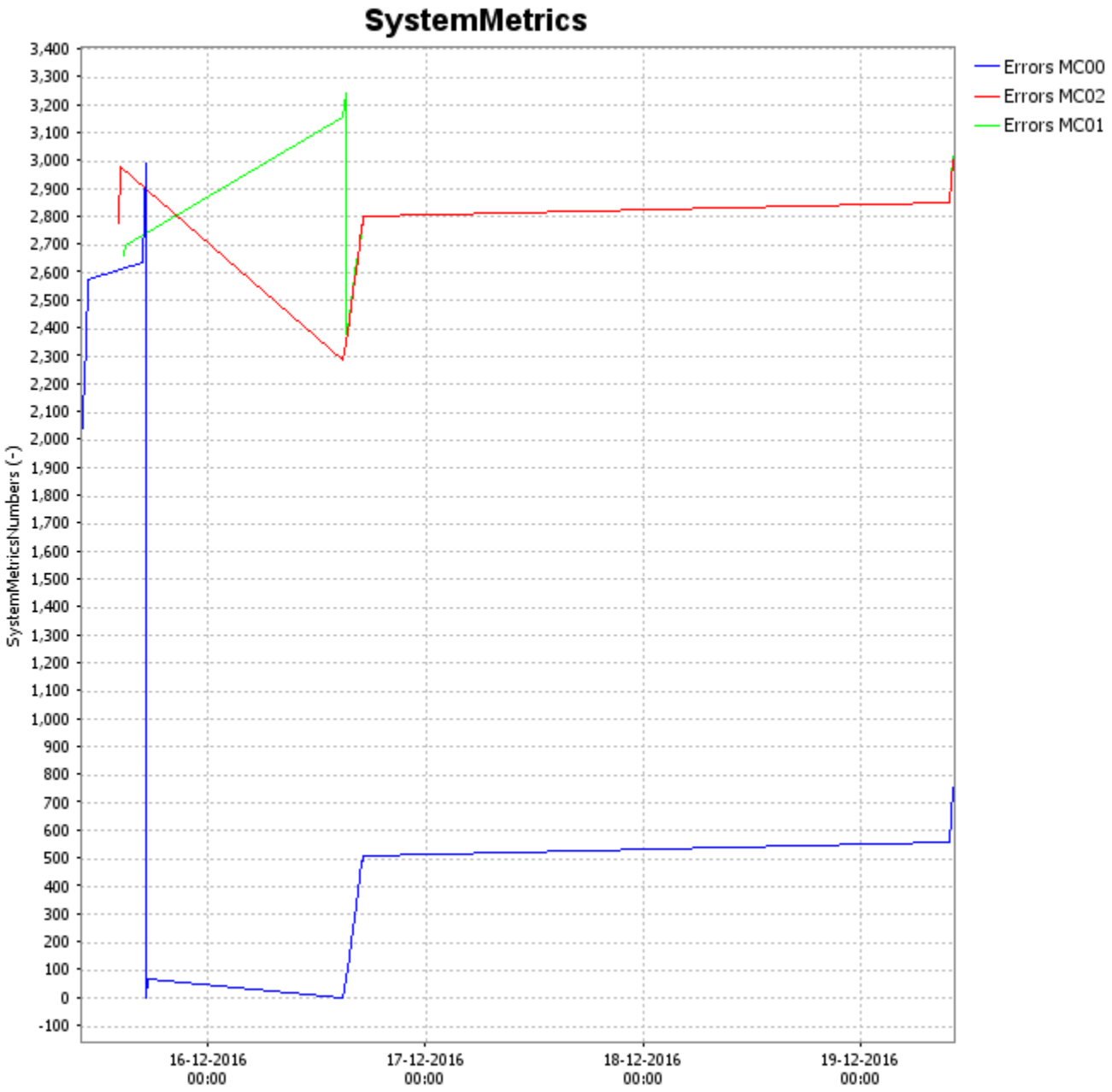

TableMetricComplexType
fews:tableName
Table or view name.
fews:rowCountParameterId
The parameterId to store the rowCount.
fews:byteCountParameterId
The parameterId to store the byteCount.
fews:maximalAge
Only rows / records with a timestamp newer than the maximalAge will be used. Only applicable when a timestamp column exists, typically creationTime, or localAvailableTime and for the LogEntries table logCreationTime. If no timestamp column exists, a ConfigError will be generated.
fews:minimalAge
Only rows / records with a timestamp older than the minimalAge will be used. Only applicable when a timestamp column exists, typically creationTime, or localAvailableTime and for the LogEntries table logCreationTime. If no timestamp column exists, a ConfigError will be generated.
fews:lifeSpan
Only rows / records with a difference between expiryTime and timestamp column greater than this value are included. Only applicable when an expiiryTime and some timestamp column exists. A timeStamp column is typically called creationTime, localAvailableTime, and for the LogEntries table logCreationTime. If no timestamp column or expiryTime column exists, a ConfigError will be generated.

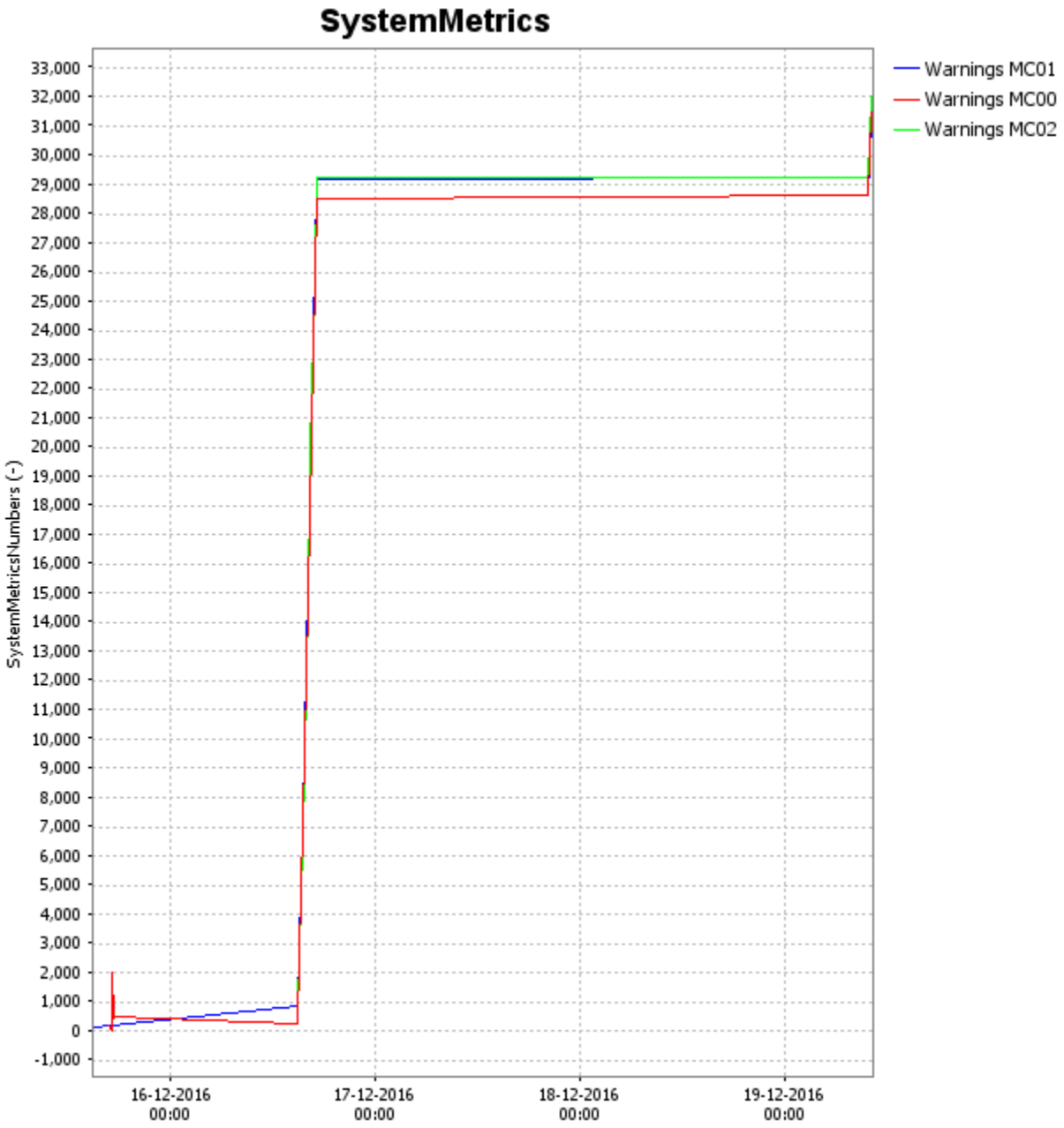

SystemMetrics
SystemMetricsMB (MB)
310
300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
TimeSeries MB MC00
TimeSeries MB MC02
TimeSeries MB MC01

