



User Guide

Version 6.5



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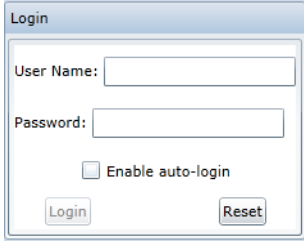
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1. Getting Started

Welcome to Traffic Analyst v6 from Impact Technologies! Traffic Analyst eliminates surprises by providing unprecedented visibility into your network's voice traffic, be it on a converged or dedicated network.

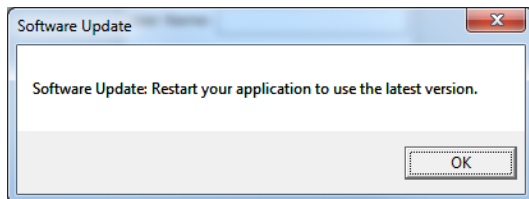
- Unlimited reporting
- Unlimited graphing
- Reports selectable from Explorer tree of network and organizational elements
- All reports are customizable
- User definable dashboard of reports and graphs
- Auto-refresh of reports and graphs
- User definable routes
- Drag and drop virtual groups

To initially access the Traffic Analyst dashboard, open the browser and type in the URL provided by the administrator. The URL follows a standard pattern such as <http://MYHOST/TrafficAnalyst.Web>. At the Login page, type in your User Name and Password. If you check the Enable auto-login box, when you open the application in the future you will not be prompted to login. The system will automatically log the user in.



The dashboard is also available in an Out of Browser (OOB) mode. To install the Out of Browser application, click the Command menu option and select Install OOB. The Traffic Analyst application logo is placed on your desktop.

Note: Anytime the application has been updated and you open the application, you will get the Software Update message. Click OK, close the application window and then re-launch the application.



2. Explorer Tree

2.1. Service Providers

The Private Network includes a list of your switches (🖨️), whether a single switch or multiple switches across multiple vendor platforms. The network entities associated with each switch will be listed in the tree under each switch.



Trunk Groups/Gateways are downloaded from the call processing system.



Routes are downloaded from the call processing system. Also listed are those created as Virtual Routes. Though routes may include trunk groups from multiple switches, each route is listed only once and is shown under the switch associated with the first trunk group listed in the route, if created in the Explorer tree. (If route was created in Traffic Analyst Administrator, it will be listed under selected switch.) Also note if a trunk group or route is inactive, it will appear in the tree with a gray icon (🔇 or 🚫).



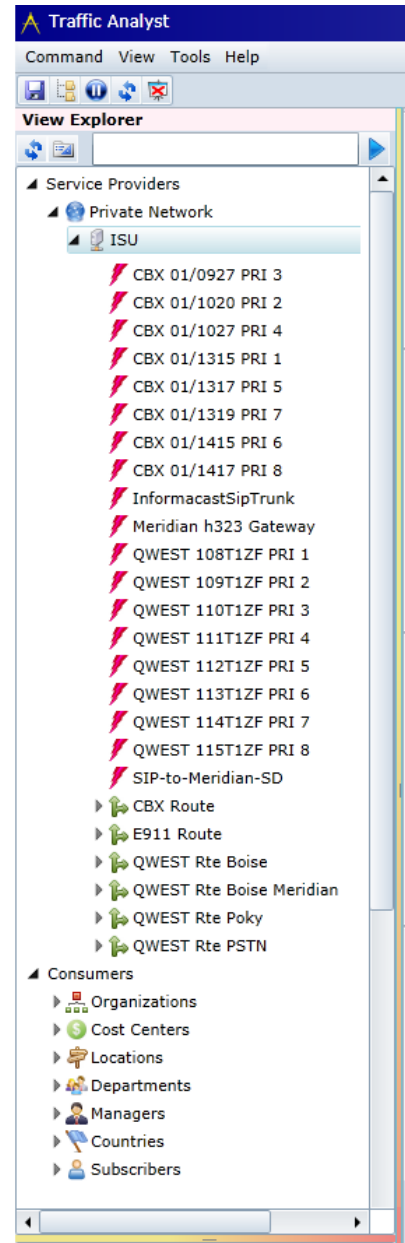
If Virtual Trunk Groups are enabled and have been defined, they will appear in tree. If inactive, it will have a gray icon (🔇).



If an IPDA has been defined in the Traffic Analyst Administrator for an OpenScope 4000/HiPath 4000, it will appear in the tree.

You may toggle the display of Trunk Groups and Routes within the tree. There is a global option and then you may override the default for each switch based on your preferences. To set the global default, right mouse click on Private Network node and you can click the “Display” options you want to set. To toggle the option, click on the option in the list again.

- Display All Routes – Displays all routes and always lists the member trunk groups under each route.
- Display All Trunk Groups – Displays all trunk groups, including those that are members within routes and not included as a member of a route.
- Display Trunk Groups Not In Routes – Displays only the trunk groups that are not members of any routes. The trunk groups that are included in the routes









will still be listed under the routes but will not be repeated in the trunk group list above routes listing.

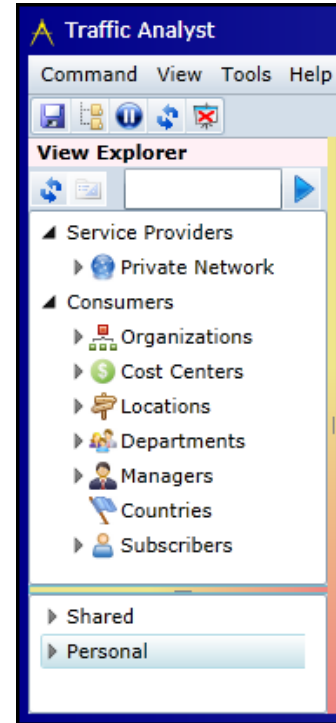
The same three options are available in the right mouse click option for each switch. You can set different display options for each switch if you need to.

2.2. Consumers

The Consumers tree is derived from the Organization data file imported into Traffic Analyst or manually entered, with the exception of the Countries tree. The fields may be added to each call detail record based on the matching of the extension number in the Organization data file and the Charged Extension of the call detail record retrieved from the call processing system.

There is no hierarchical relationship among Organization, Cost Center, Department and Location. Ranges are provided of longer lists followed by the Subscriber or Extensions assigned to each.

-  Organizations
-  Cost Centers
-  Departments
-  Managers
-  Locations
-  Subscribers



The Countries tree is populated based on Locations within your tree having a country association. (Refer to Section 2.6.7.) If no Locations have a country assigned, this tree will be empty. Each country may include city/region entries, again based on association with Locations. The respective Locations and Subscribers are then listed for each city/region. Note that "(No Region/City Assigned)" entry is the default that captures all regions/cities for a country that are not explicitly defined.

- ▲ Countries
 - ▶ Bonaire
 - ▶ Curacao
 - ▲ United States
 - ▶ (No Region/City Assigned)
 - ▶ Anaheim, CA (657)
 - ▶ Asheville, NC (828)
 - ▶ Boise, ID (208)
 - ▲ St. Louis, MO (314)
 - ▶ Impact Headquarters
 - ▶ Sales Office

You may toggle the display for each node within the Consumer tree. If you want to display nodes, right click on Consumers node and click the "Display" option for each node you want to add. To remove a node, click in the list again.

If Organization data has been imported that includes extensions with organizational assignments (such as Location or Cost Center) but no Subscriber information, you will see a "No Subscriber Assigned"

- ▲ Locations
 - ▶ Chicago, IL
 - ▲ Kansas City, MO
 - ▶ No Subscriber Assigned
 - ▶ Clarine L. Stegman
 - ▶ Maycock, Becky

node under entities of the Explorer tree, such as shown under Kansas City Location in example.

2.3. Virtual Groups

Traffic Analyst allows you to organize your Service Provider and Consumer entities into Virtual Groups for operational planning/modeling and reporting. For example, you may want to combine trunk groups from across multiple switches in a single route to model future bandwidth requirements. You may want to combine switches into groups for regional reporting. Or, you could create a European Region and include all the Cost Centers for Europe, then do the same with an Asian and a North American group. When creating a new virtual group, the user can decide to define the group as Shared or Personal.

To create a virtual group:

- Right mouse click on the Shared or Personal node in tree and select “Create New Group.”
- Enter the name and press “OK.”
- Select items from the Service Providers and/or Consumers tree and drag them down to the new group. You can mix and match entity types. Once your group is created, you may create and schedule reports. (Note that you can select multiple items by holding down the Ctrl key. To select a range, click on the first entity, hold down the Shift key and click on the last entity in the list you want to include.)

To delete a group, right mouse click on group and select “Delete Group.”

2.3.1. Shared Groups

Shared Groups may be “shared” across users, as the name implies. Only the creator of a Shared group (or System Admin or Account Admin) can add to, rename or delete a Shared Group.

2.3.2. Personal Groups

Personal Groups are only visible to the user that creates the group (plus administrators).

2.3.3. Notes on Virtual Groups

The following are key notes when working with virtual groups:

- If a virtual group is moved from Shared to Personal or vice versa, it is a COPY of the group at that snapshot in time and any future changes in one group is not reflected in the other. If you want to “change” a group from Personal to Shared, copy up to Shared folder and then delete the personal version.

- If a virtual group is moved within Shared folder or within an individual's Personal folder, it is a REFERENCE to the group and any future changes in one group will be reflected in the other.
- If an Admin moved group from one user's Personal folder to another user's Personal folder, it is a COPY of the group at that snapshot in time and any future changes in one group is not reflected in the other.
- If a Shared group contains entities from multiple switches and a user does not have access to all the switches, the group will be visible but the group will only display elements that the user has permissions to see.
- Virtual Groups may be nested within groups. User may drag an existing group to another group or use the right mouse click option on an existing group and then "create new group" to create subgroup.
- When requesting a Call Forensics report for a Virtual Group, either AND or OR logic is applied based on the types of entities within a group.
 - OR logic applies among like entities (such as Trunk Groups, Organizations, Managers, Subscribers, etc.)
 - AND logic between different types. For instance,
 - if the virtual group is Trunk Group A, Trunk Group B, Manager C and Subscriber D, the CDR records that would be included in the report are only those that have all the following attributes:
 - Calls that have Trunk Group A or B in the Primary or Transit trunk group fields (Trunk Group and Routes are treated as "like" entities in this process.)
 - Manager C in Manager Field
 - Subscriber D in Originating Party, Destination Party and/or Charged Party.
 - if an employee and a manager that employee didn't report to are put in the same group then the query would only return calls where that employee called an employee that worked for the manager or vice versa. If for instance, that employee made or received outside calls that didn't involve any other employees the query would not return those calls.

2.3.4. Creating Routes



A common driver to create virtual groups is to create a route. To create a route:


- Right mouse click on Shared or Personal folder in tree and select "Create New Group."
- Enter name and press "OK."
- Drag and drop the trunk groups you want to include in new route. (Note that routes are ignored in route creation so if you want to include the trunk groups in an existing route in your new route, drag down the individual trunk groups.)
- Right mouse click on folder and select "Create New Route."
- Enter name and select effective date. When creating a new route with a back date, you must allow time for the calculations to complete before data will be available for reporting.

- When a route is created (whether Personal or Shared), it is added to the Private Network tree under appropriate switch.

You may deactivate or delete a created route. Right mouse click on the route (either in the Private Network tree under the appropriate switch or in the virtual group where it was created) and select “Delete Route” or “Deactivate Route.” Deleting a route will remove it from the tree and delete all historical data. Deactivating a route keeps the historical data but no additional data will be stored. You may activate a deactivated route with a right mouse click.

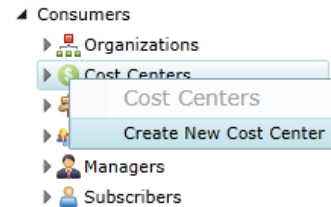
2.4. Explorer Toolbar

The Explorer toolbar includes two icons ( ) and a search option.

- Refresh – Manually refreshes the tree
- Properties – Opens the Properties screen for the entity that is selected
- Search – Type the text in the box that you wish to search for in the tree and hit the arrow (). The first occurrence of the text will be highlighted in the tree. Repeated hits of the arrow will continue to find the next occurrence until the last occurrence is highlighted. The search includes all trees, including the Shared and Personal trees. The search is not case sensitive.

2.5. Create & Delete Entity

For the Call Forensics module, the user may right mouse click on a node in the Consumer Explorer tree (such as Organization, Cost Center, Location, etc.) and select “Create New” option to add a new item. A Properties window for the selected entity type will appear to enter the information for the new item.



To delete an entity (other than subscriber, extension or PIN), the entity must have no “children” under it in the Explorer tree. The historical data related to the entity in reports will remain unchanged. Right mouse click on the entity and select “Delete ABC”, where ABC is the entity name.


If deleting a subscriber with extensions and/or PINs assigned, you will be prompted with a window showing the existing numbers. You may select an Effective Date (current date or past date only) and delete. The subscriber no longer appears in the tree and the extension(s) will appear under “No Subscriber Assigned” node.

To delete an extension or PIN, there are two options in the Explorer tree. (You may also use the Organizational file import. Refer to Section 5.3.4.)

- If no subscriber is assigned to the extension/PIN, find the extension/PIN in the “No Subscriber Assigned” folder, right mouse click and select “Delete.” If organization data is assigned, you will be warned before deleting.
- If the extension/PIN is assigned to a subscriber and you are not deleting the entire subscriber, find the subscriber in the Subscriber tree and open Properties

window for subscriber. Click the extension or PIN row in the box and click “Remove Extension/PIN” button. You may select an Effective Date and click “Save” button.

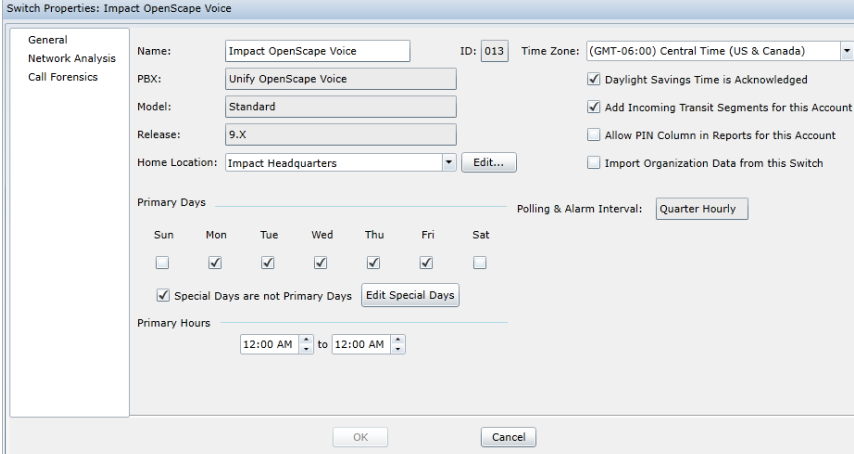
2.6. Entity Properties

Entities within the Explorer tree have Properties screens that may allow the user to view and make updates. To access the Properties, double click on entity, right click on the entity and select Properties from the menu or select the entity and click the Properties icon in the Explorer toolbar (). The information varies based on the type of entity, such as switch, trunk group, organization, subscriber, etc. The edit options vary based on user access privileges.

2.6.1. Switch Properties

The Switch Properties screen includes three pages including General, Network Analysis and Call Forensics. The information is initially populated based on data entry in the Traffic Analyst Administrator, but may be viewed, and in some cases, edited.

2.6.1.1. General



Switch Properties: Impact OpenScope Voice

General

Name: Impact OpenScope Voice ID: 013 Time Zone: (GMT-06:00) Central Time (US & Canada)

PBX: Unify OpenScope Voice Daylight Savings Time is Acknowledged

Model: Standard Add Incoming Transit Segments for this Account

Release: 9.X Allow PIN Column in Reports for this Account

Home Location: Impact Headquarters Import Organization Data from this Switch

Primary Days

Sun Mon Tue Wed Thu Fri Sat

Special Days are not Primary Days

Primary Hours

12:00 AM to 12:00 AM

Polling & Alarm Interval:

Information presented on the General page will vary based on the type of switch. The General page supports editing the following fields:

- Name – Identifies the switch in all reports and in Explorer tree
- Time Zone – Set for the location of the switch
- Daylight Savings Time – Checked if location recognizes DST
- Add Incoming Transit Segments for this Account – Account level option that will display an “incoming” segment plus the typical transit segment instead of a single transit segment for through calls. If the incoming trunk is designated as "network only" then incoming segment is not displayed. Not applicable for HiPath 3000, ASCOM and OpenScope Business platforms.
- Allow PIN Column in Reports for this Account - For security reasons, the Administrator may choose to hide PINs. If box unchecked, PIN will not appear in the list of columns in Call Forensics report or in any report for users (other than Administrators). The PIN search field will be disabled. Also

PIN numbers will not be displayed in the explorer tree or in the Subscriber Properties window.

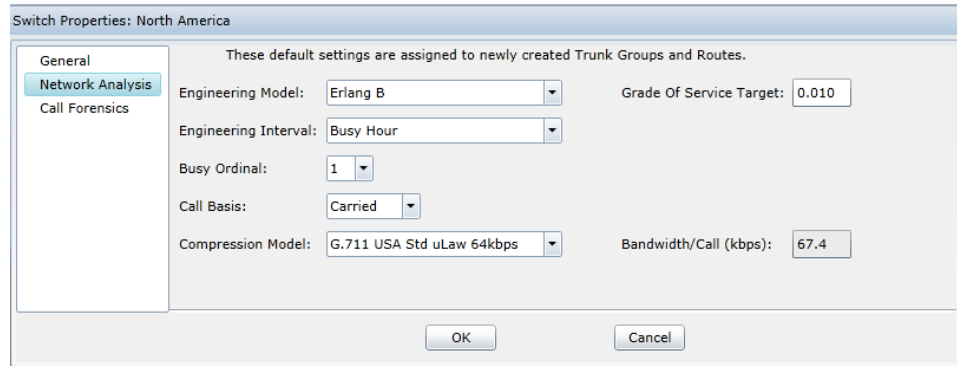
- Import Organization Data from this Switch – For OpenScape Voice and Cisco UCM platforms, check this box to automatically download organization data configured in the switch. For the OpenScape Voice, this includes subscriber name and department. For UCM, when you check the box a new window will appear and give you the option to select which of the following fields you want to import: subscriber name, department, manager, location, building, phone type and e-mail address. Most fields are imported from the End User Table but for subscriber name and location, use the dropdown for additional options of Key Map Table or Device Table, respectively. To import the e-mail address, you must also import the subscriber name. Click “OK” to save your changes. To edit in the future, simply double click on the “Import Organization Data from this Switch” box and window will reappear.
- Home Location – Select the Location from the dropdown list. You may also type in a new Location. Note that the Location must have the Country and Region/City defined or you will be prompted to edit it to add the information. For your Call Forensics reports to populate the City/Region and Country fields, you must select a Home Location.
- Primary Days – Check days that will be included as “primary” for reports
- Primary Hours – Check hours that will be included as “primary” for reports
- Edit Special Days – Add, edit and delete holidays

2.6.1.2. Network Analysis

The Network Analysis page sets the default values for all trunk groups and routes for the switch. You may customize for each trunk group or route, as presented in Section 2.6.2. The Network Analysis page supports editing the following fields:

- Engineering Model – Choices include Erlang B, Extended Erlang B, Erlang-Engset, Poisson, Erlang C or MMcK
- Engineering Interval – Choices include Busy Hour, Ave Daily Busy Hour and CCITT Busy Hour
- Busy Ordinal – Specifies which busy hour is used. The first through the tenth busiest hour can be used as the basis for traffic engineering.
- Call Basis – Select either Offered or Carried calls. Offered includes estimates for calls blocked, whereas Carried includes only those volumes that were actually handled by the system.
- Compression Model – Compression model used to estimate bandwidth
- Grade of Service Target (GOS) – Has one of two meanings based on the Engineering Model chosen:
 - For Erlang B, Extended Erlang B, Poisson and Erlang-Engset, GOS is expressed as the decimal equivalent of percentage blocked. For example, if the goal is to block no more than 1% of calls, enter .010. % Retries option also available for some settings.
 - For Erlang C and MMcK, GOS is more complex. It is 1 part of a 2-part equation. For these formulas it represents a target percentage of calls delayed longer than the Answer Seconds Target. For example,

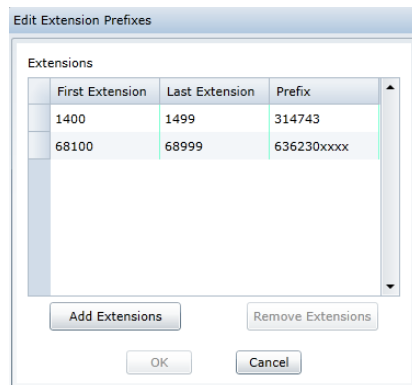
for no more than 5% of your calls to be delayed beyond the target of 6 seconds, enter .05 for this GOS.



2.6.1.3. Call Forensics

The Call Forensics page sets the default values for call classification and rating. Refer to Section 7.3 for details.

For Unify OpenScape 4000/HiPath 4000s PBXs, note that there is an added option on the Call Forensics tab. The “Edit Extension Prefixes” button opens a new window to allow the user to extend short extensions (used for 4 or 5 digit dialing, for example) to full length number format that you want to appear in Call Forensics reports. Most likely, this field will add the NPA/NXX to the extension, as shown below with the first row “314743” entry. This column will also support stripping unwanted digits from extension. Row two example below shows replacing leading “6” with “636230.”



Notes:

- If you want to backdate your CDR prefixes, you must perform a “Store on Demand” from the Administrator client for changes to be reflected.
- If using Number Management and/or Organizational File, assure that the number of digits is consistent throughout the system. If adding a prefix to extend to 10 digits, then your number ranges in Number Management and your extensions in Organizational File should be 10 digits. This is applicable

by switch. You may have some switches that use short extension displays and some that use full number displays but within a switch, all should match (fields in Call Forensics reports, Number Management numbers and Organizational File numbers).

2.6.2. Trunk Group Properties

In many ways, the Trunk Group Properties is very similar to the Switch Properties screen. It also includes three pages including General, Network Analysis and Call Forensics and information will vary based on switch type.

The screenshot shows the 'Trunk Group Properties: 90:XPRESSIONS' dialog box. It has a left sidebar with three tabs: 'General' (selected), 'Network Analysis', and 'Call Forensics'. The main area contains the following fields and controls:

- Name:** 90:XPRESSIONS
- Capacity:** 8 Trunks/Channels
- Description:** (empty text box)
- Group Number:** 90
- Switch Name:** St. Louis HiPath 4000
- Status:** Active
- Route Membership:** HP4K Test Route 1, Testing 123
- Home Location:** (dropdown menu) Edit...

At the bottom are 'OK' and 'Cancel' buttons.

The General page supports editing the following fields:

- Name – Identifies the trunk group in all reports and in Explorer tree
- Description – User-defined description
- Capacity – Number of trunks/channels configured as in service and editable for only some switch types. Note: If manually entering a new capacity that will cause your license to be exceeded, you will get a warning message.
- Hostname/IP Address – Hostname or IP address of the gateway the Trunk Group connects to; only applicable for Cisco or OpenScape Voice platform
- Group Number – Trunk Group number from switch for applicable switch types
- Switch Name – Identifies switch trunk group is associated to
- Status – Active or Inactive
- Ignore Ring Time for Max Trunks Active – Check to not include ring time as a contributor to resource utilization (typically for SIP trunks and other special cases). If checked, only calls with call duration greater than zero (0) will be included in network analysis. Valid for Cisco and OpenScape Voice platforms only. Automatically defaulted for some Cisco trunk groups.
- Route Membership – Lists all routes which contain the Trunk Group. (Note that if there are multiple routes that all have the same trunk group members, Traffic Analyst will only list one of the routes.)
- Home Location – The location will default to the Home Location for the associated Switch but you may select a different Location from the drop down list. You may also type in a new Location. Note that the Location must

have the Country and Region/City defined or you will be prompted to edit it to add the information.

The Network Analysis page is identical to the Switch Properties Network Analysis page and allows the user to override the default values for individual trunk groups. Refer to Section 2.6.1.

The Call Forensics page allows the user to override the default switch values and define custom call classification and rating for the specific trunk group. Refer to Sections 7.3 and 7.4 for details.

2.6.3. Virtual Trunk Group Properties

Virtual trunk groups support analytics for network data for a specific office/branch. This is typically applicable for environments with large SIP switches and remote locations. There is no physical trunk but data is calculated based on a group of phone extensions for a Location. Virtual trunk groups are created from a Location entity. Refer to Section 2.6.7 for configuring Locations and associating the phone extensions. Once defined, the virtual trunk group will be available for network reports under the switch node in the Explorer tree. Virtual trunk groups are denoted with this icon (📍). Notes: (1) Virtual Trunk Groups are only available for Unify OpenScape Voice and Cisco platforms. (2) Trunk group alarms may be defined for virtual trunk groups.

The Virtual Trunk Group Properties screen includes the following fields:

- Name – Defaulted from the Virtual Trunk Group definition from Location
- Switch Name – Select the switch virtual trunk group is associated to. Dropdown includes all OpenScape Voice and Cisco switches available for account
- Description – User-defined description
- Capacity – Reflects “virtual” number of calls that can be supported to this Location. Typically determined based on WAN bandwidth and compression model. This field must be populated to support calculation of All Trunks Busy (ATB) and percent utilization fields in reports.
- Ignore Ring Time for Max Trunks Active – Check to not include ring time as a contributor to resource utilization (typically for SIP trunks and other special

cases). If checked, only calls with call duration greater than zero (0) will be included in network analysis.

The remaining fields are very similar to the Switch Properties Network Analysis page and allow the user to set the values for the virtual trunk group. They will default based on the switch selection but may be edited. These fields should be populated if you require bandwidth requirements and modeling analytics. Refer to Section 2.6.1.

2.6.4. Route Properties

Route Properties include only General and Network Analysis pages.

Route Properties: HP4K Test Route 1

General Network Analysis	Name:	HP4K Test Route 1	Capacity:	48	Trunks/Channels
	Description:	My test route			
	Switch Name:	St. Louis HiPath 4000	Status:	Active	

OK Cancel

The General page supports editing the following fields:

- Name – Identifies the route in all reports and in Explorer tree
- Description – User defined description
- Capacity – Number of trunks/channels configured as in service
- Switch Name – Identifies switch route is associated to
- Status – Active or Inactive

The Network Analysis page is identical to the Switch Properties Network Analysis page and allows the user to override the default values for individual routes. Refer to Section 2.6.1.

The Call Forensics page allows the user to override the default switch values and define custom call classification and rating for the specific trunk group. Refer to Sections 7.3 and 7.4 for details.

2.6.5. Subscriber Properties

The Subscriber Properties screen provides a profile of the subscriber's extension(s), PIN(s) and organizational and wiring information, if available. Past, current and future change information is available and the information may be edited at any time.

Subscriber Properties

Effective:

Subscriber: E-Mail:

Switch Name	Extension	PIN
STL HiPath 4000	1414	

Manager: Location: Phone Type:

Cost Center: Building: COS:

Department: Floor: Pad/PEN:

Organization: Room: MDF:

Jack: IDF:

Effective Date:

Typically, the information in this screen is populated via the Organizational file. Refer to Section 5.3.4. However, the user may update the information in the Properties screen. To view historical changes or pending future changes, select a date range in the Effective dropdown list.

Use this screen to add Extensions or PINs to the subscriber by clicking the “Add Extension/PIN” button. This will add a new row and you can enter the information. To delete, highlight a row and click “Remove Extension/PIN” button.

The organizational and wiring information may be updated via the dropdown lists. If the subscriber has multiple extensions/PINs, changes here will be reflected for all extensions/PINs. Note that if the dropdown is grey, the extensions for the subscriber have different information for that field. For instance, in the above screen shot, extensions 1414 and 3514 have different phone types. To make a change, make selection in dropdown list or type in a new entry, select effective date and save.

Note: For security reasons, the Administrator may choose to hide PINs. If configured to be hidden, PINs will not be listed here for non-Administrators.

2.6.6. Extension Properties

The Extension Properties screen provides a profile of a single extension and organizational and wiring information, if available. Past, current and future change information is available and the information may be edited at any time.

The screenshot shows the 'Extension Properties' dialog box. It contains the following fields and values:

- Effective: Current
- Extension: 3514
- Switch: Impact (HP4K)
- Subscriber: Maycock, Becky
- Location: Chesterfield
- Phone Type: OpenStage 15
- Manager: Baehr, Bryan
- Building: Tower A
- COS: DEF
- Cost Center: Management
- Floor: 2
- Pad/PEN: (empty)
- Department: Product Management
- Room: 212
- MDF: AA
- Organization: Impact Technologies
- Jack: 456
- IDF: 85

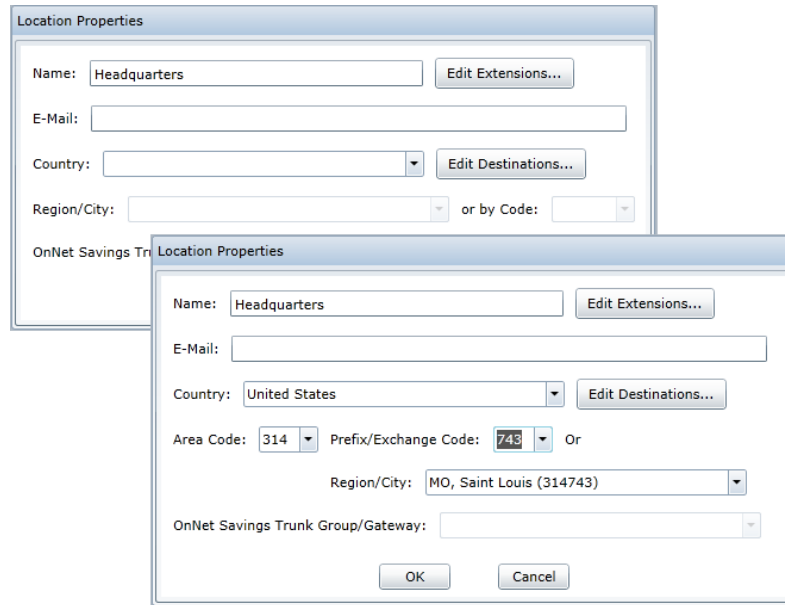
At the bottom, there is an 'Effective Date' field with the value '09/14/2012' and a calendar icon. To the right are three buttons: 'Save', 'Apply', and 'Cancel'.

Typically, the information in this screen is populated via the Organizational file. Refer to Section 5.3.4. However, the user may update the information in the Properties screen. To view historical changes or pending future changes, select a date range in the Effective dropdown list.

The organizational and wiring information may be updated via the dropdown lists. To make a change, make selection in dropdown list or type in a new entry, select effective date and save.

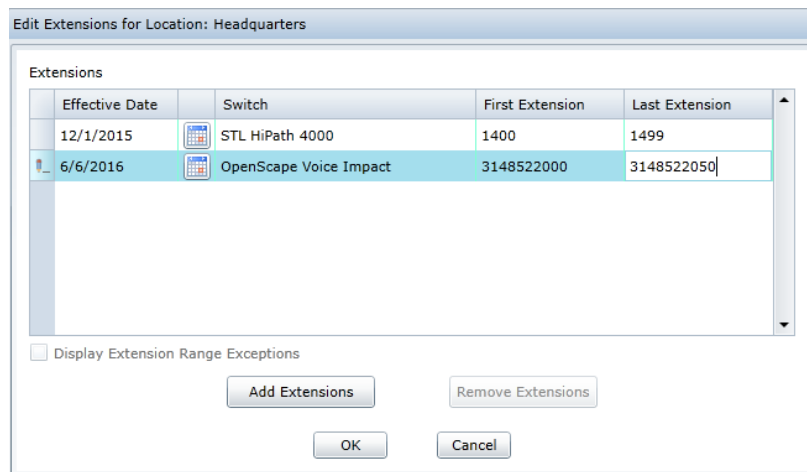
2.6.7. Location Properties

The Location Properties screen associates a location (which typically represents a physical site within your enterprise) with a Country and Region/City. Select the country from the dropdown list. If you select a country that is part of the North American Numbering Plan (including United States and its territories, Canada and some Caribbean countries), the screen will update and present dropdown lists for Area Code and Prefix/Exchange Code in place of the single Region/City dropdown. Select the appropriate entries from the dropdown or you may type in field to find the value. Note that the Prefix/Exchange Code and Region/City fields are linked so you may select from either one and the other field will automatically update accordingly. If you select only an Area Code, the Region City field in your Call Forensics reports will be populated with the state abbreviation and then "City Undefined." For example, for 314 area code, it will say "MO, City Undefined." Hit "Edit Destinations" button to add a new country and/or region/city if the entry you need is not included.



2.6.7.1. Extensions

As an efficient alternative to the Organization file import to associate extensions to a location, you may also add extensions to this location by clicking the “Edit Extensions” button. Click “Add Extensions” button and then enter the Effective date, select the Switch from the dropdown and enter your range or single extension. You may enter one or many ranges. Enter the extensions in full 10 or 11-digit format or in short format, such as 4 or 5 digits. The number of digits should match how the numbers appear in the Call Forensics reports. And, you could have a combination for the case if you have a OpenScape 4000/HiPath 4000 with 5 digit numbers in the CDR records and a Cisco UCM with 10 digits. Note: For the OpenScape 4000/HiPath 4000, you may extend the short extensions to full length format in your reports via adding a prefix. Refer to Section 2.6.1.3. Click “OK” to save your entries. After pressing OK, you will be prompted to Reanalyze. If backdating changes, it is recommended that you select date and press “OK”.



The extension ranges for a Location can represent unique numbers across all switches in the account, hence the “Any” option in the Switch column. If exceptions exist and a specific extension for a switch within the account is not assigned to the Location where the extension range is assigned, the “Display Range Exceptions” check box will be enabled. Checking the box will show the exceptions with pale yellow highlighted rows as displayed below for extension 1450.

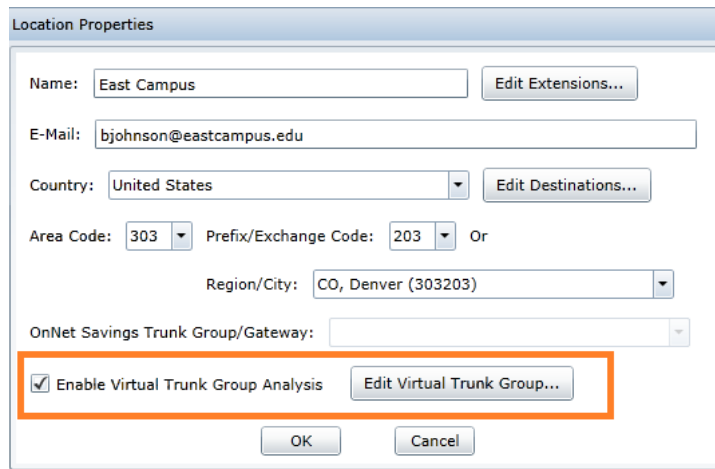
Effective Date	Switch	First Extension	Last Extension	CDR Prefix
05/01/2015	Any (w/ exceptions)	1400	1499	314743
05/11/2015	St. Louis HiPath 4000	1450		

2.6.7.2. OnNet Savings Trunk Group/Gateway

If leveraging VoIP Economic Analysis, then the user must also assign the “OnNet Savings Trunk Group/Gateway” used for VoIP savings. Refer to Section 8 for more information. Note that Location Properties may be edited either in the Location Tree or in Locations in the Countries tree.

2.6.7.3. Virtual Trunk Group Analysis

If the Virtual Trunk Groups feature has been enabled for your system, the Location Properties screen will include additional “Enable Virtual Trunk Group Analysis” check box and Edit button as shown below. This allows you to create the new virtual trunk group. For the check box to be enabled, you must have at least one extension range entered.



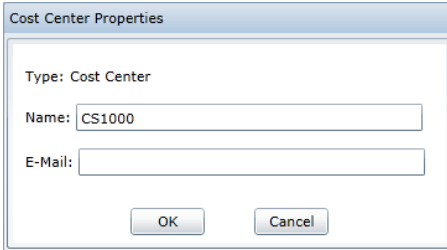
Click the check box and then click the “Edit Virtual Trunk Group...” button. This will open the Virtual Trunk Group Properties screen. Refer back to Section 2.6.3 for information on populating this information.

For the virtual trunk group, note that the extensions that you entered above for the Location will be leveraged to calculate the network utilization. Calls, usage, bandwidth and capacity report values are based on the calls inbound and outbound to those extensions (that are not carried by another “real” trunk group).

You may deactivate or delete a virtual trunk group. By unchecking the “Enable Virtual Trunk Group Analysis” check box, the virtual trunk group will be deactivated. Another option is to right mouse click on the virtual trunk group in the Private Network tree under the appropriate switch and select “Delete Virtual Trunk Group” or “Deactivate Virtual Trunk Group.” Deleting it will remove it from the tree and delete all historical data. Deactivating it keeps the historical data but no additional data will be stored. You may activate a deactivated virtual trunk group with a right mouse click.

2.6.8. Properties for Other Entities

The Properties screen for other entities, such as Organizations and Cost Centers are simple and allow the user to edit the name and associate an email address that may be used for bulk e-mail distribution.



The screenshot shows a dialog box titled "Cost Center Properties". It contains the following fields and controls:

- Type: Cost Center
- Name: CS1000
- E-Mail: (empty field)
- OK button
- Cancel button

3. Alarms

Traffic Analyst’s alarms permit the easy identification and notification of several key conditions including:

- Changing capacity requirements
- Non-performing equipment
- Off-hour outbound fraud/abuse
- Poor quality of service

3.1. Available Alarms

Not all alarms are available for all switches. Exceptions are noted. Available alarms also based on licensed modules.

3.1.1. Call Forensics

Call Forensics alarms may be enabled for one or more switches or based on specific trunk groups, routes or virtual trunk groups. Click the “Enable by Trunk Groups/Routes” check box on the Create Alarm screen to narrow the options to specific trunk groups, routes and/or virtual trunk groups.

- **Call Too Expensive** – triggered if the call segment cost (captured in Cost field) exceeds the user-defined cost.

