

SATLINK MANAGER (R2.3) DIALOG®

Description

Today's satellite operators are confronted with the need to support combined Internet, data and video traffic within a single transmission. On top of that, their customers require flexible transmission workflows to support reliable multi-service transmissions in a cost-effective manner. To achieve this, satellite operators are in need of a system that supports upfront scheduling of satellite transmissions to ensure resources are allocated and reserved for the duration of the transmission. It also needs to reliably automate the setup and teardown of satellite links, while at the same time optimizing the required satellite space segment. All of this functionality needs to be offered within a single platform that can be tailored exactly to the needs of the customer.

Our multiservice solution, including SATLink manager, Newtec's File Exchange Manager and the Integrated Management System, provides an integrated solution tailored to meet these objectives. At its core, the SATLink Manager software module allows satellite operators to efficiently manage the transmission resources and capacity. It also guarantees error-free link setups by fully automating the satellite ground equipment. The satellite resource management capabilities and equipment automation of the SATLink Manager ensures bandwidth-optimized and cost-effective permanent and occasional use transmissions.

SATLink Manager supports, in combination with the Dialog system, the scheduled setup of MF-TDMA, Mx-DMA® or SCPC based terminal and hub links with specific Quality of Service (QoS) (CIR/PIR) settings.

Alternatively, the SATLink Manager can be deployed in combination with a HUB6000 platform. This setup is typically used for the establishment of occasional high bitrate IP connectivity between remote locations and the central hub.

DIALOG

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Newtec  **iDIRECT**

Satellite Resource Management for Key Features

- Allocation and reservation of satellite ground equipment and space segment through booking principle
- Resource allocation based on session service characteristics
- Manual, slotted and optimized bandwidth allocation
- Multiple services supported on shared satellite capacity
- Full automation of link setups and teardowns
- Support for mesh and star based point-to-point and point-to- multipoint link topologies
- Support for high speed (up to 100 Mbps aggregated) bidirectional, accelerated IP links
- Support for per reservation QoS and Service Level Agreements (SLAs) definitions
- Deployable separately or combined with Newtec's Integrated Management System
- Virtual Network Operator (VNO) support
- Single hop and double hop session support

Occasional Use and Full-time Transmissions

Reservation-based allocation of satellite resources guarantees that all required satellite equipment and satellite capacity are available at the time of the transmission. The resource reservation is based on an upfront booking of a transmission.

The SATLink Manager is configured with a set of services, such as 'Live SNG Transmission' and 'low bitrate file contribution'. The link characteristics of the transmission, such as air interface and modulation characteristics, QoS settings and ground equipment resources are fully determined by the type of service selected during the booking process. Services can be defined per Virtual Network (VN).

Additionally, ground equipment and space segment resources can be allocated to multiple virtual networks. This enables a Host Network Operator (HNO) to host multiple users on the same physical platform, allowing them to operate independently from each other.

Main Advantages

Flexibility

- Combined data and broadcast services support on single platform
- Versatile modem portfolio support
- Integrated Management System for support of flexible workflows and hybrid terrestrial and satellite connectivity

Scalability

- Scales from small to large networks
- Support for capacity pools over multiple transponders, frequency bands and satellites
- Scales with the number of supported services and throughputs
- Low upfront CAPEX requirements, invest as your business grows

Efficiency

- Support for highly efficient modulation schemes, such as DVB-S2, S2 Extensions, DVB-S2X
- Optimization of bandwidth allocation through optimal MODCOD selection and pooled capacity support
- FlexACM® support

Reduced Opex through Optimized Satellite Capacity Management

For occasional use transmissions, the SATLink Manager optimizes the satellite capacity required by supporting pooled capacity. The satellite capacity used for the transmission is taken from a pre-configured pool of satellite bandwidth which can be shared by multiple remotes and by multiple services. The admission control feature of the SATLink Manager ensures the pooled capacity is never overbooked, guaranteeing the bandwidth for a transmission once it is reserved. Configured satellite capacity can be dynamically added, removed or updated.

The SATLink Manager provides a flexible way to allocate space segment for transmission. This can be done through:

- Manual capacity allocation by manual entry of start and stop frequency
- Slotted based capacity allocation, whereby capacity is divided into specific slots
- Optimized capacity allocation, where the SATLink Manager optimizes the space segment usage by determining a free space segment with enough baudrate to ensure the requested information rate. Optimized capacity allocation ensures the most efficient use of satellite space segment, minimizing OPEX.

Support for a Variety of Link Topologies

The SATLink Manager configures the allocated ground equipment resources with the appropriate settings to match the service characteristics of the transmission.

A variety of link topologies, including single channel per carrier (SCPC) and multiple channel per carrier (MCPC) links, mesh and star links, unidirectional and bidirectional unicast or multicast traffic are supported by the SATLink Manager.

