

OPScenter™ System Management



System Management, Control and Failover

High availability for distributed operational systems

The ability to keep complex hardware and software systems up and running 24 hours a day, 7 days a week is key within mission-critical environments such as Air Traffic Control, Vessel Traffic Services and Defense & Security. Downtime of such complex systems is a nightmare - for the users as well as for the responsible system administrators.

With OPSCENTER™ SYSTEM MANAGEMENT, Barco Orthogon provides a tool for comprehensive system control at the highest technical level: System Monitoring, Control and Failover (SMCF). SMCF monitors system health, minimizes downtimes and reduces administration effort - rising to the challenge of uninterrupted operation.

BARCO

Visibly yours

Real-time system monitoring and failover

Complete system control for mission-critical applications



OPSCENTER™ SYSTEM MANAGEMENT provides system monitoring and control as well as the management and implementation of failover strategies within a distributed environment. The SYSTEM MANAGEMENT component keeps the operational system up and running, minimizing system downtime and reducing administration efforts.

Monitored and controlled items comprise of computers, monitors, network, nodes, software processes and hardware devices like power supplies or radar sensors.

SMCF monitors hardware and software states, controls start-up and shut-down activities, (re-)connects processes and I/O-channels, and automatically recovers service from system failures.

Moreover, SMCF observes system parameters such as CPU load, memory usage (on either a system or process basis), and disk space to store this data for further analysis.

Operation of SMCF

SMCF can be configured offline and adapted to a system structure including its location, network, hardware and deployed software. Failover strategies for software processes can be specified via rules that define the automatic reaction of the system in case of various failure scenarios.

During operation, the SMCF master process (SMCP) permanently communicates with the local SMCF Agents and thus monitors all configured hardware and software processes. At the same time, SMCP adjusts system parameters based on the target configuration.

In addition to passive monitoring, SMCF is able to react to failures of hardware and software. It automatically handles failing processes (no response) or hardware failures (no access). For example, if a process controlled by SMCF fails, it is restarted automatically without user intervention.

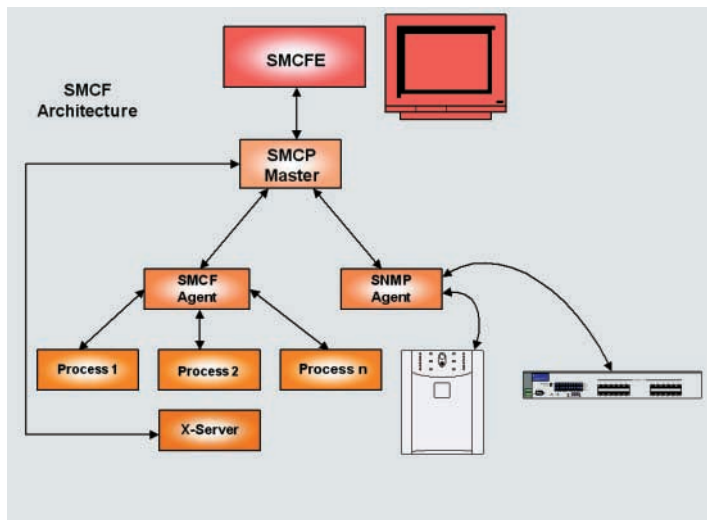
Surveillance at a glance

SMCF provides an interactive graphical user interface (SMCFE) that reflects the state of the working environment and further provides comprehensive mechanisms to control system operations (start-up and shut-down of hardware or software processes).

The SMCFE supports two different views of the current system state: hierarchic view and operational view. In the hierarchic view the user gets an overview of the state of system health location, hardware and process objects. In the operational view the logical data flow in the system is displayed.

The graphical front-end is independent from the redundant manager processes. There may be more than one front-end implied at the same time. However, only one front-end can assume active control whereas the other front-ends are only for monitoring purposes.

Below: SMCF architecture overview



A central point of control

Simple and reliable architecture

Powerful control features

The SMCF User Front-End (SMCFE) not only displays detailed system information, it also enables the user administrative control of the surveilled system. Control commands can be sent directly from the monitoring position to the SMCP master process as well as to all managed items.