- **Call Too Long** – triggered if the call segment time (captured in Call Duration field) exceeds the user-defined length.
- **Called Number** – triggered if the Called Number in the segment matches the number defined in the alarm. The user will also define the alarm to look for either an internal called number or external destination.
- **Clearing Cause** – (Cisco, Unify OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if clearing cause code in call segment matches the user-defined code.
- **Destination Number** – triggered if the Destination in the segment matches the number defined in the alarm. The user will also define the alarm to look for either an internal called number or external destination.
- **Hold Duration** – (Unify OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the call segment hold time exceeds the user-defined length. Note: For OpenScape 4000/HiPath 4000, hold time is only available for logged in ACD agents leveraging the Consult or Transfer feature.
- **MOS Too Low** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the minimum MOS is less than or equal to the user-defined MOS threshold. If the direction selected is Originating, alarm triggers based on the Orig Min MOS. If the direction is Destination, alarm triggers based on Dest Min MOS. If the direction is Either, alarm is triggered if either Orig Min MOS or Dest Min MOS is less than or equal to threshold. May also set a duration filter.
- **Originating Number** – triggered if the Originating Number in the segment matches the number defined in the alarm. The user will also define the alarm to look for either an internal or external call.
- **Percent Packets Lost** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the percent of maximum packets lost is greater than or equal to the user-defined percent threshold. If the direction is Originating, alarm triggers based on Orig Max % Packets Lost. If the direction selected is Destination, alarm triggers based on Dest Max % Packets Lost. If the direction is Either, alarm is triggered if either Orig Max % Packets Lost or Dest Max % Packets Lost is greater than or equal to threshold. May also set a duration filter.
- **Phone IP Address Changed** – (Cisco, Unify OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered when the IP address of a phone associated with an extension is different than previously recorded. Is initiated during CDR processing for all three platforms and also during end of day processing for Unify systems.
- **Queue Duration** – (Unify OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the call segment queue time exceeds the user-defined length.
- **R-Factor Too Low** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the minimum R-Factor is less than or equal to the user-defined threshold. If the direction selected is Originating, alarm triggers based on Orig Min R-Factor. If the direction is Destination, alarm triggers based on Dest Min R-Factor. If the direction is Either, alarm is

triggered if either Orig Min R-Factor or Dest Min R-Factor is less than or equal to threshold. May also set a duration filter.

- **Ring Duration** – (Not applicable for Avaya Aura, Siemens Hicom 300 and 9751) triggered if the call segment ring time exceeds the user-defined length.
- **SIP Response Code** – (Cisco, Unify OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if SIP Response Code (which is based on the clearing cause code in call segment) matches the user-defined code.
- **Too Much Jitter** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the maximum jitter is greater than or equal to the user-defined jitter threshold. If the direction selected is Originating, alarm triggers based on Orig Max Jitter. If the direction is Destination, alarm triggers based on Dest Max Jitter. If the direction is Either, alarm is triggered if either Orig Max Jitter or Dest Max Jitter is greater than or equal to threshold. May also set a duration filter.
- **Too Much Latency/Delay** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the maximum latency is greater than or equal to the user-defined latency threshold. If the direction selected is Originating, alarm triggers based on Orig Max Latency. If the direction is Destination, alarm triggers based on Dest Max Latency. If the direction is Either, alarm is triggered if either Orig Max Latency or Dest Max Latency is greater than or equal to threshold. May also set a duration filter.
- **Wait Duration** – (Not applicable for Avaya Aura, Siemens Hicom 300 and 9751) triggered if the call segment wait time exceeds the user-defined length.

3.1.2. Network

- **All Trunks Busy** – triggered if all the trunks in the group are busy for X number of seconds, minutes or hours.
- **Erratic Trunk Peg Count** – (Siemens 9006, Unify HiPath 3000 and HiPath OpenScape 4000/HiPath only) triggered if a trunk's peg count differs by X% from the group mean over a specified time range. Note: Time interval is based on switch time.
- **Erratic Trunk Usage** – (Siemens 9006, Unify HiPath 3000 and OpenScape 4000/HiPath 4000 only) triggered if a trunk's usage differs by X% from the group mean over a specified time range. Note: Time interval is based on switch time.
- **No Seizures for Trunk** – (Siemens 9006, Unify HiPath 3000 and OpenScape 4000/HiPath 4000 only) triggered for each trunk in a group that experiences no seizures and another trunk in the same group has more than two seizures during the same interval. This alarm is intended to find broken trunks as opposed to idle trunks. Note: Time interval is based on switch time.
- **No Seizures for Trunk Group** – triggered if an entire trunk group experiences no trunk seizures during an interval within a specified time range. Note: Time interval is based on switch time.

- **Outbound Off Hour Usage** – triggered if outbound off hour usage reaches X hours (minutes or seconds) over a specified time range. Note: Time interval is based on switch time.
- **Over Utilized Hour** - triggered if an interval rises above X% of its utilization. The utilization is calculated by the usage per interval divided by the capacity. If collection is daily, interval will be hourly.
- **Over Utilized Peak Hour** – triggered if the busy hour ordinal 1 for the day reaches X% of its utilization. The utilization is calculated by the peak usage divided by the capacity.
- **Peak Utilization** – triggered if an interval rises above X% peak utilization. The peak utilization is calculated by the peak number of channels/trunks in simultaneous use during an interval divided by number of channels/trunks configured.
- **Percent Bandwidth Used Too High** – (Unify OpenScape Voice and Cisco only) triggered if during an interval actual bandwidth used for calls rises above X% of planned bandwidth. The planned bandwidth is calculated as the number of channels in the trunk group/gateway times the bandwidth required by the codec configured for the trunk group/gateway.
- **Seizure Too Long** – (Siemens 9006, Unify HiPath 3000 and OpenScape 4000/HiPath 4000 only) triggered if any trunk in the trunk group experiences a seizure equal to X hours (seconds or minutes).
- **Too Many Trunks** – triggered if the interval falls below X% of its utilization. The utilization is calculated by the usage divided by the capacity during a specified time range. If collection is daily, interval will be hourly. Time interval is based on switch time.
- **Trunks Not In-Service** – (Siemens 9006 and Avaya only) triggered if data from the switch shows a trunk is defined but not activated.
- **Under Utilized Peak Hour** – triggered if the busy hour ordinal 1 for the day falls below X% of its utilization. The utilization is calculated by the usage divided by the capacity.

3.1.3. QoS

The following alarms are only available with a Network License.

- **MOS Too Low** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the minimum MOS is less than or equal to the user-defined MOS threshold. May also set a duration filter.
- **Percent Packets Lost** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the maximum percent of packets lost is greater than or equal to the user-defined percent threshold. May also set a duration filter.
- **R-Factor Too Low** – (Cisco and Unify* OpenScape Voice and OpenScape 4000/HiPath 4000) triggered if the minimum R-Factor is less than or equal to the user-defined threshold. May also set a duration filter.

- **Too Much Jitter** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the maximum jitter is greater than or equal to the user-defined jitter threshold. May also set a duration filter.
- **Too Much Latency/Delay** – (Cisco, Unify* OpenScape Voice and OpenScape 4000/HiPath 4000 only) triggered if the maximum latency is greater than or equal to the user-defined latency threshold. May also set a duration filter.

*QoS alarms only available for Unify systems if devices are configured to send SNMP data to Traffic Analyst server.

3.1.4. Switch

- **Could Not Store Data** – triggered if Traffic Analyst cannot store the data it polls.
- **Failed to Poll Switch** – triggered if Traffic Analyst cannot successfully poll a switch as scheduled. This reflects a communications failure.
- **Native Switch Alarm** – (Nortel, CS1000, Siemens 9005/9006) triggered when Traffic Analyst receives an alarm message directly from the switch platform.
- **No CDR Data Collected** – triggered if Traffic Analyst cannot successfully find CDR data for a switch when polling periodically or on demand. Traffic Analyst successfully communicated with the switch but there were no data files. Note: Time interval is based on switch time.
- **No CDR Data Collected for Day** – triggered during end of day processing if Traffic Analyst detects that no CDR data was collected during the entire day.
- **No Data Collected** – triggered if Traffic Analyst cannot successfully find data for a switch when polling periodically or on demand. Traffic Analyst successfully communicated with the switch but there were no data files. For Nortel, Avaya and Siemens 9006/9005, this only applies to network (not CDR) data files. Note: Time interval is based on switch time.
- **No Data Collected for Day** – triggered during end of day processing if Traffic Analyst detects that no network data was collected during the entire day.
- **No OnTraQ Data Collected** – triggered if OnTraQ stored no data in a fifteen minute interval that is within the Start and End times defined in alarm. Alarm could indicate a problem with OnTraQ but would also be triggered if no call activity or agents logged in during interval. Note: Time interval is based on switch time.
- **No OnTraQ Data Collected for Day** – triggered during end of day processing if OnTraQ detects that no data was stored during the entire day.
- **No QoS Data Collected** – triggered if Traffic Analyst cannot successfully find QoS data when polling periodically. Note: Time interval is based on switch time.
- **No QoS Data Collected for Day** – triggered during end of day processing if Traffic Analyst detects that no QoS data was collected during the entire day.
- **OnTraQ Server Unresponsive** – (Unify OpenScape 4000/HiPath 4000 only, OnTraQ module only) Traffic Analyst is unable to send updates to a defined OnTraQ server during end of day processing. The alarm message will have the Traffic Analyst server name in it. Typically, this alarm indicates that the

OnTraQ server named is not running or that there are network problems.

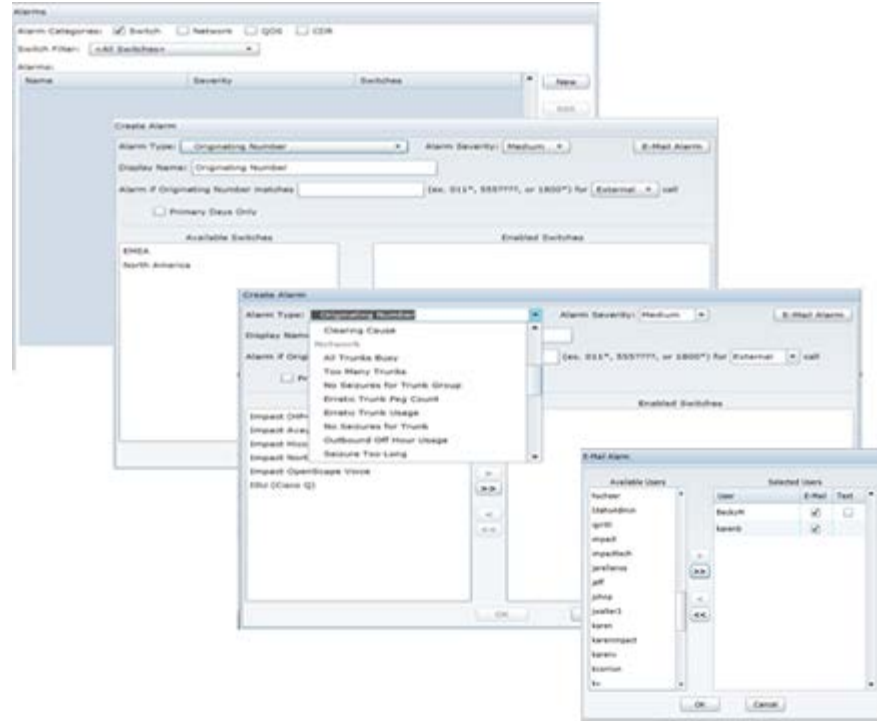
- **Unassigned Trunk** – (Unify HiPath 3000 only) triggered if a call is shown on a particular trunk that wasn't defined in the Groups tab of that switch in Traffic Analyst. Since the trunk wasn't defined the call will show in an Unassigned Trunk.

3.1.5. System

- **Disk Free Space** – triggered if free disk space falls below the set amount. Recommend 1,000 MB.
- **Failed Backup** – triggered when the backup failed to write backup file to the selected directory. Check that access to this directory is available.
- **Failed to Validate Database** – triggered when the validation of database during backup fails. Should contact Impact Technologies to investigate.
- **License Near Capacity** – triggered when the license capacity is greater than or equal to entered threshold percentage. Recommend 90%.
- **License Over Capacity** – triggered when the licensed capacity is exceeded. Contact Impact Technologies to purchase additional licenses as raw data is still being collected and stored in files, but no data is stored for reports.
- **Report Generation Failed** – triggered when a scheduled dashboard report fails. The failure could be related to generating the report, a bad file path, invalid e-mail address or other errors.

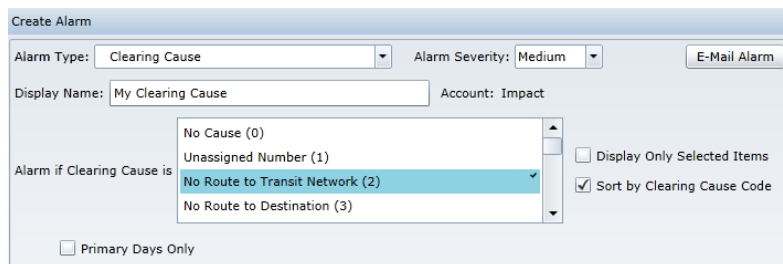
3.2. Creating & Editing Alarms

Alarms apply to the different modules you purchase, though some apply to all modules. For example, the License Over Capacity alarm is available no matter which module you have purchased, but the All Trunks Busy alarm is only available to users of the Network module.



To create and edit alarms, select the Tools menu and select Alarms option. You may select one or more Alarm Categories and also filter by the switches in your network. To create a new alarm, hit “New” button. Complete the information in the Create Alarm window. Hit the “E-Mail Alarm” button to enter recipients so alerts can be sent via e-mail as the alarms are triggered. If the user profile includes a “text address” then there will be a check box option to also send alarms via text to user. (Note: E-mails can include multiple alarms within a single e-mail. However, with character limitations for texting, a text will be created for each alarm occurrence.) Press OK to save.

When creating a Clearing Cause alarm, note that you may select multiple codes within a single alarm. Hold down the Ctrl key, scroll through the list and click all the codes you want to include. Selected codes are highlighted as shown below. Note the options on the right to “Display Only Selected Items” and “Sort by Clearing Cause Code” instead of default of alphabetically by description.



To edit an existing alarm, highlight the alarm and click “Edit” button. Make the changes and hit “OK.”

To copy an existing alarm, highlight the alarm and click “Copy” button. Make the changes to the copied alarm and hit “OK.”

To delete an existing alarm, highlight the alarm and click “Delete” button.

4. Reports

4.1. Overview

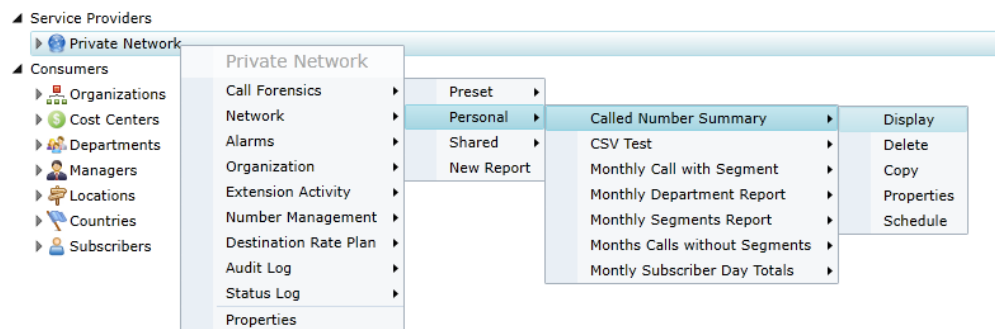
All Traffic Analyst Silverlight reports are anchored by tabular reports, which are displayed in the application as interactive web grids. The columns and detail levels of these web grids are customizable. From the web grid, you may create an unlimited number of charts to view and drill into the data in graphical format.

4.1.1. Templates

Traffic Analyst includes standard pre-built “Preset” report templates. Refer to Section 9 for information on the standard preset reports. The user may leverage these templates “as is,” or you may start with a Preset template, make modifications and save your changes as a Personal or Shared template. Or, you may choose to begin with a “new report” template and design your report. A template includes a web grid and may also include one or many charts.

4.1.2. Explorer Tree Reports Menu

From the Explorer tree, select an entity, right mouse click and select the type of report (Call Forensics, Network, Alarms, Organization, etc.). In the example below, the user is requesting a Call Forensics report for all network switches within their Private Network. Alternatively, you can expand the tree, select a specific switch or network entity and then select the report type. Note that the report options are limited based on the context of the menu. For instance, only Call Forensics and Organization reports are available from Consumer nodes.



After report type, you may select an existing Preset, Personal or Shared template or start a new template by selecting “New Report.” Personal

templates are reports you have defined and are only available (visible) to you (and administrators) while Shared templates are available to all users within account. If you select a template, you have several options:

- Display – Generates the web grid online
- Delete – Deletes the template from the system (not option for presets)
- Copy – Creates a copy of the template and prompts the user for a new name
- Properties – Opens the query screen to enable changes to the template before generating the web grid
- Schedule – Schedule a report to be e-mailed in PDF, Excel or TARPT format. (Admin users may also schedule a CSV output to a directory. Only local and UNC network paths can be used. The general UNC form is \\<server name>\<shared folder name>\<optional subdirectories>.) If a template has charts defined, the charts may also be included in PDF or TARPT output. Refer to Section 4.1.6 for more details on scheduling reports.

4.1.3. Common Report Query Window Options

For each report type (Call Forensics, Alarms, Network Utilization, etc.) there is a unique query screen to create and modify your report request. The variances for each report type are outlined below. However, there are several common options for report types.

- Template Name – A report name is required
- Filters – Allows narrowing your report results to specific requested information
- Columns – Use arrow buttons to choose columns to appear in report. Highlight a single field and use up and down arrows to reorder the fields.
- Template Type – Select Personal so report is only available for your use or Shared to have other users see and use your report template
- Display – Updates the displayed report with recent changes without saving changes. If no web grid is displayed, it displays the web grid.
- Save – Saves any changes to report template. If a web grid is displayed, it updates the web grid.
- Delete – Deletes the report template. Option is only available if template was previously saved and no views (web grid, charts) are open.
- Cancel – Aborts all operations on screen and closes window. No updates are made or saved.



















4.1.4. Web Grids

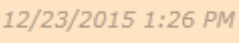
Web grids present report data in a tabular view that allows the user to interact with and drill into the data. The web grids may represent network utilization, call detail records, quality of service data and alarms. The user can filter the data, rearrange columns, define groupings and much more.

4.1.4.1. Web Grid Toolbar

Toolbar options for web grid shown below:



-  Save report template; updates existing template
-  Save template as; copies template to a different name
-  Export to Excel
-  Export to PDF based on configurable options
-  E-Mail TARPT report based on configurable options
-  Schedule report (not available for reports included on initial dashboard upon login)
-  Open Properties
-  Hide or show columns
-  Collapse all rows
-  Expand all rows
-  Toggle selector from row to column
-  Open Tools (See below for additional details)
-  Create new chart
-  Open existing chart
-  Copy existing chart
-  Delete existing chart
-  Toggle AutoRefresh enabled or disabled for report
-  Refresh report now (web grid and all charts)

 12/23/2015 1:26 PM The time stamp of the last refresh (automated or manual)

Open Tools provides the following options:

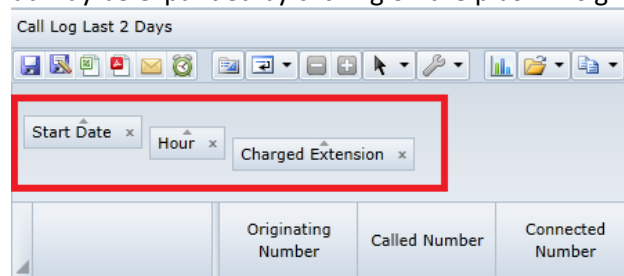
- Clear All – Shows all columns, resets all filters and removes all sorting and grouping logic
- Clear Columns – Shows all columns
- Clear Filters – Resets all filters
- Clear Sorts – Removes all sorting logic
- Clear Groups – Removes all grouping logic
- Toggle Docking Header – Toggles between hiding and showing the header bar

- Display Criteria – Opens window with the properties for the web grid and optionally any associated charts. You may view or save the information to PDF. Note: The properties include “Entity Name” which offers a quick reminder for the explorer tree entity selected for the web grid report.
- Display Column Widths – Lists all columns and width in pixels
- Set Leading Column to Auto – Automatically resizes the grouping column based on the longest text in column
- Save TemplateMetadata – Diagnostic tool used for troubleshooting

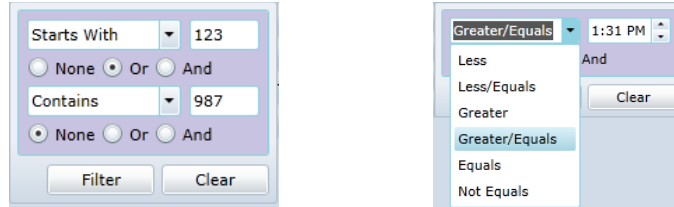
Note: When exporting a Call Forensics web grid that is configured with “Calls including Segments” detail, the exported Excel document will include two worksheets. The first tab will be the call records, including any groupings you defined. The second tab is called “Detail” and includes all the imbedded segments from the report.

4.1.4.2. Common Web Grid Options


- Columns can be renamed via a right mouse click on a column header.
- Mouse over text is available for each column. Place mouse arrow directly over column header name. The text includes the column name (not the alias) and field definition.
- Columns can be re-ordered by dragging a column to its desired location.
- To create groupings, click and drag a column header into the Group Row section, shown in the red box below. A grouping creates a summary row that may be expanded by clicking on the plus “+” sign.

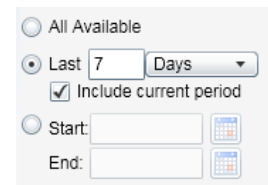


- Sort with a left mouse click on a column header. To add subsequent sorts, hold down the “Ctrl” key and left mouse click on additional column headers.
- Add a filter by hovering mouse over column header and clicking on the arrow on the right side of column. This will present a filter window. The filter options will vary based on the type of field (numeric, date/time, string). You may enter a single filter. Or, select the “Or” or “And” options to build a more complex filter.



Consider the following notes when filtering:

- Note that filtering is always applied against the detail rows and not the data in the grouping aggregate rows.
 - Filter text is case sensitive so “Incoming” and “incoming” are two different values, for instance.
 - When filtering duration fields, such as Call Duration, enter the value in seconds, independent of the display unit selection. For instance, the column field values may be displayed as hh:mm:ss or in minutes, but the filter value must in be in seconds.
 - The values displayed in the report may not exactly reflect the actual data in the database field due to rounding. For instance, a filter for RFactor < 94.0 may include rows that show an RFactor equal to 94.0 because the actual database value was rounded from 93.9984 for display purposes.
- For a Call Forensics web grid that was defined with “Calls including Segments,” the call records will be displayed with an arrow () along left side. Click the arrow to display the embedded segments. The segments will be displayed in order based on Start Seizure Time field.
- From a Network Utilization web grid (with interval or hourly detail) or Call Forensics subtotals web grid, you may right mouse click or double click at a detail row (not a grouping row) to drill down to the call segments. For the Network Utilization report, the segments will be for all calls that were active within the interval, even if the call started in a previous interval.
- Web grids (and charts) will refresh automatically if the “Include current period” option is checked in the template Properties screen and auto-refresh is enabled. After each data collection, the dashboard is updated with the new information. During the refresh, the dashboard will be faded and there will be a status blue square running in the upper right bar.









4.1.5. Charts

Traffic Analyst supports quick and simple chart creation. There are many chart types (including column, bar, stacked bar, pie and more) and the user has almost unlimited flexibility for formatting options.


4.1.5.1. Chart Toolbar

Toolbar options for charts shown below:








All: Start Date ▾	Quick Filter
	Chart Properties to edit chart
	Copy chart
	Export chart to image file
	Export chart to PDF
	Toggle AutoRefresh enabled or disabled for report
	Refresh report now (web grid and charts)
1/30/2015 1:59 PM	The time stamp of the last refresh (automated or manual)

4.1.5.2. Creating & Editing Charts

To create a new chart, click chart icon () in the web grid toolbar. This will open a Chart Properties window. Enter name, chart type and select the variables. You then have the option to pick the type of graph element for the dependent variables.

At times, it will be more efficient to copy an existing chart and edit it instead of creating a new chart “from scratch.” There are two methods to copy a chart:

- If you have the chart open that you want to copy, simply click the Copy icon () , enter a new chart name and press “Save.” To open the new chart, return to the web grid or click the Chart Table tab, click on the Open Chart icon () in toolbar and select the new chart.
- From the web grid, click the Copy icon () , enter a new chart name and press “Save.” To open the new chart, click on the Open Chart icon () in toolbar and select the new chart.

















To edit an existing chart, click the chart icon () in the chart toolbar.

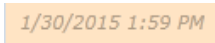
- The dropdown menus offer additional chart formatting options with key capabilities as listed below.
 - General – Change chart palette, add a quick filter and edit chart margins
 - Legend – Toggle the display on/off and edit position; edit label and add border
 - Item Axis – Update label presentation and edit grid lines
 - Value Axis – Update label presentation and edit grid lines
 - Secondary Value Axis – Only appears when dependent variables have different units (such as Calls and Cost)
 - Data Labels – Toggle the display on/off and edit presentation
 - Chart Elements – Add a border and set color

- Chart Tables – When you display a chart, you will see both the Chart tab and the underlying Table tab. The data in the chart table is a “view” of the data from the web grid and has many of the same characteristics as the web grid. However, you cannot sort or group the data in the chart table. You may apply filters within the table that will be reflected in the related chart. Note: If the Properties (query options) for the web grid are updated, those changes will be reflected in the web grid and all charts and chart tables in the report.

The chart table has a toolbar with some options that only impact the specific chart table and some that are related to the entire report, as noted below:



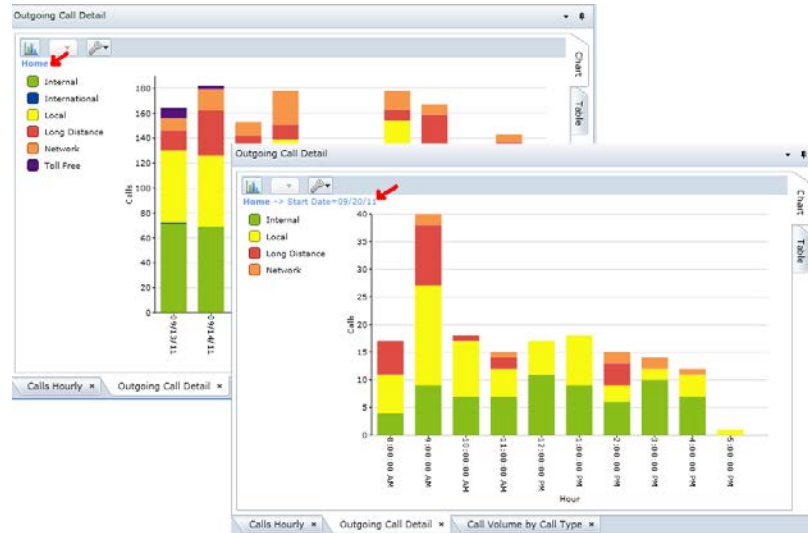
-  Save report template; updates existing template
-  Save template as; copies template to a different name
-  Export chart table to Excel
-  Export chart table to PDF based on configurable options
-  Open Properties
-  Hide or show columns
-  Collapse all rows
-  Expand all rows
-  Toggle selector from row to column
-  Open Tools (to clear columns, clear filters and display criteria)
-  Create new chart
-  Open existing chart
-  Copy existing chart
-  Delete existing chart
-  Toggle AutoRefresh enabled or disabled for report
-  Refresh report now (web grid and all charts)

 1/30/2015 1:59 PM The time stamp of the last refresh (automated or manual)

- Quick Filters – Quick Filters allow you to efficiently drill into specific data in your chart by a single column value. Configure the quick filter column in the “General” tab. Then use the combo box in the chart viewer to filter value. When you select a value, the chart and chart table will be altered. To clear the setting, select “All: X” in combo box.



- Drilldown Charts – When viewing drilldown charts, you can click on a column/bar to drill into the data. In the example below, the “Home” state shows number of calls by day. User clicked on the 9/20/11 bar and drilled down to hourly data. You can continue to drilldown as many levels as you defined. The last drilldown will open a “Drilldown Snapshot” which is a table of the detail records (either segments or calls based on the report criteria you selected in Properties). You can click on the “breadcrumb” to navigate back through the drilldown path.



- Drilldown Snapshot – When viewing charts, you may right mouse click on a chart element (such as a bar or column segment), select Records and “jump” to the detail records (either segments or calls based on the report criteria you selected in Properties) for that element. This will open a new window called the Drilldown Snapshot.
- Multiple Dependent Variables - The following options are available when you select multiple dependent variables for your chart.
 - The “Chart Dependent Variables As” option permits a mixture of marker styles. They are applied starting from the top of the Included Dependent Variables. For instance, if you have four (4) dependent variables, you may want the first graphed as a bar, the next two as data points (such as a square or diamond) and the final variable as a line.
 - When you select multiple dependent variables that are not all measured in the same unit (such as Calls and Cost), the Secondary Value Axis menu appears. You must group the “like” variables together in the “Dependent Variables Include” box, such as Calls and Segments and then Cost. Then under the Secondary Value Axis, set “Display” dropdown to “Yes” and then select the first variable of the second group in the “First Dependent Variable” dropdown. For example above, select Cost in dropdown. This will chart Calls and Segments on main axis and Cost on secondary axis.

4.1.6. Scheduling a Report

To initially schedule a report, select the “Schedule” option from the Explorer tree menu for the entity and report template you want to schedule. To edit a report schedule, go to the Tools/Scheduled Reports menu option and select “Edit” for the report.

For each report schedule, you define:

- Time of Day – The time the system will automatically generate the report
- Recurrence
 - Day(s) of Week – Check one or more days
 - Day(s) of Month – Check one or more dates
 - One-Time Date – Enter the date
 - Multiple per Day – Select the interval from dropdown. Report will be generated on the selected interval 24 hours per day every day. The starting time is based on the Time of Day entered. For 15 and 30 minute intervals, it is based on the minute entry. For instance, if 12:10 AM is entered, the 15-minute report will run at 10, 25, 40 and 55 minutes after each hour. For hour based intervals, it is based on the entire time. If 3:20 AM is entered and 8-hour interval selected, the report will be generated at 3:20 AM, 11:20 AM, and 7:20 PM daily. (Note: If the Time of Day entry is later than the current time, the first interval report will start at that time. If Time of Day is earlier than current time, the first report will run on next interval.) To limit the report generation to a time range each day, enter the appropriate Time of Day (as starting time) and check End Time check box and enter an end time.
- File Type – Select PDF, Excel or TARPT (Traffic Analyst dashboard report). (Refer to bullet below for notes on CSV output.) For PDF and Excel options,

click the “Customize” button for additional options such as font, font size, paper size, orientation and margin. The default header for PDF and Excel files is “<RN> for <EN>”, which is *report_name* for *entity_name*. By checking the “Set Header to File Name” box, the header will then be whatever you enter into the File Name box. For PDF files, you may also set the levels for bookmarks and choose to include the report criteria as part of the report. For Excel files, the “Collapsible Grouping Rows” check box adds grouping to your Excel output.

- Format Options – If PDF or TARPT format is selected, then you have additional output options you can define. Since many templates include the web grid along with one or many charts, you can set the specific information to include in the report. For TARPT, these options will drive the views that are automatically opened in the web browser.
- File Name – You may use wildcards to create the report name, type in a name or a combination of both. The wildcards include:
 - <RN> Report Name
 - <EN> Explorer Tree Entity Name
 - <YY> Current Year
 - <MM> Current Month
 - <DD> Current Day
 - <hh> Current Hour
 - <mm> Current Minute
 - <ss> Current Second
 - <SN> Switch Name
 - <###> Switch Identifier

For date fields, you may add a “-N” option to support previous months, days and years. For instance, <MM-1> for last month or <DD-14> for last 14 days.
- E-Mail Address(es) – Enter one or more e-mail addresses for report distribution. Separate multiple addresses with semi-colon (;).

For Admin users, a CSV output option is also available for Call Forensics, Network Utilization and Network QOS reports. Check the “Include Column Names” if you want to include a header row and enter file name. Then choose

Export Options

File Type: CSV

Format Options:

Include Column Names

File Name: <RN> for <EN> issued <MM><DD><YY>

File Directory SFTP

Use default directory

Directory: \\ServerName\DirectoryA\Output

either File Directory or SFTP output. For File Directory, enter the complete path for the directory. Note that the path must be from the server perspective, not user desktop, and the server must have access rights to the location. Only local and UNC network paths can be used. Check the “Use default directory” checkbox to write the output files to ...\Impact Technologies\Traffic Analyst\reports\CSV. For Call Forensics reports, a CDR option is also available. It behaves the same as CSV but the output file will have a “.cdr” extension instead of “.csv” and the default output directory will be ...\Impact Technologies\Traffic Analyst\reports\CDR. Otherwise, select SFTP and enter SPFT Server, Directory (optional), User Name and Password.

4.1.7. Report Viewer

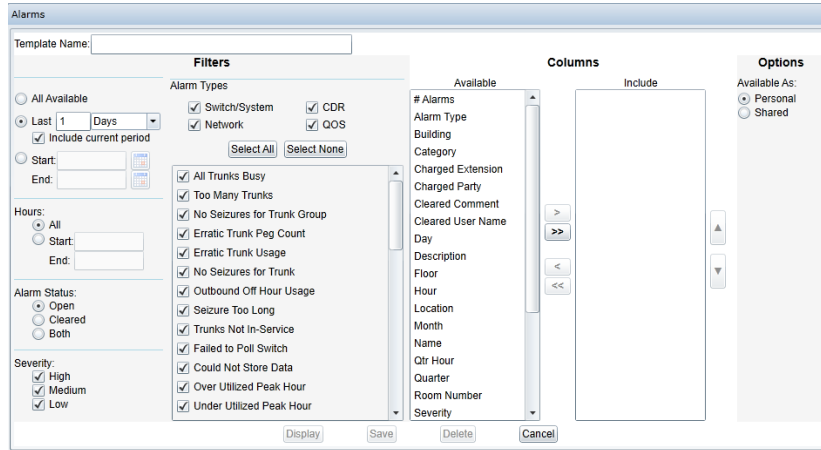
In addition to the standard web browser and OOB user interface, Traffic Analyst includes a Report Viewer. This interface is used for viewing e-mailed scheduled reports in the TARPT format. TARPT reports offer a means of delivering a customized data set to a user or community of users directly addressing their specific use case. It provides focus, speed and ease of use. When a report is scheduled with the TARPT format, the user will receive an e-mail with a link to the report. Clicking on the link will automatically open the report in the web browser. The user will be able to group, filter and sort the data in the web grid and interact with charts. However, this view will have a limited feature set compared to standard user interfaces. User cannot refresh the data or save changes. The user will not be able to edit or make changes to a chart, with the exception of using a predefined quick filter. Note that the links to TARPT reports are only valid for 60 days. Refer to Traffic Analyst Viewer Reference Guide for more information.

4.2. Alarm Reports

Alarm reports allow you to see all alarms over a period of time or specifically query for the alarms of interest – by date, type, status and/or severity.

- Alarm Types – See Section 3.1

- Data Dictionary – Refer to Traffic Analyst Data Dictionary Alarms Data Table for field definitions.
- Query Options – Use the screen below to name the report, filter the data and select columns for the new web grid.



- Clearing Alarms – From an alarm web grid or an alarm chart table, the user may select one or many open alarms and right mouse click to clear the selected alarm(s). Or, the user may quickly clear all alarms in the web grid by selecting “Clear All Alarms” option. The user may enter a comment when closing alarms. The user ID and comment are saved and available for future reporting.

	# Alarms	Alarm Type	Charged Extension	Name
CDR	2,184			
Call Too Long	1,407	Call Too Long		
Cleared	1,387	Call Too Long		
Open	20	Call Too Long		
		Call Too Long	1410	Call >= 1 Hour
		Call Too Long	1414	Call >= 1 Hour
		Call Too Long	1433	Call >= 1 Hour
		Call Too Lo		Call >= 1 Hour
		Call Too Lo		Call >= 90 Minutes
		Call Too Lo		Call >= 1 Hour
		Call Too Long	3501	Call >= 1 Hour

4.3. Call Forensics Reports

Call Forensics reports support analyzing calling patterns or quickly tracking down the detail about a subset of segments or calls or a single call event.

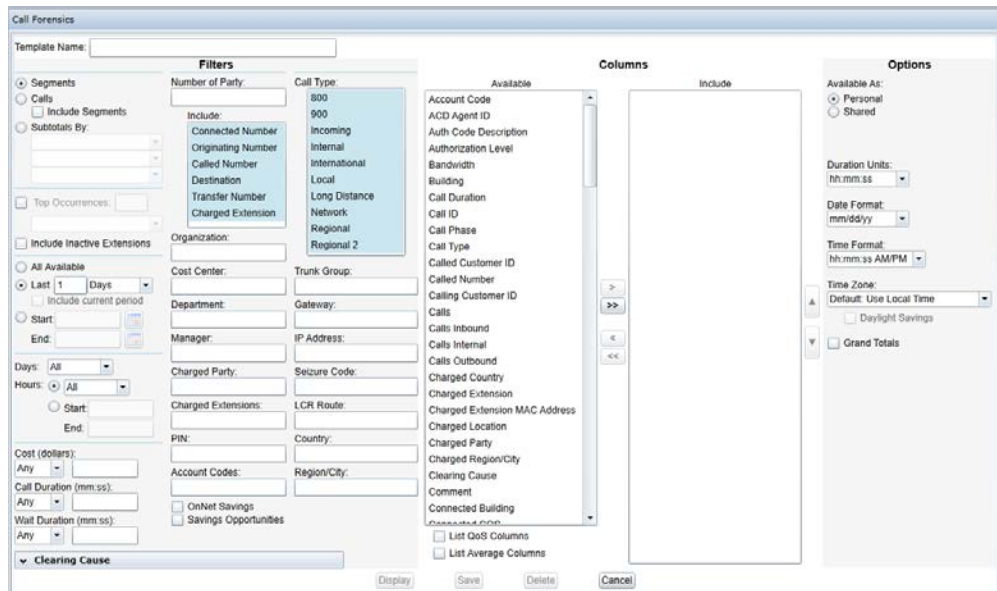
What is the difference between a segment and a call?

A segment is a single step or part of a call when the call does not change or no new parties are connected to the call. For instance, a segment is the incoming call that rings an extension. If the call is forwarded to voice mail, that is a second segment. A call record is created based on grouping all call segments with the same Call ID assigned by Traffic Analyst.

Note: It is important to understand that the Call Forensics Property screen filter criterion is based on segments. The system will search the database for segments that match the criteria entered. If “Segments” option is selected, all the segments that match the criteria will be returned in the report. However, if the user selects the “Calls” option, the system will find segments that match the criteria and then also include all segments that have the same Call IDs. For instance, all call segments for a call will be evaluated to calculate the Call Duration, Cost, etc. (not just the matching segments) for the call record in report. If the user requests the “Calls include Segments” under “Calls” option, all call segments for each Call ID will be presented.

- Data Dictionary – Refer to Traffic Analyst Data Dictionary, Section 1.1 Call Forensics Data Table for field definitions and Section 1.2 for field availability by switch type.
- Query Options
 - Use the screen below to name the report, filter the data and select columns for the new web grid. Note you can view segments, calls (with segments embedded) or only subtotaled results.
 - You can use wildcards. Use “*” as wildcard for any number of characters. For instance, enter M* for all subscribers that start with M or *WAN* for all trunk groups that contain WAN in the name. Or, use “?” for a single character match. For example, enter “14??” for all charged extensions that are four digits and start with 14.
 - You may also use ranges and lists, such as 1400-1500, 3000-3030, to find all Number of Party segments for extensions 1400-1500 or 3000-3030. Separate entries with a comma.
 - Enter “” in a search field to find records that have no data in that field. Does not work for Number of Party fields.
 - To select multiple Clearing Cause codes in the dropdown, hold down the Ctrl key and click the entries you want. Note the dropdown includes the clearing cause name with typically the standard code number in parentheses. For vendor specific codes, the manufacturer name is in parentheses.
 - Use the “Date Format” and “Time Format” dropdown lists to change the display formats.
 - The “Time Zone” dropdown defaults to the “Use Switch Settings” option to display each call segment in the time zone of the switch on which it was recorded. Select a specific time zone from the dropdown to display all calls based on the selected time zone. Check the “Daylight Savings” checkbox to use the summer time offset for that time zone.

