



# White Paper

## Fabasoft on Linux - Performance Monitoring via SNMP

Fabasoft Folio 2019

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## 1 Introduction

This document describes performance monitoring of Fabasoft Folio Services in a Red Hat Linux environment.

## 2 Software Requirements

**System environment:** All information contained in this document implicitly assumes a Linux environment.

**Supported platforms:** For detailed information on supported operating systems and software see the software product information on the Fabasoft distribution media.

## 3 Performance Monitoring

Fabasoft Folio Services under Linux export the performance counters via SNMP under the OID branch 1.3.6.1.4.1.17100 (`enterprises.17100`).

SNMP objects are subdivided into two groups: scalars and tables.

Scalars end with `.0` and tables with `.x`.

“x” represents the instance of the selected table. In case of Fabasoft Folio Performance Counters, these tables represent a specific service that can be identified via SNMP using the `rpcservicename.x` value.

Specific information on these counters can be found in the MIB descriptions.

## 4 Configuration of Fabasoft Folio Servers

The following configuration steps have to be accomplished on the server running the Fabasoft Folio Services that should be monitored.

- Verify that `net-snmp-<version>.rpm` (shipped with Red Hat Enterprise Linux) is installed and that the `snmpd` service is running.
- The SNMP Agent Extensibility (AgentX) protocol must be enabled and listening on `tcp:localhost:705`. Add the following directives to `/etc/snmp/snmpd.conf` to ensure that:  

```
agentxsocket tcp:localhost:705
master agentx
```
- `/etc/snmp/snmpd.conf` must allow viewing the Fabasoft Folio Performance Counters. For example, add the following line:  

```
view systemview included .1.3.6.1.4.1.17100
```
- Restart the agent.  

```
service snmpd restart
```

## 5 Configuration of the Fabasoft Folio Server Management Station

The following configuration steps have to be accomplished on the server that will be used to retrieve the performance counters.

- On the Fabasoft product DVD or product CD, change to the `/Setup/ComponentsBase/Services/LINUX_RHEL_X64` directory.

- Install the Fabasoft Folio RPM package.  
`rpm -ihv fsc-snmp-mibs-<version>.rpm`
- Verify that `net-snmp-<version>.rpm` (shipped with Red Hat Enterprise Linux) is installed.
- The user that queries the servers should add the following variable to the environment:  
`export MIBS=all`

## 6 Queries

To get the value of a performance counter, the following query can be used. To use the `snmpget` command you have to install `net-snmp-utils`.

```
snmpget -v 2c -c public <host> enterprises.17100.<performance counter>
<host>
```

is the server running the Fabasoft Folio Services

```
<performance counter>
```

must be replaced with the respective performance counter

A list of all available performance counters can be found in chapter 7 "Available Performance Counters".

It is assumed that the security configuration in `/etc/snmp/snmpd.conf` is unmodified.

### Example Queries:

- Query the number of installed Fabasoft Folio RPC Service instances:  
`snmpget -v 2c -c public localhost enterprises.17100.1.1.1.1.0`
- Query the number of installed Fabasoft Folio COO Service instances:  
`snmpget -v 2c -c public localhost enterprises.17100.1.1.10.1.0`
- Query the name of Fabasoft Folio COO Service instance 2 of domain 10.1000:  
`snmpget -v 2c -c public localhost enterprises.17100.1.1.10.2.1.4.10.1000.2`
- Query the number of content accesses on Fabasoft Folio MMC Service instance 4 of domain 10.1000:  
`snmpget -v 2c -c public localhost enterprises.17100.1.1.11.2.1.5.10.1000.4`
- Query all available counters available on localhost:  
`snmpwalk -v 2c -c public localhost enterprises.17100`

## 7 Available Performance Counters

### 7.1 Fabasoft Folio Kernel

The following Fabasoft Folio Kernel performance counters are available.

```
enterprises.17100.1.1.15.2.1.4.0.0.<instance>
```

Fabasoft Folio Kernel name for instance <instance>.

```
enterprises.17100.1.1.15.2.1.5.0.0.<instance>
```

