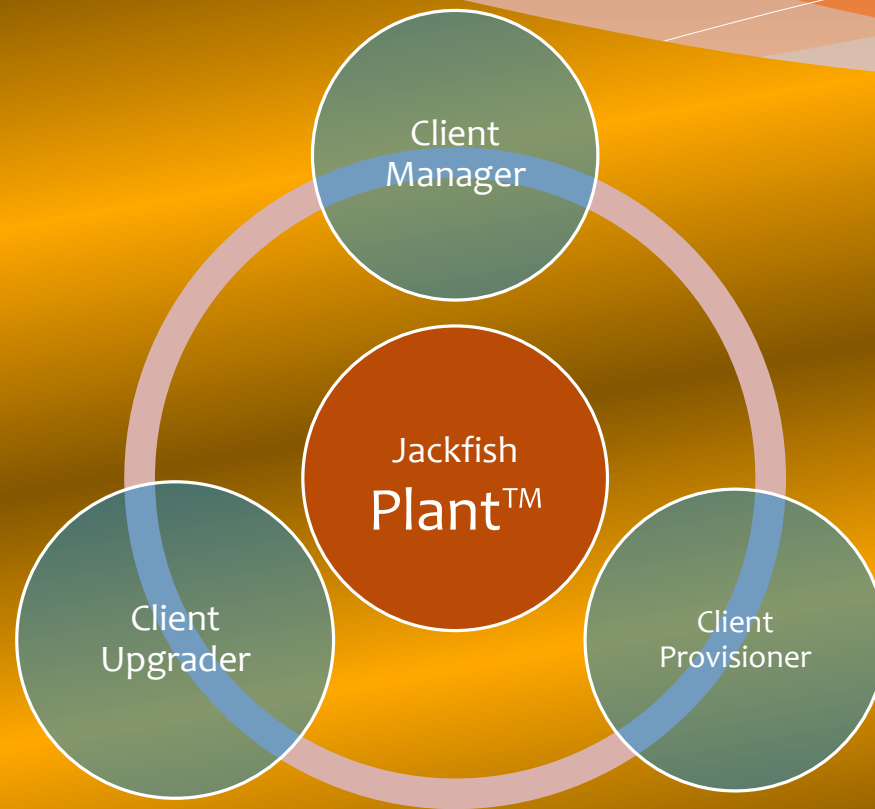




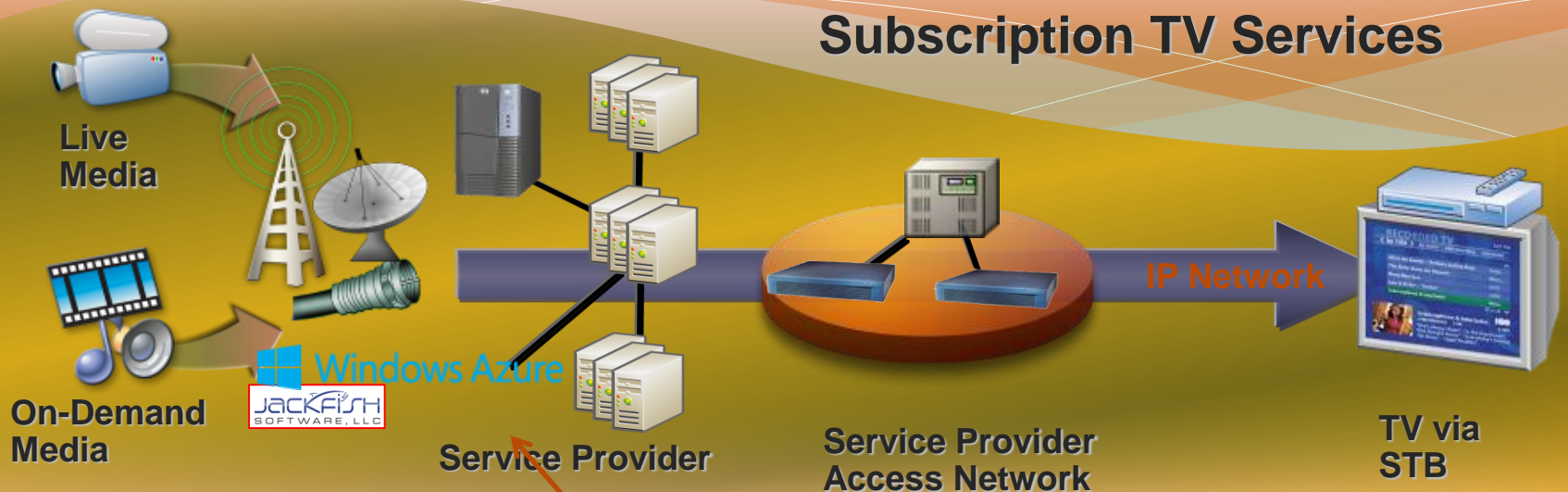
Jackfish Plant™ Client Services



Jackfish Plant™ is a suite of Mediaroom Integration and Management Applications that enables service providers to rapidly integrate the necessary systems and applications to offer high-quality IPTV services, protect the Quality of Service (QoS) and manage the overall network Mediaroom implementation from one common interface utilizing state of the art software engines.



Where is Plant ?



