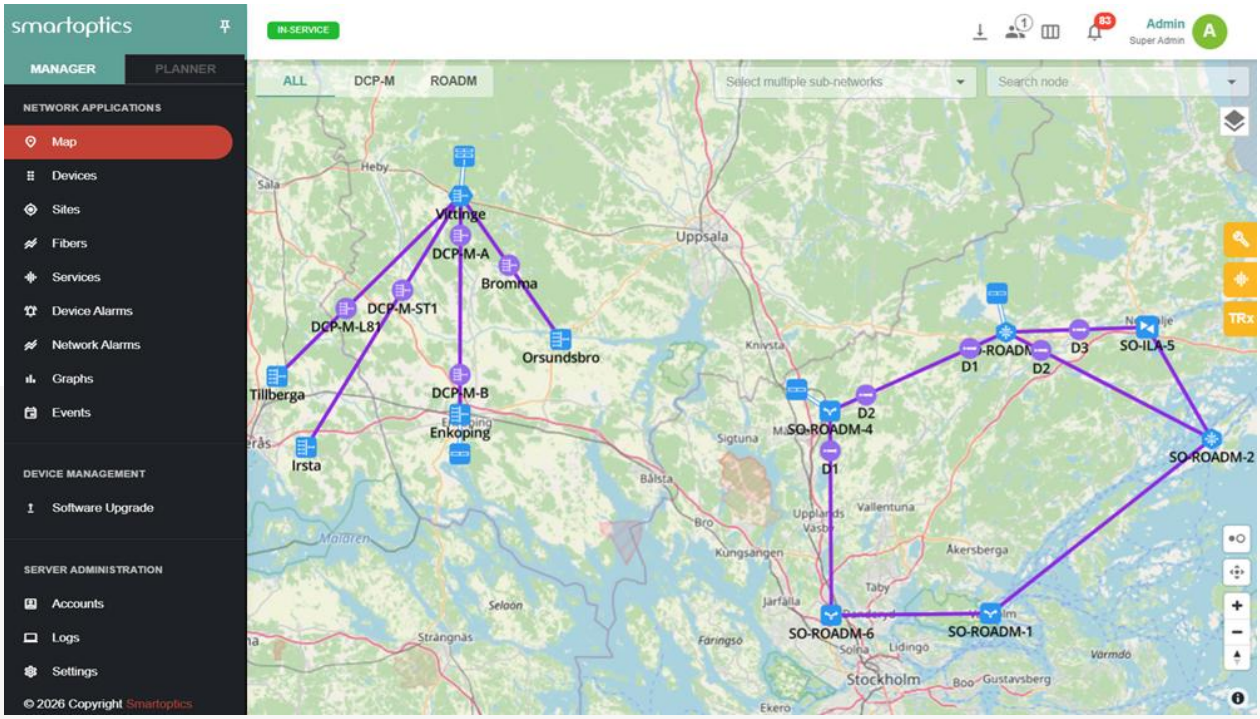
SOSMART SOFTWARE SUITE

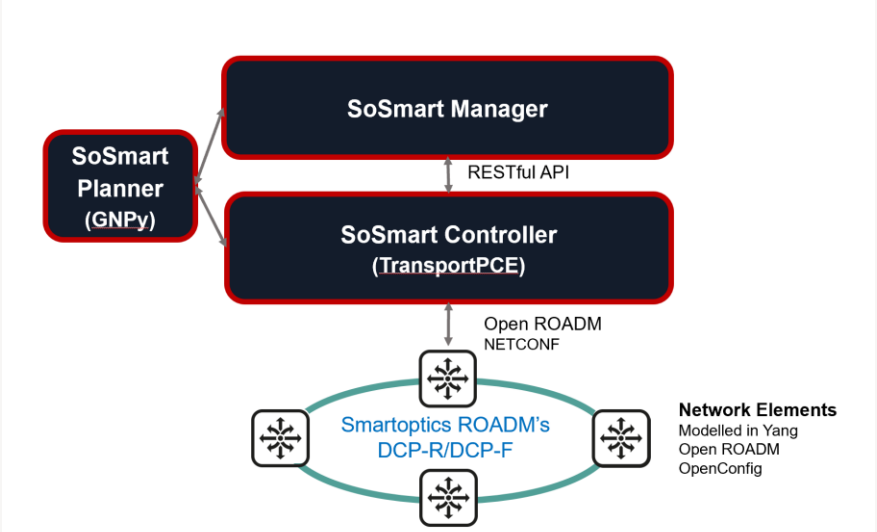
Management Suite to support Smartoptics Products in an Open environment