Number of Fabasoft Folio Kernel enter calls on instance <instance>.

```
enterprises.17100.1.1.15.2.1.6.0.0.<instance>
```

Number of actions called on objects on instance <instance>.

```
enterprises.17100.1.1.15.2.1.7.0.0.<instance>
```

Number of access checks on objects on instance <instance>.

```
enterprises.17100.1.1.15.2.1.8.0.0.<instance>
```

Number of objects locked on instance <instance>.

enterprises.17100.1.1.15.2.1.9.0.0.<instance>  
**Number of objects unlocked on instance <instance>.**

enterprises.17100.1.1.15.2.1.10.0.0.<instance>  
**Number of queries executed on instance x**

enterprises.17100.1.1.15.2.1.11.0.0.<instance>  
**Number of transactions committed on instance <instance>.**

enterprises.17100.1.1.15.2.1.12.0.0.<instance>  
**Number of transactions aborted on instance <instance>.**

enterprises.17100.1.1.15.2.1.13.0.0.<instance>  
**Number of transactions persisted on instance <instance>.**

enterprises.17100.1.1.15.2.1.14.0.0.<instance>  
**Number of transactions backed up on instance <instance>.**

enterprises.17100.1.1.15.2.1.15.0.0.<instance>  
**Number of transactions restored on instance <instance>.**

enterprises.17100.1.1.15.2.1.16.0.0.<instance>  
**Number of objects refreshed in a single call on instance <instance>.**

enterprises.17100.1.1.15.2.1.17.0.0.<instance>  
**Number of objects refreshed in a bulk call on instance <instance>.**

enterprises.17100.1.1.15.2.1.18.0.0.<instance>  
**Number of objects completely loaded in a single call on instance <instance>.**

enterprises.17100.1.1.15.2.1.19.0.0.<instance>  
**Number of objects partially loaded in a single call on instance <instance>.**

enterprises.17100.1.1.15.2.1.20.0.0.<instance>  
**Number of versions completely loaded in a single call on instance <instance>.**

enterprises.17100.1.1.15.2.1.21.0.0.<instance>  
**Number of versions partially loaded in a single call on instance <instance>.**

enterprises.17100.1.1.15.2.1.22.0.0.<instance>  
**Number of objects completely loaded in a bulk call on instance <instance>.**

enterprises.17100.1.1.15.2.1.23.0.0.<instance>  
**Number of objects partially loaded in a bulk call on instance <instance>.**

enterprises.17100.1.1.15.2.1.24.0.0.<instance>  
**Number of versions completely loaded in a bulk call on instance <instance>.**

enterprises.17100.1.1.15.2.1.25.0.0.<instance>  
**Number of versions partially loaded in a bulk call on instance <instance>.**

enterprises.17100.1.1.15.2.1.26.0.0.<instance>  
**Number of internal methods called on instance <instance>.**

enterprises.17100.1.1.15.2.1.27.0.0.<instance>  
**Number of external COM methods called on instance <instance>.**

enterprises.17100.1.1.15.2.1.28.0.0.<instance>  
**Number of external OLE automation methods called on instance <instance>.**

enterprises.17100.1.1.15.2.1.29.0.0.<instance>  
**Number of external ActiveX scripting methods called on instance <instance>.**

enterprises.17100.1.1.15.2.1.30.0.0.<instance>  
**Percentage of read requests resolved in the cache on instance <instance>.**

enterprises.17100.1.1.15.2.1.31.0.0.<instance>  
**Maximal number of objects the cache can contain on instance <instance>.**

enterprises.17100.1.1.15.2.1.32.0.0.<instance>  
 Number of objects in the cache on instance <instance>.

enterprises.17100.1.1.15.2.1.33.0.0.<instance>  
 Number of current user contexts.

enterprises.17100.1.1.15.2.1.34.0.0.<instance>  
 Number of current worker threads on instance <instance>.

enterprises.17100.1.1.15.2.1.35.0.0.<instance>  
 Number of objects created on instance <instance>.

enterprises.17100.1.1.15.2.1.36.0.0.<instance>  
 Number of objects deleted on instance <instance>.

enterprises.17100.1.1.15.2.1.37.0.0.<instance>  
 Number of objects changed on instance <instance>.

enterprises.17100.1.1.15.2.1.38.0.0.<instance>  
 Number of versions created on instance <instance>.

enterprises.17100.1.1.15.2.1.39.0.0.<instance>  
 Number of versions deleted on instance <instance>.

enterprises.17100.1.1.15.2.1.40.0.0.<instance>  
 Update mode active for <instance>.