A unique link topology mode called “mesh overlay” is also supported. A mesh overlay link is a multichannel link set up by an MDM3310 modem, where the unicast IP channel

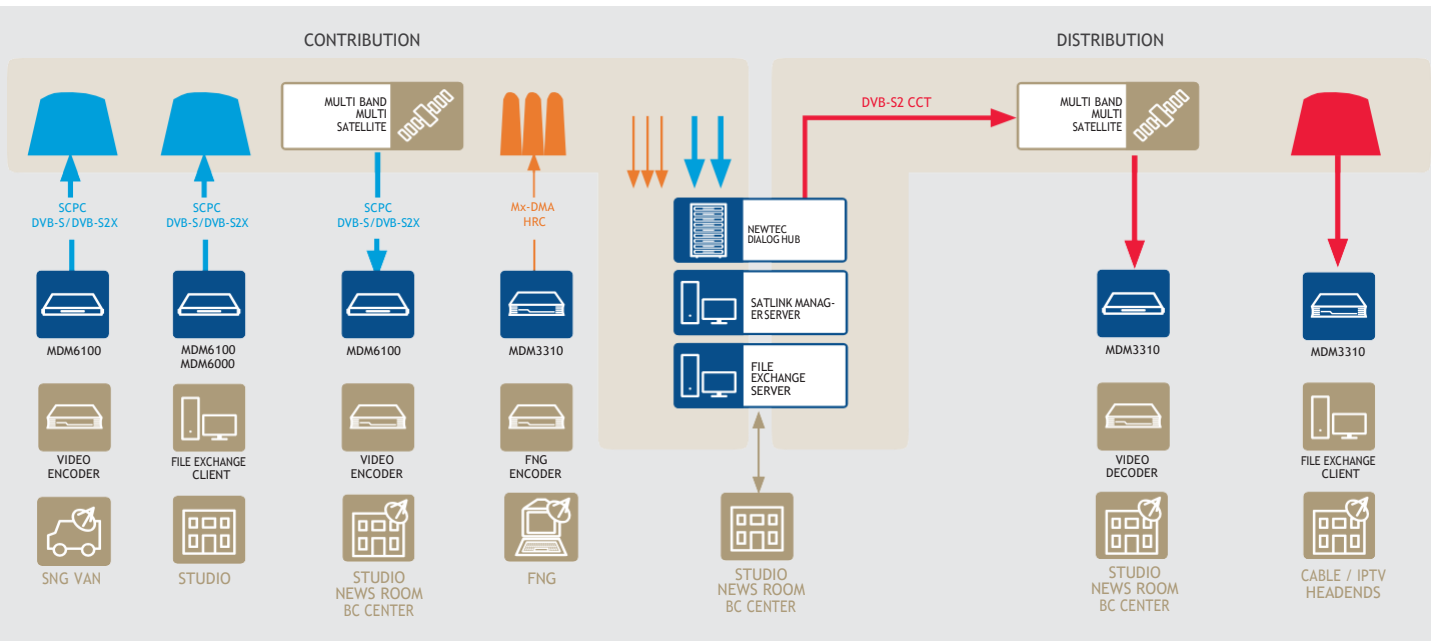
is received by the Newtec Dialog Hub and the multicast IP channel is received by a remote MDM6000 modem. This allows the setup of a terminal-to-hub star link for unicast IP traffic and a mesh terminal-to-terminal link for multicast IP traffic within a single carrier.

A single session booking can span multiple transmission links, combining, for example, multibeam satellite contribution or distribution links with fiber links. Transmission sessions spanning multiple satellite and terrestrial networks are therefore easily supported with a single booking workflow.

The support for flexible link topologies offers the user the choice between bandwidth efficiency and low delay mesh unicast / multicast links at the expense of high-power and therefore more costly ODU, versus, star based transmissions with cost-effective terminals, at the expense of extra transmission delay and satellite bandwidth.

