


/ DEVICE MANAGER BY SMARTRG

Technical Overview

Version 1.3

May 2017



Welcome!

Thank you for purchasing this SmartRG product.

SmartRG offers solutions that simplify the complex Internet ecosystem. Our solutions include hardware, software, applications, enhanced network insights, and security delivered via a future-proof operating system. Based in the USA, SmartRG provides local, proactive software development and customer support. We proudly offer the best, most innovative broadband gateways available.

Learn more at www.SmartRG.com.

Purpose & Scope

This Technical Overview of Device Manager provides the reader with a summary of product, a comprehensive feature/benefit matrix and the hardware/software virtual machine requirements for this platform.

Intended Audience

The information in this document is intended for Network Architects, NOC Administrators, Field Service Technicians and other networking professionals responsible for deploying and managing broadband access networks. Readers of this manual are assumed to have a basic understanding of computer operating systems, networking concepts and general telecommunications industry concepts.

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The proliferation of Internet-connected devices and the explosion of video and data traffic are driving complexity in the home network. Increasing numbers of new devices need to be installed and provisioned, and multiple devices running multiple applications often create resource contention within the home. These factors trigger expensive support calls and truck rolls for the service provider, and automating and simplifying management of customer premises equipment (CPE) in home networks has become mission-critical.

Product Overview

Device Manager by SmartRG is a server and cloud-based network management platform based on the Broadband Forum's TR-069 protocol for provisioning and managing in-home devices. The solution discovers detailed information about all connected devices in the home and provides visibility for both service providers and subscribers through easy-to-use web portals. The platform also includes a flexible applications engine that offers a means for the service provider to deliver new, high-value consumer home network applications.

Features and Capabilities

Device Manager by SmartRG provides visibility into the home network, reduces operational costs, and improves the subscriber experience. Powerful customer support tools, an intuitive consumer portal, and extensive analytics combine to make the home network easier to set up and support.

- **Automated, remote multi-device management:** The TR-069-compliant auto-configuration server provides deep operational visibility into a variety of devices in the home and the network behind them. Management capabilities are available on both a single and multiple device basis and include zero-touch provisioning, remote configuration and configuration updates, software (including firmware) upgrades, monitoring, real-time problem diagnosis, and troubleshooting of common home networking problems such as Wi-Fi, firewall, and basic broadband connectivity of devices in the home. Bulk operations help automate the mass management of home devices and help service providers lower the cost of deploying and maintaining large numbers of subscriber devices.
- **Actionable information:** Device Manager by SmartRG discovers detailed information about the devices in the home such as online/offline status, wireless signal strength, and device manufacturer. The solution abstracts this information into the cloud and provides it to both service providers and subscribers through easy-to-use web portals - rendering the information actionable. This, in turn, reduces support calls and truck rolls, lowering operating expenses.
- **Intuitive consumer portal for real-time problem diagnosis and troubleshooting:** Device Manager by SmartRG offers consumer visibility into the home network and access to a variety of configuration tools and data services. By providing the subscriber with the ability to more easily troubleshoot problems, a majority of support calls are eliminated, helping to drive customer satisfaction and lower churn.
- **High-value consumer services:** Device Manager by SmartRG helps enable the quick rollout of new services that drive both customer satisfaction and service provider revenues, such as managed WiFi, managed firewall, and parental control applications, including dynamic content filtering and time blocking.
- **Analytics engine:** Device Manager by SmartRG Analytics supports better business decisions by providing greater visibility into home network usage and activity, home network characteristics, and service utilization. The solution allows creation of professional reports and charts for a wide array of subscriber and device information. Service providers can use this intuitive application to proactively analyze and address support issues globally for new business model creation.

Features and Benefits - Detail

Feature	Description and Benefit																
Management Protocol and Device Support																	
<p>TR-069 for multidevice, multiprotocol management</p>	<p>Until recently, service providers have had limited visibility into the home network behind the typical gateway or modem. Device Manager by SmartRG provides deep operational visibility into a wide variety of devices in the home and the network behind them using TR-069.</p> <p>All devices managed with TR-069 have a well-defined data model associated with them. The data model is the set of common management objects for a given CPE device type that are remotely accessible by Device Manager by SmartRG for provisioning, device management, and service delivery. These include:</p> <table border="0" data-bbox="464 894 1057 1188"> <tr> <td>Residential Gateways</td> <td>TR-098</td> </tr> <tr> <td>All Devices, including Residential Gateways</td> <td>TR-181</td> </tr> <tr> <td>IP Phones</td> <td>TR-104</td> </tr> <tr> <td>Set-top Boxes</td> <td>TR-135</td> </tr> <tr> <td>Network Attached Storage</td> <td>TR-140</td> </tr> <tr> <td>Femto AP Service</td> <td>TR-196</td> </tr> <tr> <td>Network throughput</td> <td>TR-143</td> </tr> <tr> <td>Support for PON</td> <td>TR-142</td> </tr> </table> <p>Device Manager by SmartRG also supports important management frameworks such as those defined in TR-111 and TR-157.</p>	Residential Gateways	TR-098	All Devices, including Residential Gateways	TR-181	IP Phones	TR-104	Set-top Boxes	TR-135	Network Attached Storage	TR-140	Femto AP Service	TR-196	Network throughput	TR-143	Support for PON	TR-142
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<p>Integration with other management protocols</p>	<p>Through flexible management endpoints and an API, Device Manager by SmartRG can provide additional management protocol interfaces such as SNMP and OMA-DM for mobile and legacy device support.</p>																
<p>IPv6 support</p>	<p>The solution supports IPv6 compliant devices. (Device Manager v5.2.x and above.)</p>																
Remote Management and Platform Tools																	
<p>Zero-touch provisioning</p>	<p>Device Manager by SmartRG provides remote automated provisioning of complex CPE, reducing the rate of costly truck rolls and support calls.</p>																
<p>Consumer device discovery</p>	<p>Device Manager by SmartRG discovers detailed information about the devices in the home such as online/offline status, wireless signal strength, and device manufacturer.</p>																