## 7.2 Fabasoft Folio RPC Service

The following Fabasoft Folio RPC Service performance counters are available.

enterprises.17100.1.1.1.1.0  
 Number of installed Fabasoft Folio RPC Service instances.

enterprises.17100.1.1.1.2.1.4.<major>.<minor>.<instance>  
 Fabasoft Folio RPC Service name of instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.5.<major>.<minor>.<instance>  
 Number of RPC calls on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.6.<major>.<minor>.<instance>  
 Number of RPC transactions on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.7.<major>.<minor>.<instance>  
 Number of threads used for RPC calls on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.8.<major>.<minor>.<instance>  
 Number of physical connections used for RPC on this instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.9.<major>.<minor>.<instance>  
 Number of bytes received on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.10.<major>.<minor>.<instance>  
 Number of bytes sent on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.12.<major>.<minor>.<instance>  
 Number of RPC packets received on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.13.<major>.<minor>.<instance>  
 Number of RPC packets sent on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.1.2.1.14.<major>.<minor>.<instance>  
 Number of RPC packets on instance <instance> of domain <major>.<minor>.

### 7.3 Fabasoft Folio COO Service

The following Fabasoft Folio COO Service performance counters are available.

enterprises.17100.1.1.10.1.0

Number of installed Fabasoft Folio COO Service instances.

enterprises.17100.1.1.10.2.1.4.<major>.<minor>.<instance>

Fabasoft Folio COO Service name of instance x

enterprises.17100.1.1.10.2.1.5.<major>.<minor>.<instance>

Objects locked on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.6.<major>.<minor>.<instance>

Objects unlocked on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.7.<major>.<minor>.<instance>

Queries executed on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.8.<major>.<minor>.<instance>

Objects read on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.9.<major>.<minor>.<instance>

Versions read on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.10.<major>.<minor>.<instance>

Transactions executed on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.11.<major>.<minor>.<instance>

Versions deleted on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.12.<major>.<minor>.<instance>

Versions saved on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.13.<major>.<minor>.<instance>

Objects deleted on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.14.<major>.<minor>.<instance>

Attributes stored on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.15.<major>.<minor>.<instance>

Objects created on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.16.<major>.<minor>.<instance>

Object locks routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.17.<major>.<minor>.<instance>

Object unlocks routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.18.<major>.<minor>.<instance>

Queries routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.19.<major>.<minor>.<instance>

Object reads routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.20.<major>.<minor>.<instance>

Version reads routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.21.<major>.<minor>.<instance>

Transactions routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.22.<major>.<minor>.<instance>

Version deletes routed to a different service on instance <instance> of domain <major>.<minor>.



enterprises.17100.1.1.10.2.1.23.<major>.<minor>.<instance>  
Version saves routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.24.<major>.<minor>.<instance>  
Object deletes routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.25.<major>.<minor>.<instance>  
Attribute stores routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.26.<major>.<minor>.<instance>  
Object creates routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.27.<major>.<minor>.<instance>  
The percentage of read requests resolved in the cache on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.29.<major>.<minor>.<instance>  
Number of objects in the cache on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.30.<major>.<minor>.<instance>  
Object refreshes on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.31.<major>.<minor>.<instance>  
Maximum amount of physical memory in megabytes used for object cache on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.10.2.1.32.<major>.<minor>.<instance>  
Current amount of physical memory in megabytes used for object cache on instance <instance> of domain <major>.<minor>.Fabasoft Folio MMC Service

## 7.4 Fabasoft Folio MMC Service

The following Fabasoft Folio MMC Service performance counters are available.