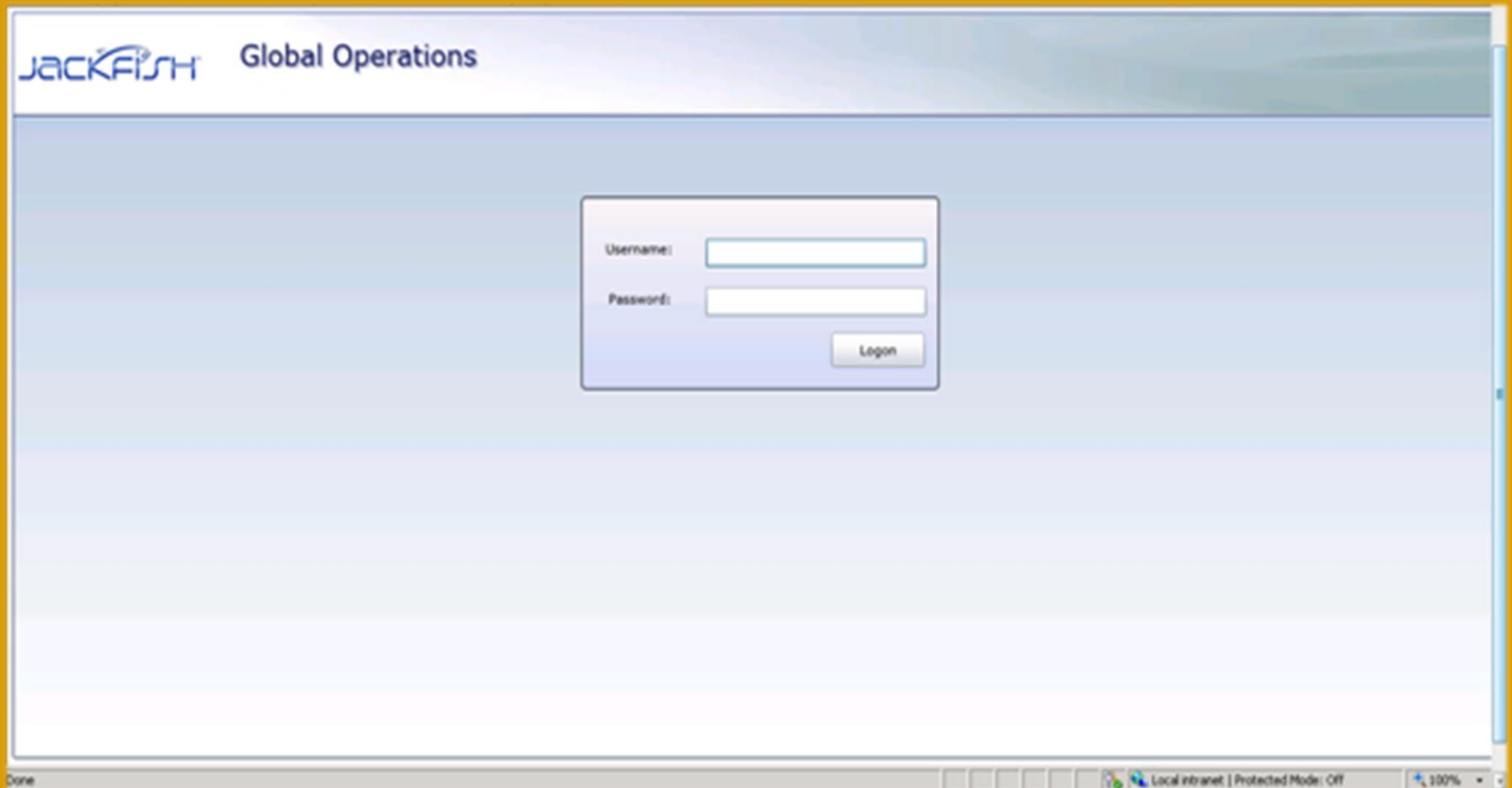
The Plant Suite of Applications resides on the Microsoft Azure Cloud with complete redundancy.

Each Plant™ Application includes:

- **Quality of Service Engine (QoS).** Responsible for maintaining a consistent and safe load on the Mediaroom system through load monitoring and adaptive queuing; it's use is transparent for the job developer and all Mediaroom requests pass through this engine.
- **Global Operations Manager.** The primary graphical user interface (GUI) which supports the administration and configuration of all JackFish Plant applications. The GOM is fully-functional, securable by role (e.g. CSR, network admin, etc.) and is a Silverlight application capable of running on most popular browsers (e.g. Internet Explorer, Firefox, Safari, etc.).
- **Role-based Security.** Roles are defined to lock down each service's security. Where appropriate, the Framework security module utilizes standard Windows security concepts like AD and local groups.

- **Configuration Engine.** Stores component settings in an XML format in the database and methods are provided to read and modify these settings at either a global or machine level or to modify and extend the configuration.
- **Logging Engine.** Certain high-level components (e.g. services, GUI) use the Logging Engine to log events to the event log, while lower level messages (Debug, Info, etc.) will be routed by default to other log sinks like DebugView or trace logs.
- **Workflow Engine.** Supports rule chaining, decision trees, and rollbacks. All core Mediaroom functionality (e.g. import, device upgrade) is pre-built into workflow activity modules which are atomic and transactional in nature.
- **External Login Service.** Handles bootstrap external login requests and captures and stores various STB settings during bootstrap such as RG IP addresses and device MAC addresses.