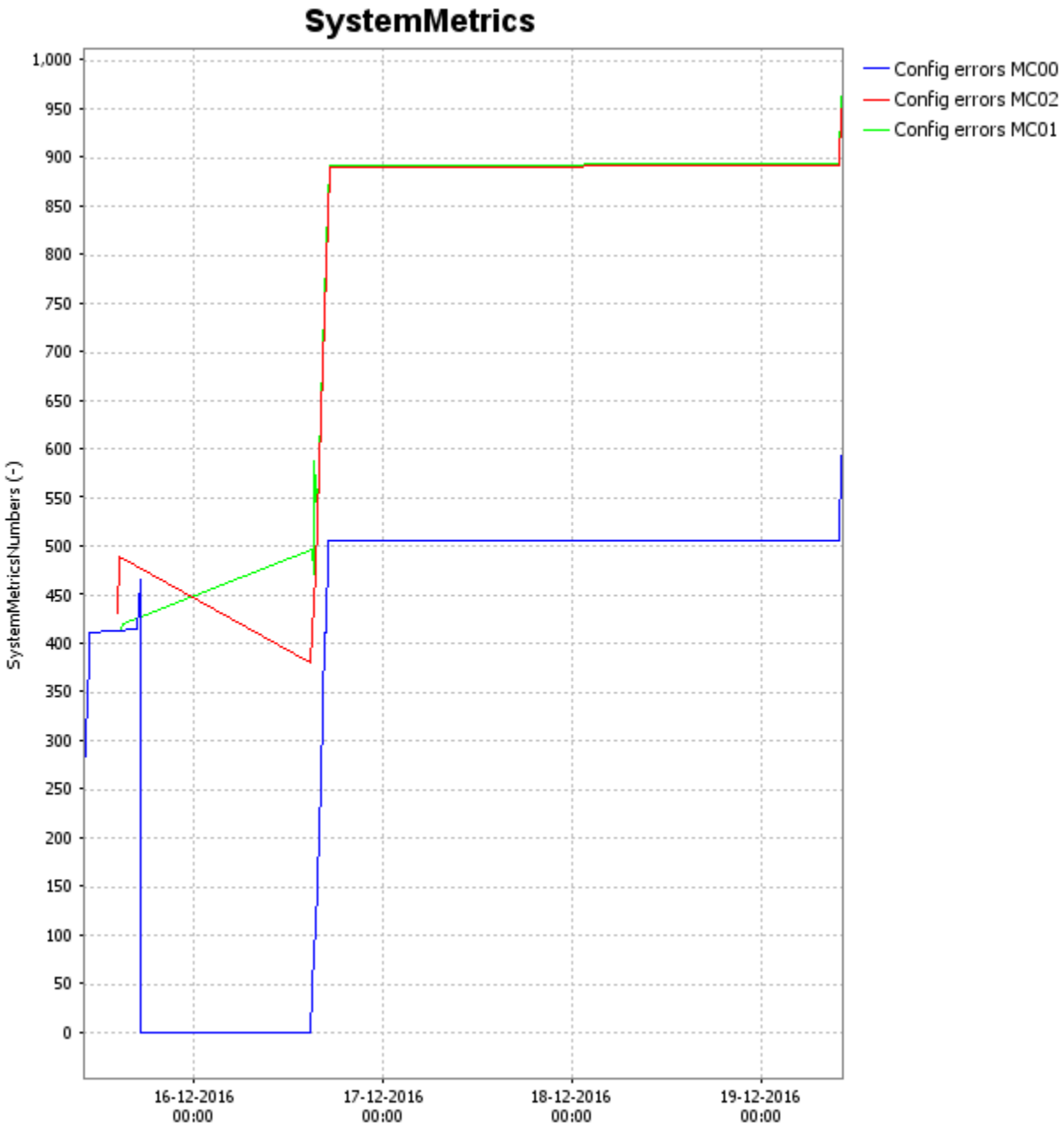


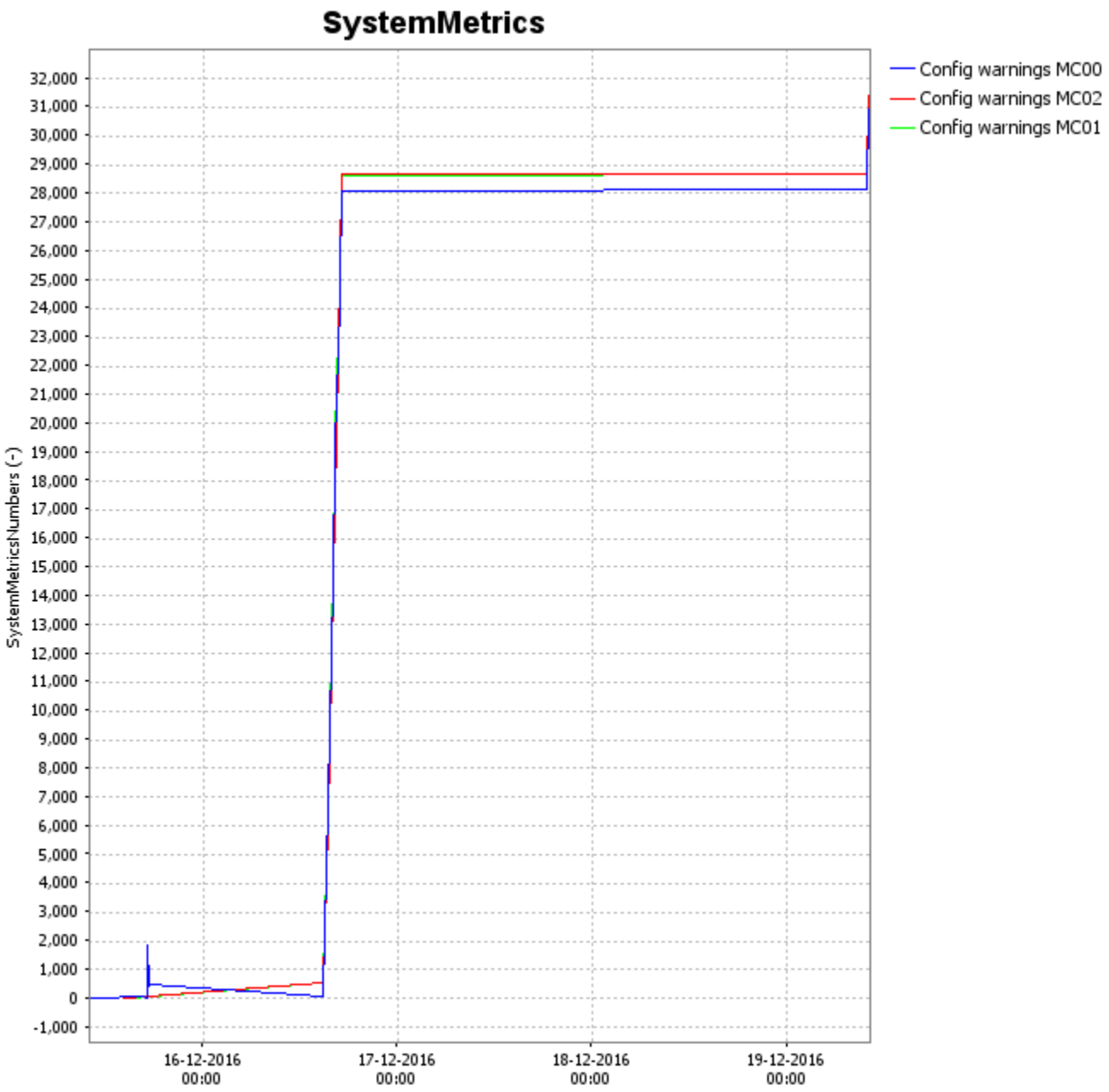
LogEntries - Errors, Warnings, ConfigErrors, ConfigWarnings


LogEntryMetricComplexType
fews:rowCountParameterId
The parameterId for TimeSeries to store the number of selected LogEntries in.
fews:logLevel
Log level to consider.
fews:eventCode
When specified only logentries with this eventCode are considered.
fews:maximalAge
Only rows / records with a timestamp newer than the maximalAge will be used. Only applicable when a timestamp column exists, typically creationTime, or localAvailableTime and for the LogEntries table logCreationTime. If no timestamp column exists, a ConfigError will be generated.
fews:minimalAge
Only LogEntries rows / records with a logCreationTime older than the minimalAge will be used.
fews:lifeSpan
Only LogEntries rows / records with a difference between expiryTime and logCreationTime greater than this value are included.