enterprises.17100.1.1.11.1.0  
Number of installed Fabasoft Folio MMC Service instances.

enterprises.17100.1.1.11.2.1.4.<major>.<minor>.<instance>  
Fabasoft Folio MMC Service name for instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.5.<major>.<minor>.<instance>  
Content reads on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.6.<major>.<minor>.<instance>  
Content writes on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.7.<major>.<minor>.<instance>  
Contents copied on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.8.<major>.<minor>.<instance>  
Contents deleted on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.9.<major>.<minor>.<instance>  
Content reads routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.10.<major>.<minor>.<instance>  
Content writes routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.11.<major>.<minor>.<instance>  
Content copies routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.12.<major>.<minor>.<instance>  
Content deletes routed to a different service on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.13.<major>.<minor>.<instance>  
Cached content reads on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.11.2.1.14.<major>.<minor>.<instance>  
Percentage of cached content reads on instance <instance> of domain <major>.<minor>.

## 7.5 Fabasoft Folio Web Service

The following Fabasoft Folio Web Service performance counters are available.

enterprises.17100.1.1.14.1.0  
Number of installed Fabasoft Folio Web Service instances.

enterprises.17100.1.1.14.2.1.4.0.0.<instance>  
Fabasoft Folio Web Service name for instance <instance>.

enterprises.17100.1.1.14.2.1.5.0.0.<instance>  
Number of pool worker threads for instance <instance>.

enterprises.17100.1.1.14.2.1.6.0.0.<instance>  
Number of requests waiting on instance <instance>.

enterprises.17100.1.1.14.2.1.7.0.0.<instance>  
Number of requests running on instance <instance>.

enterprises.17100.1.1.14.2.1.8.0.0.<instance>  
Number of requests expired on instance <instance>.

enterprises.17100.1.1.14.2.1.9.0.0.<instance>  
Number of requests processed on instance <instance>.

enterprises.17100.1.1.14.2.1.10.0.0.<instance>  
Number of requests received on instance <instance>.

enterprises.17100.1.1.14.2.1.11.0.0.<instance>  
Average number of milliseconds a request was waiting on instance <instance>.

enterprises.17100.1.1.14.2.1.12.0.0.<instance>  
Average number of milliseconds a request was running on instance <instance>.

## 7.6 Fabasoft Folio AT Service

The following Fabasoft Folio AT Service performance counters are available.

enterprises.17100.1.1.13.1.0  
Number of installed Fabasoft Folio AT Service instances.

enterprises.17100.1.1.13.2.1.4.0.0.<instance>  
Fabasoft Folio AT Service name for instance <instance>.

enterprises.17100.1.1.13.2.1.5.0.0.<instance>  
The number of seconds remaining until the service tries to process a task on instance <instance>.

enterprises.17100.1.1.13.2.1.6.0.0.<instance>  
Number of tasks waiting to be processed on instance <instance>.

enterprises.17100.1.1.13.2.1.7.0.0.<instance>  
Number of tasks processed on instance <instance>.

## 7.7 Fabasoft Folio Distributed Transaction Manager

The following Fabasoft Folio Distributed Transaction Manager performance counters are available.

enterprises.17100.1.1.16.1.0  
Number of installed Fabasoft Folio Distributed Transaction Manager instances.

enterprises.17100.1.1.16.2.1.4.<major>.<minor>.<instance>  
Fabasoft Folio Distributed Transaction Manager name for instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.16.2.1.5.<major>.<minor>.<instance>  
Number of completed transactions on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.16.2.1.6.<major>.<minor>.<instance>  
Number of committed transactions on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.16.2.1.7.<major>.<minor>.<instance>  
Number of aborted transactions on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.16.2.1.8.<major>.<minor>.<instance>  
Number of active transactions on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.16.2.1.9.<major>.<minor>.<instance>  
Number of committed transactions through recovery on instance <instance> of domain <major>.<minor>.

enterprises.17100.1.1.16.2.1.10.<major>.<minor>.<instance>  
Number of aborted transactions through recovery on instance <instance> of domain <major>.<minor>.