A MODERN, OPEN AND FLEXIBLE MANAGEMENT SOLUTION

SoSmart is a modular software suite for SDN-based management of Smartoptics products in an open, multi-layer and multi-vendor optical networking environment. The management suite has a new and modern software architecture with open API:s that enable a high level of management flexibility, modularity, multiple integration possibilities and openness. The Smartoptics SoSmart Software Suite includes the following building blocks:

- The SoSmart Manager – The management application for optical network provisioning, also including fault, configuration, administration, performance, and security (FCAPS) functions, and operated via an advanced graphical user interface (GUI).
- The SoSmart Controller – An open source SDN controller based on TransportPCE.
- The SoSmart Planner – An optical planning and simulation tool with the same GUI as the SoSmart Manager and using the open-source module GNPy for path simulations.

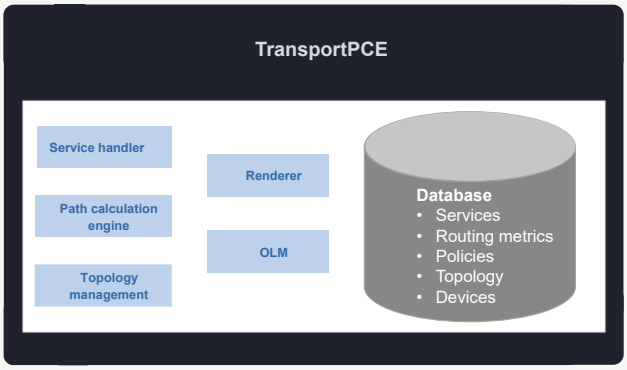


SOSMART MANAGER IN SHORT

- Provides an intuitive and easy to use graphical user interface, GUI.
- Use Open APIs and is integrated towards Transport PCE.
- Graphical network visualization based on geographical locations. KMZ, KML and GeoJSON formats are supported.
- Automatic Node discovery Capabilities.
- Optical point-and-click service provisioning with flexgrid support.
- End to end service monitoring visibility (DCP products).
- FCAPS (Fault, Configuration, Administration, Performance, Security).
- Supporting DCP-R ROADMs (9D & 34D) and DCP-F ILAs* today via NETCONF.
- Fiber Route Analysis and Wavelength Suggestion support.
- DCP-M and DCP-2 graphical representation, inventory, alarm and service support. DCP-F support is coming soon.
- Support for Raman amplifiers and passive filters, including graphical representation and inventory information.
- IP router support for 3rd party routers with NOS that supports open config data models and relevant YANG paths.
- Colorless & Directionless (CD) ROADM Support (based on the 4x4 module).
- Xponder support includes DCP-1610, DCP-108, DCP-404, DCP-1203, DCP-110 and DCP-802.
- Centralized SW Upgrade support.