SystemMetrics
SystemMetricsNumbers (-)
3,400
3,300
3,200
3,100
3,000
2,900
2,800
2,700
2,600
2,500
2,400
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
-100
16-12-2016
00:00
17-12-2016
00:00
18-12-2016
00:00
19-12-2016
00:00
Errors MC00
Errors MC02
Errors MC01


SystemMetrics
SystemMetricsNumbers (-)
33,000
32,000
31,000
30,000
29,000
28,000
27,000
26,000
25,000
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
-1,000
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
Warnings MC01
Warnings MC00
Warnings MC02

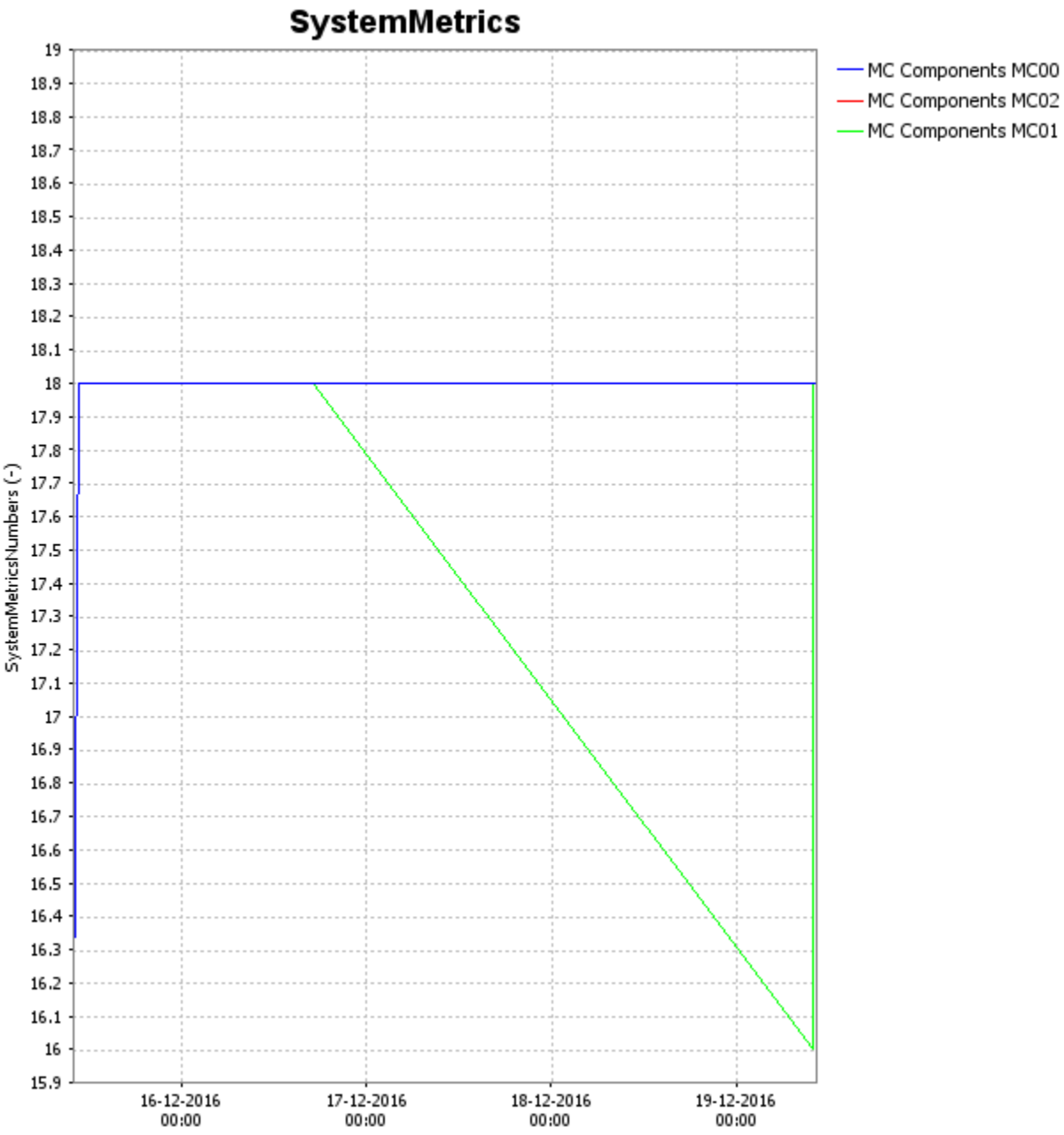

SystemMetrics
SystemMetrics\Numbers (-)
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
16-12-2016
00:00
17-12-2016
00:00
18-12-2016
00:00
19-12-2016
00:00
Config errors MC00
Config errors MC02
Config errors MC01

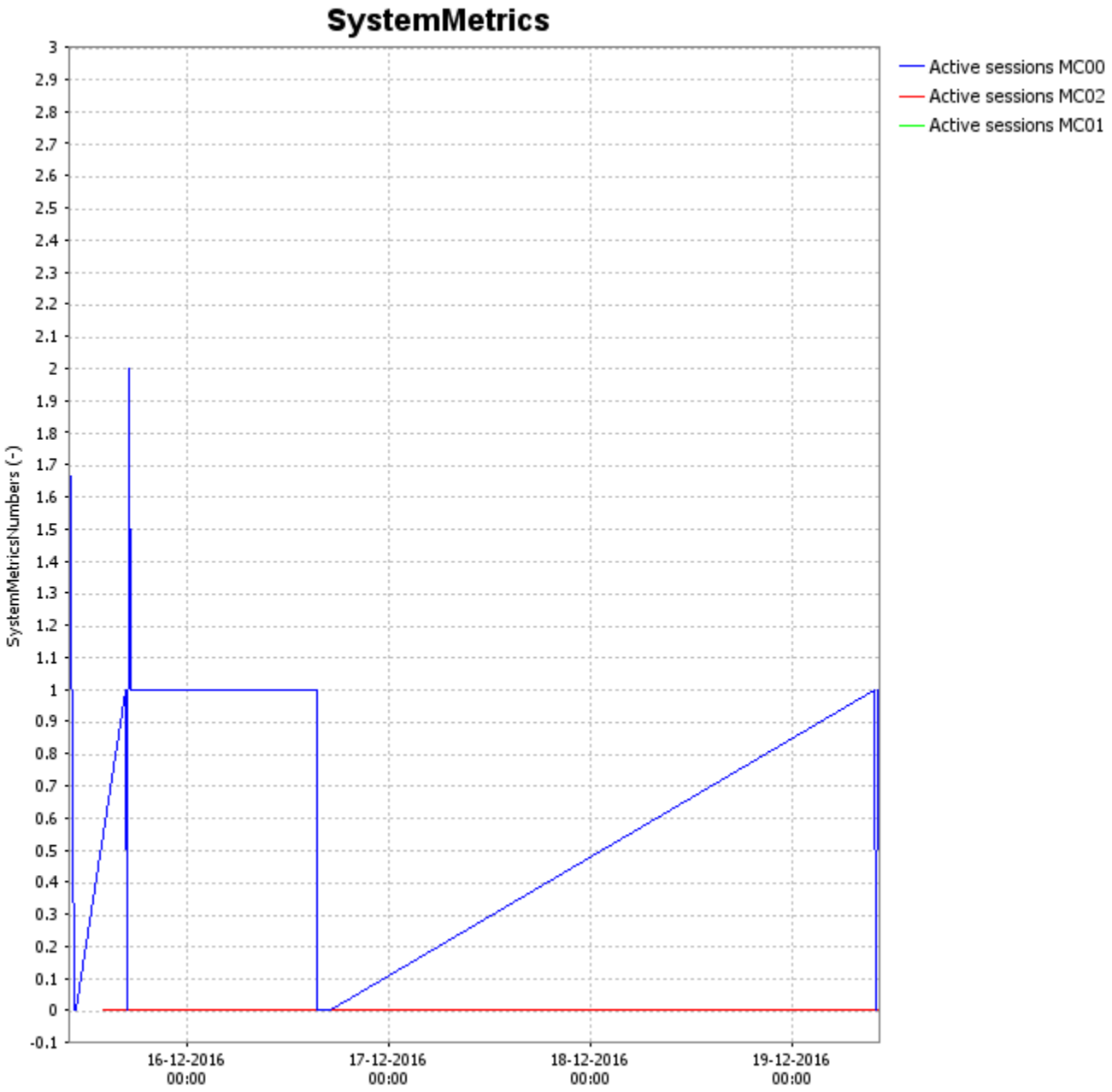

SystemMetrics
SystemMetricsNumbers (-)
32,000
31,000
30,000
29,000
28,000
27,000
26,000
25,000
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
-1,000
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
Config warnings MC00
Config warnings MC02
Config warnings MC01