Feature	Description and Benefit
Real-time problem diagnosis and troubleshooting of common home networking problems	Device Manager by SmartRG helps simplify diagnosis and resolution of common home networking problems such as Wi-Fi, firewall, and basic broadband connectivity of devices in the home.
Restoration of device configuration	CPE configuration is stored in the cloud, allowing for automatic restoration of home network settings if the device is factory defaulted or is replaced.
CPE software upgrades	Device Manager by SmartRG allows easy updating of software, including firmware upgrades and downgrades.
Captive portal	Automatic browser redirection for LAN devices is useful for troubleshooting, service alerts for late bill payers, marketing messaging, and more.
Workflow engine	Device Manager by SmartRG allows the service provider to build event-driven management policies, resulting in customized device interactions for a variety of scenarios such as initial contact, reboot, or as a standard maintenance procedure.
Multidevice management with bulk operations	Device Manager by SmartRG manages both at the individual device and multi-device level, greatly saving administrative overhead time and expense. For bulk operations, labeling provides easy grouping of devices and subscribers, a scheduling mechanism simplifies user activities, and status reports allow easy progress tracking. Integration with Device Manager by SmartRG Analytics allows for intelligent selection of devices for bulk operations.
Auditing	Audit tools help enable the administrator or customer service representative (CSR) to view a history of changes related to a device or subscriber, including who initiated the changes and specifically what was changed. This is useful for accountability tracking and for identification of problems caused by user error.
Domain separation	Domain separation allows the service provider to segment out devices, subscribers, and CSRs into groups based on region, market, or other characteristics for operational efficiency.
Managed WiFi Features	
Activation	Device Manager by SmartRG can help enable Wi-Fi service globally and on an individual subscriber basis. Default security can be configured to match client setup instructions.
Configuration	Wi-Fi settings can be configured remotely in the CSR and consumer portals once enabled in Device Manager by SmartRG. Users can customize the channel, service set identifier (SSID), and security type and can set up a multiple SSID or dual-band network. The consumer portal replaces the complex local user interface with simple configuration tools and is remotely accessible so changes can be made from anywhere.
Wi-Fi signal monitoring	Wi-Fi signal monitoring is viewable in both the CSR and consumer portals and shows signal strength for each Wi-Fi device in the home network (based on received signal strength from the access point), which is useful for diagnosing “slow connect” issues in the home.
Mobile offload and guest WiFi support	Device Manager by SmartRG addresses the growing trend of mobile offload to Wi-Fi through improved Wi-Fi performance diagnostics and troubleshooting tools for tablets and smartphones. The solution can also help enable and manage multiple secure networks over a single Wi-Fi gateway, making it easier for service providers to offer “guest Wi-Fi” applications in a scalable, managed way.
Managed Firewall	
Port forwarding configuration	Device Manager by SmartRG helps enables popular multiplayer games, media devices, remote access, and messaging applications to work seamlessly through pull-down menus. Custom-defined port forwarding configurations for advanced users are also available.