- The “Grand Totals” check box will cause a total row to display at the top of the web grid.
- Note: You may want to set Call Duration > 0:00 if you are monitoring PSTN activity or creating financial analysis reports. If you are diagnosing abnormal call terminations or tracing calls through the network, we recommend not limiting the call duration. You will want to include calls that have been transferred by the system or calls that were not answered and typically these segments have zero (0) call duration.
- The “Max Simultaneous Calls” and “Max Simultaneous Seizures” fields are valid for Segments, Calls with Segments and Subtotals By report detail. Calls only reports will not have values for these fields. And, if Subtotals By report option is selected, the fields will be populated only for the subtotal rows and not Grand Total row or for any user groupings.
- Check the “OnNet Savings” and/or “Savings Opportunities” checkboxes to filter for records/segments with a nonzero value for each field respectively. Refer to VoIP Economics Analysis section to learn more about these fields.
- The “List QoS Columns” checkbox toggles the display on and off for the subset of QoS fields in the Available columns list. The default is to not display the QoS fields. If you want to create a report including some or all of the QoS columns, check the box and columns such as “Dest Min MOS,” “Dest Packets Sent,” “Orig R-Factor” and “Orig Max Jitter” will be listed.
- The “List Average Columns” checkbox toggles the display on and off for the subset of average value fields in the Available columns list. If you want to create a report including some or all of the average columns, check the box and columns such as “Average Call Duration,” “Average Wait Duration,” and “Average Cost” will be listed.



4.3.1. Explorer Tree Report Requests

When requesting a Call Forensics report from the Explorer tree, note the following special cases.

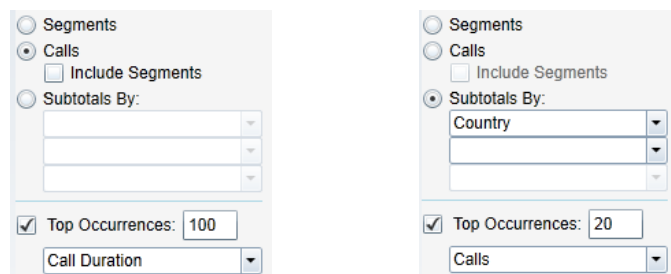
- If report requested from a specific company structure entity, such as node under Organization, Department, Cost Center or Manger trees, the result will display all calls or call segments which include that entity in the associated field. Such as a report from the Finance node under Department tree will find all calls or call segments with "Finance" populated in the Department field.
- If report requested from a specific entity in the Countries (including sub Region/City) or Location trees, the result will display all calls or call segments which include that entity in any of the associated Charged, Originating or Destination fields. Such as a report from the Kansas City node under Countries tree will find all calls or call segments with "Kansas City" populated in Charged Region/City, Originating Region/City or Destination Region/City field.
- If report requested from a specific Subscriber node, such as Joe Smith, the result will display all calls or call segments which include any of a subscriber's extensions plus records with his PIN(s).
 - If the template has any fields highlighted in the Number of Party Include option, the result will display all calls or call segments which include any of a subscriber's extensions in only those highlighted fields (such as Originating Number and Called Number, in example shown) plus records with his PIN(s).
 - If an additional number is included in the Number of Party field, the result will display only calls or call segments which include any of a subscriber's extensions in only those highlighted fields (such as Originating Number and Called Number, in example shown) plus records with the with Subscriber's PIN(s) AND also the additional number in one of those two fields. Basically, both a match on Subscriber (based on extensions and/or PIN) AND the additional number must be found for a record to appear in the report. For instance, if Joe's extension is 1234 and he has a PIN and 4567 is included in the Number of Party filter, one of the following scenarios must occur:
 - ✓ Joe's extension 1234 is in Originating Number AND 4567 appears in Called Number
 - ✓ Joe's extension 1234 is in Called Number AND 4567 appears in Originating Number
 - ✓ Joe's PIN is in record AND {4567 appears in Called Number and/or Originating Number}
 - If requesting a report for a specific Subscriber, extension or PIN from within one of the Consumer trees (Organizations, Cost Centers, Locations, Departments and Managers), the results will be the same as explained above with an additional filter applied for the tree entity. For instance, a report for Joe Smith under a Marketing node within the Departments tree will present his subset of calls with Marketing in the Department field (basically his calls that were charged to Marketing). For Location tree, note

Filters	
Number of Party:	<input type="text"/>
Include:	
	Connected Number
	Originating Number
	Called Number
	Destination
	Transfer Number
	Charged Extension

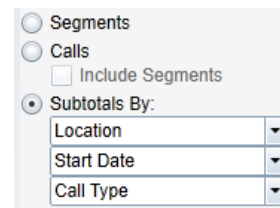
- o that calls will be included that have the specific location in any of the three fields (Destination Location, Originating Location and/or Charged Location).
- o If report requested from a specific Trunk Group node, note that the logic is “two sided.” A report for trunk group ABC will display all calls or call segments that have ABC in either the Trunk Group Prime or Trunk Group Transit fields.
- o Similarly, when asking for a report for a specific Route, the report will display all calls or call segments that have the individual trunk groups associated with that route appearing in Trunk Group Prime or Trunk Group Transit fields.

4.3.2. Top Occurrences

A special type of Call Forensics reports is the Top Occurrences. This option allows the user to find the top “x” of individual calls or segments (such as the 100 most expensive calls) or top “y” of summarized records (such as the top 25 subscribers who had the most calls). The example on the left below is for the top 100 individual calls (since “Calls” selected) with the longest call duration. The example on the right will create a report with the top 20 countries that were called based on the number of calls to that country.



The “Subtotals By” option allows creating a summary report that includes the subtotals (for fields such as Call Duration, Calls, Segments, etc.) without including all the call detail. This is a preferred option for large data sets. The user may select up to three columns in the dropdown lists. After defining the other search criteria, you may hit “Display” button. When the web grid appears, the user will typically want to group or sort by one or more of the subtotal fields.



4.3.3. Include Inactive Extensions

By default, extensions with no activity during the report period are not included in the report. Check the “Include Inactive Extensions” checkbox to include all valid extensions (subject to other filter selections), even if there were no calls. This will create a single “dummy” row for the extension in the report. All number fields (such as Called Number, Charged Extension, Destination, etc.) will be populated with the extension number, duration fields will be zero and the Calls and Segments count will be zero. See example below where extensions 1415 and 1416 had no calls but have a row in the report.

Note that the list of “valid” extensions is based on either a downloaded list of extensions from the switch (if supported) or the extensions that have had activity in in the last 365 days. In example below, extension 1413 is not valid; therefore, it does not appear.

Charged Extension x												
	Originating Number	Called Number	Connected Number	Destination	Transfer Number	Call Duration	Wait Duration	Queue Duration	Ring Duration	Calls	Segments	Cost
+ 1410						03:33:34	00:07:08	00:00:00	00:07:08	61	74	\$0.00
+ 1411						06:58:30	00:05:12	00:00:00	00:05:12	67	85	\$0.00
+ 1412	1412	1412	1412	1412	1412	00:00:00	00:00:00	00:00:00	00:00:00	0	0	\$0.00
+ 1414						03:23:57	00:06:53	00:00:00	00:06:53	62	72	\$0.00
+ 1415	1415	1415	1415	1415	1415	00:00:00	00:00:00	00:00:00	00:00:00	0	0	\$0.00
+ 1416	1416	1416	1416	1416	1416	00:00:00	00:00:00	00:00:00	00:00:00	0	0	\$0.00
+ 1417	3145153939	1417				00:00:06	00:00:00	00:00:00	00:00:00	1	2	\$0.00

4.3.4. Bulk E-Mails

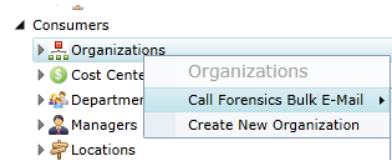
The concept of Call Forensics bulk e-mails allows the user to schedule a Call Forensics TARPT report to be automatically sent to a group of recipients based on the organizational structure configured within the Consumers Tree. Each entity within the Consumer Tree (other than Countries and Region/Cities) may have one or more e-mail addresses assigned. With one schedule, the following report options are available:

- All call activity for:
 - All extensions for Subscribers
 - Locations
- Call activity charged to the individual entity for:
 - Organizations
 - Departments
 - Cost Centers
 - Managers
- A combination of the above for a specific organizational entity. For example, a bulk e-mail request for the Marketing department may include the following reports:
 - Subscribers/employees in Marketing department receive report with call activity for all his/her extensions that is charged to the Marketing department
 - Marketing executive(s) receive report with call activity charged to the entire Marketing department
 - Cost center executives receive report with call activity charged to his/her Cost Center that is also charged to Marketing department
 - Location executives receive report with all call activity for his/her Location that is charged to Marketing department
 - Managers within the Marketing department receive report charged to him/her that is also charged to Marketing department

To schedule a bulk e-mail, use one of the following options.

4.3.4.1. “Root” Organizational Bulk E-mail

- Right mouse click on the “root” node of Organizations, Cost Centers, Departments, Managers, Locations or Subscribers.
- Choose the “Call Forensics Bulk E-Mail” option and then proceed through menu to select the template you want and choose “Schedule” option.
- The Schedule Report window will appear. You will note that the File Type is set to TARPT and cannot be changed and there is no option to enter e-mail addresses; but otherwise complete the options as with any normal report as explained in Section 4.1.6 Scheduling a Report.
- This will create a scheduled report event. Note that the Report Type is “Call Forensics Bulk E-Mail” and the Entity will be the specific node you clicked on to start the bulk e-mail request, such as “Organization = Organizations” as shown below.



Template	Report Type	Entity	Next Run Time	E-Mail Addresses
Alarms Last 3 Days	Alarms	Switch=STL HiPath 4000	10/5/2015 2:00 PM	beckym@impacttech.com
Monthly Department Report	Call Forensics Bulk E-Mail	Organization=Organizations	11/1/2015 3:00 AM	

4.3.4.2. Organizational Entity Bulk E-mail

- Right mouse click on an individual node within the Organizations, Cost Centers, Departments, Managers or Locations tree. (Not available for individual Subscriber.)
- Proceed through the menu to select the Call Forensics template you want and choose the “Schedule” option as you would for a “normal” scheduled report.
- The Schedule Report window will appear. Enter Time of Day and recurrence. Since only TARPT file types are supported for bulk e-mails, select “TARPT” in dropdown. Check Format Options and make any applicable changes to the File Name.
- Click the “Bulk E-Mail” radio button to update the screen to remove the e-mail addresses box and add organizational entities to select for your distribution. You must select at least one entity but you can select multiple. Assume you started your report request from the Marketing department node. If you check Department and Subscriber as shown below, then the following will occur:
 - An email with all call activity that is charged to the Marketing department will be sent to the e-mail address(es) assigned to the Marketing department and subscribers with assigned e-mail addresses will also receive an e-mailed report with only his/her calls that are charged to Marketing.

- If you also check “Cost Center,” then each cost center represented with an e-mail address will receive an e-mailed report for all calls for the call center that are also charged to Marketing.

- This will create a scheduled report event. The Report Type is “Call Forensics Bulk E-Mail” and the Entity will denote the entity type and specific entity, such as “Department = Marketing” as shown below.

4.3.4.3. Operations

When a scheduled bulk-email runs, the recipient will receive an email with the URL link to their report. This will look exactly like any other scheduled TARPT report. They may click on the link to view their report.

You may edit the schedule at any time as you would any other report. Go to Tools/Scheduled reports. In the Scheduled Reports window, highlight your report and click Edit button. Make your updates save. You may also delete the schedule from the Scheduled Reports window.

As entities and/or e-mail addresses are added, Traffic Analyst will automatically update the report distribution and send the reports to the new and edited entities.

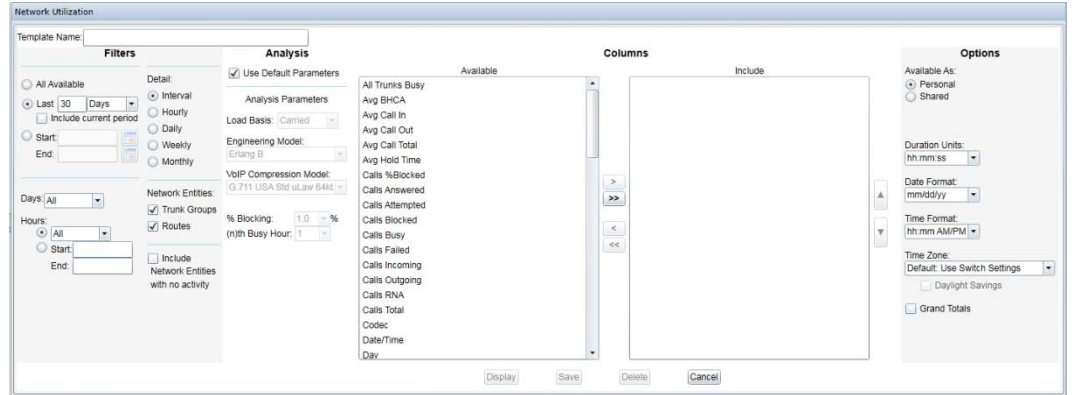
4.4. Network Reports

There are five (5) types of network reports: Utilization, QoS, Zone QoS, Modeling and Gateway. The availability of the reports may depend on switch type and where attempting to access them in the Explorer tree.

4.4.1. Utilization

Network Utilization reports support analyzing usage patterns, call counts and performance. User may also leverage “what if” modeling options.

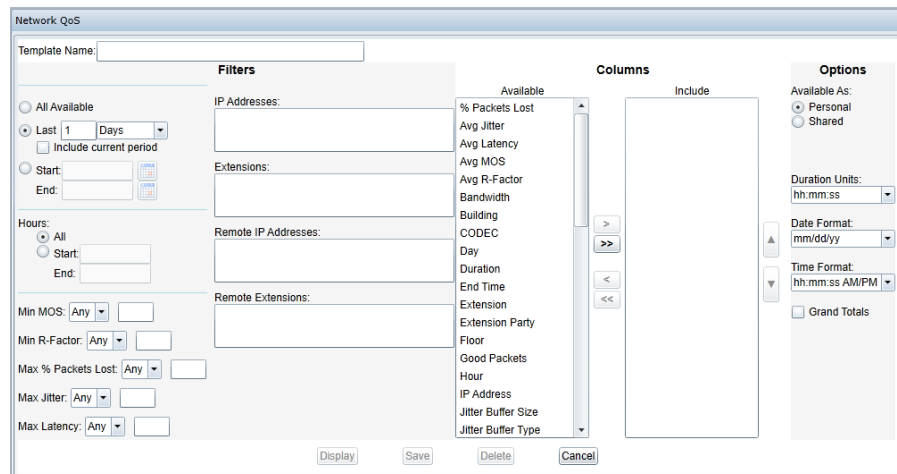
- Data Dictionary – Refer to Traffic Analyst Data Dictionary Network Utilization Data Table for field definitions.
- Query Options – Use the screen below to name the report, filter the data, choose modeling parameters and select columns for the new web grid.
 - Network Entities may include Trunk Groups, Virtual Trunk Groups and Routes. If your report does not include all the entity types you expected, first check to assure you have checked the ones you want. Since virtual trunk groups are only valid for selected switch types, the Virtual Trunk Groups option may not be visible if not applicable for report.
 - For estimating the required trunks and/or bandwidth fields, use the default parameters set for the switch or trunk group (Refer to Sections 2.6.1 and 2.6.2). Or, uncheck the “Use Default Parameters” box and you may enter the parameters for the specific report template.
 - The “Grand Totals” check box will cause a total row to display at the top of the web grid. Note that Grand Totals is only available for reports that include only Trunk Groups. If Route or Virtual Trunk Group network entity types are selected, the Grand Totals check box is not available.
 - By default, network entities with no activity during the report period are not included in the report. Check the “Include Network Entities with no activity” box to include all trunk groups and routes (subject to Network Entities filter selection) that are configured on the switch in the report, even if there were no calls. Also note that if trunk groups or routes are set to be “hidden” in the Administrative client, they will not appear in this report either.
 - Use the “Date Format” and “Time Format” dropdown lists to change the display formats.
 - The “Time Zone” dropdown defaults to the “Use Switch Settings” option to display each network entity in the time zone of the switch on which it resides. Select a specific time zone from the dropdown to display network entities based on the selected time zone. Check the “Daylight Savings” checkbox to use the summer time offset for that time zone. Note that this option is only available for Interval and Hourly detail reports.



4.4.2. QoS

QoS reports allow you to analyze the quality of your network and quickly spot poor performance. Network QoS data is available for Cisco Unified Communications Manager (UCM), Unify OpenScope Voice and Unify OpenScope 4000/HiPath 4000.

- Data Dictionary – Refer to Traffic Analyst Data Dictionary Network QoS Data Table for field definitions.
- Query Options
 - Use the screen below to name the report, filter the data and select columns for the new web grid.
 - You can focus on specific IP address or extension ranges. For instance, you may enter 10.2.* for all IP addresses that begin with 10.2. or you may enter 2500-2600 for Extensions range.
 - Use the “Date Format” and “Time Format” dropdown lists to change the display formats.
 - The “Grand Totals” check box will cause a total row to display at the top of the web grid.



4.4.3. Zone QoS

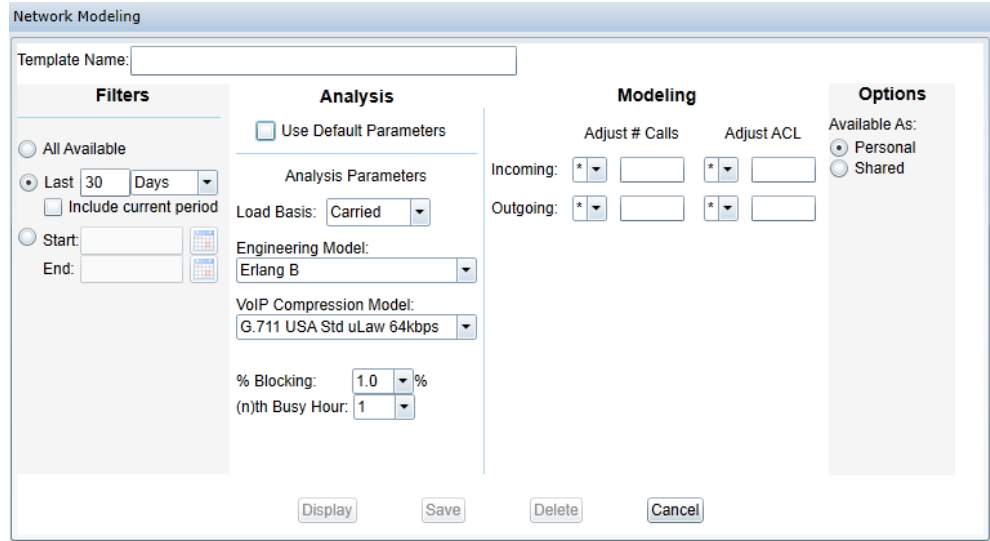
The Zone QoS data is available for Avaya CS1000 only.

- Data Dictionary – Refer to Traffic Analyst Data Dictionary Zone QoS Data Table section for field definitions.
- Query Options
 - Use the screen below to name the report, filter the data and select columns for the new web grid.
 - Use the “Date Format” and “Time Format” dropdown lists to change the display formats.
 - The “Grand Totals” check box will cause a total row to display at the top of the web grid that will provide totals across all zones and/or switches (depending on groupings selected).
 - Typically, you will want to group by Switch Name then Zone Number or by the Switch Name: Zone Number field. You may also choose to add groupings based on time (such as Day, Week, Date/Time, etc.).

4.4.4. Modeling

Modeling reports are available for trunk group/gateway and route nodes. The option is also available for a Virtual Group if it contains at least two trunk groups at the top level. (Note that the report will only model the trunk groups at the top level and not those inside a route or within a sub Virtual Group.) The reports highlight the number of blocked calls based on trunk groups and/or bandwidth available.

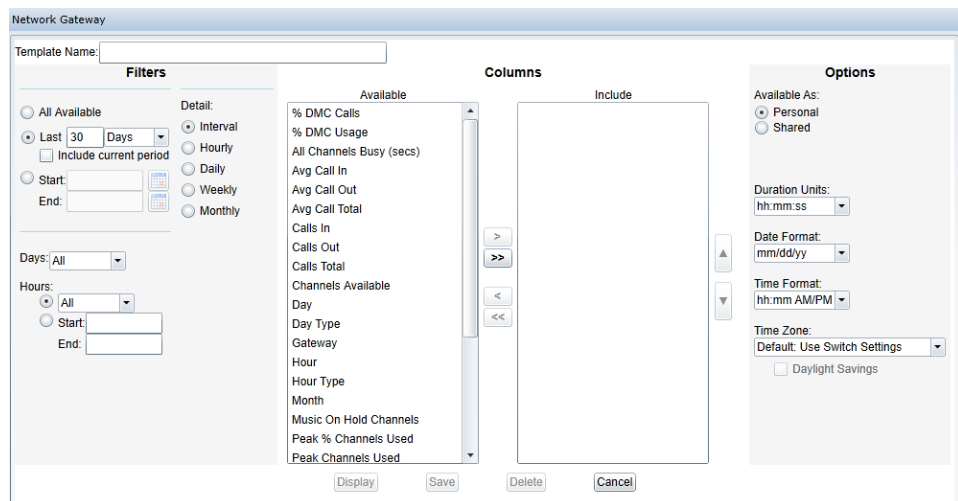
- Data Dictionary – Refer to Traffic Analyst Data Dictionary, Section 6 Network Modeling Data Table for field definitions.
- Query Options – Use the screen below to name the report, select date range, define grade of service target and model any call count or average call length changes.



4.4.5. Gateway

The Network Gateway reports allow you to analyze the utilization and performance of Unify OpenScope 4000/HiPath 4000 gateways and OpenScope Branch gateways. Report is available for the gateways in the Explorer tree and also at the Private Network and/or Switch level, assuming the gateways are defined below that node.

- Data Dictionary – Refer to Traffic Analyst Data Dictionary Network Gateway Data Table for field definitions.
- Query Options
 - Use the screen below to name the report, filter the data and select columns for the new web grid.
 - Selected the preferred “Duration Units” format.
 - Use the “Date Format” and “Time Format” dropdown lists to change the display formats.



4.5. Organization Reports

Organization reports present the corporate hierarchical and location/wiring information plus information such as IP address and MAC address (note MAC only available for Cisco UCM) for an entity in the Explorer tree. You may choose to see only the current information, all modifications or only the changes within a time interval.

4.6. Extension Activity

The Extension Activity report is available at the Private Network node and for individual switches. It includes an option to query for active or inactive (no calls) extensions over a period of time, such as last 30 days. Or, you can select “All Extensions.” Available report columns include Switch Name, Extension, IP Address, Previous IP Address, Date Last Used, MAC Address, # Extensions and the organizational data fields associated with the extension. The # Extensions field will display the number of extensions that meet the report criteria and is typically used for grouping within the web grid display. For instance, if you run the report at the Private Network node, you may choose to group by Switch Name and the # Extensions field will show you the number of active or inactive (based on selection) extensions for each switch. Click the Grand Totals check box if you want to include a total across all groupings.

Note that this report is an “aging” report in that Traffic Analyst only can report on data since it was installed (or upgraded to release including this report). In other words, if Traffic Analyst has only been operational for 30 days, the valid report range is 30 days or less. For switches other than OpenScape 4000/HiPath 4000, OpenScape Voice and Cisco (if configured), if an extension has no activity since Extension Activity report was available, that extension will not appear in a “no activity” report because Traffic Analyst

has no knowledge of it. Finally, activity data is only saved for one year so extensions with most recent calls more than a year old will also never appear in report.

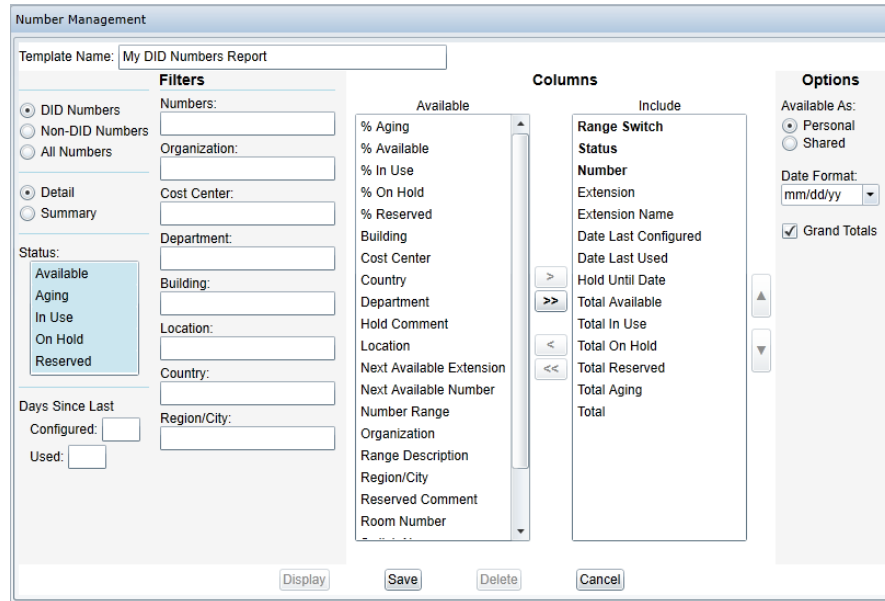
Refer to Traffic Analyst Data Dictionary Extension Activity Data Table section for field definitions.

4.7. Number Management

The Number Management report provides insight into the state of DID and non-DID numbers and supports basic number management, such as holding numbers and indicating the next available number in a range. Summary and Detail options are available in addition to reporting on non-DID numbers.

- Data Dictionary – Refer to Traffic Analyst Number Management Data Table section for field definitions.
- The Number Management report is available at the Private Network node, for individual switches and within the Consumers Tree.
- Query Options – Use the screen below to name the report, choose report parameters, filter the data and select columns for the new web grid.
 - Report may include only DID or non-DID numbers or both.
 - Select “Detail” to see information about individual numbers. Select “Summary” for highlights on the ranges or numbers.
 - “Status” option is only applicable for Detail reports. Highlight the statuses to include in your results.
 - For Detail reports, you may enter a number of days into the “Days Since Last Used” or “Days Since Last Configured” box to restrict the report to only numbers that meet criteria.
 - To restrict the results based on a range of numbers, organizational hierarchy or physical location information, populate the appropriate filters.
 - You can use wildcards. Use “*” as wildcard for any number of characters. For instance, enter 314* for all numbers that start with 314. Or, use “?” for a single character match. For example, enter “14??” for all numbers that are four digits and start with 14.

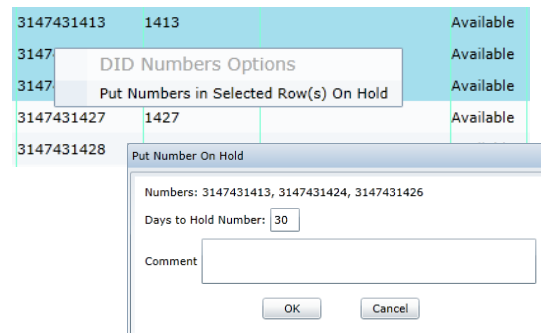
- You may also use ranges and lists, such as 1400-1500, 3000-3030. Separate entries with a comma.
- If you limit by organizational fields, note that only numbers assigned to that Organization or Department, for instance, will appear in the Detail or Summary report.
- Use the “Date Format” dropdown list to change the display format.
- The “Grand Totals” check box will cause a total row to display at the top of the web grid.



Special notes regarding accounts with “Any” switches defined.

- When defining your number ranges, you have the option to select “Any” as the Range Switch if you do not want to specifically associate the numbers to a single switch. This may apply if you are in the process of porting numbers between switches. If you have defined “Any” ranges, it is highly recommended that you run your Number Management reports strictly from the Private Network node for the most accurate and complete analysis.
- A number will appear as “In Use” if the number has usage on any defined switch. A number will appear as “Available” only if available for all switches.
- If you generate a number management report from a specific switch, the numbers in the “Any” range will not appear.

From the web grid, the user may put numbers into the “hold” state. Only numbers in the “available” state are eligible to be placed on hold. For a Detail level report, you may select one or many rows and right mouse click for the “Put Number in Selected Row(s) On Hold



Hold” option. By clicking the link, a window will open requesting the number of days to hold the number(s) and a comment. Press “OK” to put the number(s) on hold. The status of the number(s) will update immediately.

The process is similar for a Summary level report; however, this will automatically hold the Next Available Number for the range(s) selected in the row(s). You will note that the Next Available Number and Next Available Extension fields will be blank after your hold. You may refresh the web grid to see the next available numbers.

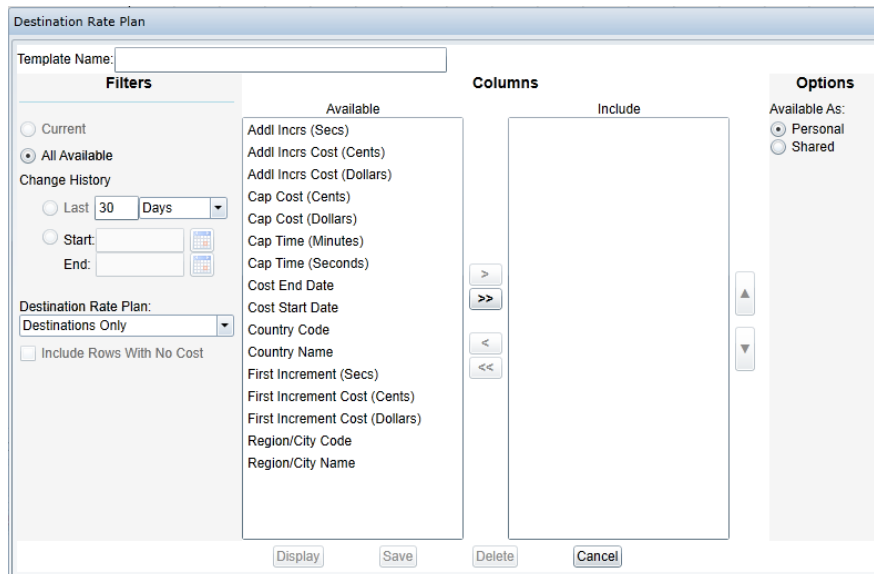
If you need to change the number of days or want to update the comment for an on hold number, you may select the row(s) and right mouse click for the “Edit On Hold Numbers in Selected Row(s) On Hold” option. Make your updates and hit “OK.”

The most current user ID, hold date and comment are saved and available for future reporting. The Hold Comment persists until the number becomes Available again.

4.8. **Destination Rate Plan Report**

The Destination Rate Plan report presents the rates for a selected rate plan. You may choose to see only the current rates, all available edits or the changes within a time interval. Click the check box if you want to include destinations that have no cost assignments. This report is only available at the Private Network node in Explorer tree. Press “Display” to generate the web grid. Press “Save” to save your query changes and remain on the screen. Press “Delete” to delete the template and “Cancel” to close the window and not save changes.

Refer to Traffic Analyst Data Dictionary Destinations Rate Plan section for field definitions.



4.9. Audit Log Report

The Audit Log report is available for administrators only and is found in the Private Network menu in Explorer tree. It provides a journal of system activity such as logins, logouts, saving templates, changing passwords and more. In addition to date and time filters, you may filter the data with the “User,” “Module” and “Action” dropdowns. You must select a module to activate the “Action” dropdown. Press “Display” to generate the web grid. Press “Save” to save your query changes and remain on the screen. Press “Delete” to delete the template and “Cancel” to close the window and not save changes.

Refer to Traffic Analyst Data Dictionary Audit Log section for field definitions.

4.10. Status Log Report

The Status Log report is available for administrators only and is available at the Private Network node and individual switch menus in Explorer tree. The report displays activities that are either in progress or are finished. The status of the activity is important. Activity descriptions include:

- In Progress – activity is currently in progress
- Success - worked as expected
- Failure - the activity was attempted but failed
- Terminated - the application was shut down during an event in progress (You will need to reschedule the event if you want it to reoccur.)
- Warning - an error condition was noted
- Message – informational note

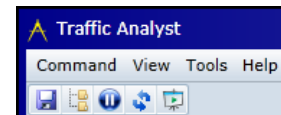
Name	Activity	Date/Time	Description	Support File	Status	Severity
North America	Collect and Store	09/24/15 12:30:12 AM	9/23/2015 scheduled OpenScope storage request.		Warning	Low
Detroit OSV	Collect and Store	09/24/15 12:33:28 AM	9/23/2015 scheduled OpenScope storage request.	d_20150923.cdr	Warning	Low
St. Louis OSV	Collect and Store	09/24/15 12:35:05 AM	9/23/2015 scheduled OpenScope storage request.		Failure	Low
ISU CUCM	Storing	09/24/15 01:37:47 AM	9/23/2015 on demand Cisco Storing request.		Success	Low
ISU 9751	Polling and storing	09/24/15 02:00:00 AM	9/23/2015 scheduled 9005 polling and storage request.		Failure	Low
ISU CUCM	Storing	09/24/15 02:07:46 AM	9/23/2015 on demand Cisco Storing request.		Success	Low
STL HiPath 4000	Collect and Store	09/24/15 02:30:29 AM	9/23/2015 scheduled 4000 storage request.	d_20150923.cdr	Warning	Low
ISU CUCM	Storing	09/24/15 02:37:49 AM	9/23/2015 on demand Cisco Storing request.		Success	Low
ISU CUCM	Collect and Store	09/24/15 05:26:26 AM	9/23/2015 scheduled Cisco storage request.	d_20150923.cdr	Warning	Low
Detroit OSV	Storing	09/24/15 11:16:57 AM	9/23/2015 on demand OpenScope Storing request.		Warning	Low
STL HiPath 4000	Scheduled Reports	09/24/15 02:00:13 PM	Processing report schedule.		Success	Low
North America	Collect and Store	09/24/15 03:20:07 PM	9/24/2015 scheduled OpenScope storage request.		Warning	Low
STL HiPath 4000	Collect and Store	09/24/15 03:21:21 PM	9/24/2015 scheduled 4000 storage request.	d_20150924.cdr	In Progress	Low
ISU 9751	Collect and Store	09/24/15 03:25:22 PM	9/24/2015 scheduled 9006 polling and storage request.		Success	Low

From the Status Log webgrid, select a row and right mouse click. There are two potential options available.

- View Log Detail - The Detailed Message Information window gives you the task-by-task progress of the overall activity from the perspective of Traffic Analyst. It tells you each step of what Traffic Analyst is trying to accomplish, and the result of that step.
- View Support File – If the activity row includes a file name in the Support File column, this option will open the file in a scrollable window. You can view the character-by-character interaction with the switch. It is very useful for diagnosing problems.

5. Menu Bar

The menu bar provides quick access to many key features and configuration options. Access to some features and menu options is limited based on the security level of your login.







5.1. Command

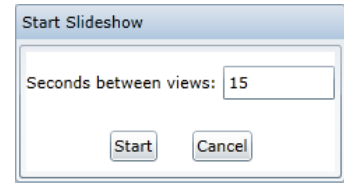
- Save Desktop – If you have made any changes to the windows on your desktop, you can save those changes so that next time you log in, the display will be as you left it. Clicking the save icon below Command also saves the desktop.
- Logout – Logout of the system.
- Install OOB – To install the Out of Browser application, click this option. If already installed, this option will be grayed out.

5.2. View

- Main Toolbar – Hides/shows the toolbar below main menu.
- Docking Windows – Hides/shows the header or footers for all the open docked windows on the desktop.
- View Explorer – Hides/shows the Explorer tree. Clicking the explorer icon below Command also hide/shows the tree.
- Global AutoRefresh – Toggles AutoRefresh enabled or disabled for the entire

dashboard. Clicking the arrow icon  below Command also toggles global automatic refresh. Clicking the refresh icon  manually refreshes the dashboard on demand.

- Toggle Slideshow Mode - Slideshow mode will automatically display rotating views within a single pane, similar to slides automatically cycling in PowerPoint. When toggled on, the user will be prompted to select the time interval to display each view. The valid range is 15 to 120 seconds. It is recommended that the dashboard have a single pane with multiple tabs to run in slideshow. However, if the dashboard has multiple panes, only the pane with the most tabs will have the rotating views. You may also activate and deactivate slideshow mode with tool bar icons. The play icon  indicates slideshow mode is activated. Press icon to deactivate. This icon  indicate slideshow mode is off.



5.3. Tools

5.3.1. Alarms

Refer to Section 3 above.

5.3.2. Scheduled Reports

Provides a centralized window to view, edit and delete scheduled reports the user created. To make changes to a schedule, click the report row and hit Edit button. To initially schedule a report, use the Explorer tree report menu option. Refer to Section 4.1.6 for more information. (Administrators can see all scheduled reports for all users within account.) If a report is scheduled for a “one time” generation, the entry will appear in this list until the report is generated and then it will be deleted.

Template	Report Type	Entity	Next Run Time	Email Addresses
Call Log Last 2 Days	Call Forensics	Subscriber=Dancy, Becky	6/15/2012 4:02 PM	beckym@impacttech.com
Calls Last 3 Days with Segments	Call Forensics	Manager=Baehr, Bryan	6/15/2012 4:04 PM	beckym@impacttech.com
Most Frequently Called Numbers	Call Forensics	Location=Chesterfield	6/15/2012 4:05 PM	beckym@impacttech.com
Alarms Last 3 Days	Alarms	Switch=Impact (HP4K)	6/14/2012 3:00 AM	beckym@impacttech.com
Network Last 14 Days	Network Utilization	Route=Nuvox Route	6/18/2012 5:00 AM	beckym@impacttech.com

Similar to report web grids, you may filter and sort the entries. Sort with a left mouse click on a column header. Add a filter by hovering mouse over column header and clicking on the arrow on the right side of column.

5.3.3. User

Menu options vary based on permissions:

- Change Password – User may update password (Note: password and username are case sensitive)

- Who Am I? – Provides the user name and account that is currently logged in
- All Users (only available for administrators) – Supports user maintenance, including adding, editing and deleting users
 - To add a new user, click “New” button from All Users screen and the window below appears. Enter the user data, select the switches the user should have access to in the Explorer tree and feature access (typically Network and/or Call Detail)

5.3.4. Organization File

The Organization file supports mapping the Charged Extension to corporate hierarchy and wiring information for display in Call Forensics reports. With this menu option, you may upload a file or export the existing organizational information to a comma Separated Values (CSV) file so you can edit the information. The CSV file has the following columns:

- Switch
- Phone Number to match with Charged Extension in call record
- Subscriber Name*
- Department*
- Cost Center*
- Organization*
- Manager*
- PIN*
- Location*
- Building*
- Floor*
- Room*
- Jack*
- IDF*
- MDF*
- Pad
- Device Type
- Class of Service
- E-mail Address

When importing a file, the following rules apply:

- Empty field in the file will have no impact on subscriber record (no changes made).
- Use “<clear>” in field to delete the existing field value. The next value either imported or downloaded from switch will populate the field.
- Use “<block>” in field to prohibit/block the switch download from updating the field for subscriber record. This will clear any existing data.
- Use “<unblock>” in field to allow the switch download to populate a field. This does NOT clear any existing data.
- Use “<delete>” in the third column of the file to delete the record and remove extension/subscriber from explorer tree.
- Fields noted above with asterisk (*) will not be updated by a switch download if they are first populated by the import file. Use the <clear> or <unblock> commands to override this rule.
- Device Type, Pad, E-mail and Class of Service are 'last in wins' fields. Any import or download will overwrite existing field value. (<block> option is not applicable.)
- There must be a Subscriber Name in the record for the Email Address to be set.