The SMCFE main window integrates detailed information about error messages and further system messages (log file browser), a command toolbar for major control functions and a status bar displaying the actual operational mode of the system.

The administrator can manually start and stop processes as well as move processes from one host to another. In addition, the administrator can power off or reboot all locations by a single click.

SMCF Agent

Each managed computer runs an SMCF Agent which communicates with all software and hardware items attached to it. To avoid hang-ups there is a heart-beat mechanism in the communication. The agent communicates to the master process, forwarding all messages from and to the local managed items.

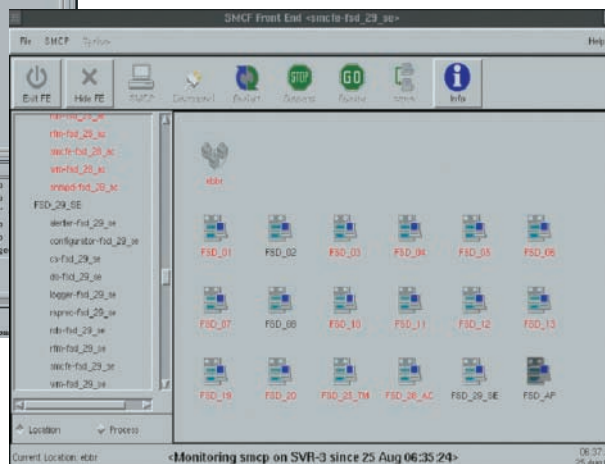
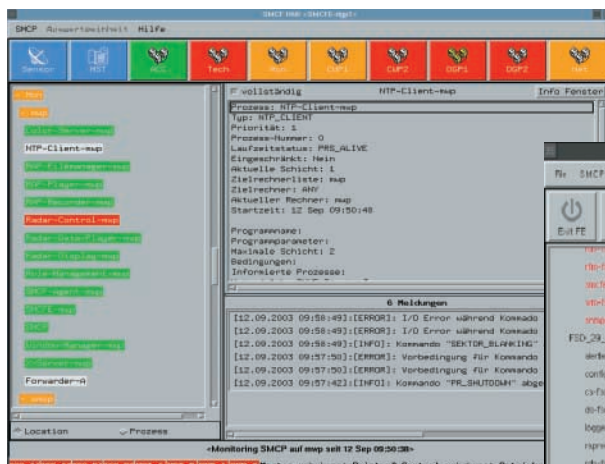
Generic Message Information Base (MIB) browser

For managed items that implement SNMP protocol it is possible to send SNMP commands (get/set) from the graphical user interface of the SMCFE.



Integration into existing management infrastructures

SMCF uses the world standard Simple Network Management Protocol (SNMP) as communication protocol to allow easy integration of specific 3rd party hardware or software processes via a sub-monitor concept. SMCF provides an Application Programming Interface (API) to allow other processes to communicate with the SMCF Agent.



Above: SMCFE system management window; right: SMCFE screenshott with location view

Specification

Key features

- Automatic restart and redistribution of failed processes (Failover)
- Monitoring of hardware and software items
- Graphical user interface to visualize the system status and to control the environment
- Manual intervention (e.g. start and stop of processes, locations, and hosts, and reassigning processes from one host to another)
- Definition of failover strategies for automatic reaction making use of all available computing resources (cluster computing)
- Provides an offline configurable working environment with different abstraction levels like locations, hosts, processes and capabilities
- Supports master/standby concept for implementing continuous services
- Sub-monitoring of customer specific hardware or processes
- Supports redundant networks
- SNMP (Simple Network Management Protocol) V1 and V2 support
- Includes an integrated SNMP MIB browser
- Provides storage of log information via a global logging demon

OPSCENTER™ is a product suite of Barco Orthogon AG, comprising standardized components for operational systems. All **SYSTEM MANAGEMENT** components described in this publication are components of **OPSCENTER™**.

Barco Orthogon AG offers sophisticated software tools and solutions for mission-critical applications in the fields of Air Traffic Control, Vessel Traffic Services and Defense & Security. It maintains offices in Bremen, Stuttgart, Frankfurt (Germany), and a subsidiary in Smithville, New Jersey (USA).

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Technical Specifications are subject to change without prior notice

For more information on our software components, please visit

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