Common Login Page



The image shows a web browser window displaying the login page for Jackfish Global Operations. The page has a light blue background with a white header bar. In the top left corner of the header, the 'JACKFISH' logo is displayed in blue, followed by the text 'Global Operations' in black. Centered on the page is a white login box with a thin blue border. Inside this box, there are two labels: 'Username:' and 'Password:', each followed by a white text input field. Below the password field is a blue 'Logon' button. The browser's status bar at the bottom shows 'Done' on the left, a taskbar with several icons in the middle, and 'Local intranet | Protected Mode: Off' and '100%' zoom level on the right.

JACKFISH Global Operations

Username:

Password:

Logon

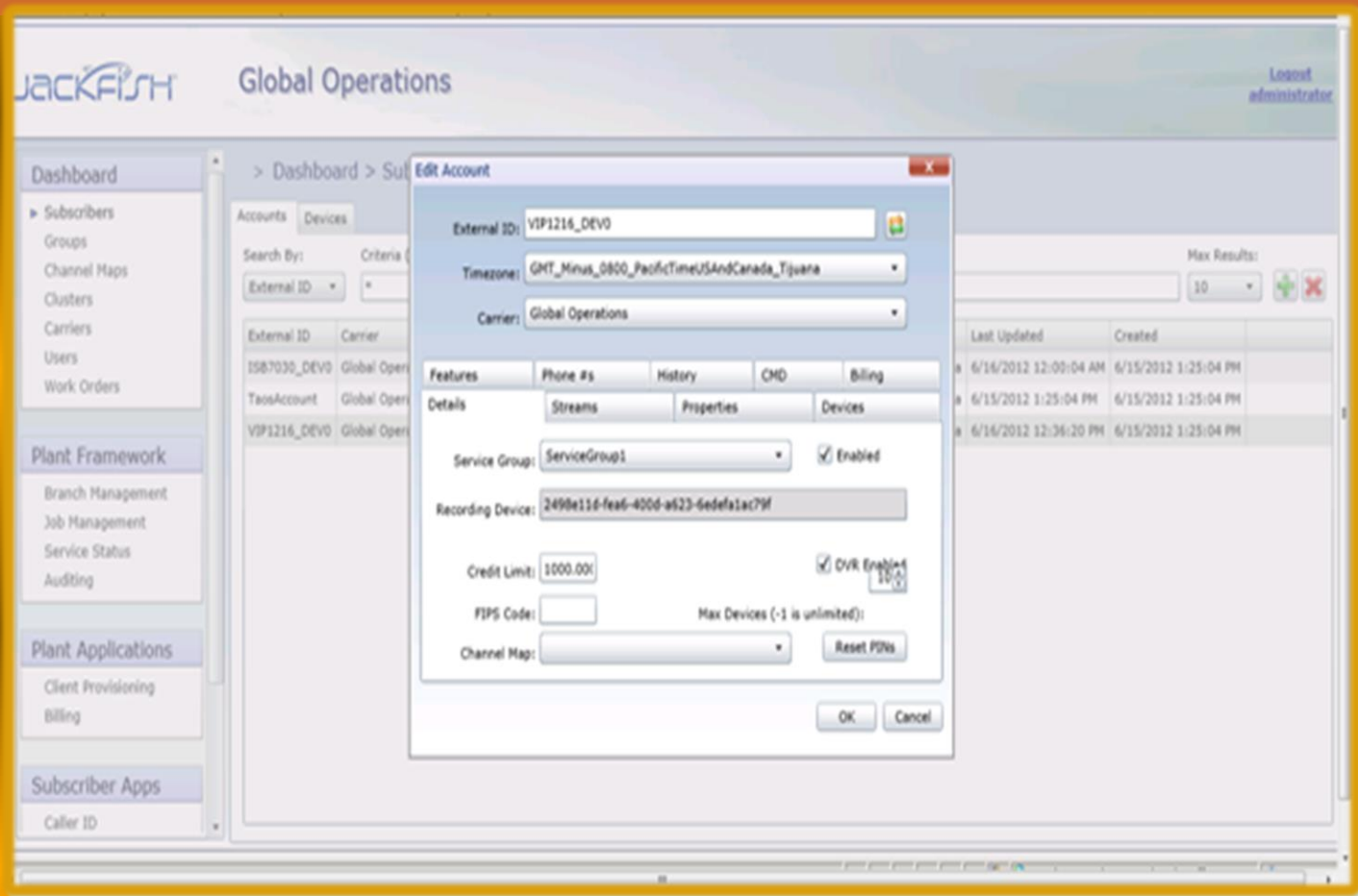
Done Local intranet | Protected Mode: Off 100%

The operator can add, remove, and modify Mediaroom accounts, devices, and subscriber groups. All Plant applications are integrated into one user interface.