The import file supports ranges for the Phone Number field to facilitate mass updates for common fields such as Department or Cost. However, please consider the following points:

- The range must be entered as xxxx-xxxx or xxxxxxxxxx - xxxxxxxxxx, with equal numbers of digits before and after the dash.
- If you import a range, it will not overwrite any existing organization or wiring information you have entered for any specific extensions within the range.

Note: Typically you will import an initial file with the columns populated that are important to your business. To make changes, access the Subscriber or Extension Properties screen and make the edits directly in the window. Or, you can make the changes to your original CSV file and reimport the entire spreadsheet or simply the rows with changes. Using the CSV file is recommended if you have more than a few updates. Also, you may use the CSV file to delete entries.

If you are leveraging the bulk e-mail option, there is an additional line format to assign e-mail addresses to organizational entities. The format of the columns is:

- Type (Only valid options are Organization, Cost Center, Department, Manager and Location)
- Name
- E-mail Address (Multiple addresses may be added by separating each with a semi-colon)

5.3.5. Destinations

When Traffic Analyst is installed, it includes a default “Destinations Only” table

including four columns: Country Name, Country Code, Region/City Name and Region/City Significant Digits. These values are used as a lookup to populate the City/Region and Country fields of the Call Forensics reports (based on the destination of a call).

Select the Destinations option to view or edit the destinations. To create a new country, click “New” button to right of Country. In the new window area, type in the new country name and code and select Apply.

The screenshot shows a dialog box titled "Edit Destinations". It contains the following elements:

- A "Country:" dropdown menu.
- A "Code:" text input field.
- "Edit" and "New" buttons next to the "Code:" field.
- A "Region/City:" dropdown menu.
- "Edit" and "New" buttons next to the "Region/City:" field.
- A section for "New Country Name:" with a text input field containing "My New Country" and a "New Code:" text input field.
- "Apply", "Delete", and "Cancel" buttons below the "New Country Name" section.
- A "Close" button at the bottom center.
- A yellow error message at the bottom: "Please enter a valid Country Code."

You may then add Region/City names and codes. Click “New” button to right of Region/City. In the new window area, type in the new region/city name and code and select Apply. If no specific Region/City names and codes are added, a “(No Region/City Assigned)” will appear in the Region/City dropdown for that country. This implies that for calls to this country, the Country field will be populated with the country name and the Region/City field will be populated with “No Region/City Assigned” for the Call Forensics reports and any rates will be country-wide.

The screenshot shows the "Edit Destinations" dialog box with the following details:

- "Country:" dropdown menu set to "United States".
- "Code:" text input field containing "1".
- "Edit" and "New" buttons next to the "Code:" field.
- "Area Code:" dropdown menu and "Prefix/Exchange Code:" dropdown menu, separated by "Or".
- "Region/City:" dropdown menu.
- "Edit" and "New" buttons next to the "Region/City:" field.
- A "Close" button at the bottom center.

If you are adding a new entry for a country that is part of the North American Numbering Plan (including United States and its territories, Canada and some Caribbean countries), the screen will update and present dropdown lists for Area Code and Prefix/Exchange Code. Click “New” button to right of Region/City. In the new window area, type in the new region/city name, area code and optional prefix and select Apply.

To edit an existing country or region/city, simply select it in the dropdown list and hit Edit button. If you select a country that is part of the North American Numbering Plan (including United States and its territories, Canada and some

Caribbean countries), the screen will update and present dropdown lists for Area Code and Prefix/Exchange Code in place of the single Region/City dropdown. Note: For selecting a Region/City, you make select entry via the name or the code dropdown list. Make appropriate updates on screen and hit Apply. To delete, select the entry in dropdown, hit Edit and then hit Delete on window.

When you complete your updates and hit the “Close” button, you will be prompted to “Reanalyze Existing Days.” Enter a date and select OK to backdate your changes and reprocess CDR. Or you can simply hit Cancel and your updates will apply going forward.

Note: Adding, editing or deleting a Destination impacts all Destination Rate Plans within the Account.

5.3.6. Rate Plans

Traffic Analyst supports two types of rate plans. The Base Rate Plan sets the default rates based on Call Types defined by dialed digits. The Destination Rate Plans support location-based rates for International Call Types. The user may create and edit multiple rate plans. A rate plan may be used for multiple switches and/or trunk groups.

5.3.6.1. Base

Under Rate Plans, select Base. To add a new Base Rate Plan, click on <Add Plan> in left window, enter the rate plan name in window and press “OK.” Enter the appropriate increments and rates based on call type. Note that “Cap Time” and “Cap Cost” allow the user to limit the charge for calls based on a defined call time. For instance, in the example below, the Local calls are rated with a 50¢ set up fee (since first increment set to 0) and then 10¢ for every additional 60 seconds. However, the charge for the first 20 minutes is capped at 100¢ (or \$1). If the call exceeds 20 minutes, the call is rated with the 50¢ setup plus 10¢ for every minute of the call duration (basically the cap is ignored if the call exceeds 20 minutes).

To copy, delete or rename a rate plan, right mouse click on the rate plan in the left window and select desired option.

Call Type	First Increment (Secs)	Cost First Incr (Cents)	Additional Increment (Secs)	Cost/Addl Increment (Cents)	Cap Time (Mins)	Cap Cost (Cents)
Internal	0	5	0	0		
Incoming	60	5	60	1		
Network	60	10	60	2		
Local	0	50	60	10	20	100
Regional	60	10	60	1		
Regional 2	0	10	60	0		
800	0	0	60	0		
900	0	500	60	50		
Long Distance	60	10	60	5		
International	60	100	60	50		

5.3.6.2. Destination

Under Rate Plans, select Destination. There are three options available: Edit, Upload and Export. Destination Rate Plans may be imported from a CSV file or entered directly.

Edit

To add, modify or delete a Destination Rate plan, select Edit option. To create a new plan, click on <Add Plan> in left window, enter the rate plan name in window and press "OK." Select a country in the dropdown menu. You may enter a default rate for the entire country (designated by the "()") entry) or select a region/city and enter rates for each region/city. If you need to add a new country or region/city, hit the Edit Destinations button.

Effective Date	First Increment (Secs)	Cost First Increment (Cents)	Additional Increment (Secs)	Cost/Addl Increment (Cents)	Cap Time (Mins)	Cap Cost (Cents)
06/13/12	60	40	10	5	0	0

If you select a country that is part of the North American Numbering Plan (including United States and its territories, Canada and some Caribbean countries), the screen will update and present dropdown lists for Area Code and Prefix/Exchange Code in place of the single Region/City dropdown.

Effective Date	First Increment (Secs)	Cost First Increment (Cents)	Additional Increment (Secs)	Cost/Addl Increment (Cents)	Cap Time (Mins)	Cap Cost (Cents)
8/11/2015	60	5.00	60	1.00	0	0.00

Also under the Edit option, you may modify rates. Select the country and optional region/city or area code/prefix. At this point, you can update the existing row or add a new cost. If you update the existing row, the new rate (including effective date) basically replaces the original rate as if the previous rate never existed. In most cases, you will probably want to hit “Add Cost” to create a new row and enter the new rate with the effective date. If changes are backdated, you will be prompted to reprocess once you complete all cost updates.

To copy, delete or rename a rate plan, right mouse click on the rate plan in the left window and select desired option.

Upload

To import a new Destination Rate Plan, select Upload option, browse to the file to upload and enter a unique name for the new Destination Rate Plan. The CSV file format is as follows:

- Country Name
- Country Code
- Region/City Name
- Region/City Significant Digits
- First Billing Increment (seconds)
- Cost for First Increment (cents or 1/100 of currency*)
- Additional Increment (seconds)
- Unit Cost per Additional Increment (cents or 1/100 of currency*)
- Cap Time (minutes)
- Cap Cost (cents or 1/100 of currency*)

** Note: If using US Dollars, the spreadsheet may also use the format of \$0.50 instead of simply 50.*

Upload Destination Rate Plan File

Account: TAWebDemo

File to Upload:

Select a file

Destination Rate Plan Name: My International Rates

Effective Date: 08/05/2014

OK Cancel

For modifications to rate plans, you can make the changes to your original CSV file and reimport the entire spreadsheet or simply the rows with changes. To update a rate, simply update the row in the spreadsheet and import. If you want a region to have a zero (0) charge and the default rate for the country has a non-zero rate, you need to set the country/region line with the first increment seconds or additional increment seconds greater than 0 and the costs equal to 0, as example below shows:

```
"US", "1", "", "", 60, 2, 60, 1,,
"US", "1", "St. Louis", "314",,,,, // Defaults to US rate
"US", "1", "St. Louis", "314", 60, 0, 60, 0,, // Cost is zero
```

Once you have the CSV updated, select Upload option, browse to the file to upload, choose the rate plan you want to update from the Destination Rate Plan Name dropdown, select effective date and hit "OK."

The Upload option may also be used for adding or modifying Destination location information. For instance, to add new region, create a row with the first four columns populated (and optionally fill in the rate information) and import the CSV file with a single row or the entire spreadsheet with row added. In this case, do not provide a Destination Rate Plan Name but enter an effective date.

Export

To export a Destination Rate Plan, select Export option and select the plan in the dropdown menu. You may choose to export the rates as a simple numeric value or as a currency. For example, if the rate for the United States is 40 cents:

- If you select "Cost in Cents" the export will be "40"
- If you select "Cost in Dollars" the export will be "\$0.40"

5.3.7. Options

The Options menu allows user to set parameters for default system behavior, including:

- *General Tab*: Optimize the dashboard space by hiding/showing main

toolbar, window headers and footers and Explorer tree; set default color palette and toggle the Global AutoRefresh on and off

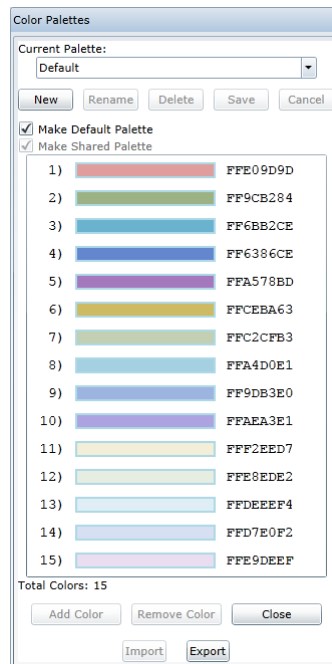
- *Fonts and Colors Tab* – Set defaults for fonts and colors for web grids and Explorer tree
- *PDF Documents Tab* – Define PDF default parameters such as font, font size, paper size, orientation, margin, levels for bookmarks and including the report criteria as part of the report. Note the default header for PDF is “<RN> for <EN>”, which is report_name for entity_name. By checking the “Set Header to File Name” box, the document header will then be whatever you enter into the File Name box which may be prepopulated with a default. These default options may all be overwritten for individual scheduled and exported reports.
- *Excel Documents Tab* – Define Excel default parameters such as font, font size, paper size, orientation, margin, and including grouping rows. Note the default header for Excel is “<RN> for <EN>”, which is report_name for entity_name. By checking the “Set Header to File Name” box, the document header will then be whatever you enter into the File Name box which may be prepopulated with a default. These default options may all be overwritten for individual scheduled and exported reports.

The Options menu has two additional sections available for users with administrative rights:

- *TARPT Documents Tab* – Update the server name or IP address for the Report Viewer web service URL in the case that the name or IP address changes or Traffic Analyst is moved to another server.
- *Scheduled Reports Tab* – Select the report formats that are allowed to be scheduled. Typically used to turn off PDF and Excel formats in the scenario when Traffic Analyst is running as a service.

5.3.8. Color Palettes

The user may select a default palette that drives the color combination for all charts. The user may also edit existing palettes and create new. Note that changes to palettes are reflected to all users.



5.3.9. Number Management

Number Management allows you to enter number ranges (both DID and non-DID) to track and report on the statuses of the numbers. Statuses include Available, Aging, In Use, On Hold and Reserved. The system also determines the “next available” extension and/or number.

After selecting “Number Management” in Tools menu, begin by entering the “Default Aging” values. The Aging options define the logic that will cause a number to flip from “In Use” to “Available” status. You may set one or both of the defaults:

- Days Unused – number of days with no call activity
- Days Unconfigured – number of days since number was known to be configured on a PBX. For implementations where Traffic Analyst is not downloading extensions from PBX, leave this as “0.”

For instance, if you set “Days Unused” to 90 and leave “Days Unconfigured” set to 0, then after a number has not received or started a call for 90 days, the number will be available for assignment to another Subscriber. Valid range is 0 to 999 days.

Number Management

Default Aging: Days Unused: Days Unconfigured:

Number Management Ranges

Range Switch	Type	First Number	Last Number	Days Unused	Days Unconfigured	Description
STL OpenScape	DID	3500	3799	90	60	ACD
Des Moines HiPa	Non-DID	7200	7299	120	100	2nd lines
STL OpenScape	DID	8000	8200	60	50	Keller
Any	DID	2122002000	2122002057	90	0	NY Office
STL OpenScape	DID	3147431400	3147431499	90	0	Headquarters staff
St. Louis OSV	DID	3147433000	3147433050	30	0	Holreal Office
STL OpenScape	DID	3147435000	3147435100	60	0	Jefferson Office
St. Louis OSV	DID	3147438000	3147438010	30	0	Plant

Add Range Remove Range

Reserved Numbers for Selected Number Management Range

First Number	Last Number	Comment
3147431400		Main number
3147431404	3147431405	Voice Mail
3147431420		Customer Support Pilot
3147431430		Sales Pilot

Add Reserved
Remove Reserved
Remove All Reserved
Expand Range
Collapse Ranges
Upload Reserved...

OK Cancel

5.3.9.1. Number Management Ranges

To enter your ranges, click the “Add Range” button.

- Select the switch in the Range Switch dropdown that is associated with the range. You may select “Any” if you do not want to specifically associate the numbers to a single switch. This may apply if you are in the process of porting numbers between switches. Note: This will be the “Range Switch” used in the Number Management reports.
- Choose DID or Non-DID in Type dropdown.
- Enter the first and last number of the range. You may enter the numbers in full 10 or 11-digit format or in short format, such as 4 or 5 digits. The number of digits should match how the extensions appear in the Call Forensics reports, such as in the Originating Number field. And, you could have a combination for the case if you have a OpenScape 4000/HiPath 4000 with 5 digit numbers in the CDR records and a Cisco UCM with 10 digits. Note: For the OpenScape 4000/HiPath 4000, you may extend the short extensions to full length format in your reports via adding a prefix. Refer to Section 2.6.1.3.
- Update the Days Used and Days Unconfigured entries if you want the range to not follow the default values.
- Optionally enter a short description for the range.
- Click “OK” to save your changes or proceed to enter reserved numbers.

If you need to delete a range, click on the row selector (box at the beginning of the row you want to remove) to highlight it and click the “Remove Range” button.

5.3.9.2. Reserved Numbers

By reserving a number, it will never be available for assignment to a Subscriber. Examples of reserved numbers include hunt groups, ACD pilot numbers, voicemail access numbers, conference bridge numbers, “vanity” numbers and more. You may add reserved numbers manually or upload a csv file.

Reserved numbers must be numbers defined in a number range above. To add manually, highlight the range in the Number Management Ranges list that you want to enter reserved numbers for and click the “Add Reserved” button. Enter a single number in the First Number field, or to enter a range, enter the first and last numbers of the range in designated columns. Add optional comment to provide information about why number(s) is reserved. To add additional numbers, click the “Add Reserved” button again. Note that if you enter consecutive numbers individually in rows with the same Comment entry, the system will display them as a range. If you want to see all the numbers in a range in individual rows, click on the range row and hit “Expand Range” button. Now you may make edits to individual rows, such as remove a number or add a unique comment. Hit “Collapse Ranges” to return the display to show the ranges as a single row.

To delete a single number or range, click on the row selector (box at the beginning of the row you want to remove) to highlight it and click the “Remove Reserved” button. If you want to delete all reserved numbers for a Number Management Range, highlight the range in the Number Management Ranges list above and click the “Remove All Reserved” button. Note: To delete all reserved numbers for the enterprise, you must delete them for each Number Management Range.

Click “OK” to save your updates.

To avoid data entry, you may also upload your reserved numbers. Simply click the “Upload Reserved...” button. This option will allow you to import reserved numbers across your enterprise (for all number management ranges) at one time. In the Upload Reserved Numbers File window that appears, browse and select your file and hit “OK.” A screen will appear that will provide information on the status of the upload. It will highlight errors and warnings. For entries with errors, the reserved numbers will not be saved. You will need to make corrections and upload again. Note that you can copy the status text from screen or a log file with the same information is created in the “TrafficForSilverlight” directory in your Documents folder. Each time reserved numbers are uploaded, a separate time stamped file will appear.

The file format is a comma Separated Values (CSV) file with columns in the following order:

- Range Switch
- First Number
- Last Number
- Comment

Example file rows include:

STL OpenScape 4000, 3147431403, 3147431405, Voice mail (range for specific PBX)
 STL OpenScape 4000, 3147431430,,Sales pilot (single number for specific PBX)
 Any, 2122002010, 2122002035, Conference bridge (range for "Any" PBX entries)
 St. Louis OSV, 3147438001, 3147438005, (range for specific PBX with no comment)
 ,3147433050,314743359, Fax lines (range for all PBXs that have defined range including numbers 3147433050 to 314743359)

When creating your file, consider the following points:

- The numbers must be within at least one of the Number Management Ranges defined. If a number(s) is out of all ranges, it will not be entered and you will get an error.
- The valid entries for Range Switch are a PBX name matching one of your Range Switch entries in the Number Management Ranges list, "Any" or no value. Typically, it will be a range switch. If you do not include a range switch, the system will create the reserved numbers for every number management range that includes the reserved number(s) within its range.
- If you upload a number, range or partial range that has previously been entered (either manually or via import), it will overwrite (and wipeout) existing information and replace with imported information.
- There is no mechanism to delete reserved numbers via uploading a file. Please use the "Remove Reserved" and "Remove All Reserved" options discussed above.

5.3.10. License Status

This option is only enabled for Administrators and highlights the license capacity for your system. For each module/entity, you will see the current number of licenses in use, the license amount purchased, percent utilized and if the license has been exceeded. If you have a subscription contract, the expiration date will be shown. If the license has been exceeded or expired, additional detailed information will be presented as show below.

Entity	Current	Licensed	% Utilized	Exceeded
Switches	7	20	35.00	
Network Trunks/Channels	2,521	2,500	100.84	Yes
Call Forensics Stations	9,969	10,000	99.69	No
OnTraQ Devices	0	100	0.00	No

Your license was over capacity on 2/20/2015.
The grace period expires on 3/22/2015.
Please contact Impact Technologies.

Close

5.3.11. E-Mail Testing

This option is only enabled for Administrators and supports testing the e-mail

option for sending error messages to the designated e-mail address. Refer to Section 6.3 for more information on error messages.

5.4. Help

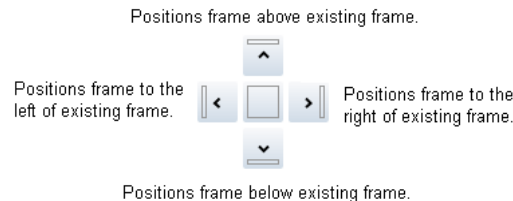
- About – Basic system information about Traffic Analyst
- User Guide – Link to documentation
- Data Dictionary – Definitions for fields for each report type

6. Dashboard

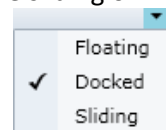
Traffic Analyst comes with a dashboard based on Microsoft® Silverlight® rich internet application (RIA) technology. Users can customize the dashboard to their preferences by adding, deleting, modifying, resizing and relocating the dashboard's charts and data tables. A broad portfolio of chart types are available.

6.1. Managing Frames

- Sizing frames – To resize a frame (window) in the dashboard, mouse over a border of the frame until the cursor turns to a double sided arrow. Left click and slide the border to resize.
- Positioning frames – To move a frame, mouse over the frame header until the cursor turns to the hand image. Left mouse click and move to the region on the desktop where you want to move the frame. A five square image will appear. Click the box to position new frame. If you select the middle box, the frame will be “stacked” on top of the existing frame. Other options shown below:



- Reordering frames – To change the order of stacked frames, left click on the tab of the frame you want to move and move the mouse to the new position and release.
- Sliding vs. Floating vs. Docking frames – Frames that are visible or stacked on the dashboard are considered “docked.” You may also have frames that are sliding or floating. To change the display mode, click the small down arrow in the frame header. Sliding frames display as tabs along the perimeter of the dashboard. You may click on the tab to open at any time. The floating option will display the frame “on top” of the dashboard.



6.2. Status Bar

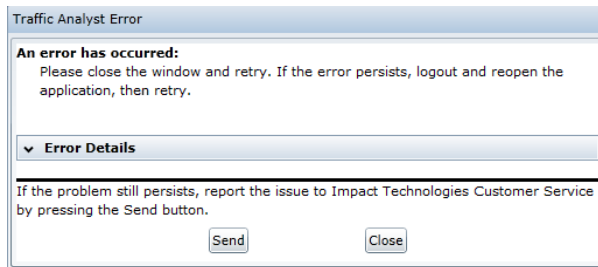
On some screens, such as the windows to build your report templates, you may see a status bar at the bottom of the screen that contains context messages. These messages

will provide insight into missing required information or invalid entries.

Call Duration (mm:ss): > <input type="text" value="5"/>	Account Codes: <input type="text"/>
Wait Duration (mm:ss): Any <input type="text"/>	<input type="checkbox"/> OnNet Savings <input type="checkbox"/> Savings Opportunities
<input type="button" value="v Clearing Cause (0)"/>	
<div style="background-color: #ffffcc; padding: 2px;">Please enter a valid Call Duration. Format should be mm:ss.</div>	

6.3. Error Messages

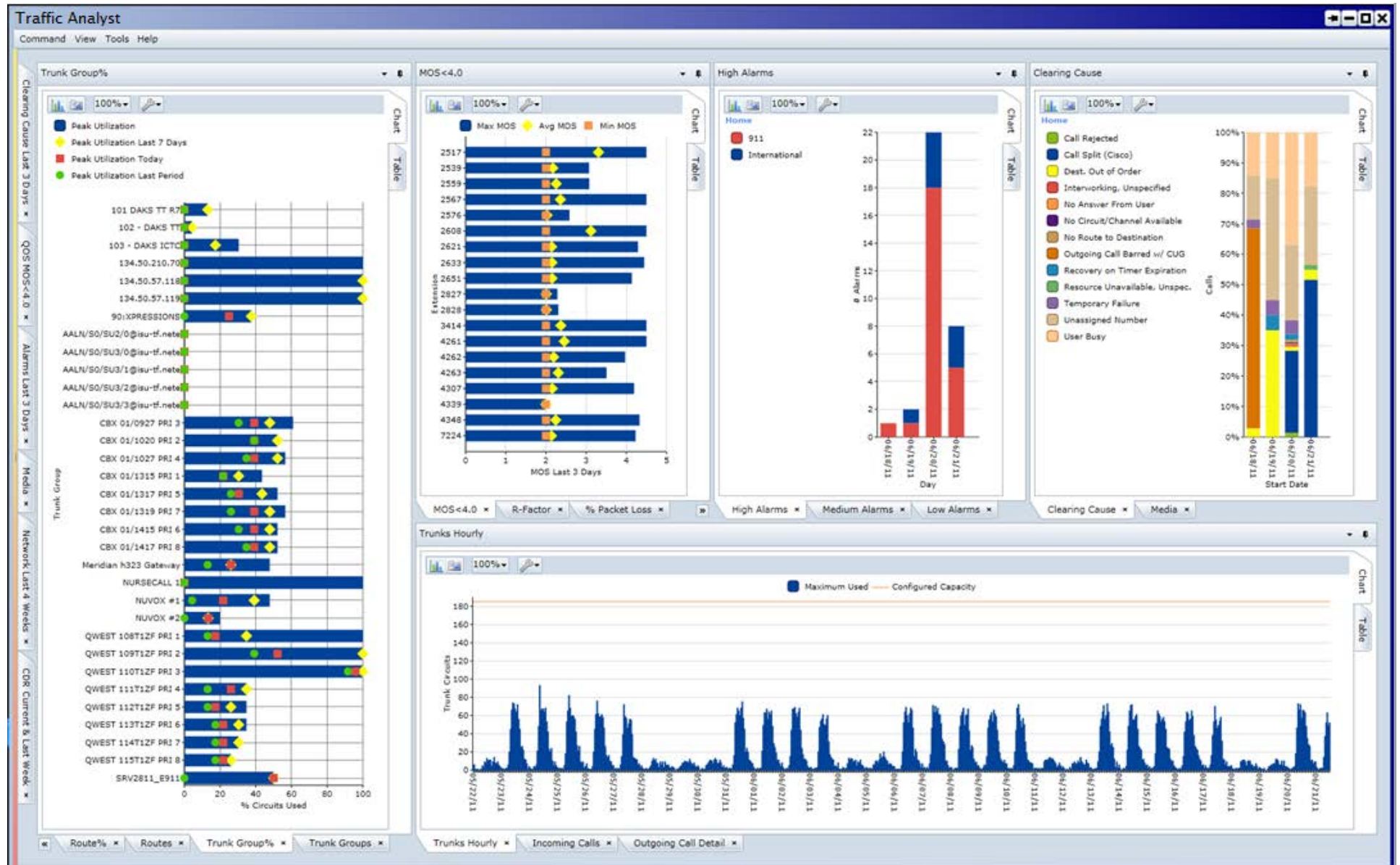
Errors may occur due to various reasons including network connectivity, unresponsive server, timeouts because of exceeded report size limitations and more. In the event of an error, the Traffic Analyst Error window will appear. Based on the type of error the system detected, the window will recommend steps to try. Technical information about the error is available by clicking Error Details. If the error persists, press the “Send” button to automatically e-mail the error information to Impact Technologies Customer Service. Note: If your Traffic Analyst server does not support e-mail to external addresses, you may update the e-mail address to an internal company address in the Traffic Analyst Administrator Tool under System/E-Mail Settings menu option.



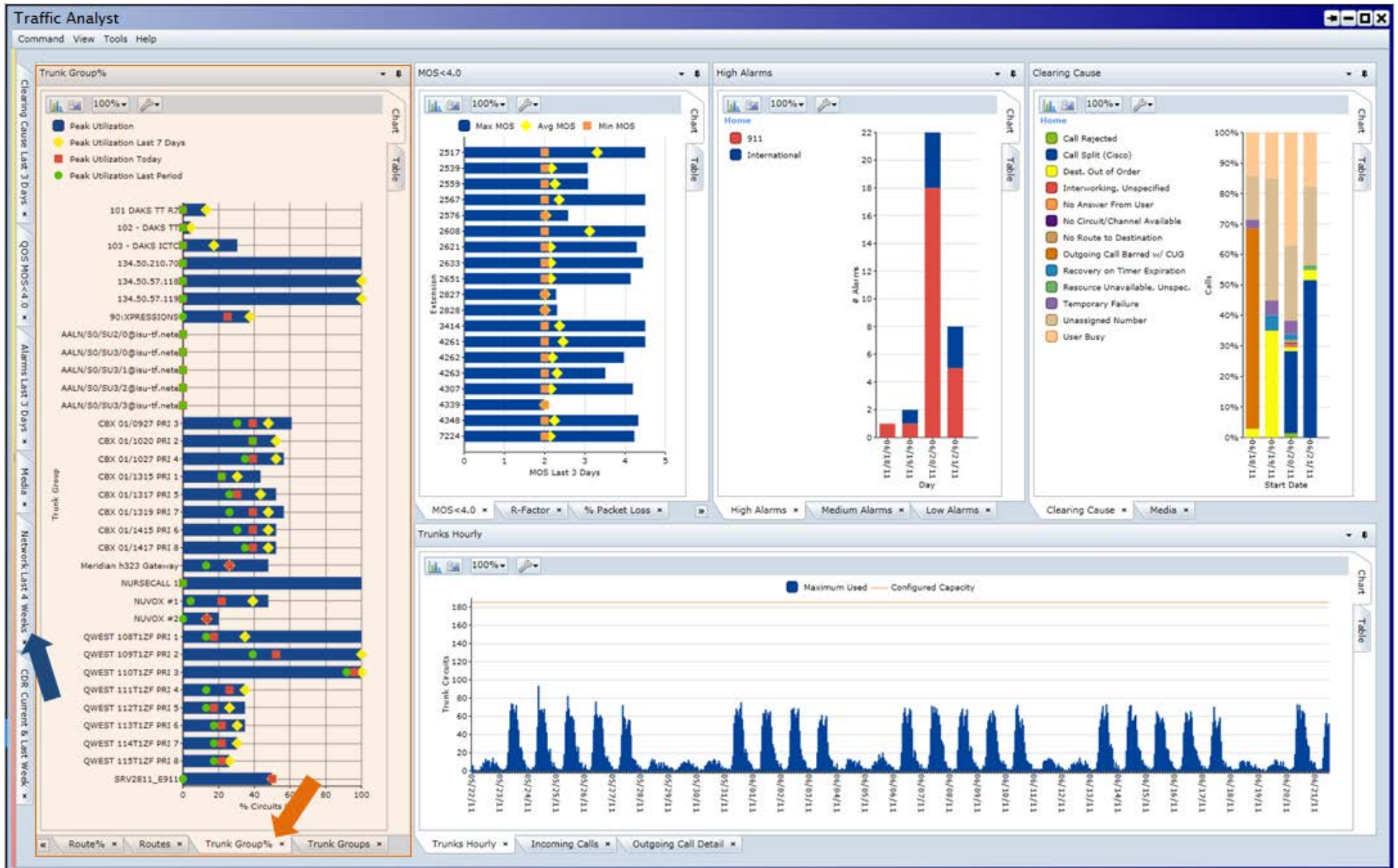
6.4. Sample

The following pages highlight sample dashboards and some of the options available.

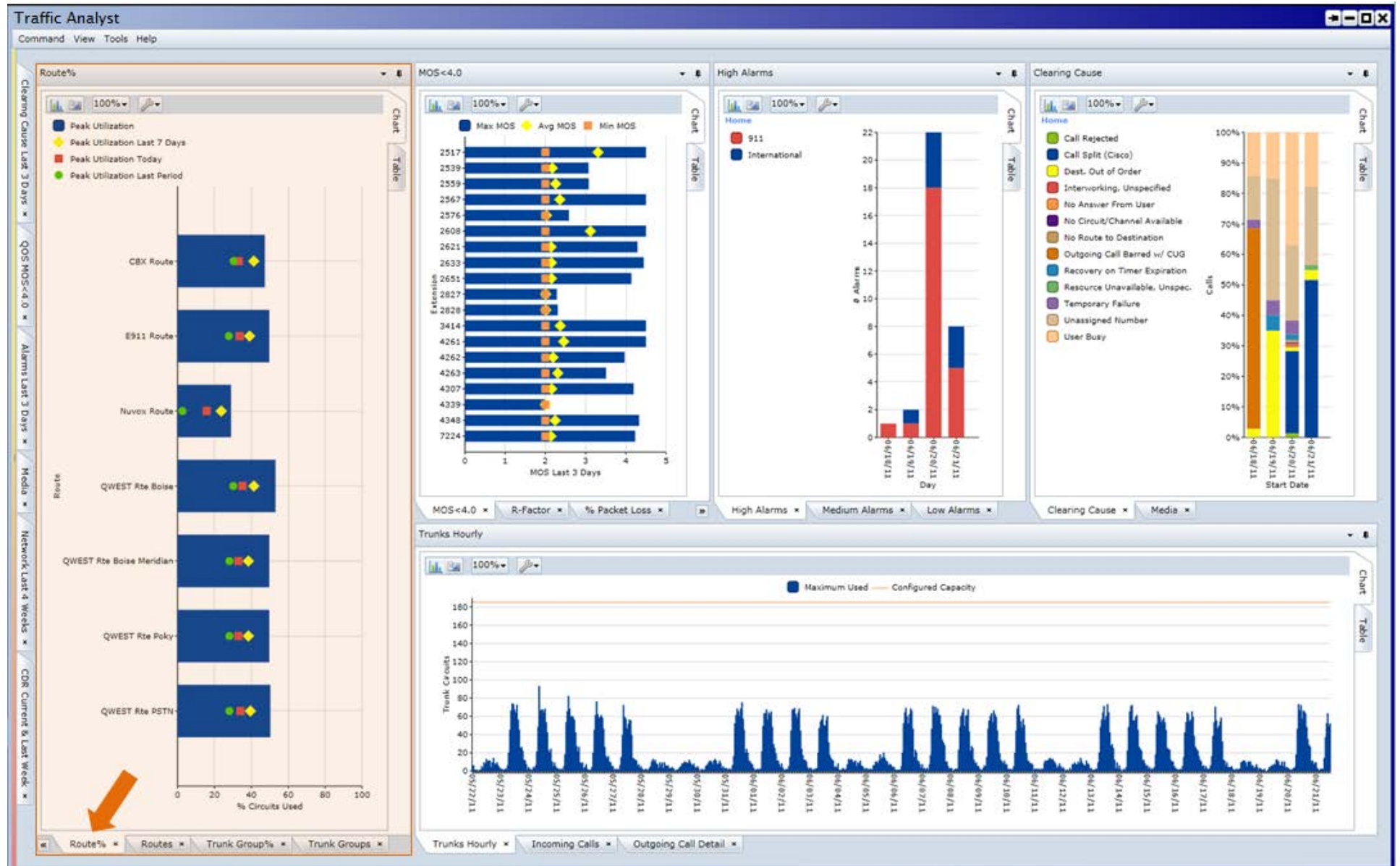
Users can create their dashboard to their preferences and requirements by adding, deleting, modifying, sizing and locating the dashboard's charts and web grids. A broad portfolio of chart types are available and the user has significant control over the chart appearance. After creating a dashboard, the user may simply save their desktop and each time they login, their custom desktop appears. Web grids and displays may automatically refresh when new data is collected.



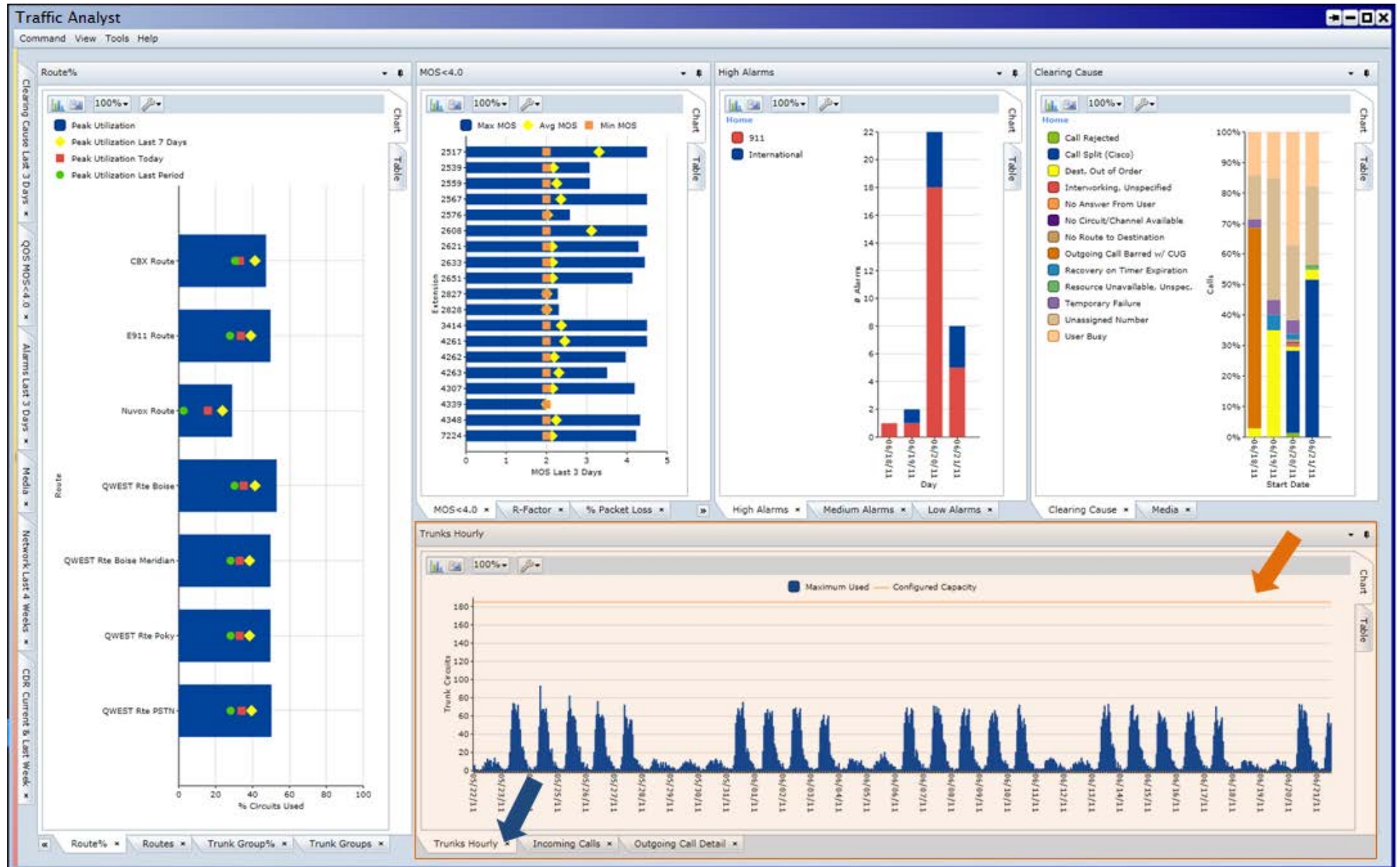
This sample dashboard has six (6) viewing panes, the five (5) below as well as a series of web grids (blue arrow) that slide into view when any of the tabs on the left are selected. The highlighted pane shows the maximum percent of circuits used by trunk group. The user controls whether the chart shows all the trunk groups in a multi-switch network or just for a single switch. The blue bar represents the peak utilized over the entire analysis range (in this case, the last 4 weeks). The yellow diamond is the peak utilization within the last seven (7) days. Red square is the peak utilization for the current day. Green circles represent the most current interval of collected data.