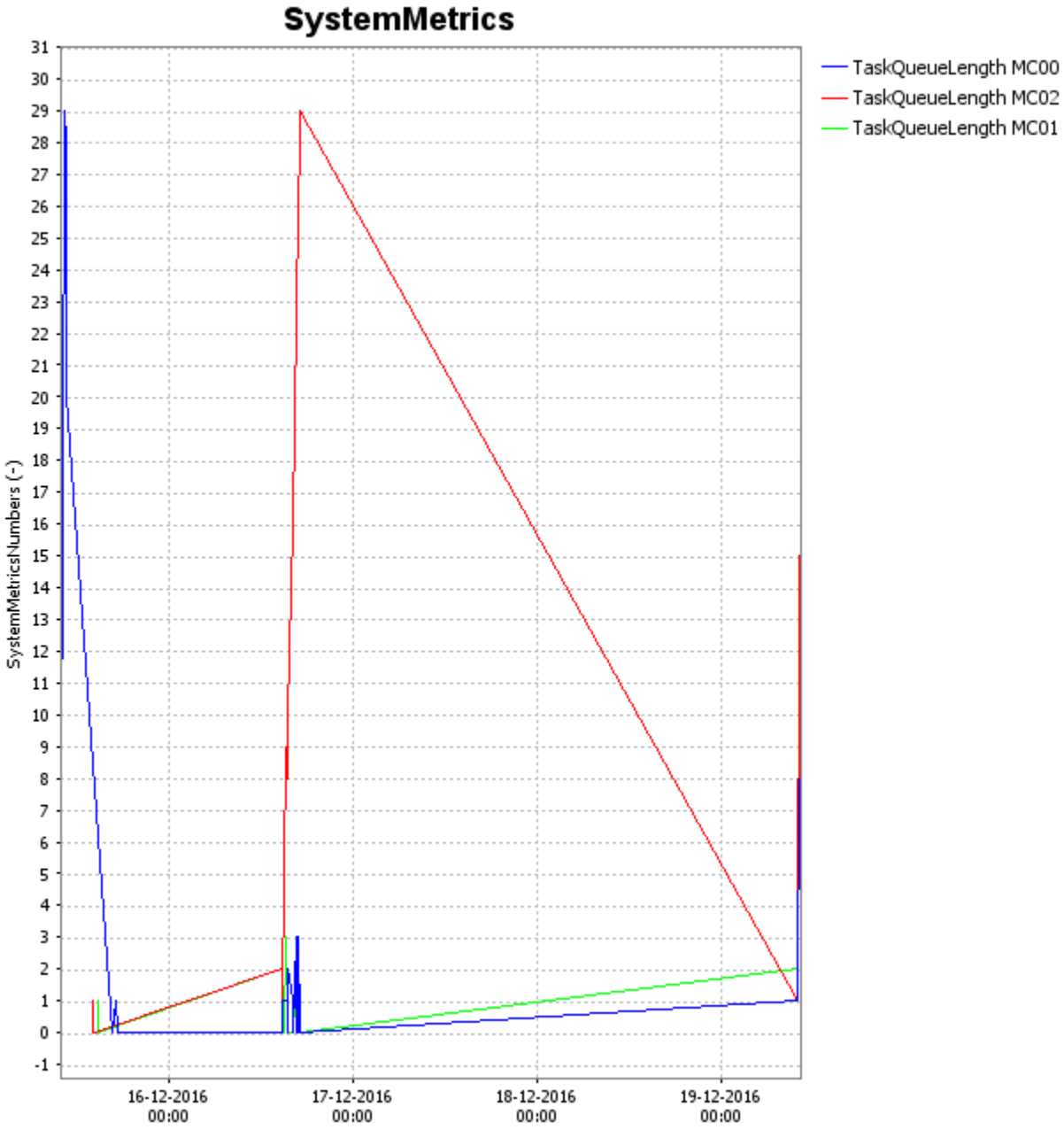
MCStatus

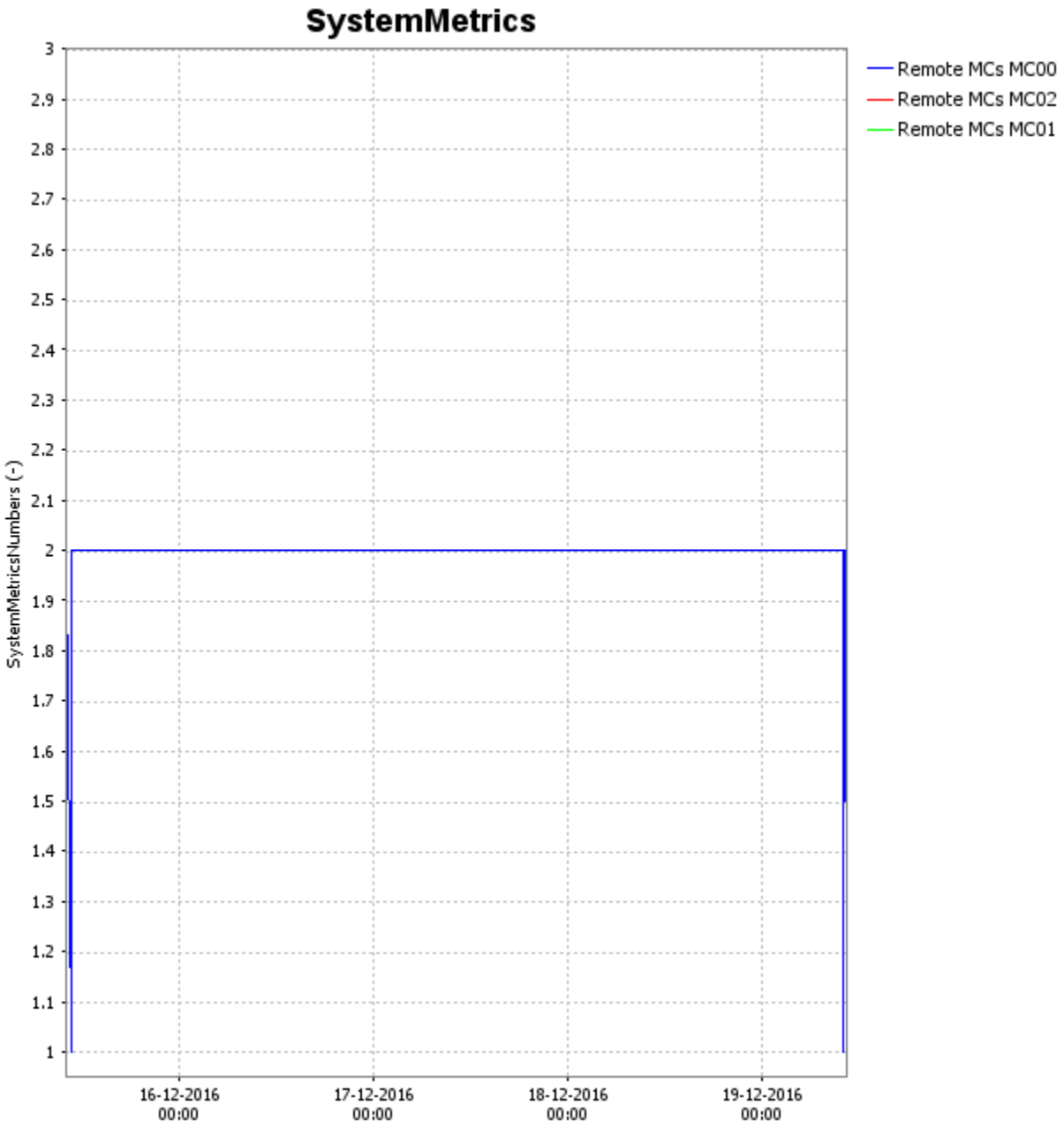

MCStatusMetricComplexType
fews:failedOverParameterId
Whether the mc is failed over. 0 (not failedOver) or 1 (failedOver).
fews:aliveRemoteMcCountPara...
The number of remoteMCs reported to be alive.
fews:taskQueueLengthParamet...
The length of the queue.
fews:activeTasksCountParamet...
The number of active tasks.
fews:ocSessionsCountParamet...
fews:liveComponentCountPara...
The sum of the live components status.
fews:oclListenerParameterId
Status of the component that allows clients to log on and communicate with the live system. 0 (down) or 1 (up).
fews:fslListenerParameterId
Status of the component that allows forecasting shells to log on and communicate with the live system. 0 (down) or 1 (up).
fews:synchListenerParameterId
Status of the component that runs synchronisation processes. 0 (down) or 1 (up)
fews:synchRunnerParameterId
Status of the component that is responsible for running synchronisation processes (also MCRollingBarrel and MCMarkedRecordManager). 0 (down) or 1 (up)
fews:synchTaskListenerParam...
Status of the component that dispatches MC Workflows. 0 (down) or 1 (up)
fews:tmLauncherParameterId