SOSMART CONTROLLER IN SHORT

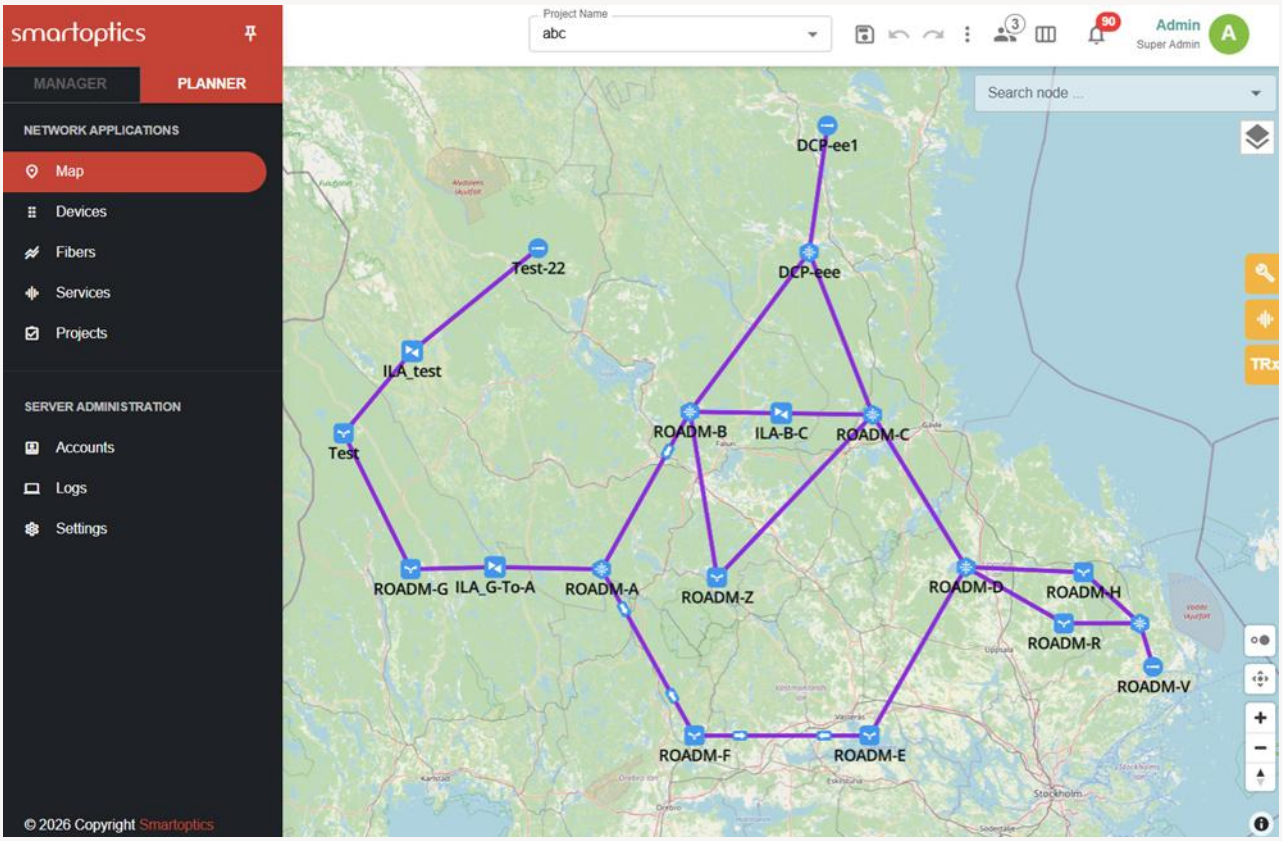
- SDN controller based on open-source TransportPCE.
- Provides a standardized path calculation engine (PCE), a service handler and topology management.
- Communicates with network elements through a standardized NetConf interface that complies to the Open ROADM API.
- Communicates with SoSmart Manager via a RESTful API.
- Contains a database with services, routing metrics, policies, topology, and devices.



* The DCP-F ILA nodes supported by SoSmart are intended for ROADM-based network architectures and operate as NETCONF nodes. An ILA NETCONF node consists of a Smartoptics shelf controller (SC) and a DCP-2 chassis populated with DCP-F-A22 and/or DCP-F-VG products in an ILA configuration. Accordingly, SoSmart refers to both ILA nodes and DCP-R ROADM nodes with shelf controllers as NETCONF nodes. Standalone DCP-F ILA deployments without a shelf controller are not currently supported in SoSmart.