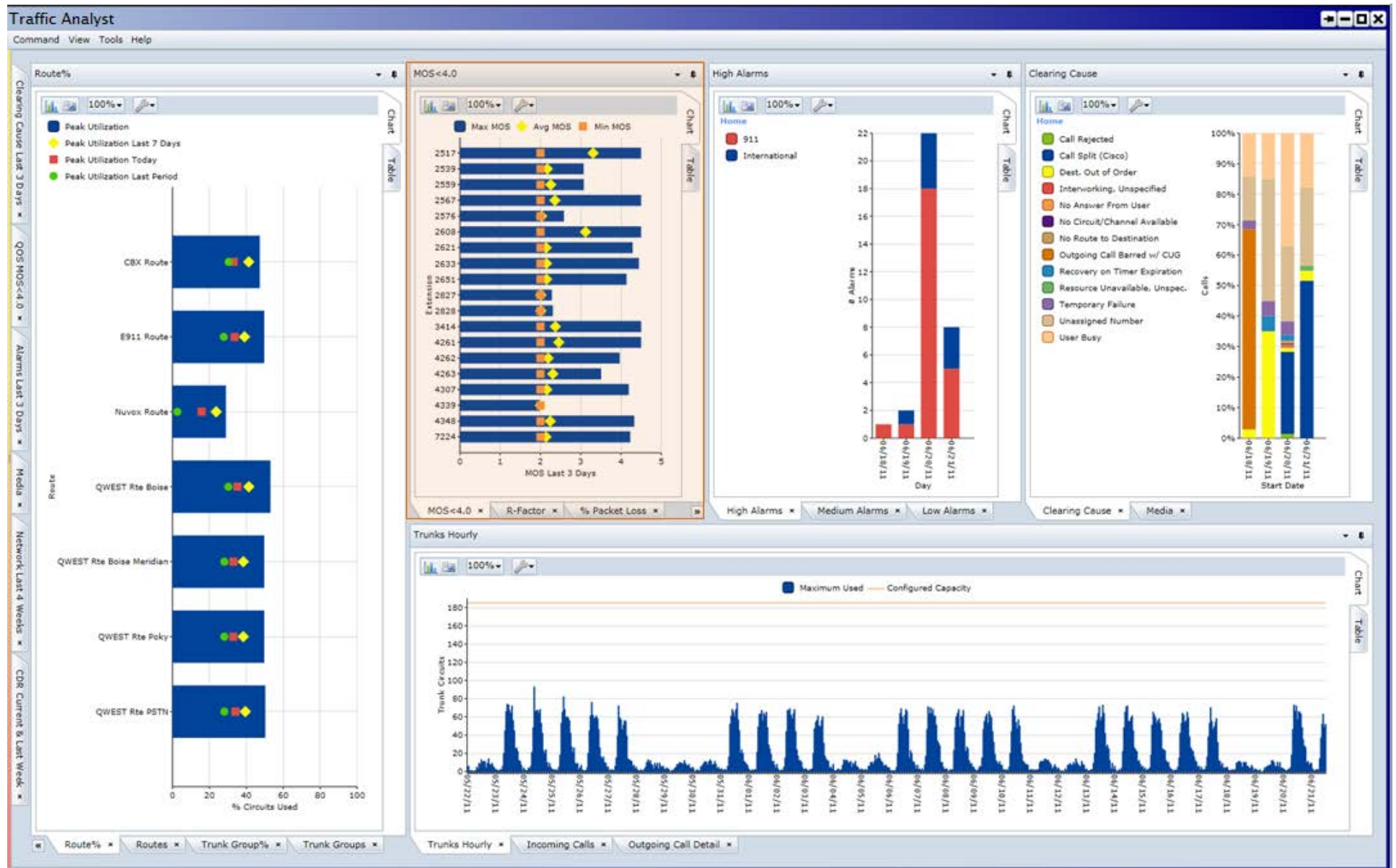
In addition to adding new visible panes, the dashboard supports layering panes with quick access via clicking on the tabs. Previously we focused on the highlighted pane that represented the maximum percent circuits used by trunk_group. In this shot, the Routes % tab has been selected. Now we see the maximum percent circuit usage for the call routes, which are the basis of service levels and the correct basis for determining circuit requirements. With one glance, you know the overall efficiency of your network and whether any components are approaching maximum capacity. As the maximum utilization of any routes in the example does not exceed 55%, all may be over-subscribed and warrant further investigation.



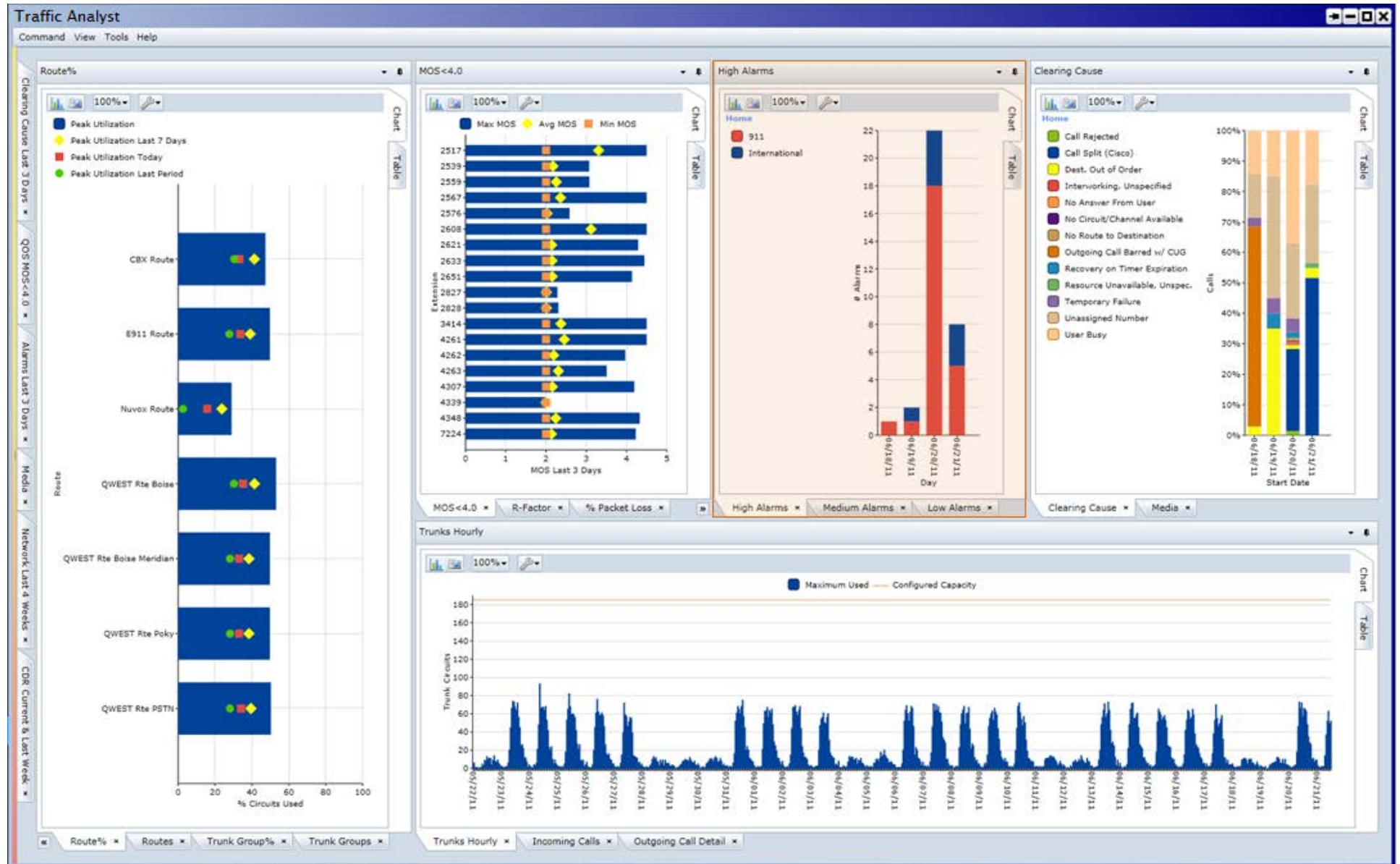
Investigation of capacity requirements starts with the chart highlighted at the bottom of the dashboard, which compares the maximum trunk circuits used by hour to the configured capacity (orange arrow) for a route or trunk group over the range of the selected data set, in this case the last four (4) weeks. This hourly profile of usage provides the network analyst a quick ability to understand whether the maximum used over the range is typical and should be the basis of network sizing or atypical and should only be relied upon in that context.



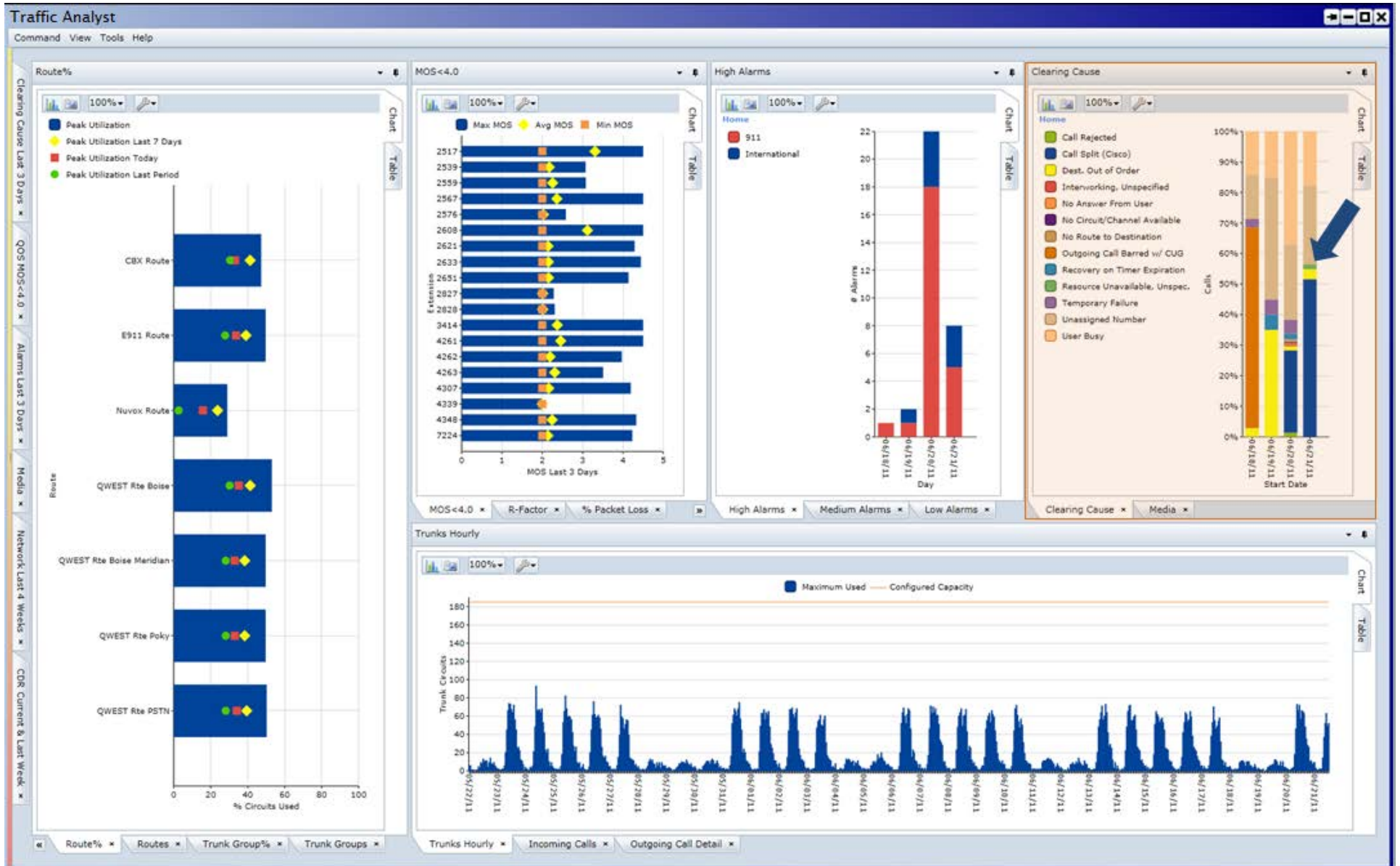
As you deploy and manage your VoIP network, Traffic Analyst will give you updated QoS information along with historical trending. The highlighted pane below is an example of extensions that have recorded a MOS less than or equal to 4.0 during the past three (3) days. For each extension, the blue bar shows the Maximum MOS. The yellow diamond represents the Average MOS while the orange square highlights the Minimum MOS. This chart helps the user pinpoint the specific stations experiencing QoS problems that warrant additional investigation.



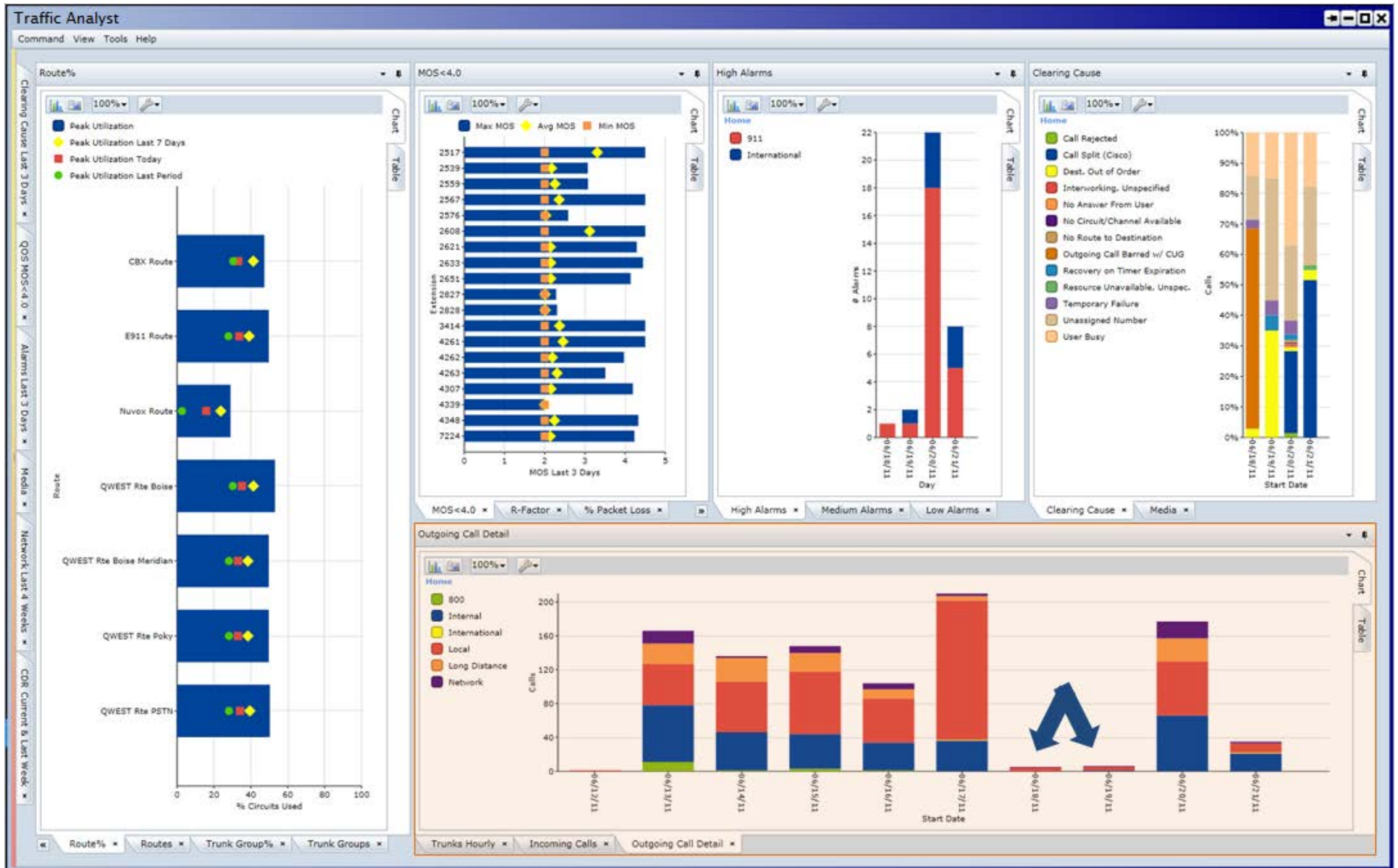
The Alarms pane provides a snapshot of alarm conditions in your network. This example shows alarms for the past three days plus current day. Alarms can be based on dialed digits (911, international, Caribbean, ...), QoS thresholds, call duration with longest calls being tagged as High priority, network performance (such as No Seizures for a Trunk Group or ATB), switch conditions and system status. The user may want to see all alarms in a single pane or may choose to create a separate pane for each alarm type or priority and “stack” them as tabbed panes. Or, maybe you prefer to break out alarms by switch or region. Finally, you may want to see only open alarms or both open and closed alarms.



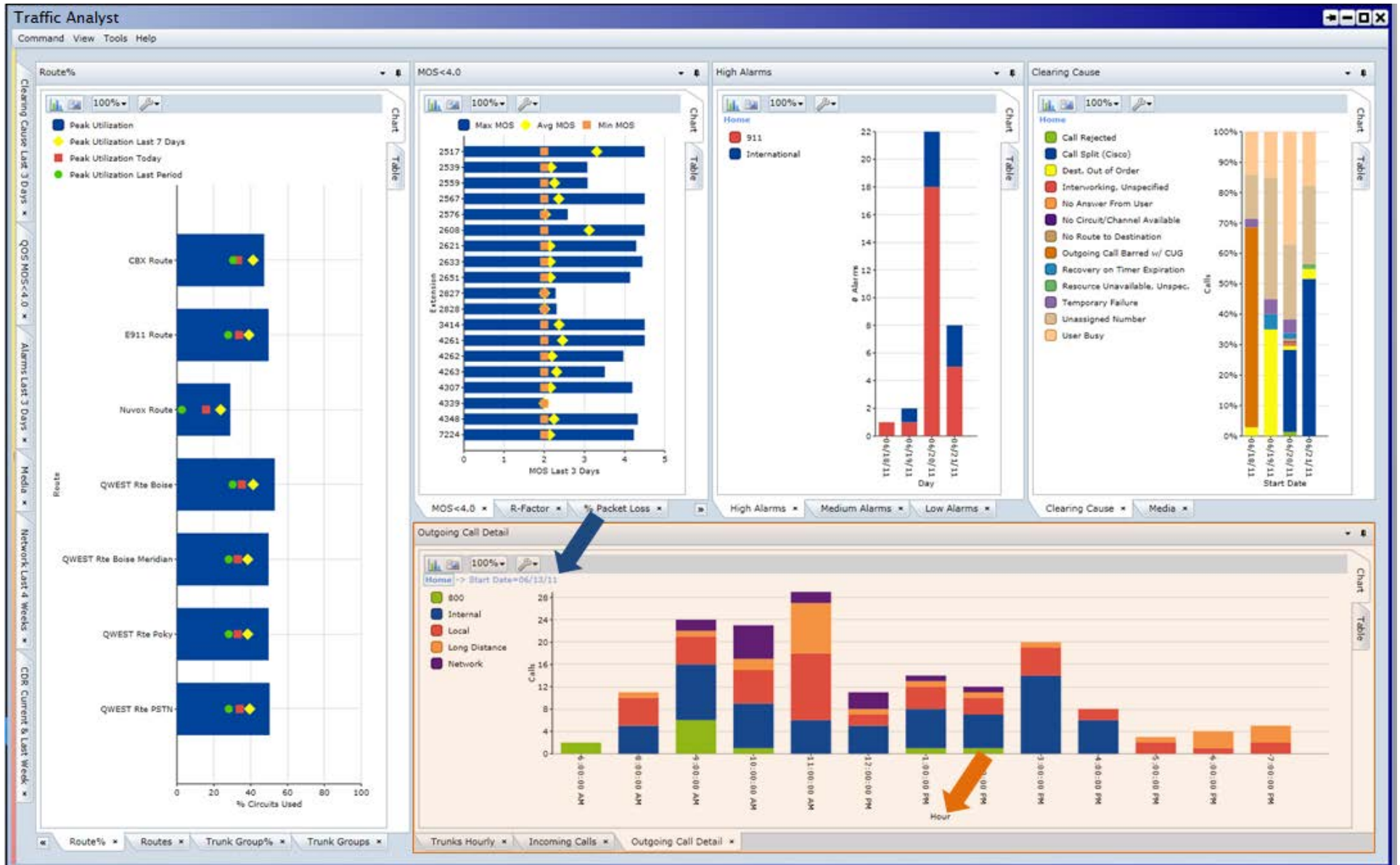
Another view into the quality of your network is to investigate the Clearing Cause codes recorded in the CDR, as illustrated in the top right pane. In this example, you can see a four (4) day trend based on the percentage each code represented and quickly spot any abnormalities that you might want to investigate. For instance, on 6/21/11, there was a small percent of "Call Rejected" calls that did not appear any other day. Was there a problem in the network that day?



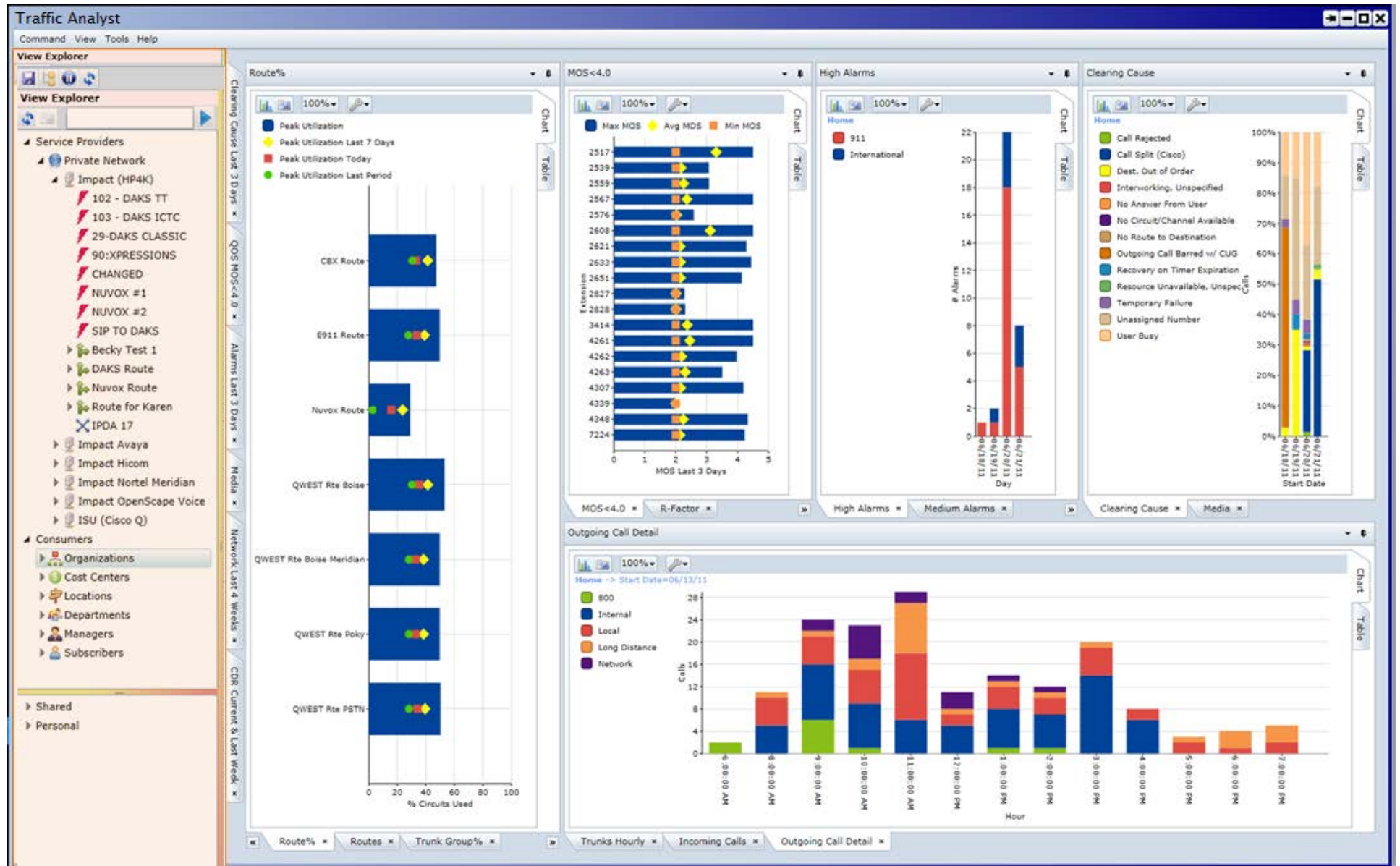
Another tab in the bottom pane shows the call volume generated from internal phones by call type (800, internal, international, local, etc). The blue arrows point to low call totals for the weekend days, as would be expected.



Drilldown is an option available for many chart types. Previously the lower right pane showed outbound call volumes by day. By clicking on a specific day column in that view (June 13, 2011 in this case), the pane transitions to hourly detail for the selected day (orange arrow highlights). The user may continue to drill down to quarter hour detail or to the data table with detail records. The user may also use a right mouse click option on a specific column segment and go directly to the detail. The blue arrow points to the “bread crumb” to show the user the path of their current drilldown. The user can quickly return to the “home” state or any incremental state.



With the Traffic Analyst Dashboard, the layout is completely user definable. This screen shows the dashboard's Explorer tree. From the tree, the user may select the entire network (Private Network node), a switch or a specific network element (such as a trunk group or route), a specific Organization, Location or Subscriber and use a right mouse click to view an existing report, create a new report, view alarms and more. Some users may prefer to have the Explorer tree always viewable as below. Others may prefer to have it "slide-able" and appear upon request.



The foundation for the dashboard is web grids, as shown below. Web grids present summary and/or detail records in a tabular view. When installed, there are standard templates for various key web grids, but as with charts, the user has great flexibility to modify the templates or create new templates. The web grids may represent network utilization, call detail records, quality of service data and alarms. The user can filter the data, rearrange columns, define groupings and much more. You want the data sorted by Charged Party first? Simply drag Charged Party to the leftmost position. Yes, it's that simple! Drilldown is just as quick and simple using the "plus" and "minus" signs.

Traffic Analyst

Command View Tools Help

Start Date x Hour x Call Type x Charged Party x Called Number x

	Start Date	Calls	Call Duration	Cost	Wait Duration	Originating Number	Charged Extension	Destination	Connected Number	Transfer Number	Call ID	Start Seizure Time	Start Talk Time	Clearing Cause	Trunk Group Prime	Seizure Code
+ 05/29/11	05/29/11	395	15.3	\$7.94	2.0											
+ 05/30/11	05/30/11	771	16.0	\$10.16	3.9											
+ 05/31/11	05/31/11	9,915	322.2	\$264.62	38.9											
+ 06/01/11	06/01/11	10,312	300.9	\$268.38	41.1											
+ 06/02/11	06/02/11	8,324	301.1	\$220.99	29.6											
- 06/03/11	06/03/11	7,344	240.2	\$179.95	26.6											
+ 12:00 AM	06/03/11	10	0.4	\$0.02	0.0									Normal Call Clearing		
+ 01:00 AM	06/03/11	5	0.1	\$0.04	0.0									Normal Call Clearing		
+ 02:00 AM	06/03/11	2	0.1	\$0.00	0.0									Normal Call Clearing		
+ 03:00 AM	06/03/11	3	0.0	\$0.00	0.0									Normal Call Clearing		
+ 04:00 AM	06/03/11	2	0.0	\$0.04	0.0									Normal Call Clearing		
+ 05:00 AM	06/03/11	9	0.1	\$0.02	0.0									Normal Call Clearing		
+ 06:00 AM	06/03/11	34	0.3	\$0.01	0.1									Normal Call Clearing		
+ 07:00 AM	06/03/11	165	4.7	\$3.70	0.5									Normal Call Clearing		
- 08:00 AM	06/03/11	575	23.7	\$17.98	1.9									Normal Call Clearing		
+ 800	06/03/11	26	3.6	\$4.60	0.0									Normal Call Clearing		
+ Incoming	06/03/11	39	1.1	\$1.46	0.1									Normal Call Clearing		
+ Internal	06/03/11	35	1.0	\$0.00	0.0									Normal Call Clearing		
+ Local	06/03/11	115	4.3	\$6.20	0.4									Normal Call Clearing		
- Long Distance	06/03/11	30	2.2	\$5.72	0.2	2082820211	2082820211							Normal Call Clearing		
-	06/03/11	30	2.2	\$5.72	0.2	2082820211	2082820211							Normal Call Clearing		
+ 12083310182	06/03/11	2	0.8	\$2.08	0.0	2082820211	2082820211	12083310182	12083310182					Normal Call Clearing		
+ 12083310209	06/03/11	1	0.0	\$0.08	0.0	2082820211	2082820211	12083310209	12083310209					Normal Call Clearing	QWEST 109T1ZF PRI 2	
+ 12083321612	06/03/11	1	0.0	\$0.04	0.0	2082820211	2082820211	12083321612	12083321612					Normal Call Clearing	QWEST 109T1ZF PRI 2	
+ 12083344781	06/03/11	1	0.0	\$0.04	0.0	2082820211	2082820211	12083344781	12083344781					Normal Call Clearing	QWEST 113T1ZF PRI 6	
+ 12083974437	06/03/11	1	0.0	\$0.08	0.0	2082820211	2082820211	12083974437	12083974437					Normal Call Clearing	QWEST 111T1ZF PRI 4	
+ 12084310472	06/03/11	1	0.0	\$0.00	0.0	2082820211	2082820211	12084310472	12084310472					Normal Call Clearing	QWEST 110T1ZF PRI 3	
- 12088305560	06/03/11	3	0.0	\$0.16	0.0	2082820211	2082820211	12088305560	12088305560					Normal Call Clearing		
	06/03/11		0.0	\$0.08	0.0	2082820211	2082820211	12088305560	12088305560		92219545	8:37:20 AM	8:37:52 AM	Normal Call Clearing	QWEST 114T1ZF PRI 7	
	06/03/11		0.0	\$0.04	0.0	2082820211	2082820211	12088305560	12088305560		92219548	8:36:28 AM	8:37:01 AM	Normal Call Clearing	QWEST 109T1ZF PRI 2	
	06/03/11		0.0	\$0.04	0.0	2082820211	2082820211	12088305560	12088305560		92219549	8:35:44 AM	8:35:58 AM	Normal Call Clearing	QWEST 114T1ZF PRI 7	
+ 12539396714	06/03/11	1	0.0	\$0.04	0.0	2082820211	2082820211	12539396714	12539396714					Normal Call Clearing	QWEST 114T1ZF PRI 7	

7. Call Rating & Classification

Traffic Analyst supports very flexible call classification and rating schemes. Call classification lets you define how call types are assigned, such as Network, Long Distance, International and more. Rating calls is optional in the system. If you want to apply costs/rates to your CDR, then you will create one or more rate plans. The key configuration elements for classification and rating are Rate Plans (Base and Destination), Switch Properties and Trunk Group Properties.

7.1. Base Rate Plans

To begin to set up your call rating, start with creating one or more Base Rate Plans. These are basically your default rates. Refer to Section 5.3.6.1 for more information on Base Rate Plans. You will later associate these rate plans with switches and/or trunk groups.

7.2. Destination Rate Plans

When Traffic Analyst is installed, it includes a default “Destinations Only” table with values that are used as a look up to populate the City/Region and Country fields of the Call Forensics reports (based on the destination of a call). For each country and/or region/city in the table, you can enter rates to apply for International calls to that destination. Combining the destinations with rates is a Destination Rate Plan. Refer to Section 5.3.6.2 for more information. The sample below illustrates different rates to various regions in Mexico. Note that the first increment may be different by region as well as the rates and additional increment.

	A	B	C	D	E	F	G	H	I	J
1	Country Name	Country Code	Region / City Name	Region/City Significant Digits	First Billing Increment (secs)	Cost for First Increment	Additional Increment (secs)	Unit Cost for Additional Increment	Cap Time (mins)	Cap Cost
451	Mexico	52	Apizaco	241	30	15	10	6		
452	Mexico	52	Izucar De Matamoros	243	60	20	10	5		
453	Mexico	52	Atlixco	244	60	20	60	15		
454	Mexico	52	Tlaxcala	246	0	15	60	15		
455	Mexico	52	Mexico City	255	60	20	60	15		
456	Mexico	52	Cordoba	271	60	20	60	12		
457	Mexico	52	Orizaba	272	60	15	60	10		

You may create an unlimited number of Destination Rate Plans and then select the appropriate plan (with corresponding international call rates) for each switch or trunk group.

7.3. Switch Properties

Now that you have the building blocks created, the next step is to define the Call Types and set default rates by switch. In the Explorer tree, right mouse click on a switch, select Properties and then the Call Forensics page.

Defining classification rules and rates at the switch level sets the defaults for all trunk groups on the switch. However, as we will discuss, you can customize for each trunk also. Begin by selecting the Rate Plans. The “Destinations Only” option for Destination Rate Plan (as shown) implies there are no location-specific rates available for

international calls. If you want different rates based on the country and/or region/city called, select one of your plans.

Call Type	Direction	#Digits	Prefixes (separate multiple prefixes with commas)	Location Rule
Network	Out <=	6	or	...
Local	<input type="checkbox"/> Exact Out >=	7	or	411, 611, 911
Regional	Out >=	11	and	1(314) Domestic
Regional 2	Out >=	11	and	... Domestic
800	Out >=	11	and	1800, 1844, 1855, 1866, 1877, 1888, 91800, 91844, ... None
900	Out >=	11	and	1900 ... None
Long Distance	Out >=	11	and	1 ... Domestic
International	Out >=	11	and	01 ... International

On the Switch Properties screen, you may edit the Call Type names. Note that the modification is reflected for the entire account, not just the single switch. For instance, you may prefer to have an “IntraLATA” type instead of Regional.

Enter the number of digits and define the Prefixes associated for each Call Type. If more than one prefix is associated with a type of call, enter all prefixes separated with a comma. You may type prefixes directly into the prefix display field. Or, you may click the buttons (with the ellipses) to the right of each field to access a popup window where you may also edit the prefixes. Use parenthesis around the numbers if the system should not strip the numbers when looking up in the call destination table. For instance, in the example above for Regional Call Type, if the Destination number is 1314xxxxxx, the system will strip the leading “1” and then use the remainder of the number to look up the City/Region and Country names.

Finally, select the Location Rule for the Call Types. The options include None, Domestic and International. Refer to table below for assignment rules. Note that for Local or Network calls at the switch level, the Country and City/Region fields are populated with the values selected for Home Country and Home City/Region.

Location Rule	Add Information to Call Record		
	Country	City/Region	Cost
None	None	None	Set based on default rate for Call Type in assigned Rate plan

Location Rule	Add Information to Call Record		
	Country	City/Region	Cost
Domestic	Set to Home Country of respective Switch or Trunk Group Prime of call.	Set based on matching City/Region code for Home Country entries in Destinations Only table. If no match, set to City/Region of respective Switch or Trunk Group Prime of call.	Set based on matched lookup to Destination Rate plan. If no match, set to default rate for Call Type in assigned Rate Plan.
International	Set based on lookup to Destinations Only table. If no match, left blank.	Set based on matched lookup to Destinations Only table. If no match, left blank.	Set based on matched lookup to Destination Rate plan. If no match, set to default rate for Call Type in assigned Rate Plan.
Local (only valid at Trunk Group level for Network or Local call type)	Set to Home Country of respective Trunk Group Prime of call.	If Call Type match by length or prefix with parentheses, set based on matching City/Region code for Home Country entries in Destinations Only table. If no match, set to Home Region of respective Trunk Group of call.	Set based on default rate for respective Network or Local Call Type in assigned Rate plan

The "Exact" checkbox next to Local Call Type is for the atypical case when Local phone numbers are the same number of digits as Long Distance numbers. For example, your employees dial 10 digits for both. If this box is checked, no length is displayed on the screen for Local call types and the called number must start with one of the prefixes listed to be classified as Local. The configurable call type below "Local" on the screen is then the default outgoing call type. Its length (number of digits) must be one more than the Network call type length (7, in example to right), and its comparison becomes "or" instead of "and" like all the other configurable call types.

The screenshot shows a 'Classification Rules' window with three rows of configuration:

- Network:** Call Type: Network, Direction Digits: Out <= 6, Comparison: or, Prefixes: (empty field)
- Local:** Call Type: Local, Direction Digits: (empty field), Comparison: Exact, Prefixes: 411, 611, 911, 314, 636230, 636231
- IntraLATA:** Call Type: IntraLATA, Direction Digits: Out >= 7, Comparison: or, Prefixes: 636

7.4. Trunk Group Properties

You have the option to create specific rates for individual trunk groups. Create a new Base Rate Plan and/or Destination Rate Plan with the custom rates. Then in the Explorer tree, right mouse click on the trunk group, select Properties and then the Call Forensics page. Refer to example below. This screen is very similar to the Switch Properties screen, with five main differences:

Trunk Group Properties: 90:XPRESSIONS

Use Default Settings for this Trunk Group/Route

Rate Plans

Base: For Switch: St. Louis HiPath 4000

Destination: Destinations Only

OnNet Savings Analysis

Calculate for this Trunk Group/Route

Calculate for Incoming Calls

Classification Rules

Call Type	Direction	#Digits	Prefixes (separate multiple prefixes with commas)	Location Rule
Network	<input type="checkbox"/> Only	Out <=	6 or	None
Local	<input type="checkbox"/> Exact	Out >=	7 or 411, 611, 911	Local
Regional		Out >=	11 and	Domestic
Regional 2		Out >=	11 and	Domestic
800		Out >=	11 and 1800, 1855, 1866, 1877, 1888	None
900		Out >=	11 and 1900	None
Long Distance		Out >=	11 and 1	Domestic
International		Out >=	11 and 01	International

- The added check box option for “Use Default Settings for this Trunk Group/Route.” Uncheck if you want to apply custom rates.
- The “Network Only” check box. If this trunk group/route carries only network calls, click this box and all calls with this trunk group on the record will be treated as Network calls, independent of digits dialed.
- If the “Network Only” check box is checked, the OnNet Savings Analysis “Calculate for this Trunk Group/Route” option is enabled. Refer to Section 8 for more information.
- If both the “Network Only” and “Calculate for this Trunk Group/Route” check boxes are checked, the “Calculate for Incoming Calls” option is enabled. Refer to Section 8 for more information.
- The Location Rule drop down box is available for the Network and Local call types. In addition to the None and Domestic options, the dropdown includes a Local entry. If Local is selected, the Country and City/Region fields are set to Home Country and Home Region, respectively, for Network and/or Local calls.

8. VoIP Economics Analysis

Savings from leveraging your WAN to avoid PSTN toll charges is a key component of any VoIP network investment strategy. Traffic Analyst’s VoIP Economics features assure those savings are realized. Plus, Traffic Analyst will highlight potential savings opportunities that have yet to be captured.