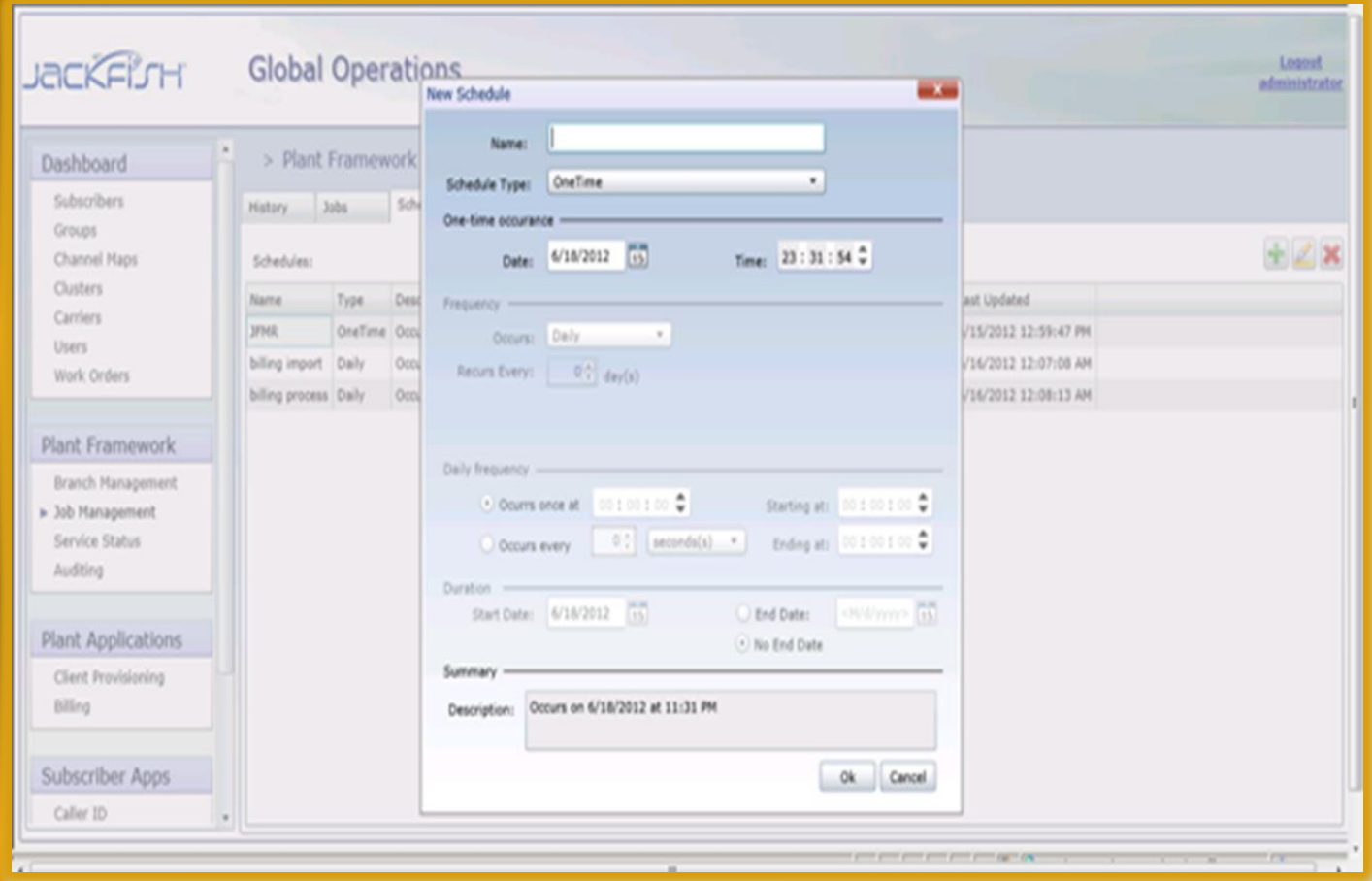
The screenshot displays the Jackfish Global Operations web interface. The top header includes the Jackfish logo, the title "Global Operations", and a "Logout administrator" link. A left sidebar contains a navigation menu with sections: "Dashboard" (Subscribers, Groups, Channel Maps, Clusters, Carriers, Users, Work Orders), "Plant Framework" (Branch Management, Job Management, Service Status, Auditing), "Plant Applications" (Client Provisioning, Billing), and "Subscriber Apps" (Caller ID). The main content area is titled "> Dashboard > Subscribers" and features tabs for "Accounts" and "Devices". Below the tabs is a search section with "Search By:" set to "External ID", a search criteria input field, and a "Max Results:" dropdown set to "10". A table lists subscriber data with columns: External ID, Carrier, Branch, Devices, Status, DVR, Time Zone, Last Updated, and Created. The table contains three rows of data.

External ID	Carrier	Branch	Devices	Status	DVR	Time Zone	Last Updated	Created
ISB7030_DEV0	Global Operations	Default	1	Enabled	✓	GMT_Minus_0800_PacificTimeUSAndCanada_Tijuana	6/16/2012 12:00:04 AM	6/15/2012 1:25:04 PM
TaosAccount	Global Operations	Default	0	Enabled	✓	GMT_Minus_0800_PacificTimeUSAndCanada_Tijuana	6/15/2012 1:25:04 PM	6/15/2012 1:25:04 PM
VIP1216_DEV0	Global Operations	Default	1	Enabled	✓	GMT_Minus_0800_PacificTimeUSAndCanada_Tijuana	6/16/2012 12:36:20 PM	6/15/2012 1:25:04 PM

Operator can modify accounts.