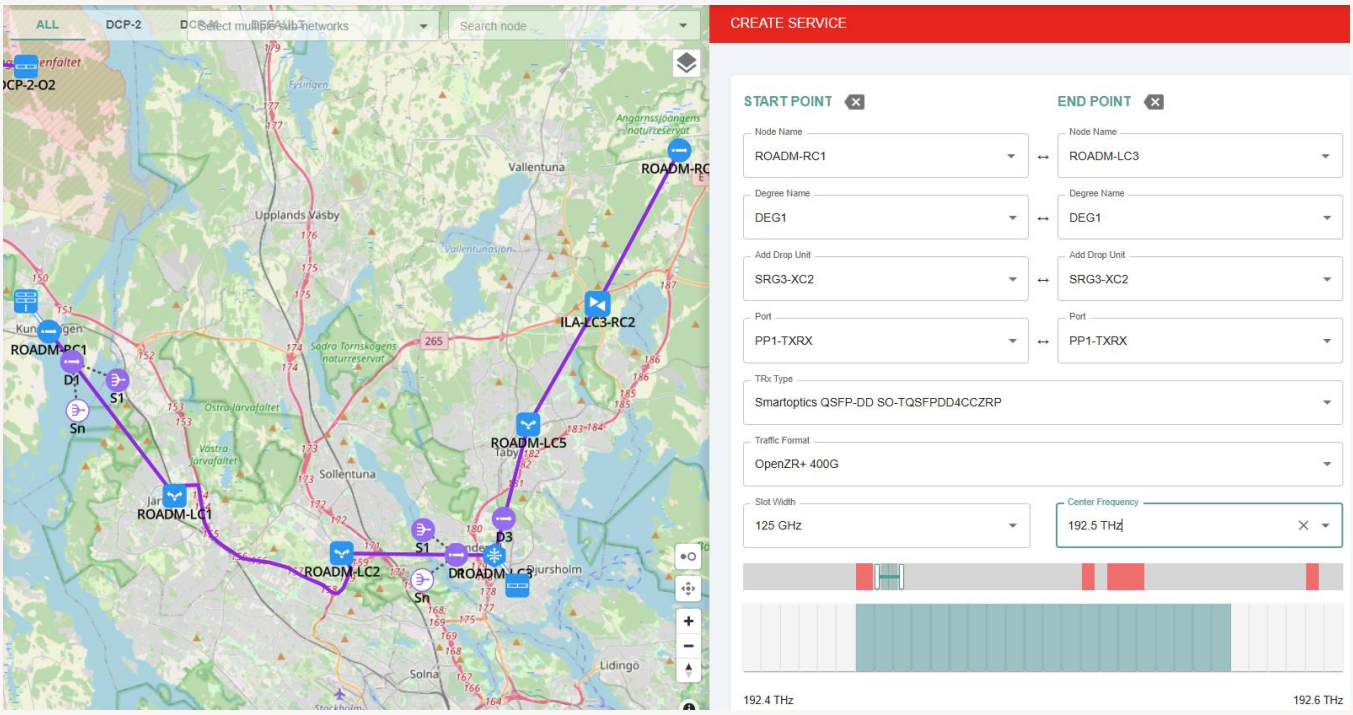
SOSMART PLANNER IN SHORT

- SoSmart Planner uses the same GUI framework as SoSmart Manager.
- Service feasibility simulations with flexgrid support, performed under end-of-life (EOL) conditions.
- Optical performance validation based on OSNR and GSNR QoT parameters is done with the Open-Source SW GNPy (Gaussian Noise Model in Python).
- Capacity Planning with the option to reserve spectrum during service creation.
- Fiber Route Analysis and Wavelength Suggestion support.
- Initial Colorless & Directionless (CD) ROADM Support (based on the 4x4 module).
- Efficient network design with support for both online and offline optical planning.
- Nodes and fibers in map GUI based on Open Street Map.
- Project management features, e.g. load, save, export, import real network.
- Server administration capabilities.