8.1. Quantify Realized OnNet Savings

If you want to track and quantify your OnNet savings, you will want to verify that Locations, Trunk Groups and Rate Plans are configured correctly. This allows Traffic Analyst to calculate not only the cost of the call as it routed over your WAN, but also

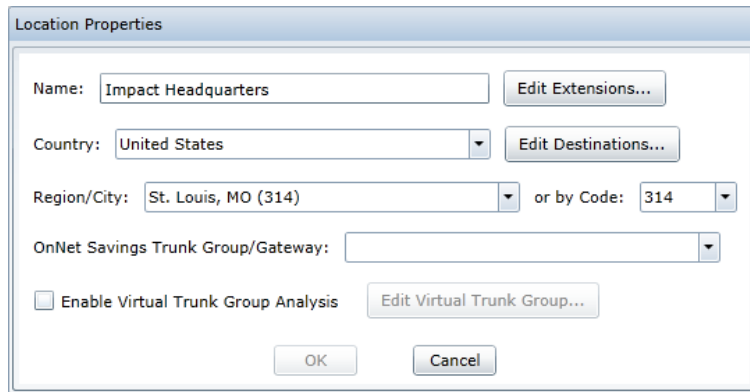
calculate the savings compared to the cost if the call would have been routed over the PSTN as a local, long distance or international call (based on your rate plans).

8.1.1. Locations

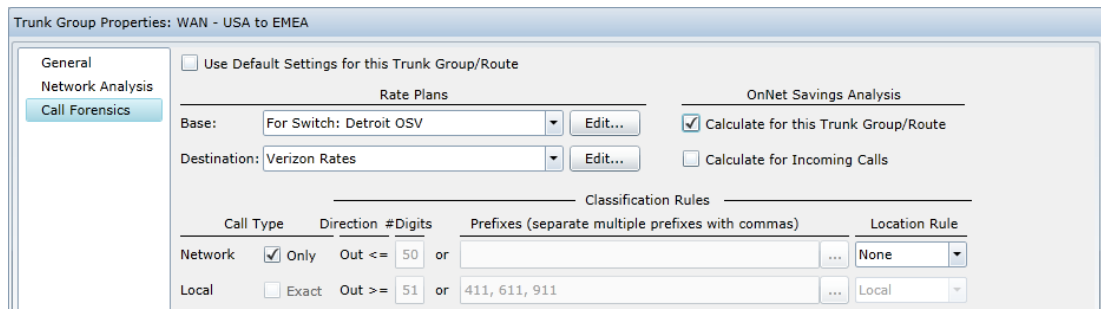
To begin, assure all your sites with extensions are listed in the Locations Explorer tree. This is typically accomplished via adding Locations and extensions directly in the tree (refer to Sections 2.5 and 2.6.7) or via the Organizational File import (refer to Section 5.3.4). The recommendation is to name your Locations something meaningful such as Headquarters, Detroit Sales Office, Technology Lab, etc.

8.1.2. Trunk Group Properties

For each trunk group in the Explorer Tree, right mouse click and select Properties. Go to the General tab and select the Location from the drop down menu. Click “Edit” button to access the Location Properties. Select the Country and Region/City from the drop down lists, or select “Edit Destinations” to add a new destination for location. The OnNet Savings Trunk Group/Gateway dropdown allows the user to select the Trunk Group/Gateway that will be used for calculating the PSTN costs for this location. If there is only one trunk group at the selected Location, that trunk group will automatically be selected in the disabled dropdown. (Note you could have accessed the Location Properties screen under the Locations tree after the import, but this method is more efficient. You can make future edits in either place.)



Next, go to the Call Forensics tab and make sure you have selected Base and Destination rate plans so the appropriate costs will be calculated.



The next key configuration for trunk groups is denoting the trunk groups/routes that connect to other switch(es) in the network and will carry the WAN traffic. Calls that travel over this trunk group will be included in the OnNet savings analysis. Make sure these trunk groups/routes are designed as Network only by checking the “Only” check box next to Network. Then click the “Calculate for this Trunk Group/Route” check box under OnNet Savings Analysis. For network trunk groups used for voice mail or conference bridges, you would not check the OnNet Savings check box.

Once both the “Network Only” and “Calculate for this Trunk Group/Route” check boxes are checked, the “Calculate for Incoming Calls” option is enabled.

- If the network connection is to another switch that is also included in Traffic Analyst, uncheck the “Calculate for Incoming Calls” option. By unchecking the option, Traffic Analyst will not include incoming calls for this trunk group, because those calls will be evaluated as outbound calls on the other switch. This avoids duplication.
- If the connected switch is not included in Traffic Analyst, make sure the box is checked to include the incoming calls in the analysis.

8.1.3. Reports

The Call Forensics report includes a field called “OnNet Savings.” This captures your realized savings for each call that was transported over the WAN instead of PSTN. Refer to Section 4.3 for more information on Call Forensics Reports. You can leverage the existing “OnNet Savings Last Month” preset report to see your savings. Refer to Section 9.1.9 for information on preset report. Or, you may want to “tweak” this template based on the report time interval, chart definitions or other parameters. Or, create a new report and select on the detail you want to include in addition to the “OnNet Savings” column. Check the “OnNet Savings” checkbox on the Call Forensics query screen to automatically filter for any records/segments that have a value not equal to zero (0).

8.2. Quantify Savings Opportunities

Traffic Analyst will highlight unrealized savings where calls could be routed via the company WAN for the entire call path or at least part of the call path to reduce the cost. For instance, a call may have routed over the PSTN as an international call, but could have been routed over the network to a gateway that would have created a long distance or local call with less expense.

To capture the savings opportunities, you must complete the configuration outlined above in the Quantify Realized OnNet Savings section. No additional configuration is required.

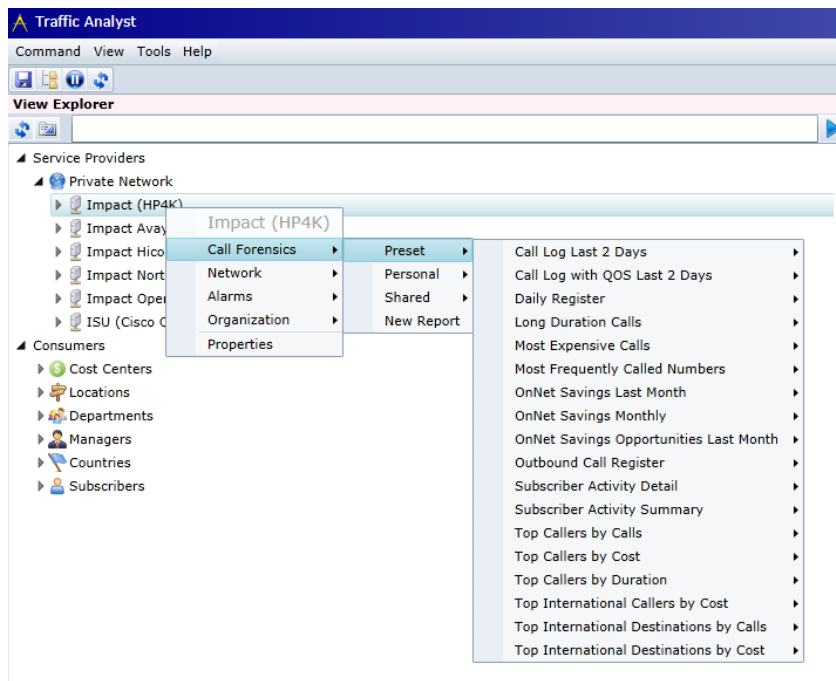
In addition to the “OnNet Savings” field discussed above, there is an “OnNet Savings Opportunities” field. This field captures your unrealized savings for each call that could have been routed more efficiently. Refer to Section 4.3 for more information on Call Forensics Reports. You can leverage the existing “OnNet Savings Opportunities Last Month” preset report to see your potential savings that could be captured. Refer to Section 9.1.11 for information on preset report. Or, you may want to “tweak” this

template based on the report time interval, chart definitions or other parameters. Or, create a new report and select on the detail you want to include in addition to the “OnNet Savings Opportunities” column. Check the “Savings Opportunities” checkbox on the Call Forensics query screen to automatically filter for any records/segments that have a value not equal to zero (0).

9. Preset Reports

The dashboard includes seven (7) types of reports and each includes one or more preset reports. You may use these reports “as is.” However, the recommendation is to open the preset reports and save as either a “personal” or “shared” copy and make any edits you may require. Note that the preset reports may not be edited until they are saved as personal or shared copies.

Preset reports are available in the Explorer menu under the “Preset” option for each report type.



9.1. Call Forensics Preset Reports

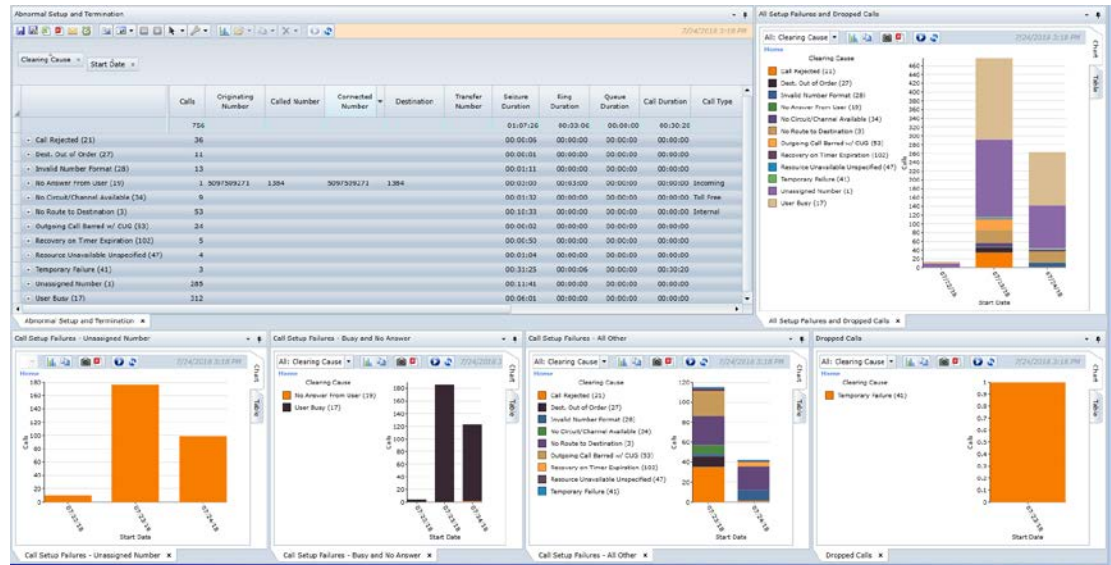
There are twenty-three Call Forensics preset reports available.

9.1.1. Abnormal Setup and Termination

This report highlights calls that failed to setup correctly or dropped unexpectedly. This report includes all call segments for the past two days, including the current period based on a predefined list of clearing cause codes. Segments with normal clearing cause codes such as “No Cause” and “Normal Call Clearing” plus other codes “Call Split” and “Conference Party Drop” are filtered out. The web grid includes columns to provide

details about each call such as Originating Number, Called Number, Call Duration, Trunk Group Prime and more. There are five associated charts:

- All Setup Failures and Dropped Calls - Column (Stacked) chart graphing number of calls for each clearing cause by Start Date with drill down to Hour. Quick filter is Clearing Cause. You may prefer to see all failures on this single chart or use the following charts to break out the types of failures.
- Call Setup Failures – Busy and No Answer - Column (Stacked) chart graphing number of calls that failed to setup with clearing cause of “User Busy,” “No User Responding” or “No Answer from User” by Start Date with drill down to Hour. Quick filter is Clearing Cause.
- Call Setup Failures – Unassigned Number - Column (Stacked) chart graphing number of calls that failed to setup with clearing cause of “Unassigned Number” by Start Date with drill down to Hour. Many times, these are missed dialed numbers but a large quantity could also indicate a hacking attack.
- Call Setup Failures – All Others - Column (Stacked) chart graphing number of calls for each clearing cause that are not included in the Busy, No Answer or Unassigned charts. Highlights number of calls by Start Date with drill down to Hour. Quick filter is Clearing Cause.
- Dropped Calls - Column (Stacked) chart graphing number of calls that setup (Call duration is greater than zero) but later dropped (terminated) during the call for an expected reason. Highlights number of calls by Start Date with drill down to Hour. Quick filter is Clearing Cause.

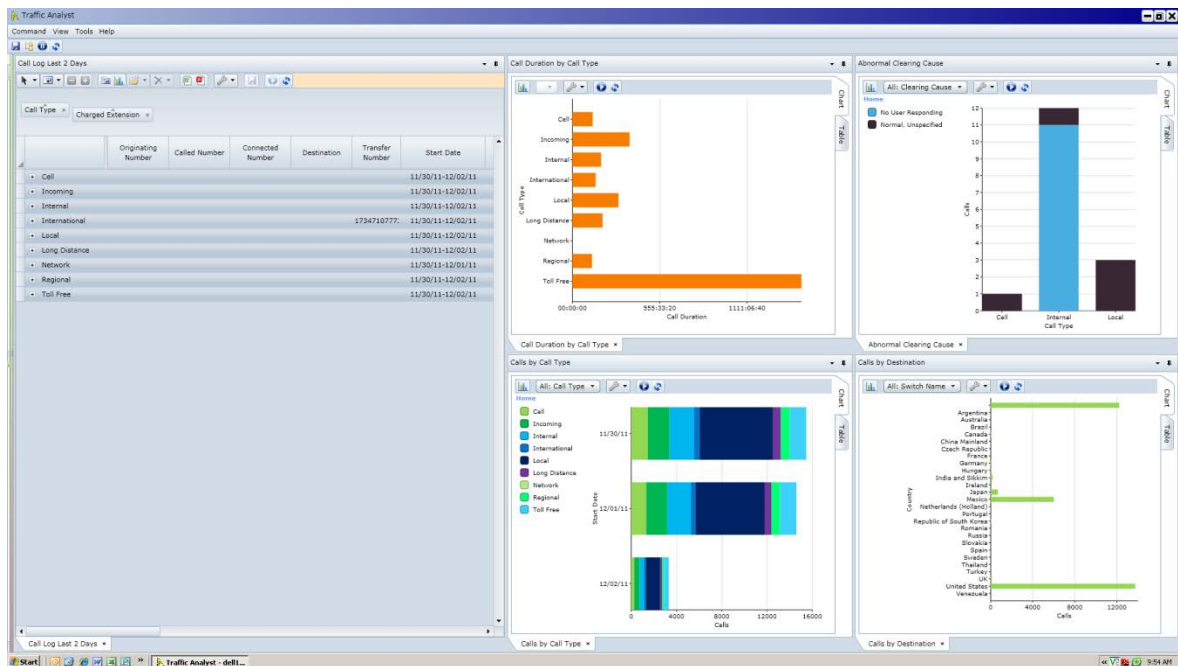


9.1.2. Call Log Last 2 Days

This report supports call forensics for recent activity. The web grid includes columns to provide details about each call such as Originating Number, Called Number, Call Duration, Trunk Group Prime, Call ID and much more. This report includes all call

segments for the past two days, including the current period. It includes all call types. There are four associated charts:

- Call Duration by Call Type - Bar chart graphing call duration by call type.
- Calls by Call Type - Bar (Stacked) chart graphing number of calls with Start Date, Hour, Qtr Hour, Charged Extension and Call Type available as drill down. Quick filter is Call Type.
- Abnormal Clearing Cause - Column (Stacked) chart graphing number of calls with Call Type, Start Date, Hour and Clearing Cause available as drill down. Quick filter is Clearing Cause. Chart Table filters out “Normal Call Clearing” (code 16), “Normal Unspecified” (code 31) and “No Cause” (code 0) from chart.
- Calls by Destination - Bar chart graphing number of calls by Country. Quick filter is Switch Name.



9.1.3. Call Log with QOS Last 2 Days

Similar to Call Log above, this report adds the QOS fields such as “Dest Jitter,” “Dest Max MOS,” “Orig R-Factor” and more to the web grid. (Note only the Cisco and Unify OpenScope Voice and HiPath/OpenScope 4000 platforms support QOS data within the CDR records.) This report includes all call segments for the past two days, including the current period. It includes all call types. There are fourteen associated charts:

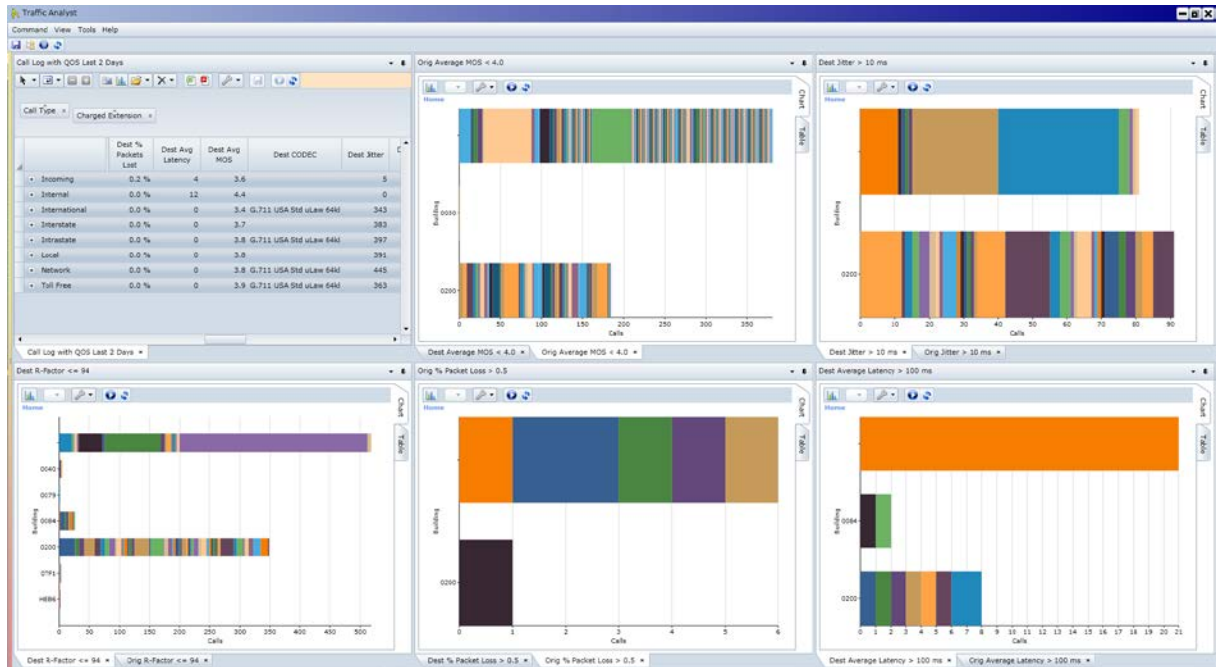
- Call Duration by Call Type - Bar chart graphing call duration by call type.
- Calls by Call Type - Bar (Stacked) chart graphing number of calls with Start Date, Hour, Qtr Hour, Charged Extension and Call Type available as drill down. Quick filter is Call Type.

- Abnormal Clearing Cause - Column (Stacked) chart graphing number of calls with Call Type, Start Date, Hour and Clearing Cause available as drill down. Quick filter is Clearing Cause. Chart Table filters out “Normal Call Clearing” (code 16), “Normal Unspecified” (code 31) and “No Cause” (code 0) from chart.
- Calls by Destination - Bar chart graphing number of calls by Country. Quick filter is Switch Name.
- Orig R-Factor ≤ 94 - Bar (Stacked) chart graphing number of calls with an originating Average R-Factor less than or equal to 94 with Building, Room Number and Charged Extension available as drill down. The Chart Table has 94 as filter value on Orig Ave R-Factor field and Call Type not equal to Incoming.
- Dest R-Factor ≤ 94 - Bar (Stacked) chart graphing number of calls with a destination Average R-Factor less than or equal to 94 with Building, Room Number and Charged Extension available as drill down. The Chart Table has 94 as filter value on Dest Ave R-Factor field and Call Type equal to Incoming or Internal.
- Orig Average MOS < 4.0 - Bar (Stacked) chart graphing number of calls with an originating average MOS less than 4.0 with Building, Room Number and Charged Extension available as drill down. The Chart Table has 4.0 as filter value on Orig Average MOS field and Call Type not equal to Incoming.
- Dest Average MOS < 4.0 - Bar (Stacked) chart graphing number of calls with a destination average MOS less than 4.0 with Building, Room Number and Charged Extension available as drill down. The Chart Table has 4.0 as filter value on Dest Average MOS field and Call Type equal to Incoming or Internal.
- Orig % Packet Lost > 0.5 - Bar (Stacked) chart graphing number of calls with an originating percent packet loss greater than 0.5% with Building, Room Number and Charged Extension available as drill down. The Chart Table has 0.5 as filter value on Orig % Packet Loss field and Call Type not equal to Incoming.
- Dest % Packet Lost > 0.5 - Bar (Stacked) chart graphing number of calls with a destination percent packet loss greater than 0.5% with Building, Room Number and Charged Extension available as drill down. The Chart Table has 0.5 as filter value on Dest % Packet Loss field and Call Type equal to Incoming or Internal.
- Orig Average Latency > 100 ms - Bar (Stacked) chart graphing number of calls with an originating average latency greater than 100 ms with Building, Room Number and Charged Extension available as drill down. The Chart Table has 100 as filter value on Orig Ave Latency field and Call Type not equal to Incoming.
- Dest Average Latency > 100 ms - Bar (Stacked) chart graphing number of calls with a destination average latency greater than 100 ms with Building, Room Number and Charged Extension available as drill down. The Chart Table has 100 as filter value on Dest Ave Latency field and Call Type equal to Incoming or Internal.
- Orig Jitter > 10 ms - Bar (Stacked) chart graphing number of calls with an originating average jitter greater than 10 ms with Building, Room Number and Charged Extension available as drill down. The Chart Table has 10 as filter value on Orig Ave Jitter field and Call Type not equal to Incoming.
- Dest Jitter > 10 ms - Bar (Stacked) chart graphing number of calls with a

destination average jitter greater than 10 ms with Building, Room Number and Charged Extension available as drill down. The Chart Table has 10 as filter value on Dest Ave Jitter field and Call Type equal to Incoming or Internal.

If you do not import the Building and Room Number fields as part of your Organization file, you may want to update the Chart Properties to include other fields, such as Call Type, for the QOS charts above.

The example highlights the additional ten charts that are listed above and not available with the Call Log Last 2 Days template.



9.1.4. Call Tracing

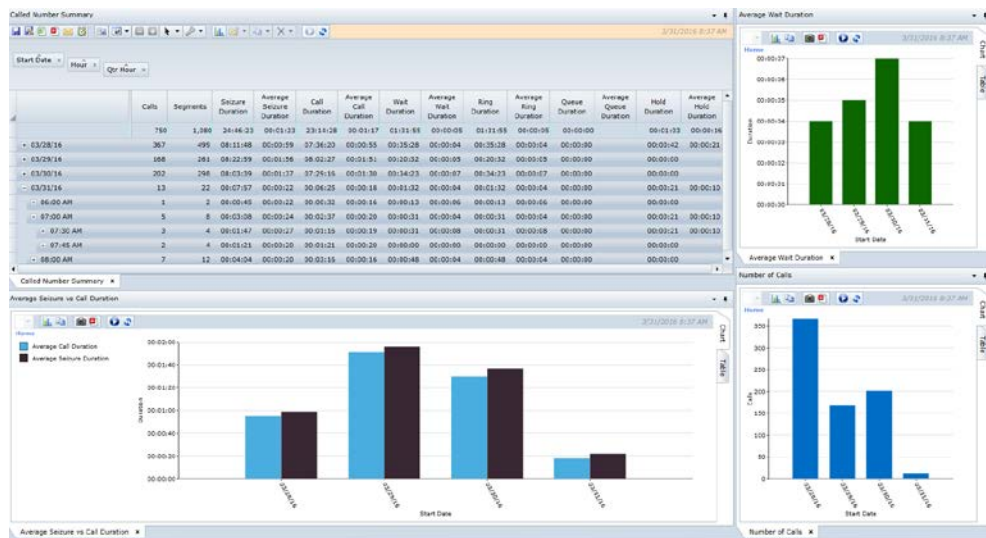
The “Call Tracing” preset provides a starting point for you to search for specific call(s) of interest by including the key fields to determine how a call was routed. The template is for “Calls including Segments” for the current day for all call types. Typically, you will add additional information such as a specific time range and number(s) that you are searching for to limit the report results. The web grid is sorted by Start Seizure Time. From the web grid you may perform additional filtering or grouping or you may choose to export to Excel. (Note: The exported Excel document will include two worksheets. The first tab will be the call records, including any groupings you define. The second tab is called “Detail” and includes all the imbedded segments from the report.)

Originating Number	Called Number	Destination	Connected Number	Transfer Number	Start Date	Start Seizure Time	Start Talk Time	Call Duration	Ring Duration	Switch:Trunk Group Prime	Switch:Trunk Group Transit	Segments
6189395247	8211	1404	6189395247		09/15/14	12:01:41 AM	12:01:41 AM	00:01:14	00:00:00	St. Louis HPath 4000:XX TRUNKS		2
2529857200	2217	4018	2529857200		09/15/14	02:08:22 AM	02:09:24 AM	00:00:00	00:01:02	St. Louis HPath 4000:XX TRUNKS		1
6189395247	8211	8211	8211		09/15/14	02:24:47 AM	02:24:48 AM	00:02:46	00:00:01	St. Louis HPath 4000:XX TRUNKS		2
6189395247	8211	1404	6189395247		09/15/14	02:30:15 AM	02:30:15 AM	00:04:29	00:00:00	St. Louis HPath 4000:XX TRUNKS		2
3147431400	93149741425	93149741425	93149741425		09/15/14	06:13:00 AM	06:13:57 AM	00:01:03	00:00:27	St. Louis HPath 4000:XX TRUNKS	St. Louis HPath 4000:DAKS7 10.2.1.48	1
Unavailable	1477	1404	Unavailable		09/15/14	06:28:27 AM	06:28:40 AM	00:00:57	00:00:13	St. Louis HPath 4000:XX TRUNKS	St. Louis HPath 4000:DAKS7 10.2.1.48	2
6364482481	8327	1404	6364482481		09/15/14	07:23:15 AM	07:23:16 AM	00:00:30	00:00:00	St. Louis HPath 4000:XX TRUNKS		2
3146097792	8100	1404	3146097792		09/15/14	08:23:03 AM	08:23:16 AM	00:00:10	00:00:10	St. Louis HPath 4000:XX TRUNKS		2
3147431400	93145664904	93145664904	93145664904		09/15/14	08:28:30 AM	08:28:46 AM	00:00:20	00:00:16	St. Louis HPath 4000:XX TRUNKS	St. Louis HPath 4000:JCTC 10.2.1.49	1
3501	1403	1403	1403		09/15/14	08:32:32 AM	08:32:32 AM	00:00:23	00:00:00	St. Louis HPath 4000:90:XPRESSIONS		1
3142102707	8100	8102	3142102707		09/15/14	08:56:32 AM	08:56:36 AM	00:02:09	00:00:06	St. Louis HPath 4000:XX TRUNKS		3
3582	1403	1403	1403		09/15/14	08:59:41 AM	08:59:41 AM	00:01:04	00:00:00	St. Louis HPath 4000:90:XPRESSIONS		1
8102	3147864000	3147864000	3147864000		09/15/14	09:00:14 AM	09:00:20 AM	00:01:08	00:00:05	St. Louis HPath 4000:XX TRUNKS		1
3128216034	1425	3501	3128216034		09/15/14	09:00:33 AM	09:00:39 AM	00:00:29	00:00:06	St. Louis HPath 4000:XX TRUNKS		1
3582	1468	1468	1468		09/15/14	09:01:17 AM	09:01:30 AM	00:00:05	00:00:13	St. Louis HPath 4000:90:XPRESSIONS		2
3501	18668228400	18668228400	18668228400		09/15/14	09:01:21 AM	09:01:23 AM	00:29:14	00:00:02	St. Louis HPath 4000:XX TRUNKS		1
3582	1468	1468	1468		09/15/14	09:14:21 AM	09:14:34 AM	00:00:03	00:00:13	St. Louis HPath 4000:90:XPRESSIONS		2
5707335835	8115	1404	5707335835		09/15/14	09:19:48 AM	09:19:48 AM	00:00:09	00:00:00	St. Louis HPath 4000:XX TRUNKS		2
3149976300	8102	8102	3149976300		09/15/14	09:20:36 AM	09:20:38 AM	00:01:08	00:00:02	St. Louis HPath 4000:XX TRUNKS		1

9.1.5. Called Number Summary

The “Called Number Summary” preset highlights the activity based on calls and various duration fields for the last three days plus current day. The template is a subtotal report based on the “Called Number” field so it does not include call detail but only summary information. Typically, you will add an extension or extension range in the “Number of Party” field and save it as a Personal or Shared template to limit the report results. The web grid is grouped by State Date, Hour and Qtr Hour. There are three associated charts:

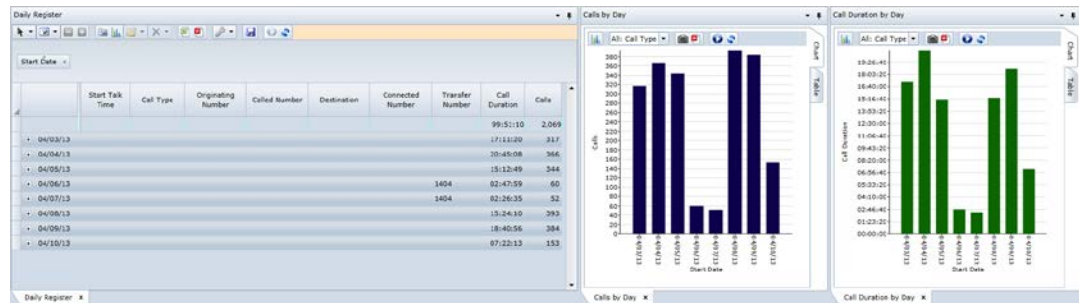
- Average Wait Duration - Column chart graphing the Average Wait Duration by date with drill down to hour and quarter hour.
- Average Seizure vs Call Duration - Column chart graphing the Average Seizure Duration and Average Call Duration side by side by date with drill down to hour and quarter hour.
- Number of Calls - Column chart graphing Calls by date with drill down to hour and quarter hour.



9.1.6. Daily Register

This report is a simple activity report for the past seven days, including the current period. The web grid includes columns to provide basic details about each call: State Date, Start Talk Time, Call Type, Originating Number, Called Number, Destination, Connected Number, Transfer Number, Call Duration and Calls. The report is grouped by Start Date. It includes all call types. There are two associated charts:

- Call Duration by Day - Column chart graphing call duration by start date. Quick filter allows filtering by Call Type.
- Calls by Day - Column chart graphing number of calls by start state. Quick filter allows filtering by Call Type.



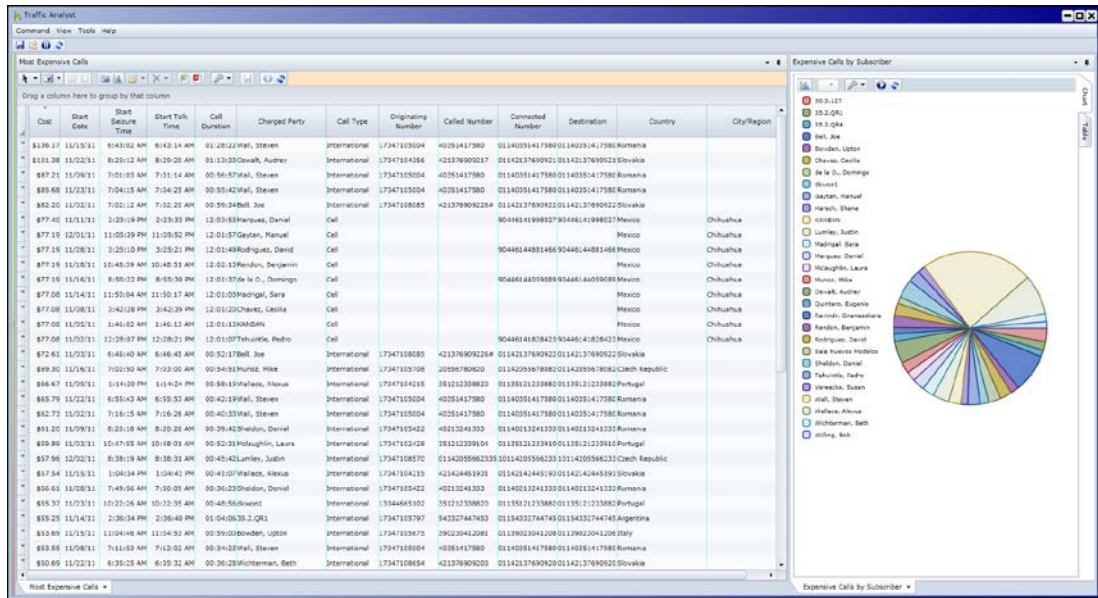
9.1.7. Long Duration Calls

This report includes the top 50 individual longest calls based on call duration over the past 30 days, including the current period. The web grid is sorted by Call Duration in descending order. Additional columns are available to provide the details for each of the long calls. The report includes call records with segments. It includes all call types. No charts are available for this template.

Call Duration	Start Date	Start Seizure Time	Start Talk Time	Cost	Charged Party	Call Type	Originating Number	Called Number	Connected Number	Destination	Country	Region/City
03:13:53	10/05/12	9:59:46 AM	9:59:49 AM	\$0.00	Belcher, Karen	800	3501	18667728714	18667728714	18667728714		
02:40:26	09/25/12	8:53:26 AM	8:53:30 AM	\$0.00	Baehr, Bryan	Incoming	Unavailable	1410	Unavailable	1410		Chesterfield
02:14:42	10/08/12	1:04:14 PM	1:04:21 PM	\$1.39	Belcher, Karen	Incoming	8494522000	1425	8494522000	3501		Chesterfield
02:01:24	10/09/12	1:53:12 PM	1:53:12 PM	\$2.52	Belcher, Karen	Network	3501	1484	1484	1484		
01:57:00	10/04/12	7:58:42 AM	7:58:45 AM	\$0.00	Maycock, Becky	800	1414	18662013881	18662013881	18662013881		
01:56:09	10/01/12	12:59:09 PM	12:59:15 PM	\$1.21	Belcher, Karen	Incoming	4107772222	1425	4107772222	3501		Chesterfield
01:52:07	10/09/12	2:02:34 PM	2:02:34 PM	\$2.34	Francois, Curtis	Network	3095573195	1485	65	65		
01:50:46	09/28/12	1:26:50 PM	1:26:55 PM	\$0.00	Dresch, Chris	Incoming	3129843757	1421	3129843757	3502		Chesterfield
01:50:31	09/27/12	12:07:17 PM	12:07:24 PM	\$0.00	Belcher, Karen	Incoming	4107772222	1425	4107772222	3501		Chesterfield
01:25:53	10/11/12	3:00:31 PM	3:00:31 PM	\$1.80	Belcher, Karen	Network	3501	1484	1484	1484		
01:24:32	10/11/12	3:01:57 PM	3:01:57 PM	\$1.78	Francois, Curtis	Network	3095573195	1485	65	65		
01:23:32	10/02/12	1:40:06 PM	1:40:11 PM	\$0.88	Baehr, Bryan	Incoming	7347108996	1410	7347108996	1410		Chesterfield
01:20:55	10/16/12	4:37:05 PM	4:37:13 PM	\$0.85	Belcher, Karen	Incoming	9727569796	1425	9727569796	3501		Chesterfield
01:08:09	10/16/12	10:00:11 AM	10:00:16 AM	\$0.73	Maycock, Becky	Incoming	6364051750	1414	6364051750	1414		Chesterfield
01:06:26	10/10/12	10:15:05 AM	10:15:24 AM	\$7.20	Semelsberger, Tracey	Local	8382	3147326862	3147326862	3147326862	United States	St. Louis, MO
01:06:07	10/05/12	8:42:04 AM	8:42:07 AM	\$0.71	Belcher, Karen	Incoming	8703914113	1425	8703914113	3501		Chesterfield

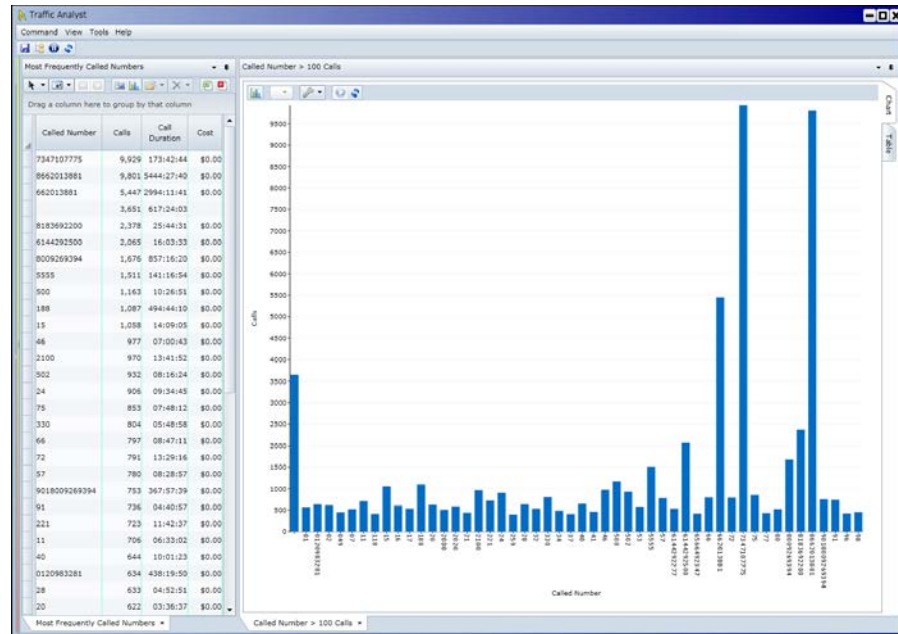
9.1.8. Most Expensive Calls

This report includes the top 50 individual most expensive calls over the past 30 days, including the current period. The web grid is sorted by Cost in descending order. Additional columns are available to provide the details for each of the calls. The report includes call records with segments. It includes all call types. The Expensive Calls by Subscriber pie chart highlights the breakout of the most expensive calls by Subscriber (Charged Party).



9.1.9. Most Frequently Called Numbers

This report includes the top 50 numbers called over the past 30 days, including the current period. It includes all call types. The number of calls are totaled by Called Number and the web grid is sorted by Calls in descending order. The associated column chart highlights the Called Numbers that were called more than 100 times. The Chart Table has 100 as filter value on Calls field.