Status of the TaskManager component responsible for dispatching tasks. 0 (down) or 1 (up).
fews:tmChaserParameterId
Status of the component that kills tasks that exceeds the grace time. 0 (down) or 1 (up).
fews:tmLogProcessorParamet...
Status of the component that triggers tasks for LogEntries for which Event Actions are applicable. 0 (down) or 1 (up).
fews:sysMonListenerParamete...
Status of the listener component in the SystemMonitor. 0 (down) or 1 (up)
fews:sysMonMonitorParameterId
Status of the monitor component in the SystemMonitor. 0 (down) or 1 (up).
fews:sysMonHeartbeatParamet...
Status of the heartbeat component in the SystemMonitor. 0 (down) or 1

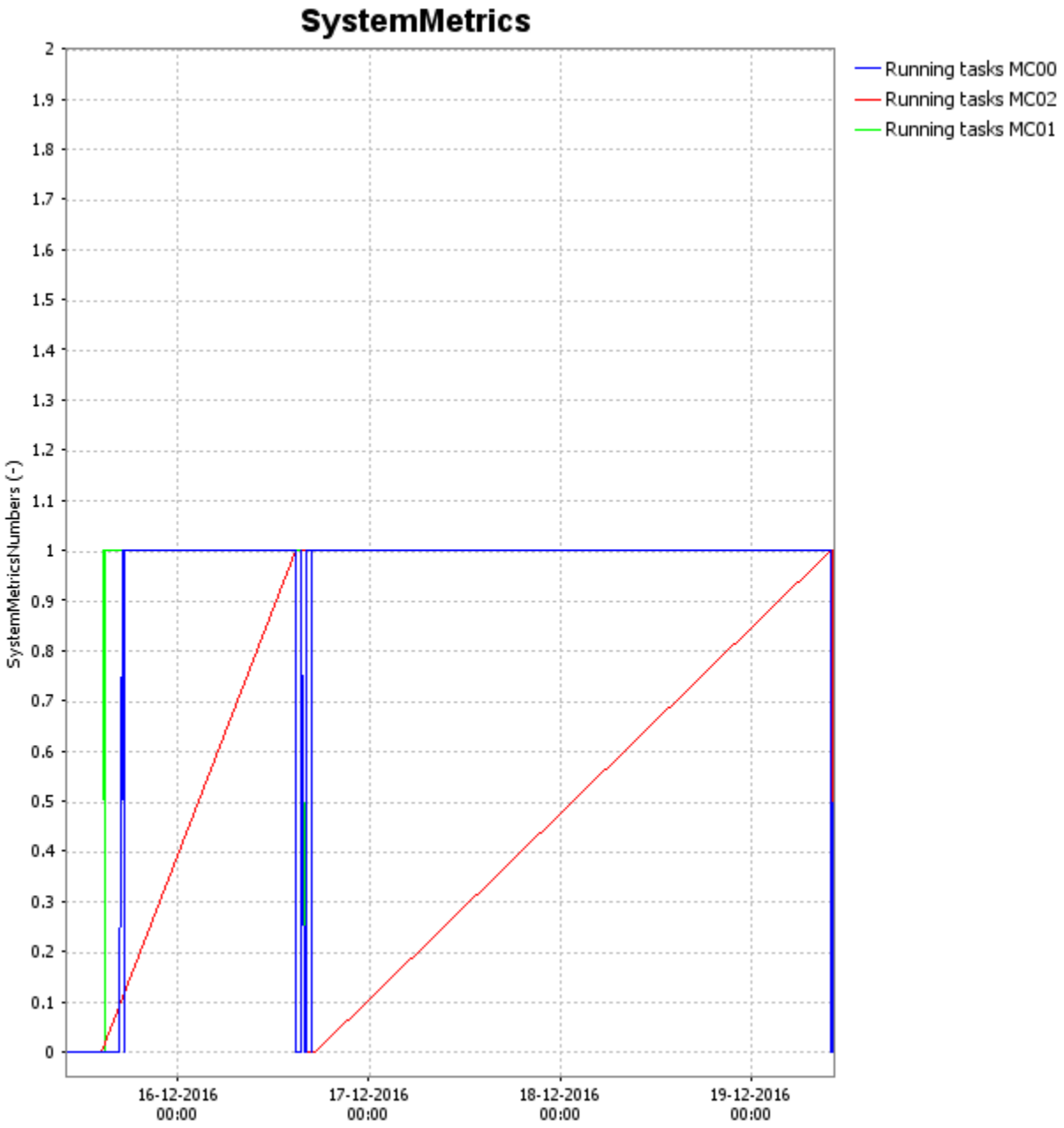
(up).


SystemMetrics
SystemMetricsNumbers (-)
19
18.9
18.8
18.7
18.6
18.5
18.4
18.3
18.2
18.1
18
17.9
17.8
17.7
17.6
17.5
17.4
17.3
17.2
17.1
17
16.9
16.8
16.7
16.6
16.5
16.4
16.3
16.2
16.1
16
15.9
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
MC Components MC00
MC Components MC02
MC Components MC01

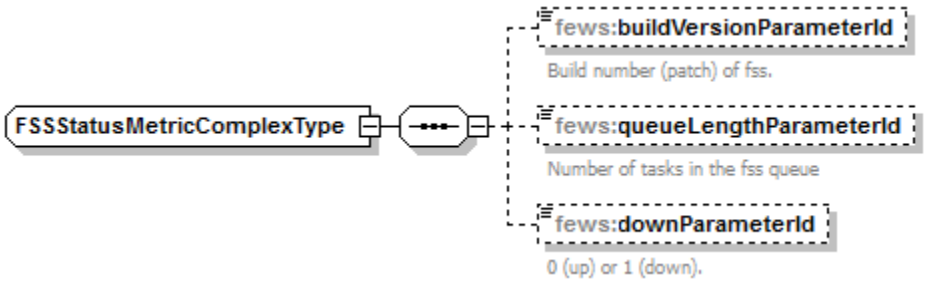

SystemMetrics
SystemMetrics\Numbers (-)
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
Active sessions MC00
Active sessions MC02
Active sessions MC01