Feature	Description and Benefit
Analytics	
Intuitive report generation tool	Device Manager by SmartRG Analytics provides a way for service providers to aggregate, view, and export subscribe and device data. The application collects data from any TR-069 device and uses the Device Manager by SmartRG platform to add more visibility into the broadband subscriber base. Device Manager by SmartRG Analytics includes built-in predefined reports and allows custom report creation. The application also includes drag-and-drop report fields and output columns for ease of use.
Essential use cases	<p>With greater visibility into the broadband subscriber base, service providers can use the information to:</p> <ul style="list-style-type: none"> • Drive additional services penetration through direct marketing of new offerings • Facilitate operational activities such as migrations and upgrades • Create targeted sales programs that auto-enable trials for top customers and drive customer awareness
Consumer and CSR Portals	
Consumer portal	<p>The Device Manager by SmartRG web-based consumer portal provides a complete view of the home network - with both historic and live data - along with access to a variety of configuration tools and data services. No software is required on any consumer device, and the portal is accessible anywhere in the world through a browser or mobile application.</p> <p>By providing the subscriber with actionable information and the ability to more easily troubleshoot problems, a majority of support calls are eliminated, helping to drive customer satisfaction.</p>
CSR portal	The CSR portal provides a complete diagnostic view of the devices inside the home, enabling CSRs to access device information in real time and to discover and diagnose major problems as soon as they occur. Dashboard data is available at all levels - for one specific device or a population of millions of units. User roles, permissions, and views are fully customizable by the administrator.
View Local Interfaces for LAN Devices	
Consumer device click-through	Provides one-click remote setup and access to view local interfaces for LAN devices (in both the CSR and consumer web portals). Devices include web cameras, printers, storage devices, and more. Consumer device click-through does not interfere with LAN device security, and the port and URL path are customized.
Integration with Service Provider Systems and Broad Technology Support	
Broad support across network technologies	Device Manager by SmartRG may be deployed in a variety of service provider networks, including DSL, cable, FTTH, Ethernet, WiMax, and satellite.
Flexible northbound interface for system integrations	Device Manager by SmartRG can be easily and securely integrated into a service provider's existing operations support systems and business support systems (OSS/BSS) through its northbound interface (NBI) using flexible and lightweight web-based APIs (RESTful Services). This allows service providers to use existing investments and seamlessly connect Device Manager by SmartRG to the network infrastructure.

Feature	Description and Benefit
Deployment Environment	
Hosted solution	For our customers who prefer the benefits of applications on their own network and security, SmartRG offers our On-Premise, Fully Managed, Device Manager solution wherein will the platform is hosted from your datacenter. This solution allows our customers to avail of our management and maintenance capabilities while maintaining the platform in their own infrastructure.

Virtual Machine Requirements

Device Manager by SmartRG Management Server

	Up to 250K Devices	Up to 500K Devices	Staging
Access	SSH Preferred	SSH Preferred	SSH Preferred
Operating System	CentOS 6.5, or RHEL 6.5	CentOS 6.5, or RHEL 6.5	CentOS 6.5, or RHEL 6.5
Memory (RAM)	16GB	32GB	16GB
CPU (RAM Dependent)	Intel Xeon - 8 cores	Intel Xeon - 8 cores	Intel Xeon - 8 cores
Storage (SSD Recommended)	500GB	500GB	250GB
Minimum Partition Sizes	64GB /:	64GB /:	32GB /:
	180GB /:var	180GB /:var	72GB /:var
	180GB /:opt	180GB /:opt	72GB /:opt
	64GB /:home/clearvision	64GB /:home/clearvision	32GB /:home/clearvision
iops	40-60	60-80	20-30

Device Manager by SmartRG Database Server

	Up to 250K Devices	Up to 500K Devices	Staging
Access	SSH Preferred	SSH Preferred	SSH Preferred
Operating System	CentOS 6.5, or RHEL 6.5	CentOS 6.5, or RHEL 6.5	CentOS 6.5, or RHEL 6.5
Memory (RAM)	16GB	32GB (48GB preferred)	8GB
CPU (RAM Dependent)	Intel Xeon - 8 cores	Intel Xeon - 8 cores	Intel Xeon - 8 cores
Storage (SSD Recommended)	300GB	600GB	200GB
Minimum Partition Sizes	64GB /:	64GB /:	32GB /:
	200GB /:data/	400GB /:data/	100GB /:data/
iops	50-100	100-150	25-50

On Site Deployment Requirements

NOTE: These requirements are not relevant to hosted deployment of Device Manager.

Platform User Access

Configure the firewall to your data installation where Device Manger is deployed such that the ports 80 and 443 are open. This enables your customer support representatives to access the platform, your subscriber's CPE equipment to check in to the ACS and also to facilitate subscriber control panel functionality available through Device Manager.

Support and Billing Access

To enable SmartRG technicians to provide support and assistance with your system, whitelist these CIDR blocks in your firewall. This access is also required for SmartRG to acquire device count statistics for billing calculation purposes.

173.78.150.0/24
67.137.79.192/26
173.8.195.224/28
54.172.249.197/32

Activation Server Access

If if using SmartRGs activation server infrastructure, the VM at your facility running Device Manager must have connectivity to the following IP addresses.

52.27.218.130
192.99.43.213
67.231.28.107

NOTE: Not required if you have opted not to utilize SmartRGs activation server.

Ordering Information

To place an order, contact your Account Manager. Call toll free (US & Canada) +1 877 486 6210n + Option 3 (Sales).

(Local) +1 360 859 1780 + Option 3 (Sales).

Service and Support

The SmartRG Technical Support Team is ready to assist you with your Device Manager related questions.

Three ways to get support:

Email: support@smartrg.com

Online: <http://smartrg.com/support/>

Phone Support:

US/Canada +1 877 486 6210 or locally at +1 360 859 1780

For More Information

For more information about Device Manager by SmartRG, visit <http://smartrg.com/device-manager/>, contact your local account representative, or send an email to acs.sales@smartrg.com.

Revision History

Rev	Date	Description
1.0	3/10/2016	Initial Release
1.2	7/15/2016	Updated for v5.2 release
1.3	5/2/2017	Added Welcome section Added On-Site Deployment Requirements section Updated formatting to conform with current style guide