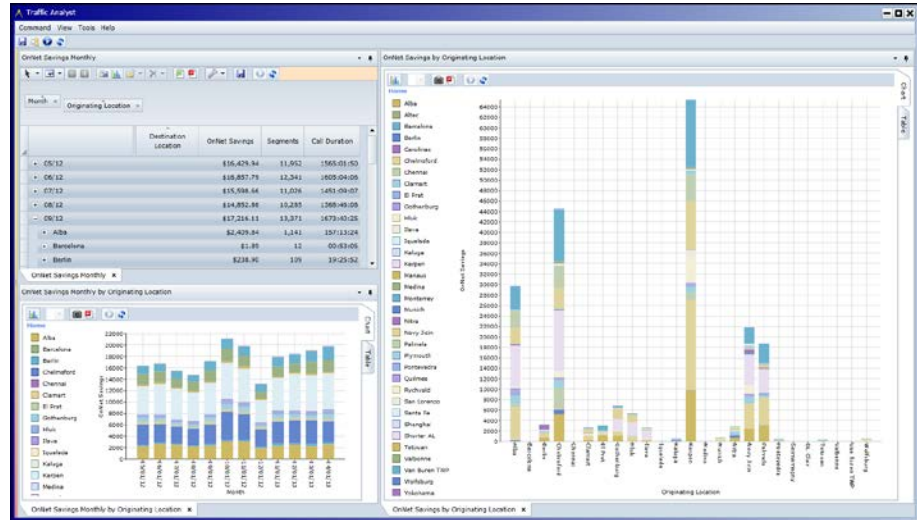


9.1.10. OnNet Savings Last Month

This report provides a summary for the previous month of the captured VoIP savings from transferring calls from the PSTN to the company WAN. The “OnNet Savings” checkbox is active to filter the calls that had a calculated savings. The web grid includes segment detail such as originating and destination location information, call duration and switch. The savings for each segment is represented in the OnNet Savings column. The web grid includes “grand totals” to highlight the total realized onnet savings and number of calls included in analysis. There are five associated charts:

- OnNet Savings by Originating Country/Location – Stacked bar chart graphing the OnNet Savings by Originating Country over the past month. The Originating Countries are listed along the Y axis and the Destination Locations are represented by the color-coded bars. By clicking on an Originating Country bar, user can drill down to the Originating Location detail for that country. This chart is applicable for customers that have international locations.
- OnNet Savings by Originating Location – Stacked bar chart graphing the OnNet Savings by Originating Location (customer site) over the past month. The Originating Locations are listed along the Y axis and the Destination Locations are represented by the color-coded bars. This chart is typically used instead of the above chart for customers that have only domestic locations.
- OnNet Savings by Day by Country – Stacked column chart graphing the OnNet Savings by day over the past month. The color-coded columns represent the Destination Countries for the calls. By clicking on a date column, the user can drill down to the Originating Country detail for specific date. This chart is applicable for customers that have international locations.
- OnNet Savings by Day by Location – Stacked column chart graphing the OnNet Savings by day over the past month. The color-coded columns represent the

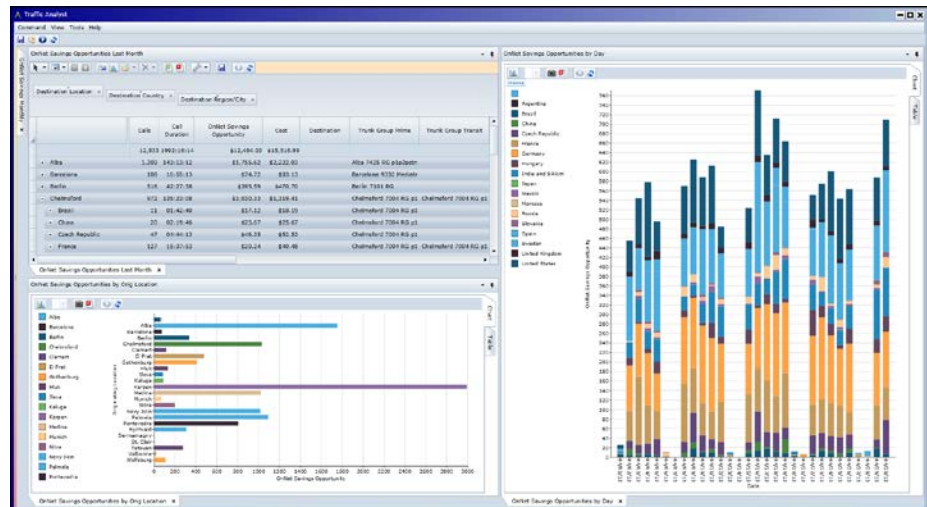
location.



9.1.12. OnNet Savings Opportunities Last Month

This report provides a summary for the previous month of the potential VoIP savings. It highlights the calls that could have been routed over the corporate WAN but were instead sent over the PSTN. The “Savings Opportunities” checkbox is active to filter the calls that have a potential savings that was not been captured. The web grid includes segment detail such as originating and destination location information, call duration and switch. The savings opportunity for each segment is represented in the OnNet Savings Opportunity column. The web grid includes “grand totals” to highlight the total potential savings and number of calls included in analysis. There are two associated charts:

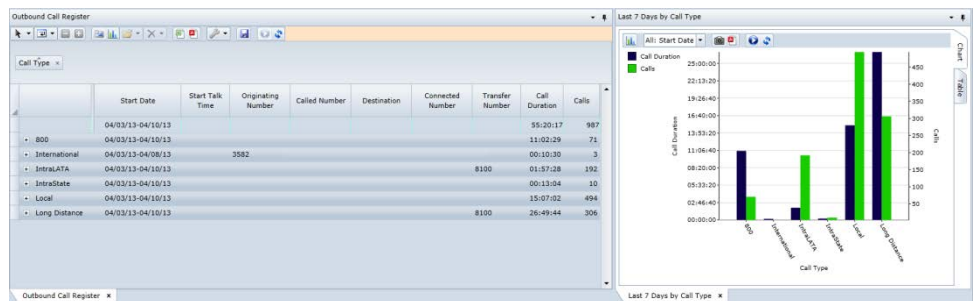
- OnNet Savings Opportunities by Orig Location – Stacked bar chart graphing the OnNet Savings Opportunity by Originating Location (customer site) over the past month. The Originating Locations are listed along the Y axis and the Destination Locations are represented by the color-coded bars.
- OnNet Savings Opportunities by Day – Stacked column chart graphing the OnNet Savings Opportunity by day over the past month. The color-coded columns represent the Destination Countries for the calls. By clicking on a date column, the user can drill down to the Originating Country detail for specific date.



9.1.13. Outbound Call Register

This report is a simple activity report for outbound call types (excludes Incoming, Internal and Network calls). The web grid includes columns to provide basic details about each call: Call Type, State Date, Start Talk Time, Originating Number, Called Number, Destination, Connected Number, Transfer Number, Call Duration and Calls. The report includes calls from the past seven days, including the current period and is grouped by Call Type. There is a single chart:

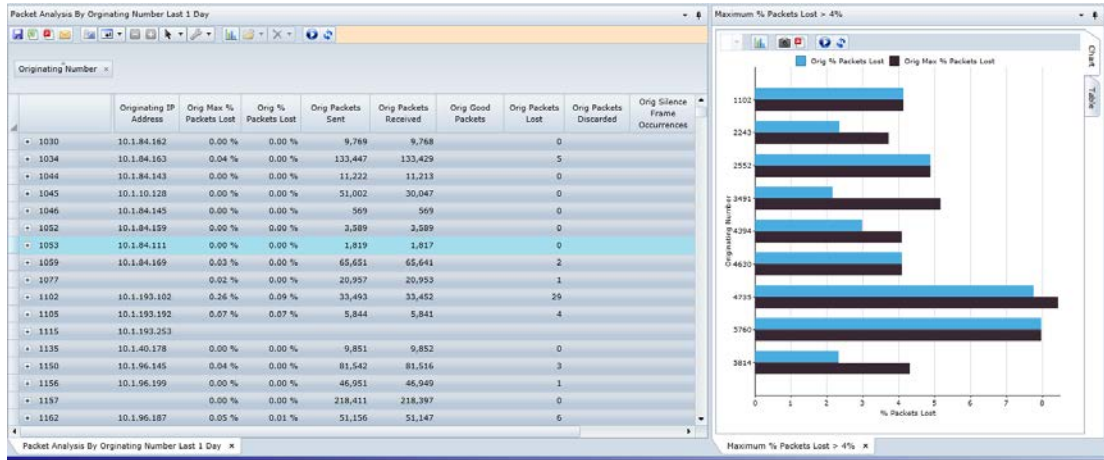
- Last 7 Days by Call Type – Dual axis column chart graphing call duration (left Y axis) and number of calls (right Y axis) by outbound Call Type. Quick filter allows filtering by Start Date.



9.1.14. Packet Analysis by Originating Number Last 1 Day

The “Packet Analysis by Originating Number Last 1 Day” preset highlights packet counts and related information for yesterday plus current day. The report includes outgoing call types (does not include Incoming or Network). The web grid is grouped by Originating Number field and includes columns such as % Packets Lost, Max % Packets Lost, Packets Sent, Packets Received, Packets Discarded, Silence Frame Occurrences and more. The report includes the Originating IP Address field to provide a quick reference between IP address and extension number. There is a single associated chart:

- Maximum % Packets Lost > 4% - Bar chart graphing originating numbers that recorded maximum percent packets lost greater than 4% for the report period. The Max % Packets Lost column highlights the highest packet loss percentage for a single call event for the originating number/extension. Also included is the % Packets Lost value. The % Packets Lost bar will indicate if there is a pattern of poor quality or not. The Chart Table has 4.0% as filter value on Max % Packets Lost.

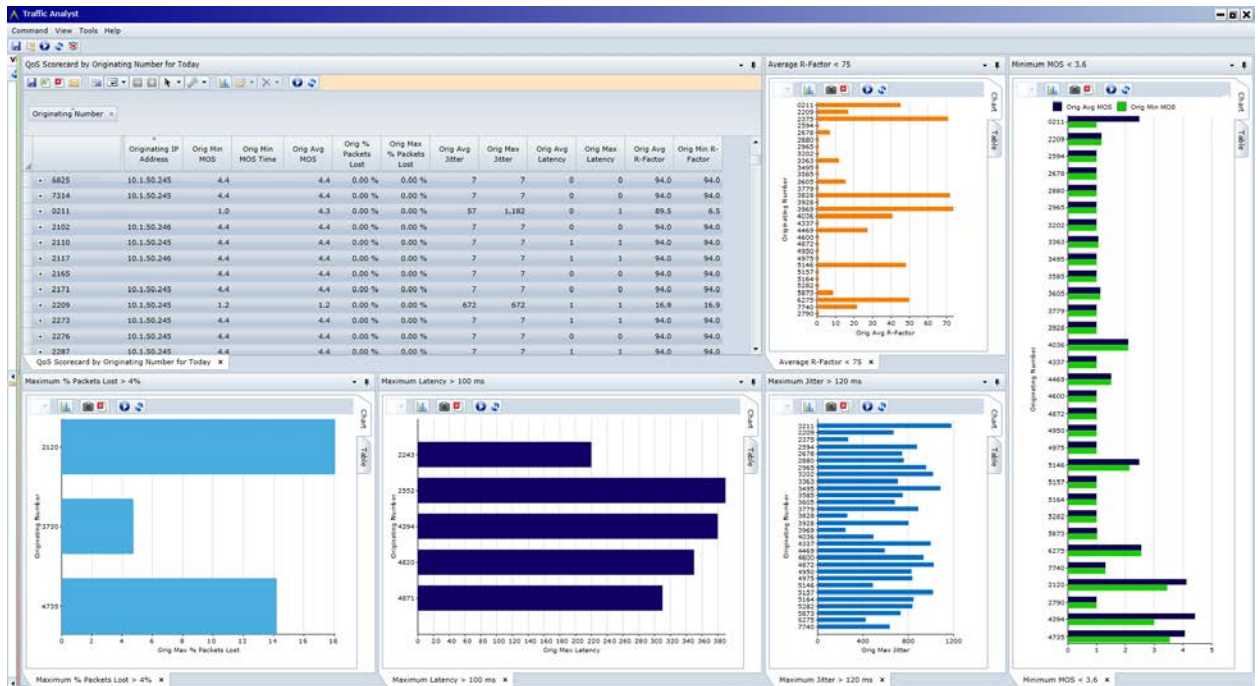


9.1.15. QoS Scorecard by Originating Number for Today

The “QoS Scorecard by Originating Number for Today” preset provides a view into the most current QoS performance metrics by originating number. The report includes outgoing call types (does not include Incoming or Network). The web grid is grouped by Originating Number field and includes key QoS columns such as Min MOS, Ave MOS, % Packets Lost, Max % Packets Lost, Average Jitter, Max Latency, Average R-Factor and more. The Min MOS Time denotes the time that the minimum MOS value was recorded. This can be helpful if the call duration was long as it helps pinpoint the problem time. The report includes the Originating IP Address column to provide a quick reference between IP address and extension number. There are five associated charts:

- Average R-Factor < 75 - Bar chart graphing originating numbers that recorded an average R-Factor less than 75 for the report period. The Chart Table has 75 as filter value on Ave R-Factor field. This graph will highlight originating numbers/extensions that are experiencing less than optimal performance for the current day.
- Maximum % Packets Lost > 4% - Bar chart graphing originating numbers that recorded maximum percent packets lost greater than 4% for the report period. The Chart Table has 4.0% as filter value on Max % Packets Lost. Note that this chart highlights the highest packet loss percentage for a single call event for the originating number/extension.
- Maximum Jitter > 120 ms - Bar chart graphing originating numbers that recorded maximum jitter value greater than 120 ms for the report period. The Chart Table has 120 as filter value on Max Jitter. Note that this chart highlights the greatest jitter for a single call event for the originating number/extension.

- Maximum Latency > 100 ms - Bar chart graphing IP addresses that recorded maximum latency value greater than 100 ms for the report period. The Chart Table has 100 as filter value on Max Latency. Note that this chart highlights the highest latency for a single call event for the IP address.
- Minimum MOS < 3.6 - Bar chart graphing originating numbers that recorded a minimum MOS less than 3.6 for the report period. Also included is the Average MOS value. This graph will highlight originating numbers/extensions that experienced a MOS score of less than 3.6 for a single call event for the IP address. The Average MOS bar will indicate if there is a pattern of poor quality or not. The Chart Table has 3.6 as filter value on Min MOS field.



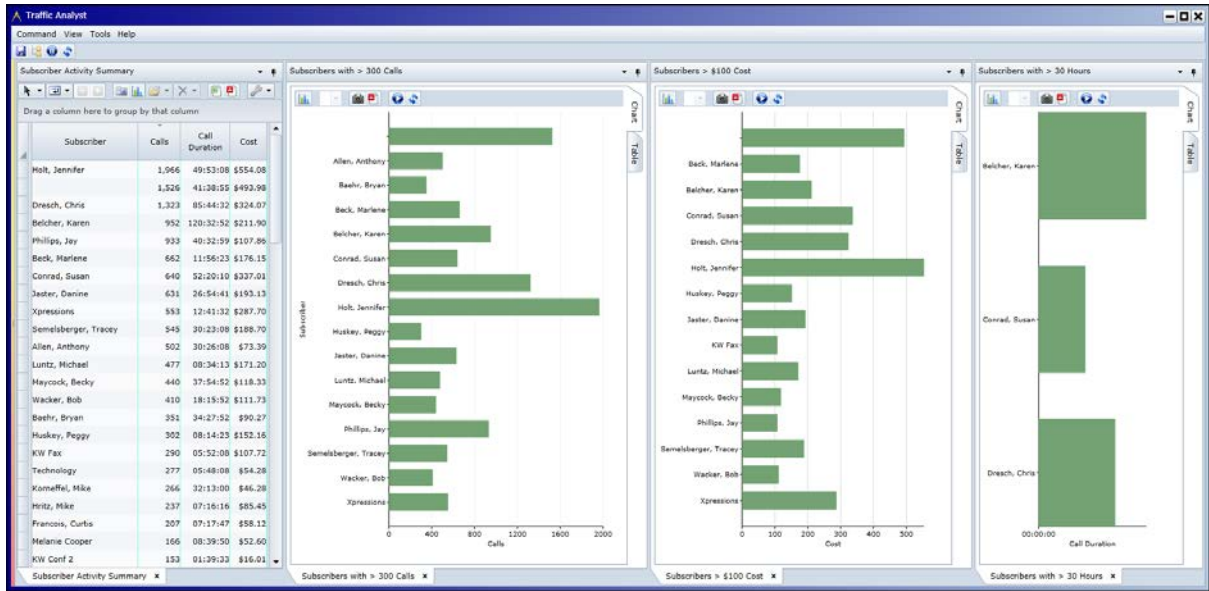
9.1.16. Subscriber Activity Summary

This report provides a summary of the call activity by Subscriber (Charged Party). The summary fields include number of calls, the total call duration and cost. This report shows a subtotal of all call segments with a call duration greater than zero for the past seven days, including the current period. It includes all call types. The report is grouped by Subscriber and sorted by number of Calls in descending order. There are three associated charts:

- Subscribers with > 300 Calls - Bar chart graphing number of calls by Subscriber (Charged Party) for Subscribers placing more than 300 calls during report period. The Chart Table has the 300 filter on the Calls field.
- Subscribers with > \$100 Cost - Bar chart graphing the total cost of calls by Subscriber (Charged Party) for Subscribers placing calls with a cost greater than \$100 during reporting period. The Chart Table has the \$100 filter on the Cost field.

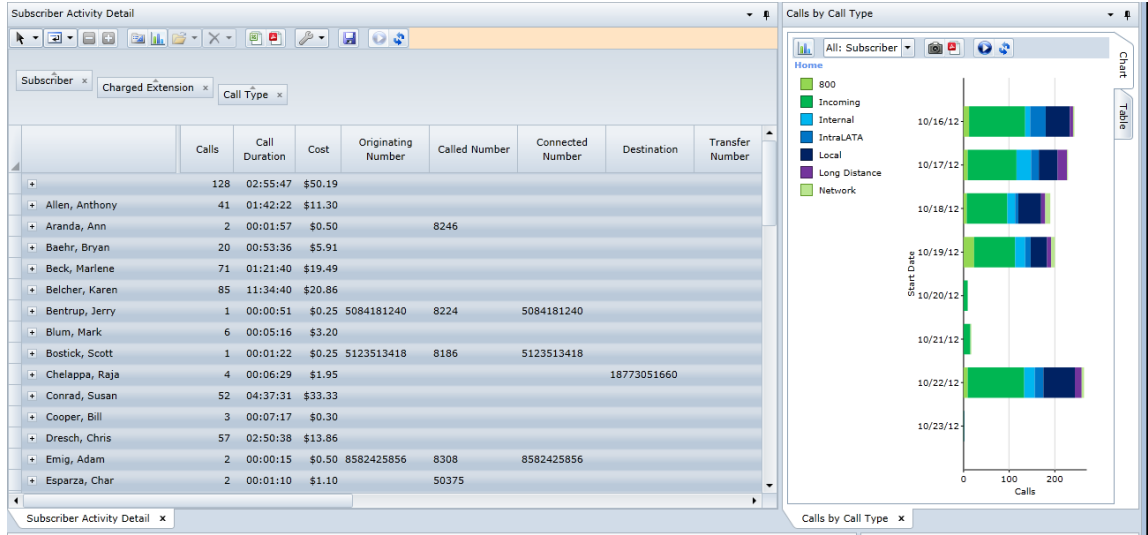
- Subscribers with > 30 Hours - Bar chart graphing the call duration of calls by Subscriber (Charged Party) for Subscribers placing calls with a total call duration greater than 30 hours during reporting period. The Chart Table has the 30 hours (108000 seconds) filter on the Call Duration field.

Note: If you have not imported an Organization file, update the template by replacing Subscriber with Charged Extension.



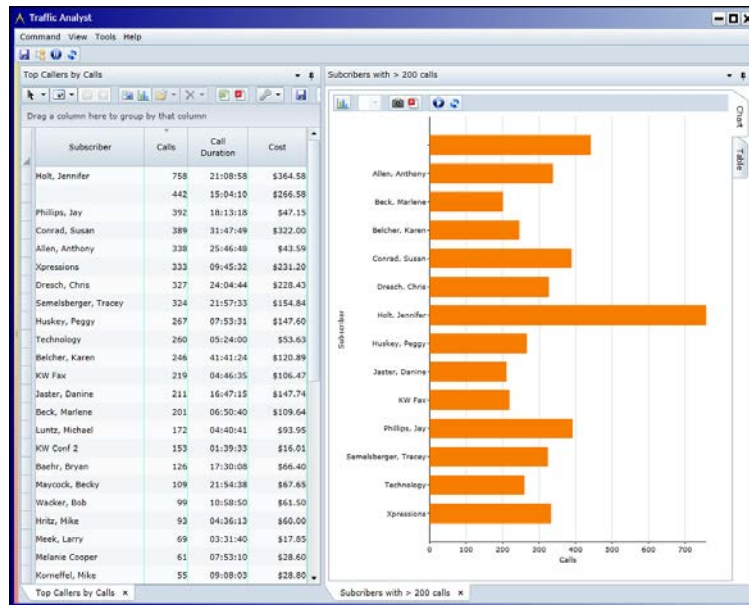
9.1.17. Subscriber Activity Detail

This report provides a snapshot of the call activity by Subscriber (Charged Party). In addition to summary detail provided by the Subscriber Activity Summary, this report adds fields to provide more information about the individual calls, such as Called Number, Destination, Country and more. This report shows all call records including segments with a call duration greater than zero for the past seven days, including the current period. It includes all call types. The Calls by Call Type chart is a Bar (Stacked) chart graphing number of calls with Start Date, Hour and Call Type available as drill down. Quick filter is Subscriber. *Note: If you have not imported an Organization file, update the template by replacing Subscriber with Charged Extension.*



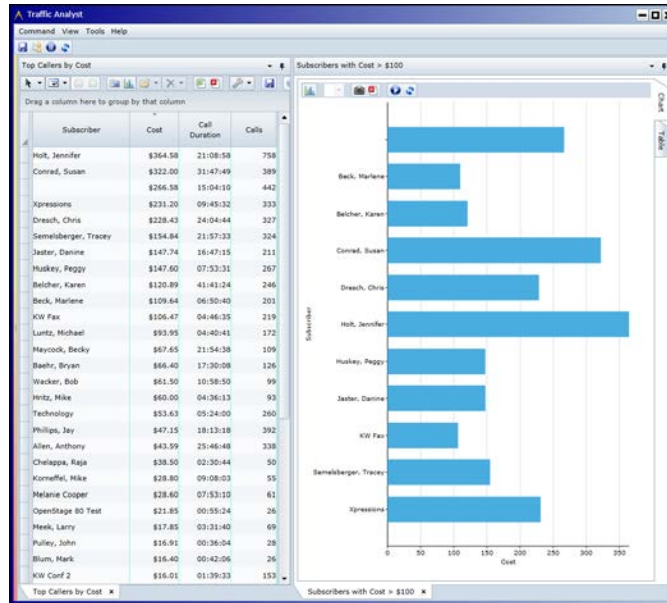
9.1.18. Top Callers by Calls

This report includes the top 50 Subscribers (Charged Party) that made the most outbound calls over the past 30 days, including the current period. It includes call types of local, long distance, regional, regional 2, 800, 900 and international. The associated bar chart highlights the Subscribers that made more than 200 calls during the report period. The Chart Table has 200 as filter value on Calls field. *Note: If you have not imported an Organization file, update the template by replacing Subscriber with Charged Extension.*



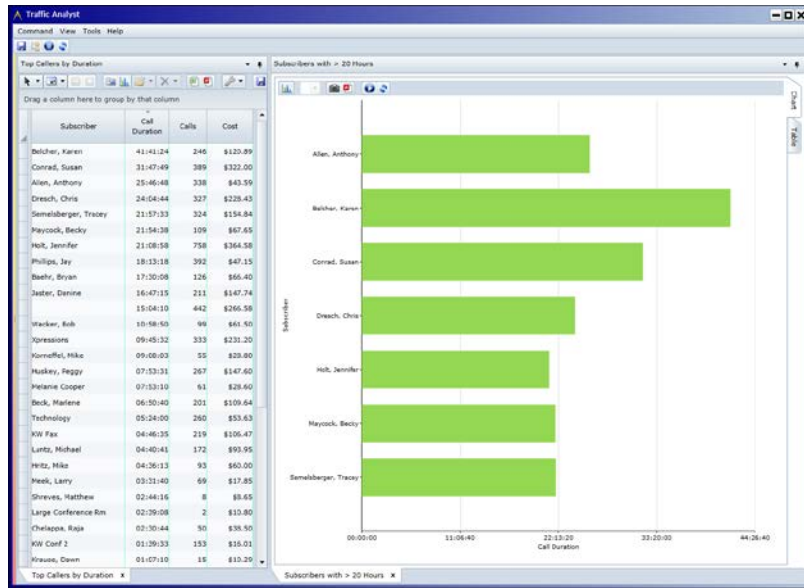
9.1.19. Top Callers by Cost

This report includes the top 50 Subscribers (Charged Party) based on the cost of calls over the past 30 days, including the current period. The web grid is sorted by Cost in descending order. It includes call types of local, long distance, regional, regional 2, 800, 900 and international. The associated bar chart highlights the Subscribers with calls totaling more than \$100 during the report period. Note that the Subscriber may have one or more extensions. The Chart Table has \$100 as filter value on Cost field. *Note: If you have not imported an Organization file, update the template by replacing Subscriber with Charged Extension.*



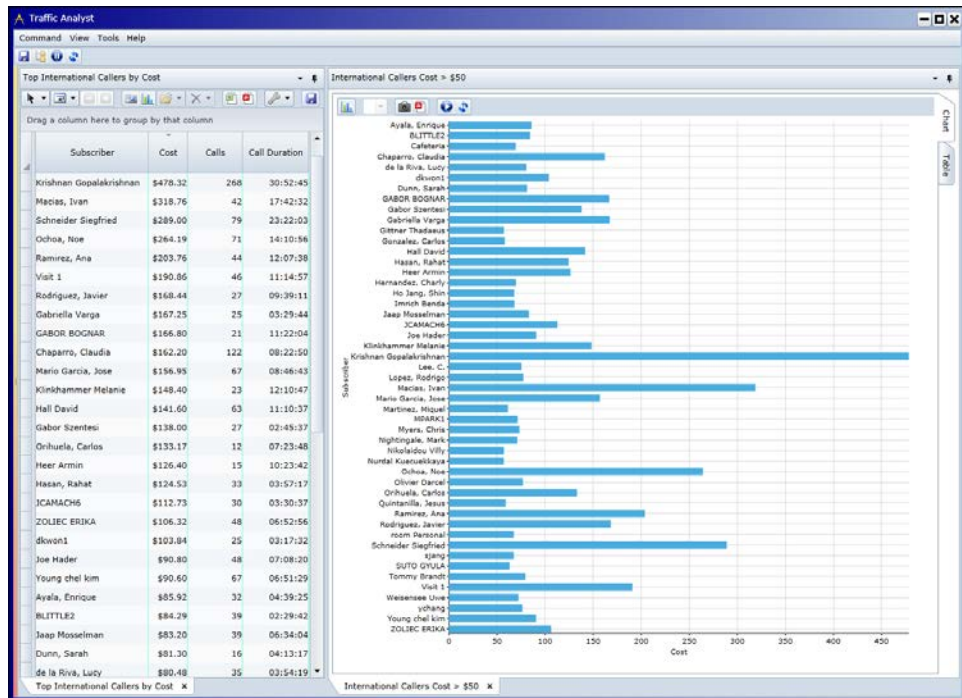
9.1.20. Top Callers by Duration

This report includes the top 50 Subscribers (Charged Party) based on the total duration of calls over the past 30 days, including the current period. The web grid is sorted by Call Duration in descending order. It includes call types of local, long distance, regional, regional 2, 800, 900 and international. The associated bar chart highlights the Subscribers with calls totaling more than 20 hours during the report period. Note that the Subscriber may have one or more extensions. The Chart Table has 20 as filter value on Call Duration field. *Note: If you have not imported an Organization file, update the template by replacing Subscriber with Charged Extension.*



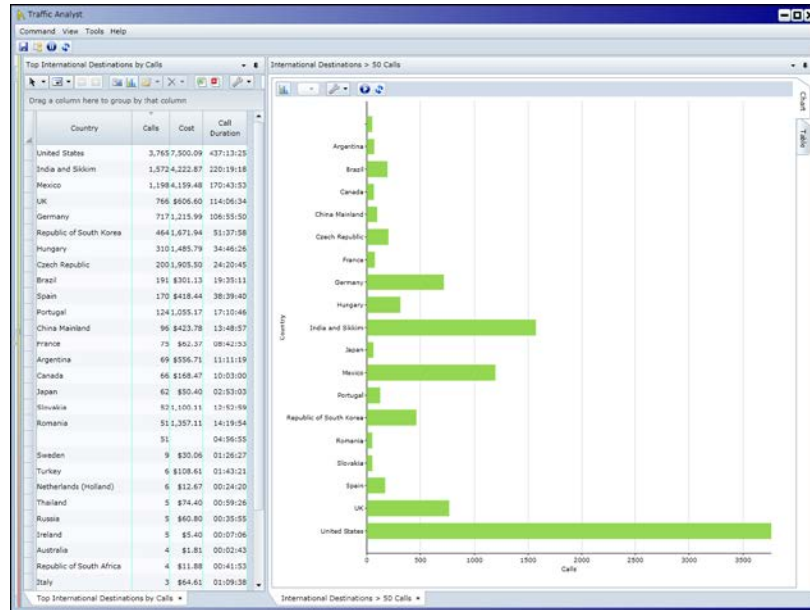
9.1.21. Top International Callers by Cost

This report includes the top 50 Subscribers (Charged Party) based on the cost of international calls over the past 30 days, including the current period. The web grid is sorted by Cost in descending order. The associated bar chart highlights the Subscribers with calls totaling more than \$50 during the report period. Note that the Subscriber may have one or more extensions. The Chart Table has \$50 as filter value on Cost field. *Note: If you have not imported an Organization file, update the template by replacing Subscriber with Charged Extension.*



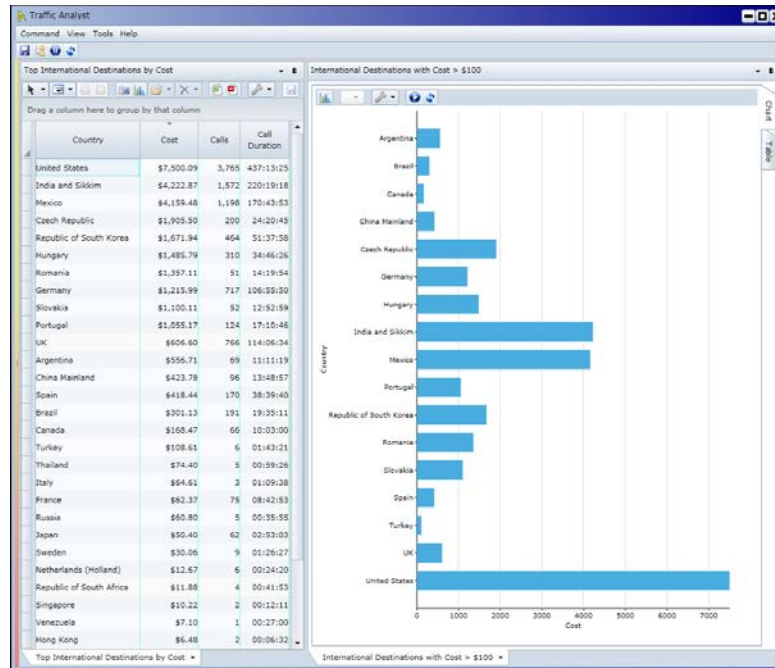
9.1.22. Top International Destinations by Calls

This report includes the top 50 Countries called based on the number of international calls made over the past 30 days, including the current period. The number of calls is totaled by Country and the web grid is sorted by Calls in descending order. The associated bar chart highlights the destination countries with more than 50 calls during the report period. The Chart Table has 50 as filter value on Calls field.



9.1.23. Top International Destinations by Cost

This report includes the top 50 Countries called based on the cost of the international calls made over the past 30 days, including the current period. The Cost is totaled by Country and the web grid is sorted by Cost in descending order. The associated bar chart highlights the destination countries that calls totaled more than \$100 during the report period. The Chart Table has \$100 as filter value on Cost field.



9.2. Network Utilization Preset Reports

There are five Network Utilization preset reports available.

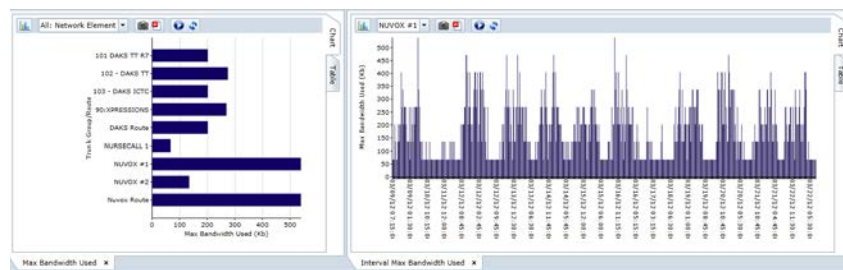
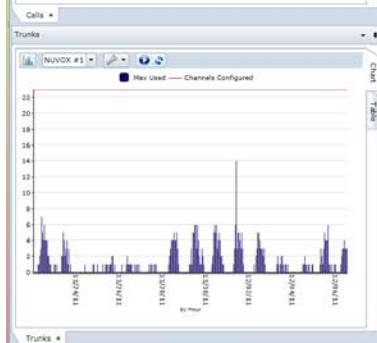
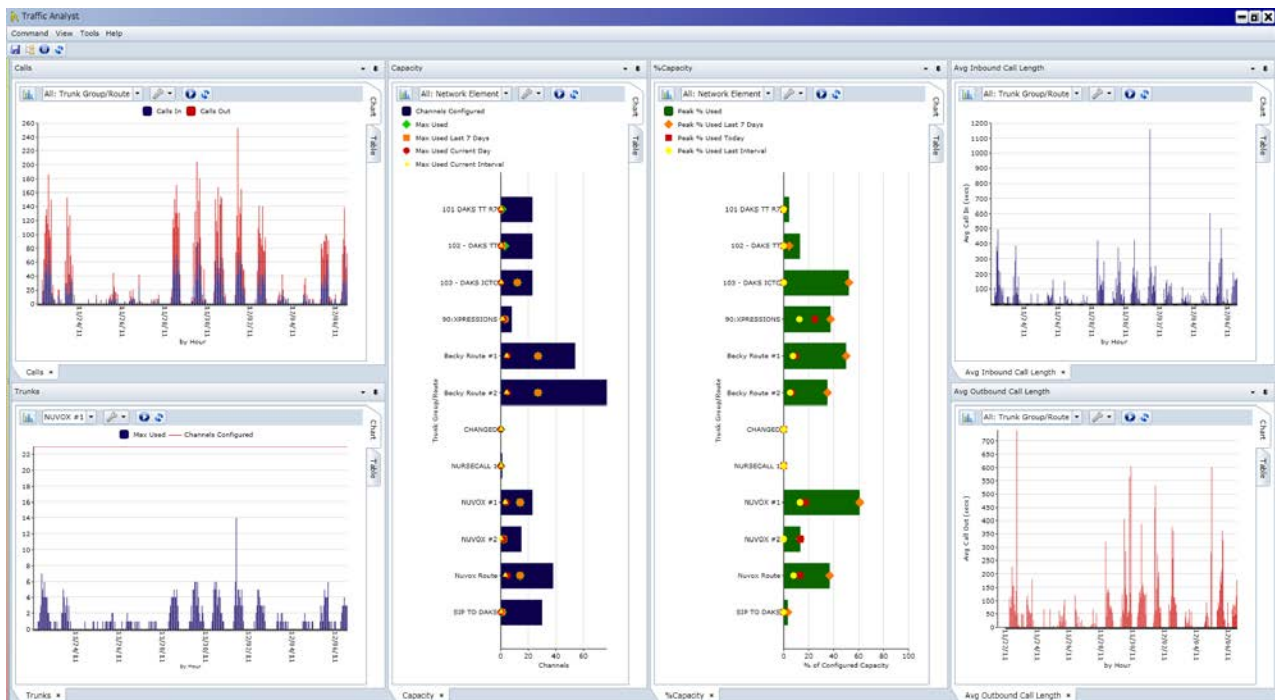
9.2.1. Network Last 14 Days

The first Network Utilization preset report is called "Network Last 14 Days." It includes interval detail level data for the past 14 days, including the current period for trunk groups, routes and virtual trunk groups (if applicable). The web grid includes many network performance fields such as Channels Configured (Trunks Config), Trunks Max Used, Peak % Used Today, Peak % Used Last Interval and more. There are eight associated charts:

- Calls - Column (Stacked) chart graphing number of Calls In and number of Calls Out by Hour. Quick filter is Trunk Group/Route.
- Trunks - Column chart graphing the number of Channels Configured (Trunks) and Max Used (Trunks) by Hour. The Channels Configured appears as a red line while the Max Used shows as columns. Quick filter is Trunk Group/Route. You must select a route or trunk group for the graph to appear.
- Average Outbound Call Length - Column chart graphing the Average Call Out (in seconds) by Hour. Quick filter is Trunk Group/Route.
- Average Inbound Call Length - Column chart graphing the Average Call In (in seconds) by Hour. Quick filter is Trunk Group/Route.
- Capacity - Bar chart graphing the number of Channels Configured (Trunks), Max Used (Trunks), Max Used Last 7 Days, Max Used Current Day and Max Used Last Interval by Trunk Group/Route. The Channels Configured appears as a bar with the other variables appearing as data points (markers) such as

green diamonds or red circles. This view provides a quick snap shot of capacity trends. Quick filter is Network Element (trunk groups or routes).

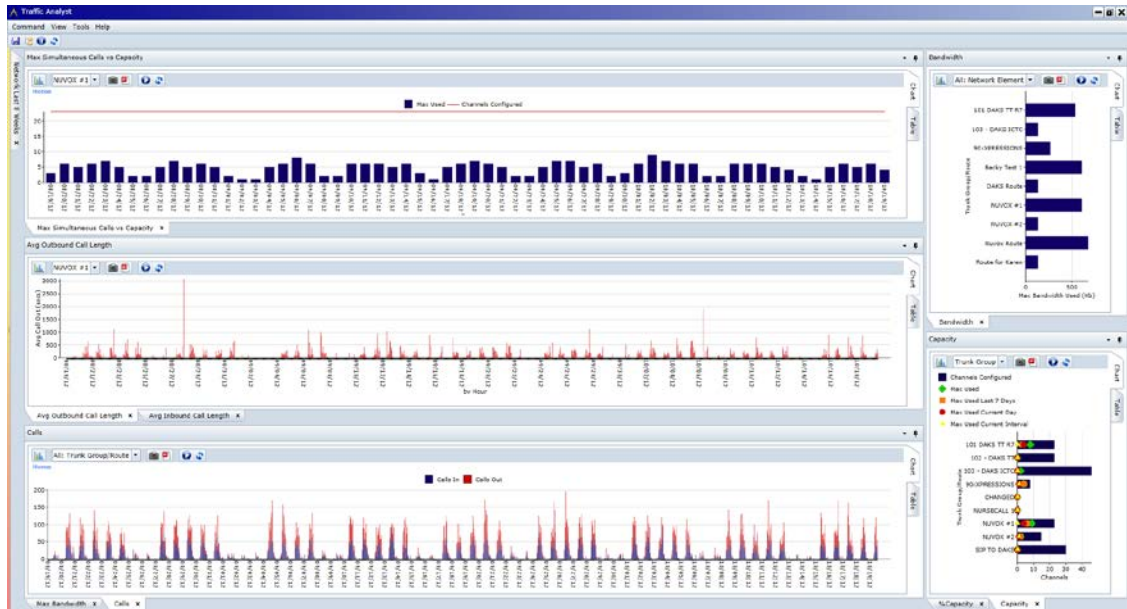
- % Capacity - Bar chart graphing the Peak % Used (Trunks), Peak % Used Last 7 Days, Peak % Used Current Day and Peak % Used Last Interval by Trunk Group/Route. The Peak % Used appears as a bar with the other variables appearing as data points (markers) such as orange diamond or yellow circle. Similar to Capacity chart, this view provides a quick snap shot of capacity trends, but quickly highlights if the capacity is approaching high percentages of configured capacity. Quick filter is Network Element (trunk groups or routes).
- Max Bandwidth Used - Bar chart graphing the Max Bandwidth Used in kbps during the report interval for each trunk group and route.
- Interval Max Bandwidth Used - Column chart graphing the Max Bandwidth Used in kbps over time. Each column represents the collection interval. Quick filter is Trunk Group/Route to allow the user to drill into a specific network element.