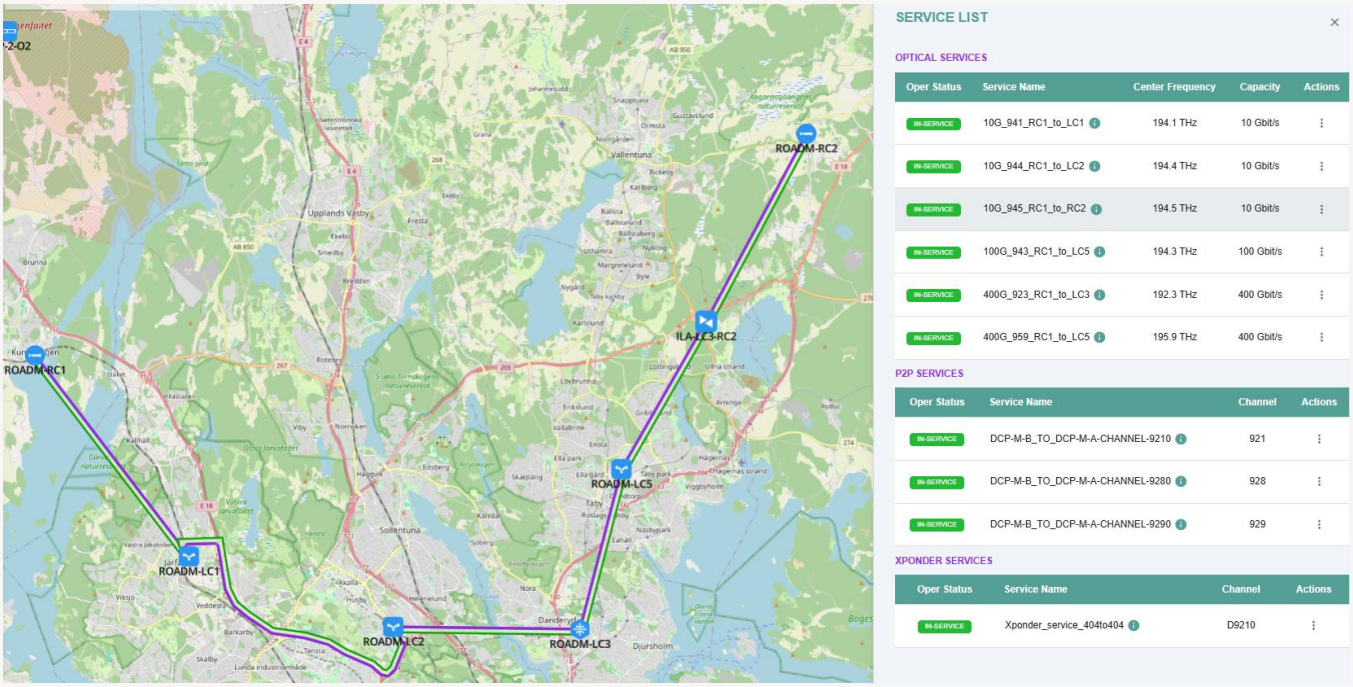


OPTICAL POINT AND CLICK PROVISIONING

Smartoptics DCP-R family is a disaggregated multi-degree ROADM platform used for Open Line Systems. This platform has a high level of automation, but it is still important that the SoSmart Manager can provide a good network representation and an easy way to configure network. Optical channels can easily be configured and activated by using the point-and-click provisioning feature in the SoSmart Manager. The SoSmart Manager provides the GUI for provisioning while the SoSmart Controller will conduct the path calculation and communication to the network elements.



After a service is configured, the information is stored in the SoSmart Controller database. All provisioned services can be viewed in a detailed service list in a separate window or in a miniature list in the network window.



ORDERING INFORMATION

SoSmart product codes	
SOSMART-MANAGER	SoSmart Manager Server License, one time entry fee
DCP-R-SML	DCP-R SoSmart Manager License, yearly subscription fee per DCP-R chassis
DCP-2-SML	DCP-2 SoSmart Manager License, yearly subscription fee per DCP-2 chassis
DCP-M-SML	DCP-M SoSmart Manager License, yearly subscription fee per DCP-M chassis

SERVER SPECIFICATIONS

The SoSmart Software Suite runs on x86 64-bit hardware with Linux as operating system. Installing and hosting the SoSmart Software suite is as easy as operating the network. The SoSmart Manager, Controller and Planner are all installed as docker containers on standard server hardware. A docker container can package an application and its dependencies in a virtual container, isolated from other processes in the system. This is a modern way of running applications which is extremely easy to install and at the same time consumes small processing resources compared to older alternatives. Because of their isolated nature, docker containers are very well suited for running on cloud servers.

Both the SoSmart Manager (with the integrated SoSmart Controller) and the SoSmart Planner can be hosted on Virtual Machines.

The following are the **recommended requirements** for installing the SoSmart software suite, covering both general prerequisites and server specifications:

- **Operating System:** Any Linux OS with Docker pre-installed.
- **Dependencies:** Docker and Docker Compose **must be installed before** SoSmart installation.
- Google Chrome (recommended browser for best compatibility).

For customers using the **Virtual Desktop Infrastructure** (VDI) environment, **GPU with HW acceleration** is required for smooth operation and to ensure responsive GUI performance in SoSmart.

The table below provides recommended server specifications based on the deployment size:

Deployment Size	Small	Medium	Large
Managed Devices (Chassis)	Up to 50	Up to 250	> 250
Virtual CPUs (vCPUs)	4	8	16
System Memory (RAM)	16 GB	16 GB / 32 GB	32GB / 64 GB
Disk Storage	100 GB	300 GB	500 GB

RAM Guidelines

The RAM recommendations for **Medium** and **Large** deployments are expressed as ranges (e.g., **16 GB / 32 GB** or **32 GB / 64 GB**). This is to account for variation in system size within each category.

- If the number of managed devices is closer to the lower end of the range (e.g., around 100 for Medium, or just over 250 for Large), the lower RAM value in the range may be sufficient.
- If the deployment is mid-range or approaching the upper end of the scale (e.g., nearing 250 (Medium) or significantly exceeding it (Large)), it is recommended to allocate the higher RAM value to ensure consistent performance.

Disk Space and Storage Considerations

SoSmart Manager installations require a single disk partition with sufficient total space, depending on the scale of the deployment (see table above). Using a single partition simplifies storage management and avoids issues with running out of space in specific directories.

SoSmart stores data in the following key locations:

- /opt/orchestrator: Installation directory including application files, backups, and planner data.
- /var/log/smartoptics: Log files. Log size and retention are configurable. With default settings, total log storage typically takes a few hundred megabytes.
- /var/lib/docker: Default Docker directory that contains container data and the SoSmart database volume. Storage requirements for this directory are typically comparable to those of the **/opt/orchestrator** directory.

Note: Actual disk space requirements vary based on the number of managed devices, backup retention, and whether performance monitoring is enabled. SoSmart now supports optional time series storage for power levels and other performance metrics, which significantly impacts disk space usage if enabled. See the table above for recommended disk space allocation based on deployment size.

NOTE. THE INFORMATION IN THIS DOCUMENT IS VALID FROM SOSMART RELEASE R8.0