Supported Link Topologies

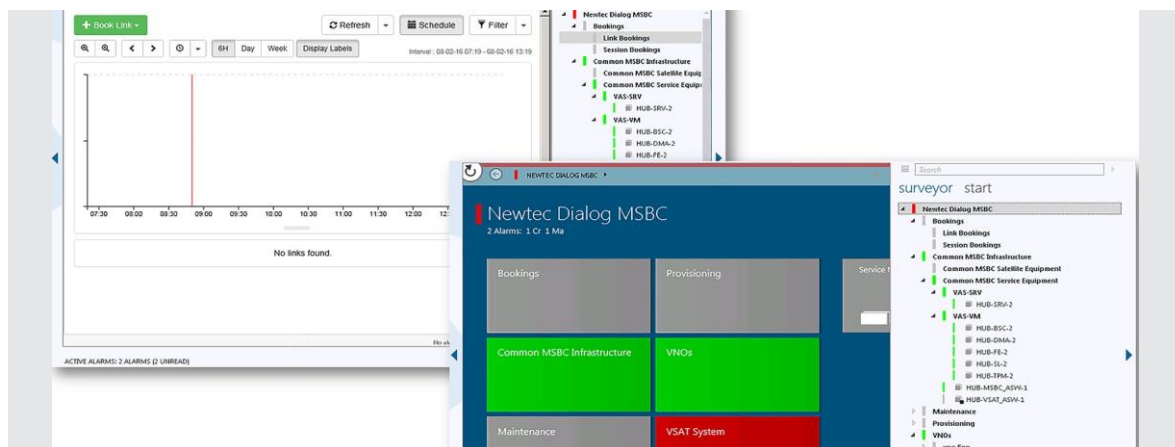
- Star and mesh based link topologies
- Support for single hop and double hop links
- Support for Newtec Dialog “Mesh Overlay” links
- Unidirectional and bidirectional Layer 3 accelerated IP links
- Point-to-point and point-to-multipoint links
- Single channel per carrier (SCPC) and multiple channel per carrier (MCPC) links
- Newtec Dialog unicast and multicast terminal and



Supported contribution and distribution use cases

Flexible Workflow Support in Combination with our Integrated Management System

- The SATLink Manager offers various operational interfaces, giving the user maximum flexibility when integrating the SATLink Manager with a content management system, media asset management system or external scheduler.
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- The SATLink Manager comes with a REST-based API for provisioning purposes and for the reservation and setup of SCPC or MCPC links. Additionally, it supports a GUI for booking purposes, for monitoring capacity occupancy and for link monitoring (see Fig. 1). A Dialog solution with the SATLink Manager module included enables a cost-effective broadcast solution for small scale networks with easy operational workflows.
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- Alternatively, the SATLink Manager software module can be offered in combination with the IMS (See Fig. 2). The Integrated Management System provides additional support for more elaborate Fault, Configuration & Performance management allowing full management of both Newtec modems and third party equipment (for example, video encoders/decoders) and/or network equipment (switches, routers).



Example of SATLink Manager integration with the IMS

SPECIFICATIONS

Resource Allocation and Reservation

- Booked and ad-hoc reservation based satellite ground equipment and space segment resource allocation for occasional use (OU) transmissions
- Reservation manipulations, including reservation cancel, reservation move, reservation extension
- Admission control, guaranteeing resources for a reservation
- Resource allocation based on session service characteristics
- Manual, slotted and optimized bandwidth allocation
- Multiservice support on shared satellite capacity
- Support for capacity pools over multiple transponders, frequency bands and satellites
- Dynamic addition, removal and updates of capacity pools
- Support for QoS and SLA definitions per service

Equipment Automation

- Automation of link setups and teardowns through automated configuration of Newtec satellite ground equipment
- Optimization of space segment allocation through automatic selection of available space segment
- Service specific equipment configuration
- Flexible, versatile equipment configuration through equipment configuration templates

Supported Technologies

- Modulation schemes: DVB-S2, S2 Extensions, DVB-S2X, HRCTM, 4CPM
- Access technologies: MF-TDMA, Mx-DMA, SCPC
- Air interfaces: Transport Streams, GSE and MPE
- Clean Channel Technology®
- FlexACM®

Management and Control

SATLink Manager Management and Control

- Web API for link and session booking
- Web API for link and session setup and teardown
- Web API for terminal provisioning and reservation ‘accounting’
- Web API for setup of transmission sessions spanning multiple satellite/fiber transmission links
- Session status monitoring
- Link status monitoring
- Centralized or distributed operations
- Software Management (incl over-the-air multicast upgrades)
- Configuration Management
- Built-in web-based GUI for session booking, session and link profile definition, capacity group configuration, terminal configuration, etc.

Integrated Management System capabilities

- Support for user specific workflows and GUIs
- Integration possibilities with third party schedulers, ERP systems, MAM systems, OSS/BSS systems

Deployment Possibilities

- Deployable with “File Exchange Manager”
- Possibilities for integration with Newtec’s Integrated Management System through REST based web APIs
- Centralized and distributed deployments
- Integrates with Dialog platform
- Integrates with HUB6000 platform
- Deployable on virtualized infrastructure (VMWare, VirtualBox, Hyper-V, KVM)

Supported Newtec modems

- MDM2210, MDM2510, MDM3310 Satellite IP Modems
- MDM6000 Satellite Modem
- MCD6000 Multi-Carrier Demodulator
- MDM6100 Broadcast Modem
- MCX7000 Multi-Carrier Satellite Gateway modem