Job Scheduling is allowed for any integrated Plant Application.



Jackfish Client Manager™

Jackfish Client Provisioning™

Jackfish Client Upgrader™

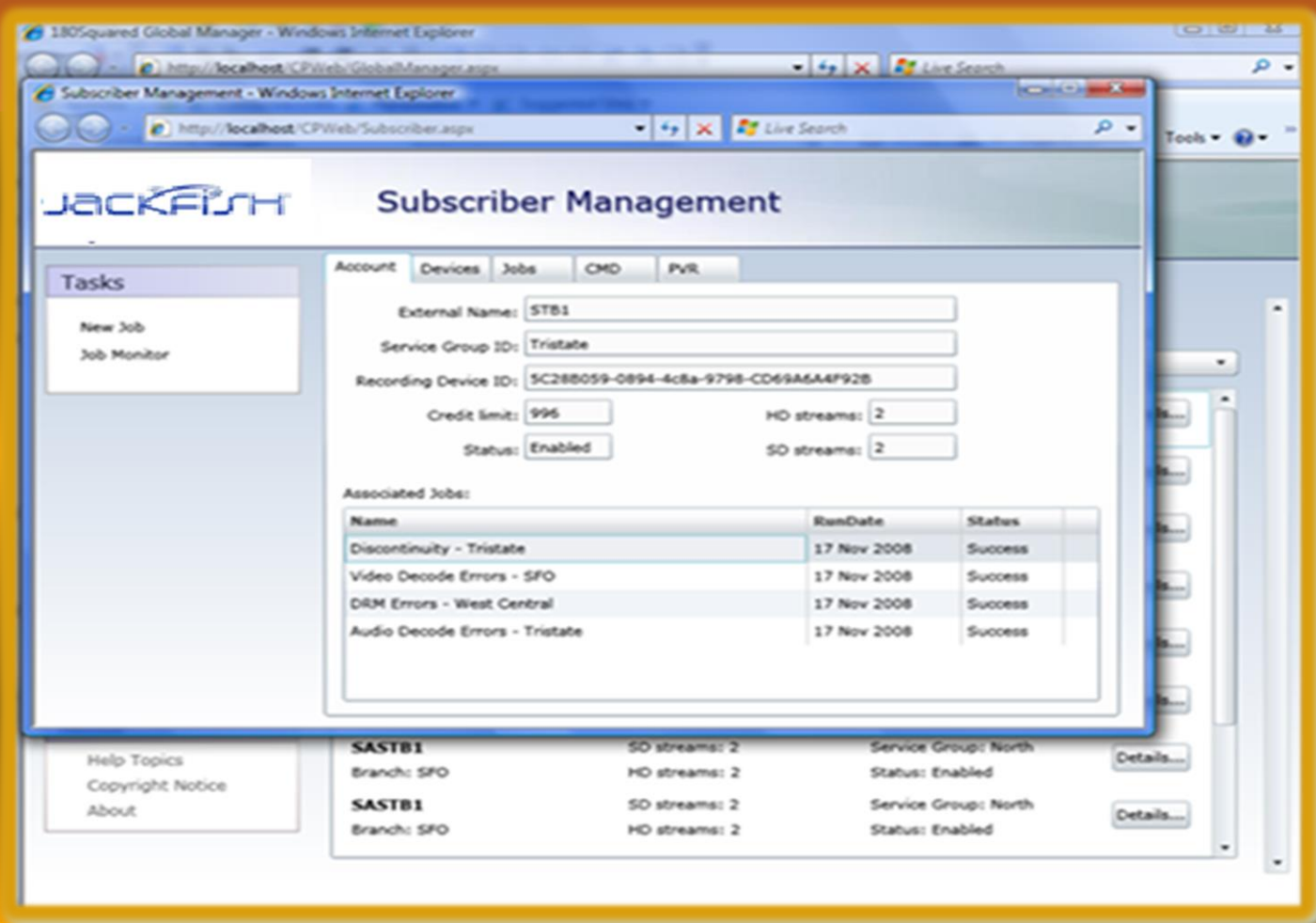


Major functional areas for Operations

- Manage subscribers
- Manage STB's
- Manage Jobs
- Manage Rules

Major functional areas for System Administration

- Manage configuration
- Manage security roles
- Import/Synchronization data from Mediaroom



Jackfish Client Provisioner™

- The Client Provisioner™ is responsible for routing un-provisioned Mediaroom STBs to an RDP application which allows the installer to enter account information to associate the device with that account. This cuts CSR “swivel chair” provisioning out of the loop, thus saving the cost incurred by that method. Additionally, this application supports automated device replacement scenarios. The module consists of an External Login Service (ELS) plug-in and an RDP self-provisioning application.
- The Client Provisioner is a global application built on top of the Plant Framework that interfaces with the Microsoft Mediaroom system via published OSS/BSS web services.
- The term global application means that one or more instances, depending on ELS load-balancing and redundancy requirements, of the Device Provisioning Module exist per install, regardless of the number of Mediaroom branches.

Device Activation

Reboot Device

Restart

To complete setup, this set-top box must be restarted. Select Restart to proceed.