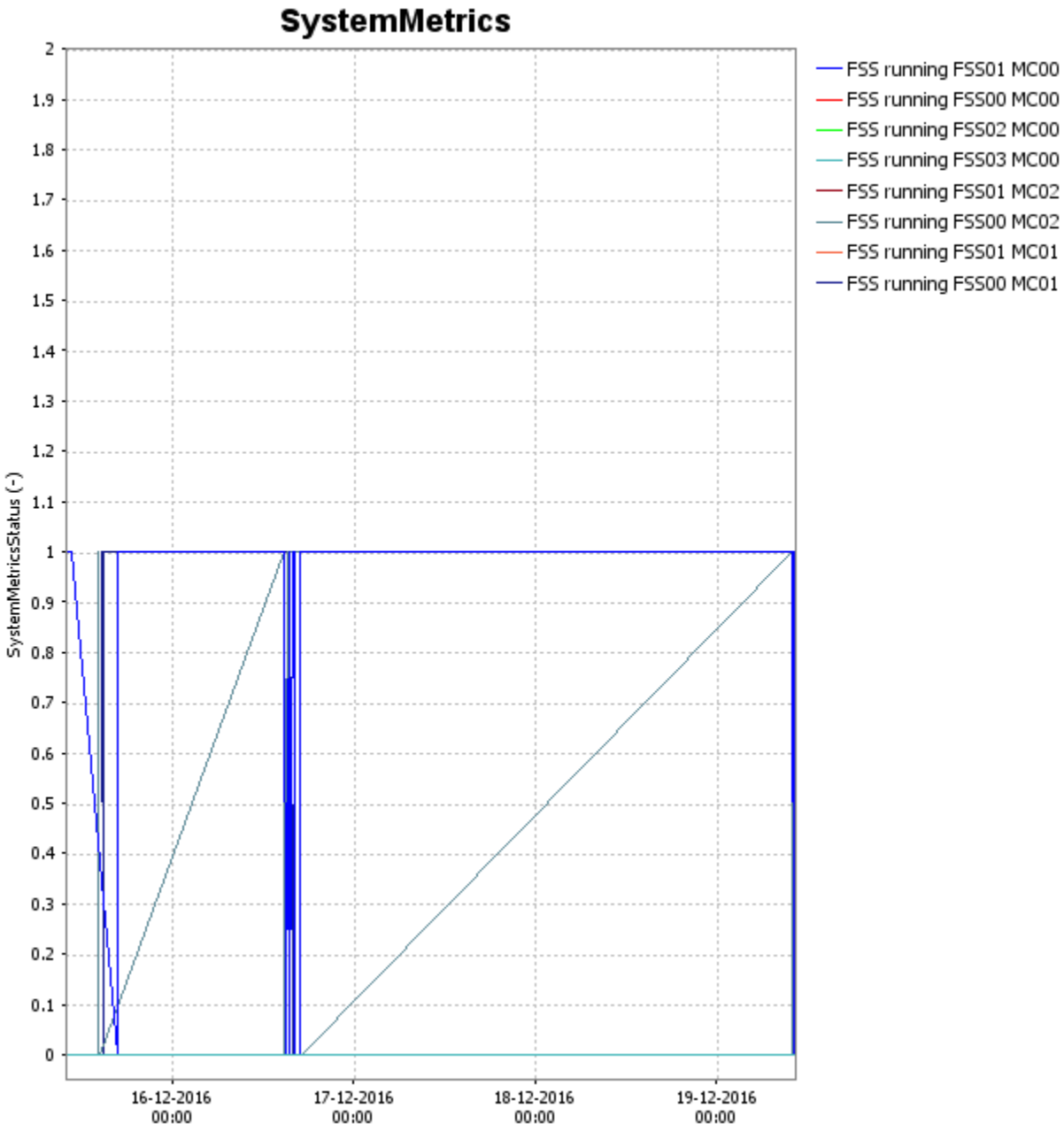

SystemMetrics
SystemMetricsNumbers (-)
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
-1
16-12-2016
00:00
17-12-2016
00:00
18-12-2016
00:00
19-12-2016
00:00
TaskQueueLength MC00
TaskQueueLength MC02
TaskQueueLength MC01

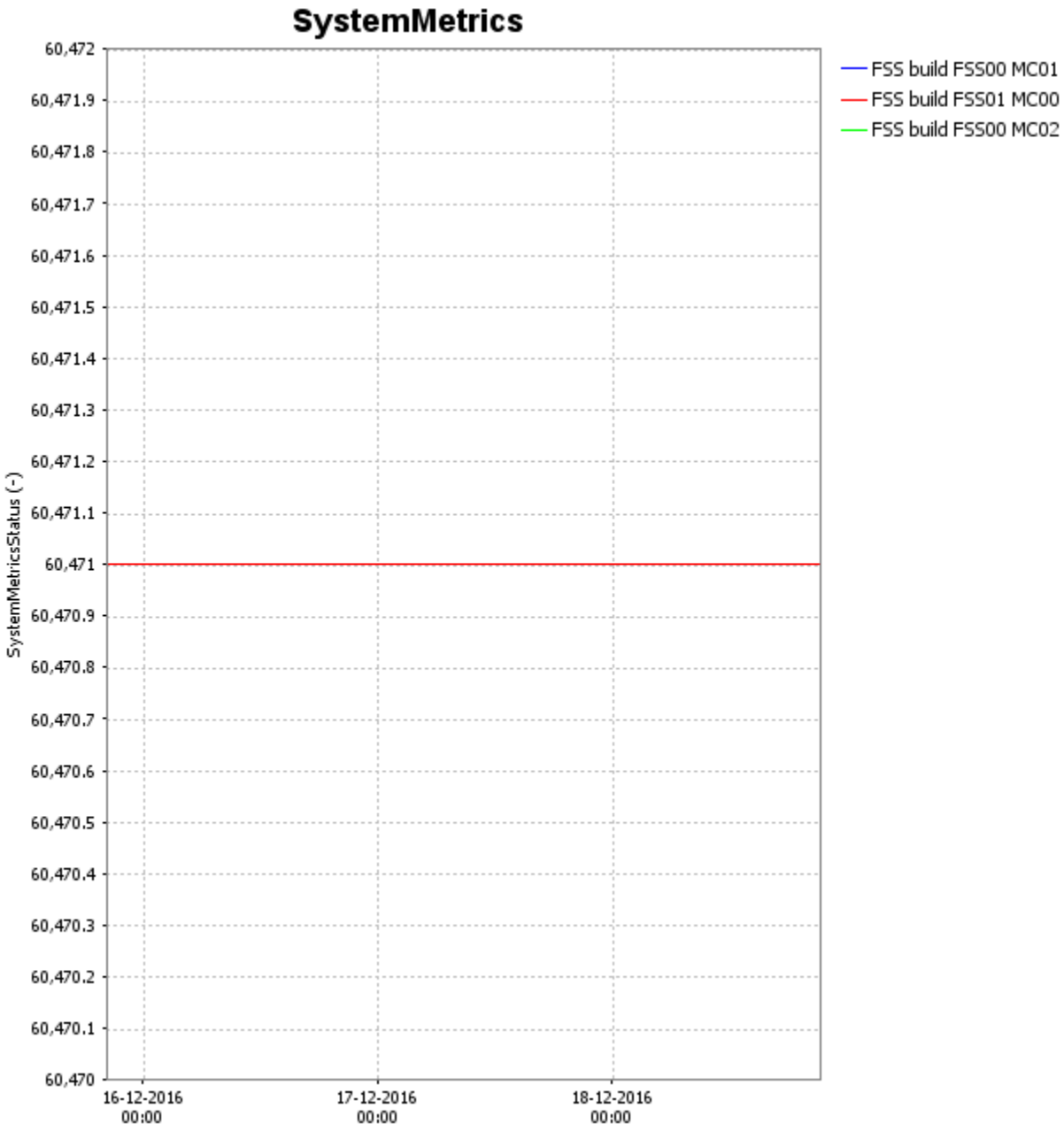

SystemMetrics
SystemMetricsNumbers (-)
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
Remote MCs MC00
Remote MCs MC02
Remote MCs MC01



FSS Status - down, FSS queue length, FSS build number




SystemMetrics
SystemMetricsStatus (-)
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
16-12-2016 00:00
17-12-2016 00:00
18-12-2016 00:00
19-12-2016 00:00
FSS running FSS01 MC00
FSS running FSS00 MC00
FSS running FSS02 MC00
FSS running FSS03 MC00
FSS running FSS01 MC02
FSS running FSS00 MC02
FSS running FSS01 MC01
FSS running FSS00 MC01



Sample configuration

RegionConfigFiles - ModuleInstanceDescriptors.xml

```
    <moduleInstanceDescriptor id="SystemMetrics"/>
```

RegionConfigFiles - Locations.xml

```
    <location id="metrics" name="SystemMetrics">
        <description>SystemMetrics</description>
        <shortName>SystemMetrics</shortName>
        <x>-1</x>
        <y>-1</y>
        <z>-1</z>
    </location>
```