Exit

Device Activation

Replace Set-top Box

Back

Refresh

One set-top box must be removed from this account before proceeding. Make sure the set-top box to be replaced is powered off and all set-top boxes to be retained, including the new one, are powered on. It may take a few minutes for inactive set-top boxes to appear on this list. To refresh this list, select Refresh. To restart with a different account, select Back. Otherwise select Replace for one of the set-top boxes.

Exit

Device1

Replace

Device2

Replace

Device3

Replace

Device4

Replace

Jackfish Client Upgrader™

- Client Upgrader is an application that permits the operator the ability to schedule the upgrade of the client build in the setup box.

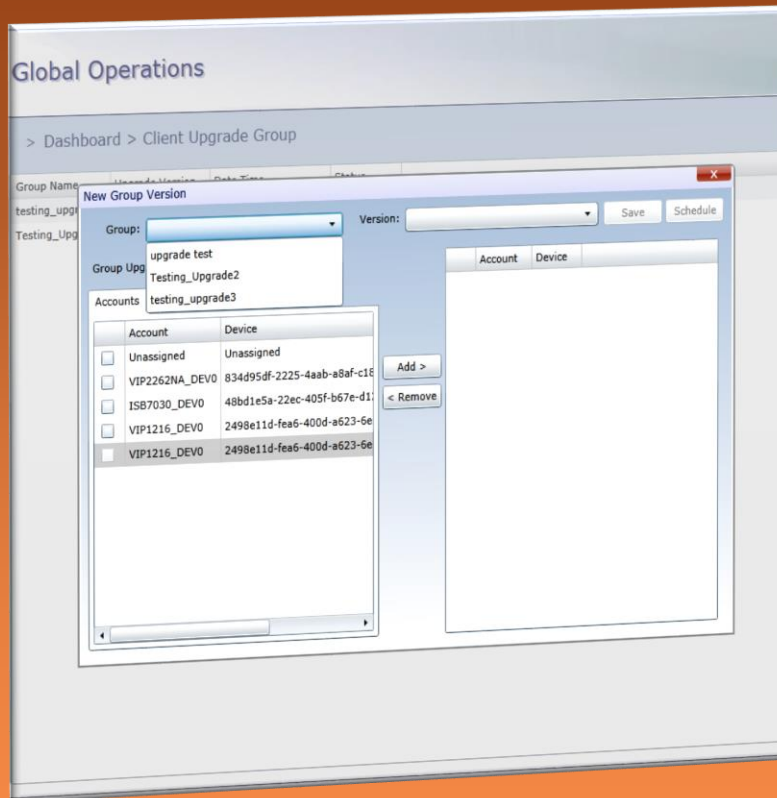
The Operator can upgrade the client build at three different levels:

- **Account Level Upgrade** – The Operator can upgrade the client build on one or more STB devices for the same account.
- **Device Level Upgrade** – The Operator can upgrade the client build on a single STB device on any account.
- **Group Level Upgrade** – The Operator can upgrade the client build *en masse* to upgrade STB devices at group level.

SMT vs. Jackfish Client Upgrader

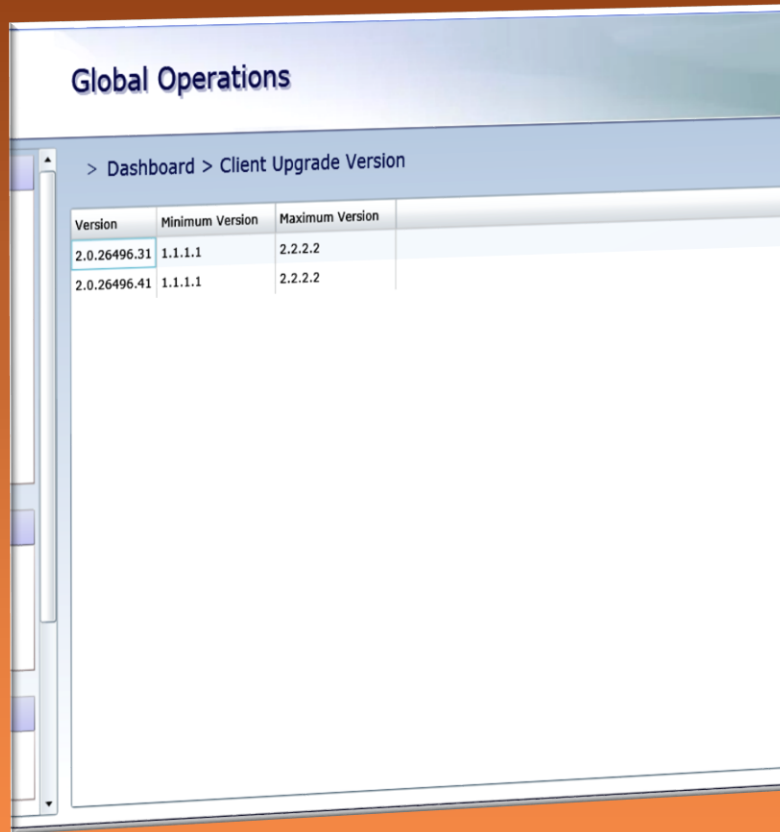
Service	Mediaroom SMT	Jackfish Client Upgrader
Perform a mass upgrade at Group Level	No	Yes
Provide an Upgraded Devices Report	No	Yes
Display Listing of all last upgraded client build versions.	No	Yes
Use the existing Group for mass upgrade	No	Yes

Client Upgrades at Group Level



Add Group Upgrade

Through the use of the Global Operations interface, you create an Upgrade Group to which operators will assign existing groups for upgrade or will assign selected accounts for upgrade.