RegionConfigFiles - Parameters.xml

```
<parameterGroups>
    <parameterGroup id="SystemMetricsRows">
        <parameterType>instantaneous</parameterType>
        <unit>-</unit>
        <parameter id="M.N.db" name="Database">
            <shortName>Database rows</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.ts" name="TimeSeries">
            <shortName>Timeseries</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.tsO4w" name="TimeSeries 4 week old">
            <shortName>TimeSeries</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.tsE52w" name="TimeSeries stored at least a year">
            <shortName>TimeSeries Rows 1 year or more</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.ws" name="WarmStates">
            <shortName>Warm states</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.wsE10d" name="WarmStates stored at least 10 days">
            <shortName></shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.sa" name="Samples">
            <shortName>Samples</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.N.te" name="ThresholdEvents">
            <shortName>ThresholdEvents</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
    </parameterGroup>
    <parameterGroup id="SystemMetricsMB">
        <parameterType>instantaneous</parameterType>
        <unit>MB</unit>
        <parameter id="M.B.db" name="Database MB">
            <shortName>Database MB</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.B.ts" name="TimeSeries MB">
            <shortName>TimeSeries MB</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.B.tsE52w" name="TimeSeries MB stored at least a year">
            <shortName>TimeSeries MB stored at least a year</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.B.wsE10d" name="WarmStates MB stored at least 10 days">
            <shortName>WarmStates stored at least 10 days</shortName>
            <valueResolution>1</valueResolution>
        </parameter>
        <parameter id="M.B.tsO4w" name="TimeSeries MB 4 week old">
```

Set fssId as Forecasting Shell parameter fews.master.mcproxy.conf - before 2018.02

NB. The SystemMetrics module requires that the correct fssId is provided in the Forecasting Shell configuration, i.e. fews.master.mcproxy.conf. Ensure you've replaced the obsolete argument nl.wldelft.fews.system.synch.MasterControllerSynchroniserFactory and provide the fssId instead.

```
<forecastShell>
    <run path="d:/opt/mcs/FSS00/FewsShell/bin"/>
    <jvm path="d:/opt/jre/bin/java">
        <arg id="0" value="-Xmx1024M"/>
   </jvm>
    <lib id="0" path="d:/opt/mcs/FSS00/FewsShell/bin"/>
    <class name="nl.wldelft.fews.system.shellserver.ForecastingShell">
        <arg id="0" value="FSS00"/>
        ...
```

RegionConfigFiles - Qualifiers.xml

RegionConfigFiles - Filters.xml

```
    <filter id="SystemMetrics" name="SystemMetrics">
        <childForeignKey="systemMetricsRows"/>
        <parentForeignKey="systemMetricsRows"/>
        <childForeignKey="systemMetricsLongRanges"/>
        <childForeignKey="systemMetricsMCStatus"/>
        <childForeignKey="systemMetricsMCComponents"/>
        <parentForeignKey="systemMetricsSSStatus"/>
    </filter>
    <filter id="SystemMetricsRows" name="SystemMetricsRows">
        <timeSeriesSet>
            <moduleInstanceId>SystemMetrics</moduleInstanceId>
            <valueType>scalar</valueType>
            <parameterId>M.N.1</parameterId>
        </qualifierId>MC02</qualifierId>
        <parameterId>M.N.tsQL</parameterId>
            <timeSeriesType>external historical</timeSeriesType>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
        </timeSeriesSet>
    </filter>
    <workflowDescriptor id="SystemMetrics" name="SystemMetrics" forecast="true" visible="true">
        <description>SystemMetrics</description>
        <viewPermission>Forecaster</viewPermission>
    </workflowDescriptor>
```

RegionConfigFiles - WorkflowDescriptors.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<workflow version="1.0" xmlns="http://www.wldelft.nl/fews" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"
xsi:schemaLocation="http://www.wldelft.nl/fews https://fewsdocs.deltares.nl/schemas/version1.0/workflow.xsd">
    <activity>
        <moduleInstanceId>SystemMetrics</moduleInstanceId>
    </activity>
</workflow>
```

WorkflowFiles

```
        <parameterId>M.N.1</parameterId>
        </qualifierId>MC02</qualifierId>
        <parameterId>M.N.tsSynchListener</parameterId>
            <timeSeriesType>external historical</timeSeriesType>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
        </timeSeriesSet>
    </filter>
</filters>
```

ModuleConfigFiles

```
<?xml version="1.0" encoding="UTF-8"?>
<systemMetrics xmlns="http://www.wldelft.nl/fews" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```
xsi:schemaLocation="http://www.wldelft.nl/fews/PI http://fews.deltares.nl/schemas/version1.0/systemMetrics.
xsd">   <parameterType>scalar</parameterType>
    <general><shortName>SynchTaskListener</shortName>
        <locationId>MC02</locationId>
        </parameterId>M.B.ts</parameterId>
    </general><parameterId>M.S.sysmM</parameterId>
    <!-- Database Update Interval (hours) -->
    <database><readWriteMode>read complete forecast</readWriteMode>
        </parameterId>M.B.ts</parameterId>
        <parameterId>M.B.ts</parameterId>
    </database><shortName>Chaser</shortName>
    <!-- Time Series Set with Values between an ImportAmalgamate and MC_MarkedRecordManager / MC_RollingBarrel
    <!--Where Type = scalar/value Type = "10d" Task Manager
spikes are not expected -->
    <table> <qualifierId>MC02</qualifierId>
        <tableRowColumn><valueResolution>
        <rowCount>1</rowCount></timeSeriesType>
        <byteCount>1</byteCount></moduleInstanceId>
    </table><readWriteMode>read complete forecast</readWriteMode>
    <!-- Where Type = scalar/value Type = "10d" ImportAmalgamate and MC_MarkedRecordManager / MC_RollingBarrel
spikes are not expected -->
    <table><parameterId>M.S.sysmM</parameterId>
        <tableRowColumn><moduleInstanceId>
        <rowCount>1</rowCount></timeSeriesType>
        <byteCount>1</byteCount></moduleInstanceId>
    </table><shortName>SystemMonitor</shortName>
    <!-- Time Series Type with value Resolution over 52 weeks -->
    <!--Where Type = scalar/value Type = "nonequidistant" ImportAmalgamate and MC_MarkedRecordManager / MC_RollingBarrel
spikes are not expected -->
    <table><synchLevel>2018.01</synchLevel>longer present in 2018.02 and later !
    <parameterId>M.B.tsE52w</parameterId>
    </filter><timeSeriesType>rowCount</timeSeriesType>
    <filter><byteCount>1</byteCount></moduleInstanceId>
        <parameterId>M.B.tsE52w</parameterId>
    </table><moduleInstanceId>SystemMetrics</moduleInstanceId>
    <!-- Warm Start Time Step -->
    <table><parameterId>M.B.tsE52w</parameterId>
        <parameterId>M.B.tsE52w</parameterId>queue length">
        <rowCount>1</rowCount></timeSeriesType>
        <!--<timeStep unit="nonequidistant"/>  Time Series Type with Value Resolution (time step in database, not external on disk)-->
        </parameterId>M.B.tsE52w</parameterId> -->
    </table><readWriteMode>read complete forecast</readWriteMode>
    <table> <synchLevel>FSS</synchLevel>
        <tableRowColumn><valueResolution>
        <rowCount>1</rowCount></timeSeriesType>
    </parameterId>M.N.wsE10d</parameterId>  <!-- Time Series Type with Value Resolution (time step in database, not external on disk)-->
</parameterId><byteCount>1</byteCount></moduleInstanceId>
        <lifeSpan>1</lifeSpan></parameterId>
    </table><qualifierId>MC02</qualifierId>
    <!-- Sample Location metrics</locationId>
    <!-- unconstrained Time Series Type historical</timeSeriesType>
    <!--  <timeStep unit="nonequidistant"/>
        <tableRowColumn><readWriteMode>read complete forecast</readWriteMode>
        <rowCount>1</rowCount></timeSeriesType>
    </table>
    --> <timeSeriesSet>
    <!-- Threshold Event Time Series Set -->  <moduleInstanceId>SystemMetrics</moduleInstanceId>
    <table> <valueType>scalar</valueType>
        <tableRowColumn><qualifierId>MC02</qualifierId>
        <rowCount>1</rowCount></timeSeriesType>
    </table><locationId>metrics</locationId>
    <!-- Constant Time Series Type historical</timeSeriesType>
    <logEntry><timeStep unit="nonequidistant"/>
        <rowCount>1</rowCount><readWriteMode>read complete forecast</readWriteMode>
        <logLevel>ERROR</logLevel>
    </logEntry></timeSeriesSet>
    <logEntry></timeSeriesSet>
        <rowCount>1</rowCount><moduleInstanceId>SystemMetrics</moduleInstanceId>
        <logLevel>ERROR</logLevel><valueType>scalar</valueType>
    </logEntry><parameterId>M.B.ts</parameterId>
```

```
    <!-- Countable logEntries with eventcode Config.Error -->
    <logEntry>
        <rowCountParameterId>M.N.cfgE</rowCountParameterId>
        <eventCode>Config.Error</eventCode>
    </logEntry>
    <logEntry>
        <rowCountParameterId>M.N.cfgW</rowCountParameterId>
        <eventCode>Config.Warn</eventCode>
    </logEntry>
    <mcStatus>
        <failedOverParameterId>[illegible]</failedOverParameterId>
        <aliveRemoteMcCountParameterId>M.N.remMcs</aliveRemoteMcCountParameterId>
        <taskQueueLengthParameterId>[illegible]</taskQueueLengthParameterId>
        <activeTasksCountParameterId>[illegible]</activeTasksCountParameterId>
        <ocSessionsCountParameterId>[illegible]</ocSessionsCountParameterId>
        <liveComponentsCountParameterId>[illegible]</liveComponentsCountParameterId>
<!-- Only usable up to 2017.01, no longer present in 2017.02 and later !
        <oclListenerParameterId>[illegible]</oclListenerParameterId>
        <fslListenerParameterId>M.S.fsl</fslListenerParameterId>
        <synchListenerParameterId>M.S.synchL</synchListenerParameterId>
        <synchRunnerParameterId>M.S.synchR</synchRunnerParameterId>
        <synchTaskListenerParameterId>[illegible]</synchTaskListenerParameterId>
        <tmLauncherParameterId>[illegible]</tmLauncherParameterId>
        <tmChaserParameterId>M.S.tmC</tmChaserParameterId>
        <tmLogProcessorParameterId>M.S.tmLP</tmLogProcessorParameterId>
        <sysMonListenerParameterId>M.S.sysML</sysMonListenerParameterId>
        <sysMonSetterParameterId>[illegible]</sysMonSetterParameterId>
        <sysMonHeartbeatParameterId>M.S.sysMH</sysMonHeartbeatParameterId> -->
    </mcStatus>
<!-- Only usable up to 2018.01, no longer present in 2018.02 and later !
    <fssStatus>
        <buildVersionParameterId>M.N.build</buildVersionParameterId>
        <queueLengthParameterId>[illegible]</queueLengthParameterId>
        <downParameterId>[illegible]</downParameterId>
    </fssStatus>
</systemMetrics>
```

```
            <qualifierId>MC02</qualifierId>
            <locationId>metrics</locationId>
            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
        </timeSeriesSet>
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    <filter id="systemMetricsLogEntries" name="LogEntries">
        <timeSeriesSet>
            <moduleInstanceId>SystemMetrics</moduleInstanceId>
            <valueType>scalar</valueType>
            <parameterId>[illegible]</parameterId>
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            <locationId>metrics</locationId>
            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
        </timeSeriesSet>
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            <valueType>scalar</valueType>
            <parameterId>M.N.cfgE</parameterId>
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            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
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            <timeStep unit="nonequidistant"/>
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            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
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    <filter id="systemMetricsMCStatus" name="Info">
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            <valueType>scalar</valueType>
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            <valueType>scalar</valueType>
            <parameterId>M.N.remMcs</parameterId>
            <qualifierId>MC02</qualifierId>
```

```
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        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
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        <parameterId>M.N.rt</parameterId>
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        <locationId>metrics</locationId>
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        <valueType>scalar</valueType>
        <parameterId>M.N.tQL</parameterId>
        <qualifierId>MC02</qualifierId>
        <locationId>metrics</locationId>
        <timeSeriesType>external historical</timeSeriesType>
        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
        <synchLevel>1</synchLevel>
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    <!--timeSeriesSet>
        <moduleInstanceId>SystemMetrics</moduleInstanceId>
        <valueType>scalar</valueType>
        <parameterId>M.N.fsQL</parameterId>
        <qualifierId>FSS00</qualifierId>
        <qualifierId>MC02</qualifierId>
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        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
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        <parameterId>M.N.ses</parameterId>
        <qualifierId>MC02</qualifierId>
        <locationId>metrics</locationId>
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        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
        <synchLevel>1</synchLevel>
    </timeSeriesSet>
</filter>
<filter id="systemMetricsMCComponents" name="Status">
 <!-- Only usable up to 2017.01, no longer present in 2017.02 and later !
    <timeSeriesSet>
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        <valueType>scalar</valueType>
        <parameterId>M.S.fsl</parameterId>
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        <locationId>metrics</locationId>
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        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
        <synchLevel>1</synchLevel>
    </timeSeriesSet>-->
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        <moduleInstanceId>SystemMetrics</moduleInstanceId>
        <valueType>scalar</valueType>
        <parameterId>M.S.failO</parameterId>
        <qualifierId>MC02</qualifierId>
        <locationId>metrics</locationId>
```

```
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        <timeStep unit="nonequidistant"/>
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<!-- Only usable up to 2017.01, no longer present in 2017.02 and later !
    <timeSeriesSet>
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        <parameterId>M.S.synchTL</parameterId>
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        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
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        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
        <synchLevel>1</synchLevel>
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    <timeSeriesSet>
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        <parameterId>M.S.sysmM</parameterId>
        <qualifierId>MC02</qualifierId>
        <locationId>metrics</locationId>
        <timeSeriesType>external historical</timeSeriesType>
        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
        <synchLevel>1</synchLevel>
    </timeSeriesSet>
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        <moduleInstanceId>SystemMetrics</moduleInstanceId>
        <valueType>scalar</valueType>
        <parameterId>M.S.synchR</parameterId>
        <qualifierId>MC02</qualifierId>
        <locationId>metrics</locationId>
        <timeSeriesType>external historical</timeSeriesType>
        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
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        <locationId>metrics</locationId>
        <timeSeriesType>external historical</timeSeriesType>
        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
        <synchLevel>1</synchLevel>
```

```
        </timeSeriesSet>
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            <parameterId>M.S.sysmH</parameterId>
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            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
        </timeSeriesSet>
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            <moduleInstanceId>SystemMetrics</moduleInstanceId>
            <valueType>scalar</valueType>
            <parameterId>M.S.tmLa</parameterId>
            <qualifierId>MC02</qualifierId>
            <locationId>metrics</locationId>
            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
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            <valueType>scalar</valueType>
            <parameterId>M.S.sysmL</parameterId>
            <qualifierId>MC02</qualifierId>
            <locationId>metrics</locationId>
            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
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            <valueType>scalar</valueType>
            <parameterId>M.S.tmC</parameterId>
            <qualifierId>MC02</qualifierId>
            <locationId>metrics</locationId>
            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
        </timeSeriesSet> -->
    </filter>
<!-- Only usable up to 2018.01, no longer present in 2018.02 and later !
    <filter id="systemMetricsFSSStatus" name="FSS">
        <timeSeriesSet>
            <moduleInstanceId>SystemMetrics</moduleInstanceId>
            <valueType>scalar</valueType>
            <parameterId>M.N.build</parameterId>
            <qualifierId>FSS00</qualifierId>
            <qualifierId>MC02</qualifierId>
            <locationId>metrics</locationId>
            <timeSeriesType>external historical</timeSeriesType>
            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
            <synchLevel>1</synchLevel>
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            <valueType>scalar</valueType>
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            <qualifierId>MC02</qualifierId>
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            <timeStep unit="nonequidistant"/>
            <readWriteMode>read complete forecast</readWriteMode>
        </timeSeriesSet>
```

```
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        <parameterId>M.N.fsQL</parameterId>
        <qualifierId>FSS01</qualifierId>
        <qualifierId>MC02</qualifierId>
        <locationId>metrics</locationId>
        <timeSeriesType>external historical</timeSeriesType>
        <timeStep unit="nonequidistant"/>
        <readWriteMode>read complete forecast</readWriteMode>
    </timeSeriesSet>
</filter> -->
```