The screenshot displays a web application interface titled "Global Operations". Below the title is a breadcrumb navigation path: "> Dashboard > Client Upgrade Version". The main content area features a table with three columns: "Version", "Minimum Version", and "Maximum Version". The table contains two rows of data.

Version	Minimum Version	Maximum Version
2.0.26496.31	1.1.1.1	2.2.2.2
2.0.26496.41	1.1.1.1	2.2.2.2

Client Upgrade Version

Operators can see the existing version for upgrade or can add the new upgrade version through this screen.

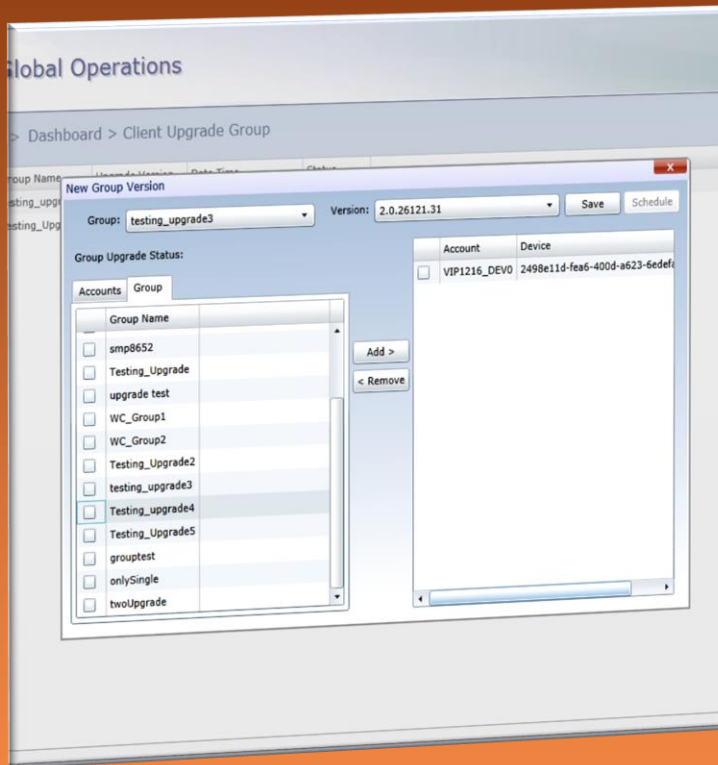
Global Operations

Dashboard > Client Upgrade Group

Group Name	Upgrade Version	Date Time	Status
Client_upgrade4	2.0.26121.31	8/4/2012 10:39:08 PM	Completed
Client_upgrade5	2.0.26121.31	1/1/0001 12:00:00 AM	NonSchedule

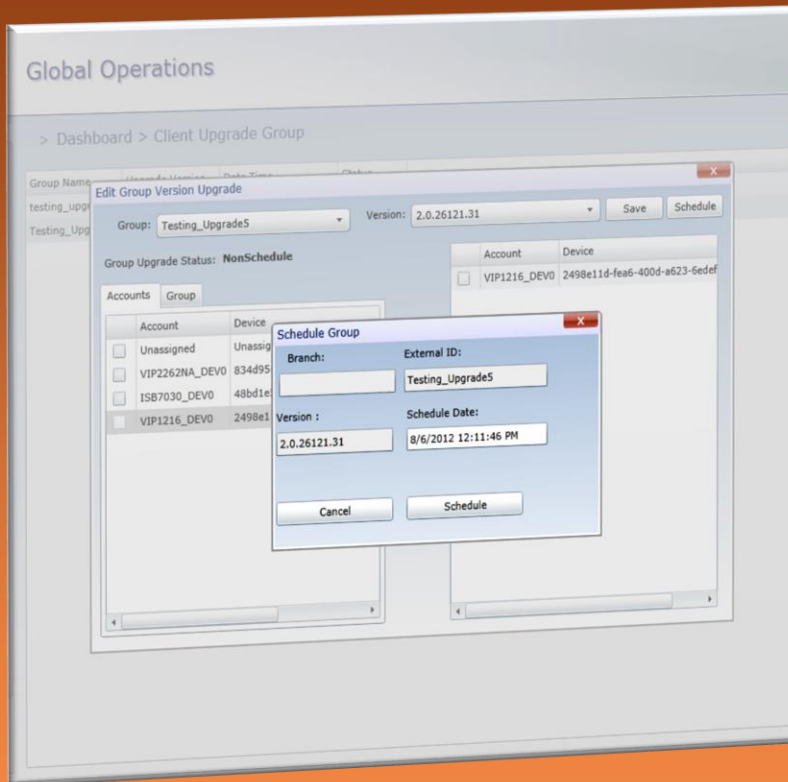
Client Upgrade Group

Operators can see which groups have been Non Scheduled, Scheduled and completed for an upgrade.



Save or Schedule Groups for Upgrade

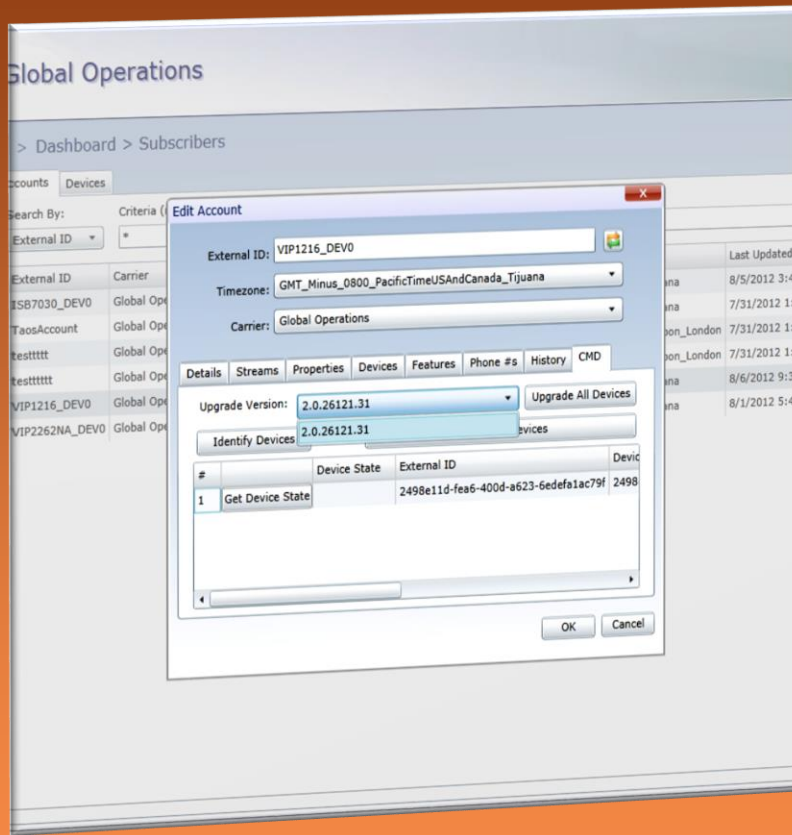
Operators select the accounts/existing groups to add the accounts into the upgraded group for a mass upgrade.



Schedule Group

Operators schedule the date and time for the group upgrade.

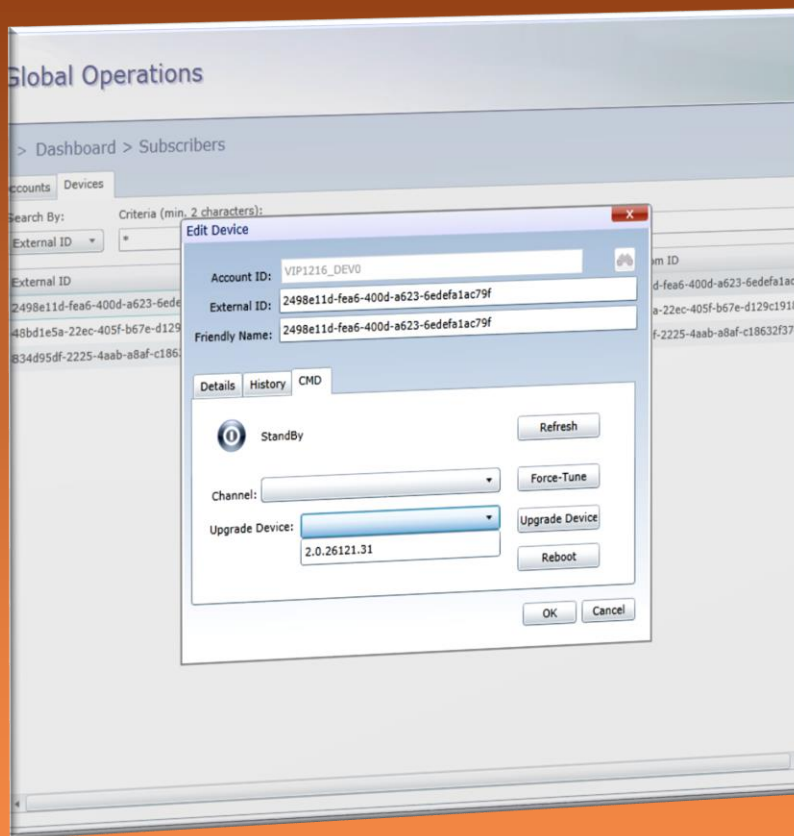
Client Upgrade at Account Level



Account Level Upgrade

Operators provide the new client version and press the upgrade all devices button; all devices in that account will upgrade at the same time.

Client Upgrade at Device Level



Device Level Upgrade

Operators provide the new Client version and press the upgrade devices button; that particular device will be upgraded.

Mass Upgrade at Group Level Limitation

The default setting is set at “1” in the Upgrade Notifications Per Second field which correlates to Microsoft’s recommended setting of 3600 device upgrades per hour.



About Jackfish Software, LLC

Jackfish Software, LLC creates innovative and valuable products for the IPTV Marketplace. Its mission is to build cost effective management software solutions and provide operational automation. Jackfish simplifies the integration of external systems and creates subscriber enhancing applications. Its software goals are to leverage the most robust video platforms. For more information, visit us at www.jackfishllc.com.

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