9.2.2. Network Last 8 Weeks

The second Network Utilization preset report provides a longer historical view of data. The preset report is called “Network Last 8 weeks.” It includes interval detail level data for the past eight weeks, including the current period. The web grid includes fewer columns than the previous network preset report and you will note that several of them are also hidden in the display. There are eight associated charts:

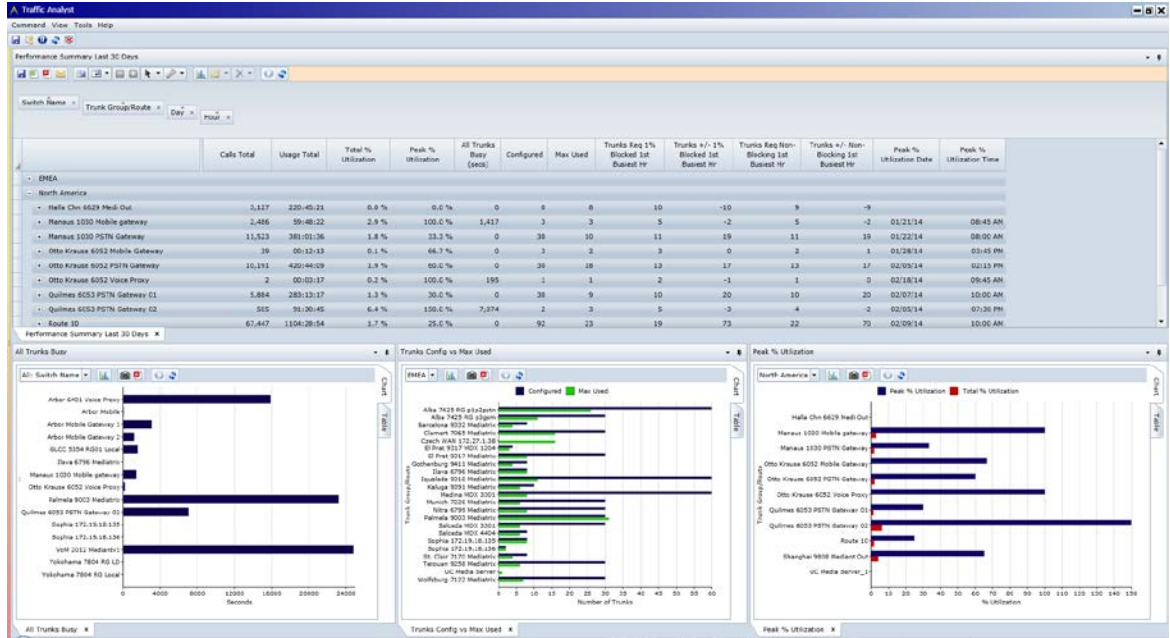
- Calls - Column (Stacked) chart graphing number of Calls In and number of Calls Out by Hour with drill down to Time (half hour or quarter hour, based on data collection interval). Quick filter is Trunk Group/Route.
- Max Simultaneous Calls vs Capacity - Column chart graphing the number of Channels Configured (Trunks) and Max Used (Trunks) by Day with drill down to Hour and Time (half hour or quarter hour, based on data collection interval). The Channels Configured appears as a red line while the Max Used shows as columns. Quick filter is Trunk Group/Route. You must select a route or trunk group for the graph to appear.
- Average Outbound Call Length - Column chart graphing the Average Call Out (in seconds) by Hour. Quick filter is Trunk Group/Route.
- Average Inbound Call Length - Column chart graphing the Average Call In (in seconds) by Hour. Quick filter is Trunk Group/Route.
- Capacity - Bar chart graphing the number of Channels Configured (Trunks), Max Used (Trunks), Max Used Last 7 Days, Max Used Current Day and Max Used Last Interval by Trunk Group/Route. The Channels Configured appears as a bar with the other variables appearing as data points (markers) such as green diamond or red circle. This view provides a quick snap shot of capacity trends. Quick filter is Network Element (trunk groups or routes).
- % Capacity - Bar chart graphing the Peak % Used (Trunks), Peak % Used Last 7 Days, Peak % Used Current Day and Peak % Used Last Interval by Trunk Group/Route. The Peak % Used appears as a bar with the other variables appearing as data points (markers) such as orange diamond or yellow circle. Similar to Capacity chart, this view provides a quick snap shot of capacity trends, but quickly highlights if the capacity is approaching high percentages of configured capacity. Quick filter is Network Element (trunk groups or routes).
- Bandwidth - Bar chart graphing the Max Bandwidth Used in kbps during the report interval for each trunk group and route.
- Max Bandwidth - Column chart graphing the Max Bandwidth Used in kbps over time. Each column represents the collection interval. Quick filter is Trunk Group/Route to allow the user to drill into a specific network element.



9.2.3. Performance Summary Last 30 Days

The “Performance Summary Last 30 Days” preset report focuses on capacity and provides the detail to drill into potential (or real) capacity issues –whether it is too much or not enough capacity. It includes analysis based on the engineering model (Erlang B), compression model (G.711 USA Std uLaw) and grade of service targets (1.0% blocking at 1st busy hour). These configurations drive the required trunks/channels and the variance based on existing configuration. (You can quickly adjust the analysis parameters and save the updated template as Shared or Personal.) The web grid includes columns such as Total % Utilization, Peak % Utilization, All Trunks Busy (in seconds), Configured, Maximum Used, Trunks Required 1% Blocked 1st Busiest Hour and Trunks Required Non-Blocking 1st Busiest Hour. There are three associated charts:

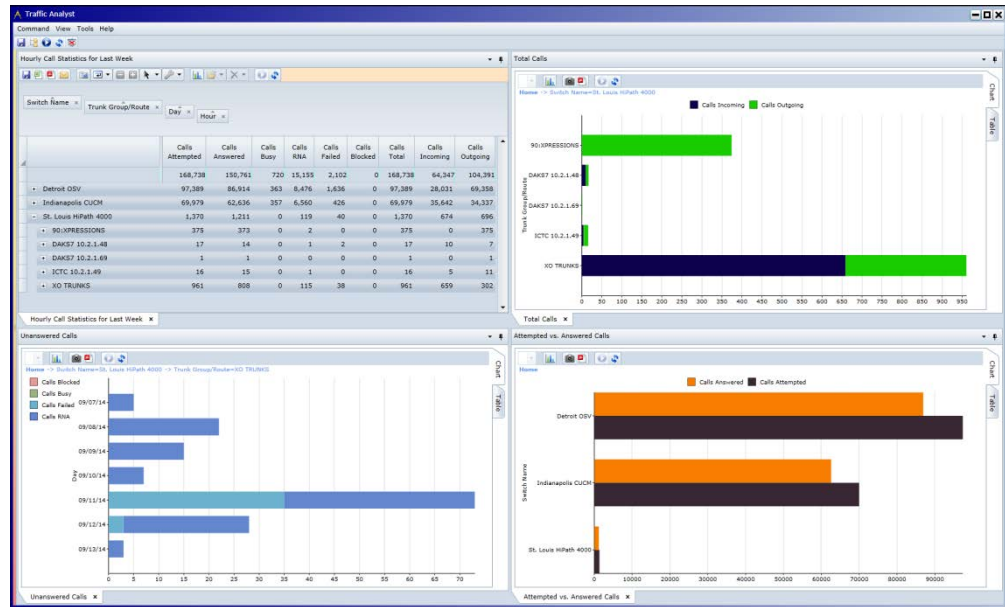
- All Trunks Busy - Bar chart graphing number of seconds of All Trunks Busy by Trunk Group/Route. There is a filter on the All Trunks Busy field of greater than zero. Quick filter is Switch Name.
- Trunks Config vs Max Used - Bar chart graphing number of trunks configured and maximum used during 30 days by Trunk Group/Route. Quick filter is Switch Name.
- Peak % Utilization - Bar chart graphing peak percent utilization (based on maximum channels used) alongside total percent utilization (based on hours of usage) by Trunk Group/Route. Quick filter is Switch Name.



9.2.4. Hourly Call Statistics for Last Week

The “Hourly Call Statistics for Last Week” preset highlights call counts by trunk group for the previous week. The report is grouped by Switch, Trunk Group, Day and Hour, assuming the report will be run at the Private Network level or within a Virtual Group that includes multiple switches. If you prefer to run only at switch level, save a Personal or Shared template with the Switch field removed. Note that routes are not included since the call totals would not be subtotaled at the switch or grand total level. The web grid includes columns such as Calls Attempted, Calls Answered, Calls Busy, Calls Failed, Calls Blocked and more. There are three associated charts:

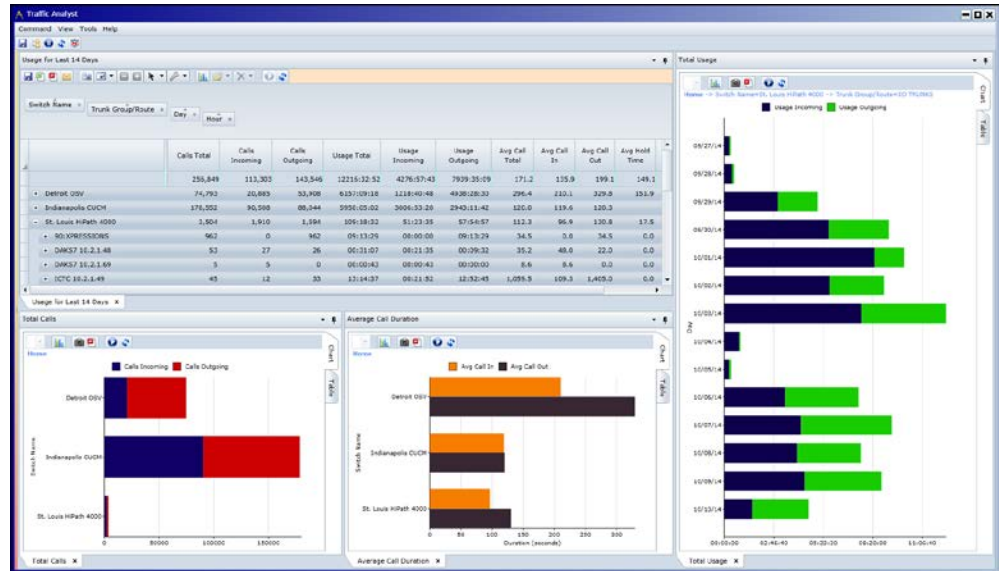
- Attempted vs. Answered Calls - Bar chart graphing number of Calls Attempted and number of Calls Answered side by side. The chart displays at Switch level and supports drill down to Trunk Group, Day and Hour.
- Total Calls - Bar (Stacked) chart graphing number of Calls Incoming and number of Calls Outgoing. The chart displays at Switch level and supports drill down to Trunk Group, Day and Hour. (Screen shot below shows this chart drilled down to Trunk Group.)
- Unanswered Calls - Bar (Stacked) chart graphing number of Calls Blocked, Calls Busy, Calls Failed and Calls RNA (ring no answer). This provides a quick view into why calls did not complete. The chart displays at Switch level and supports drill down to Trunk Group, Day and Hour. (Screen shot below shows this chart drilled down to Day detail for specific trunk group.)



9.2.5. Usage for Last 14 Days

The “Usage for Last 14” preset highlights number of calls, usage, average call duration and hold statistics by trunk group for the past 14 days, including the current day. The report is grouped by Switch, Trunk Group, Day and Hour, assuming the report will be run at the Private Network level or within a Virtual Group that includes multiple switches. If you prefer to run only at switch level, save a Personal or Shared template with the Switch field removed. Note that routes are not included since the call totals would not be subtotaled at the switch or grand total level. The web grid includes columns such as Calls Total, Calls Incoming, Usage Total, Usage Outgoing, Avg Call Total, Avg Hold Time and more. There are three associated charts:

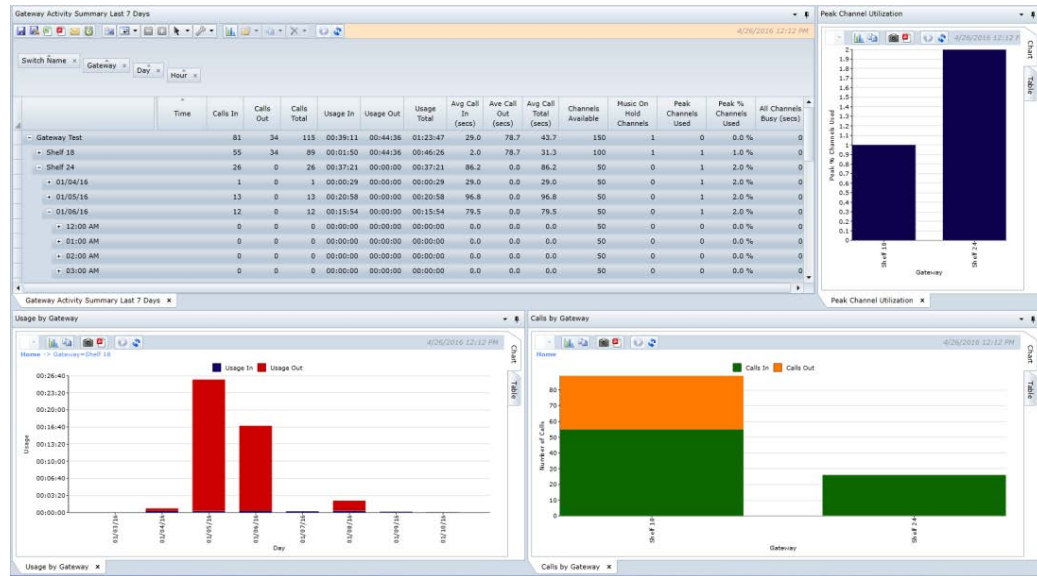
- Average Call Duration - Bar chart graphing Avg Call In and Avg Call Out side by side. The duration is shown in seconds. The chart displays at Switch level and supports drill down to Trunk Group, Day and Hour.
- Total Calls - Bar (Stacked) chart graphing number of Calls Incoming and number of Calls Outgoing. The chart displays at Switch level and supports drill down to Trunk Group, Day and Hour.
- Total Usage - Bar (Stacked) chart graphing Usage Incoming and Usage Outgoing. The chart displays at Switch level and supports drill down to Trunk Group, Day and Hour. (Screen shot below shows this chart drilled down to Day detail for specific trunk group.)



9.3. Network Gateway Preset Report

There is a single Network Gateway preset report called “Gateway Activity Summary Last 7 Days.” This report is only available for Unify OpenScope 4000/HiPath 4000 gateways and OpenScope Branch gateways. It may be accessed at the gateway, switch or Private Network. This report is defined for past seven days with interval data. The report is grouped by Switch Name, Gateway, Day and Hour. The interval data fields are the last drill down data rows. The report includes columns to highlight call volume, usage volume, average call length, plus channel availability and usage. There are three associated charts:

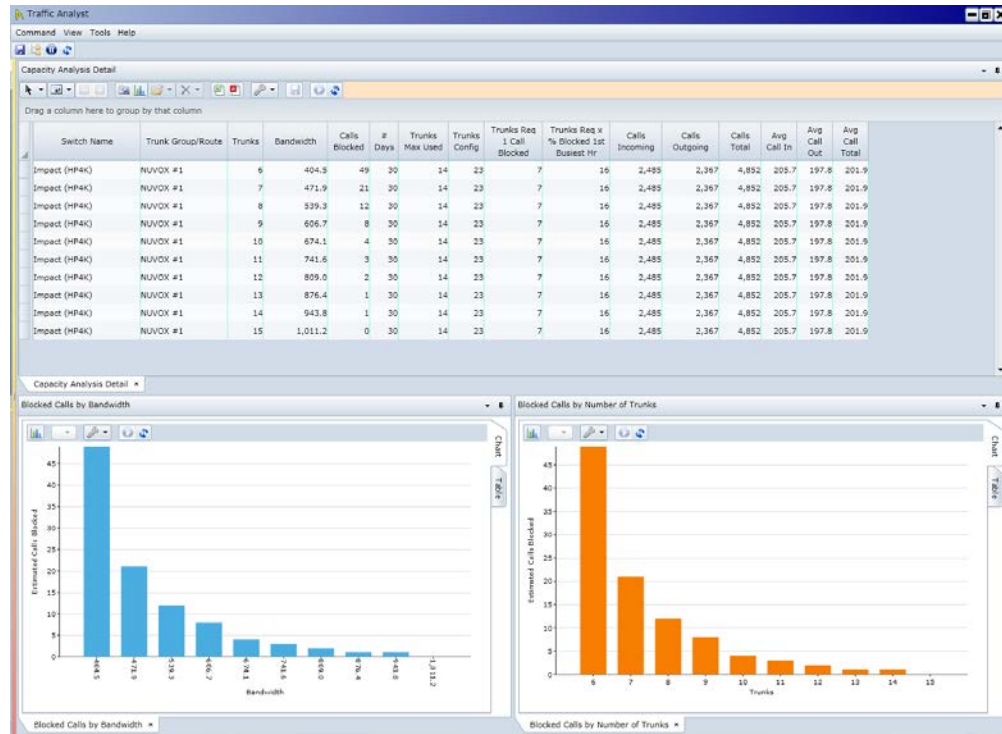
- Usage by Gateway – Stacked column chart graphing Usage In and Usage Out by Gateway with drilldown to day, hour and quarter hour (Time).
- Usage by Gateway – Stacked column chart graphing Calls In and Calls Out by Gateway with drilldown to day, hour and quarter hour (Time).
- Peak Channel Utilization – Column chart displaying the peak percentage of channel used by gateway for the report period.



9.4. Network Modeling Preset Report

There is a single Network Modeling preset report called “Capacity Analysis Detail.” This report is only available at the route or trunk group level. It uses data from the past 30 days to model the estimated trunks and/or bandwidth required to meet a given service level based on the number of calls blocked. Within the Properties window, you may use the “what if” analysis to change the number of calls and/or average call length for incoming and outgoing calls. The web grid for this report presents the basic information but the two charts present the information succinctly:

- Blocked Calls by Number of Trunks - Column chart graphing the estimated number of blocked calls per number of trunks configured.
- Blocked Calls by Bandwidth - Column chart graphing the estimated number of blocked calls based on bandwidth available.



9.5. Network QOS Preset Report

There are three Network QOS preset reports available.

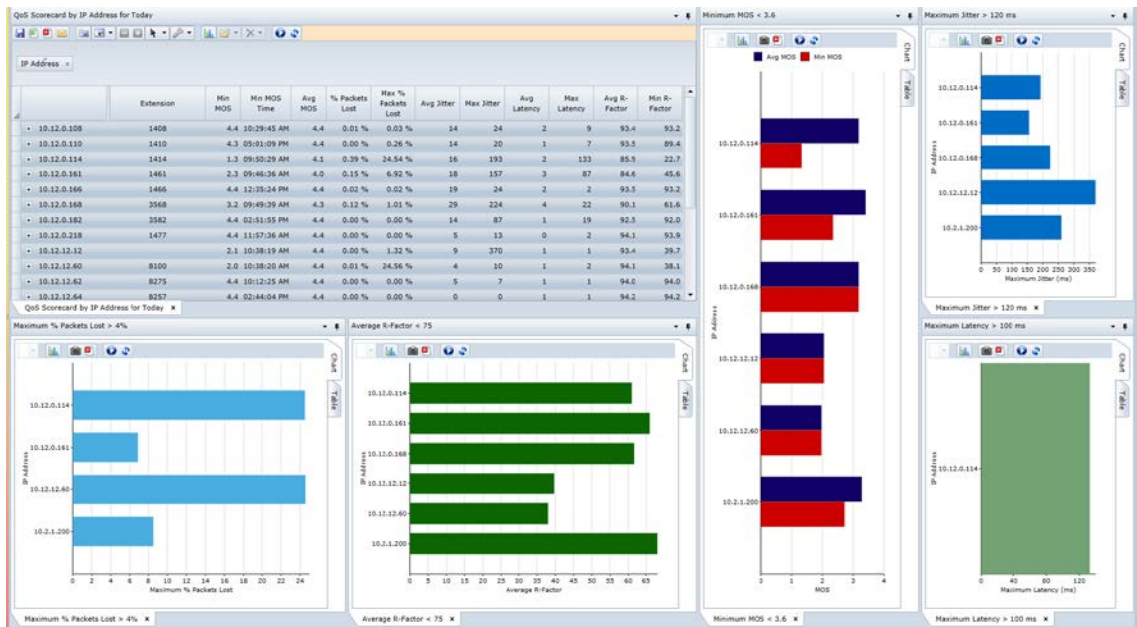
9.5.1. QoS Scorecard by IP Address for Today

The “QoS Scorecard by IP Address for Today” preset provides a view into the most current QoS performance metrics by IP address. The web grid is grouped by IP Address field and includes key QoS columns such as Min MOS, Ave MOS, % Packets Lost, Max % Packets Lost, Average Jitter, Max Latency, Average R-Factor and more. The Min MOS Time denotes the time that the minimum MOS value was recorded. This can be helpful if the call duration was long as it helps pinpoint the problem time. The report includes the Extension field to provide a quick reference between IP address and extension number. If there is no extension for an IP address, the IP address may represent a gateway or some other device. There are five associated charts:

- Average R-Factor < 75 - Bar chart graphing IP addresses that recorded an average R-Factor less than 75 for the report period. The Chart Table has 75 as filter value on Ave R-Factor field. This graph will highlight IP addresses that are experiencing less than optimal performance for the current day.
- Maximum % Packets Lost > 4% - Bar chart graphing IP addresses that recorded maximum percent packets lost greater than 4% for the report period. The Chart Table has 4.0% as filter value on Max % Packets Lost. Note that this chart highlights the highest packet loss percentage for a single call event for the IP address.
- Maximum Jitter > 120 ms - Bar chart graphing IP addresses that recorded maximum jitter value greater than 120 ms for the report period. The Chart Table has 120 as filter value on Max Jitter. Note that this chart highlights the greatest

jitter for a single call event for the IP address.

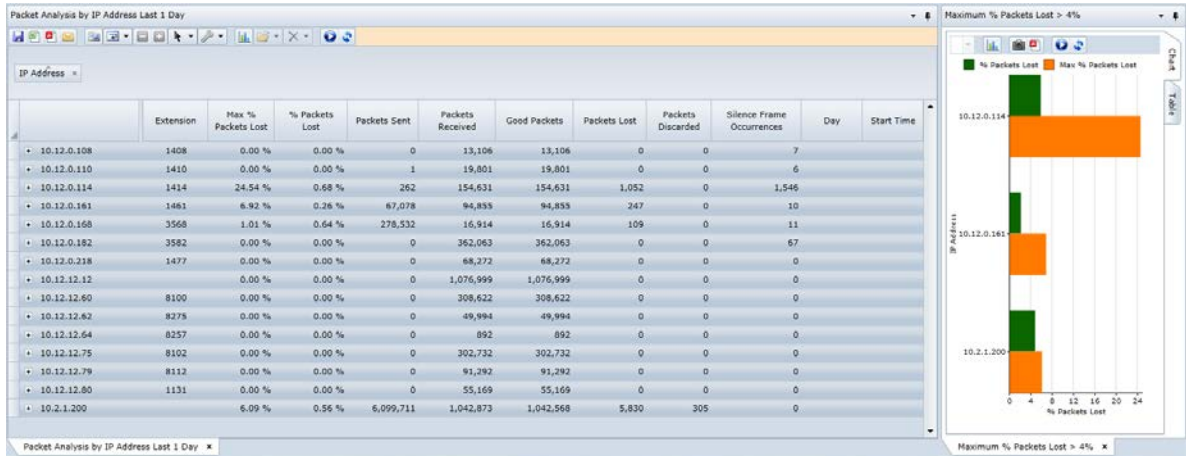
- Maximum Latency > 100 ms - Bar chart graphing IP addresses that recorded maximum latency value greater than 100 ms for the report period. The Chart Table has 100 as filter value on Max Latency. Note that this chart highlights the highest latency for a single call event for the IP address.
- Minimum MOS < 3.6 - Bar chart graphing IP addresses that recorded a minimum MOS less than 3.6 for the report period. Also included is the Average MOS value. This graph will highlight IP addresses that experienced a MOS score of less than 3.6 for a single call event for the IP address. The Average MOS bar will indicate if there is a pattern of poor quality or not. The Chart Table has 3.6 as filter value on Min MOS field.



9.5.2. Packet Analysis by IP Address Last 1 Day

The “Packet Analysis by IP Address Last 1 Day” preset highlights packet counts and related information for yesterday plus current day. The web grid is grouped by IP Address field and includes columns such as % Packets Lost, Max % Packets Lost, Packets Sent, Packets Received, Packets Discarded, Silence Frame Occurrences and more. The report includes the Extension field to provide a quick reference between IP address and extension number. If there is no extension for an IP address, the IP address may represent a gateway or some other device. There is a single associated chart:

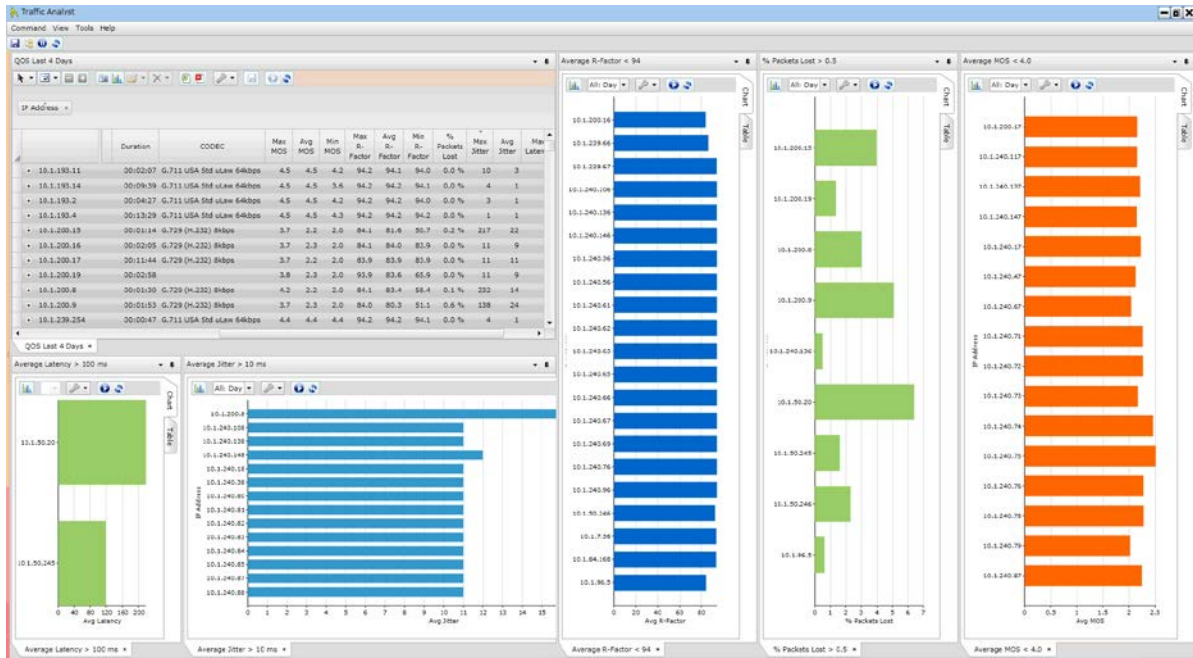
- Maximum % Packets Lost > 4% - Bar chart graphing IP addresses that recorded maximum percent packets lost greater than 4% for the report period. The Max % Packets Lost column highlights the highest packet loss percentage for a single call event for the IP address. Also included is the % Packets Lost value. The % Packets Lost bar will indicate if there is a pattern of poor quality or not. The Chart Table has 4.0% as filter value on Max % Packets Lost.



9.5.3. QOS Last 4 Days

The “QOS Last 4 Days” preset includes QOS information for the past 4 days, including the current period. The preset provides the most detailed data (most columns of data). {Note: For Cisco CDR QOS events, calls with no degradation (such as no jitter, delay, etc.) are filtered out by Traffic Analyst. Also note that this QOS data will include information about calls between extensions or extensions and gateways (like the CDR QOS report) but also can include reporting QOS metrics between cards on the switch and/or IPDAs.} There are five associated charts:

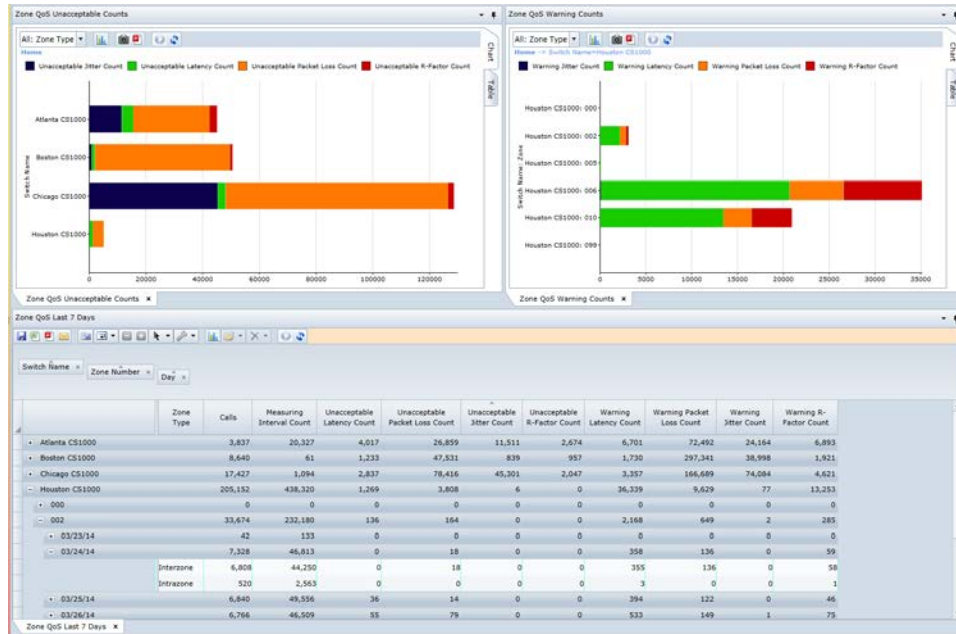
- Average R-Factor <= 94 - Bar chart graphing the IP Addresses that recorded an average R-Factor less than 94 for the report period. The Chart Table has 94 as filter value on Ave R-Factor field. The Quick Filter is Day.
- Average MOS < 4.0 - Bar chart graphing the IP Addresses that recorded an average MOS less than 4.0 for the report period. The Chart Table has 4.0 as filter value on Ave MOS field. The Quick Filter is Day.
- % Packet Lost > 0.5 - Bar chart graphing the IP Addresses that recorded an percentage of packets lost greater than 0.5%. The Chart Table has 0.5 as filter value on % Packet Loss field. The Quick Filter is Day.
- Average Latency > 100 ms - Bar chart graphing the IP Addresses that recorded an average latency greater than 100 ms for the report period. The Chart Table has 100 as filter value on Ave Latency field. The Quick Filter is Day.
- Average Jitter > 10 ms - Bar chart graphing the IP Addresses that recorded an average jitter greater than 100 ms for the report period. The Chart Table has 100 as filter value on Ave Jitter field. The Quick Filter is Day.



9.6. Zone QoS Preset Report

There is a single Zone QoS preset report called “Zone QoS Last 7 Days.” (Note: This QoS report is only valid for CS1000 switches.) It includes QoS information for the past seven days, including the current period. The web grid is grouped by Switch Name, Zone Number and then Day. The web grid also includes the Measuring Interval Count field and then eight QoS metric count fields divided between Unacceptable counts (Latency, Packet Loss, Jitter, R-Factor) and Warning counts for the same. The detail rows break out the counts by interzone versus intrazone calls. There are two associated charts:

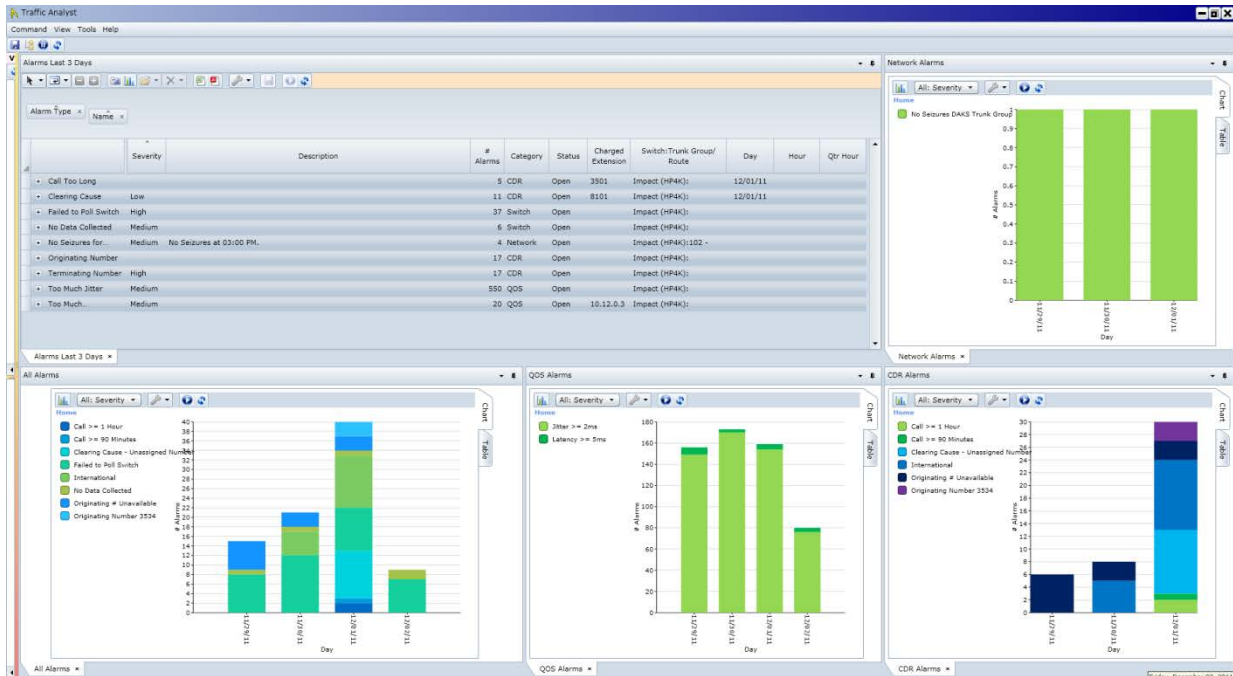
- Zone QoS Unacceptable Counts - Bar (Stacked) chart graphing the number of times the Packet Loss, Jitter, Latency and R-Factor were unacceptable by switch with a drill down to zones within the switch. The Quick Filter is Zone Type.
- Zone QoS Warning Counts - Bar (Stacked) chart graphing the number of times the Packet Loss, Jitter, Latency and R-Factor were in warning range by switch with a drill down to zones within the switch. The Quick Filter is Zone Type.



9.7. Alarms Preset Report

There is a single Alarms preset report called “Alarms Last 3 Days.” It includes all alarm types (Network, CDR, QOS and Switch/System) for the past 3 days, including the current period. The web grid includes columns to provide additional information about each alarm such as Description, Severity, Switch: Trunk Group/Route, Charged Extension and more. The report includes only open alarms. Open the Chart Properties screen and select “Both” option for Alarm Status if you prefer to see all alarms. You may also want to add the “Cleared Comment” and “Cleared User Name” fields if you add cleared alarms. There are four associated charts:

- All Alarms - Column (Stacked) chart graphing number of alarms with Name, Day and Hour available as drill down. Quick filter is Severity. Chart Table filters out “Normal Call Clearing” and “No Cause” codes from chart. This chart is ideal if user wants to see all alarms in a single pane.
- Network Alarms - Column (Stacked) chart graphing number of Network alarms with Name, Day and Hour available as drill down. Quick filter is Severity. Chart Table filters for only “Network” alarms in the Category field.
- CDR Alarms - Column (Stacked) chart graphing number of CDR alarms with Name, Day and Hour available as drill down. Quick filter is Severity. Chart Table filters for only “CDR” alarms in the Category field. (These include all CDR QOS alarms.)
- QOS Alarms - Column (Stacked) chart graphing number of QOS alarms with Name, Day and Hour available as drill down. Quick filter is Severity. Chart Table filters for only “QOS” alarms in the Category field. (Note that these alarms are generated based on the Network QOS tables and not CDR.)



9.8. Organization Preset Report

There is a single Organization preset report called “Directory.” This report creates a web grid that supports drilling into your corporate hierarchical structure by Organization, Department, Manager and Subscriber. Based on the information imported via the Organizational File, other fields such as Location, Building, Cost Center, Floor and much more are available.

The screenshot shows the 'Directory' report interface with filters for Organization, Department, and Manager. Below the filters is a table with the following columns: Subscriber, Charged Extension, Cost Center, Location, Building, Room Number, Floor, Phone Type, COS, and PIN.

	Subscriber	Charged Extension	Cost Center	Location	Building	Room Number	Floor	Phone Type	COS	PIN
- Impact Technologies										
• Administration										
• Customer Support										
• DAKS										
• Executive										
• Human Resources										
• Network	Noonan, Sean	1477	Operations							
- Product Management										
• Baehr, Bryan	Maycock, Becky		Management							
	Maycock, Becky	1414	Management							
	Maycock, Becky	3514	Management							
• Maycock, Becky										
- Product Mgt	Baumann, Margaret	1406	Operations							
• Maycock, Becky	Baumann, Margaret	1406	Operations							
	Baumann, Margaret	1406	Operations							
• Sales										
• Software Development										
• Keller Williams										
• TAMAR EICCON										

9.9. Extension Activity Preset Reports

There are two Extension Activity preset reports available.

9.9.1. No Activity Last 90 Days

The “No Activity Last 90 Days” preset report creates a web grid listing all extensions have not been involved in a call in the last 90 days. The report columns are Switch Name, Extension, IP Address and Last Date Used. The report is sorted by Switch Name and then Extension. Note that IP addresses are only available for OpenScope 4000/HiPath 4000, OpenScope Voice and Cisco platforms.

Switch Name	Extension	IP Address	Last Date Used
Impact Avaya	14954		01/14/13
Impact Avaya	14960		01/12/13
Impact Avaya	14963		01/14/13
Impact (HP4K)	1496	10.12.12.196	01/12/13
Impact (HP4K)	1497		01/13/13
Impact (HP4K)	1874	10.12.12.174	01/14/13

As noted above, for switches other than OpenScope 4000/HiPath 4000, OpenScope Voice and Cisco (if configured), if an extension has no activity since Extension Activity report was available, that extension will not appear in a “no activity” report because Traffic Analyst has no knowledge of it.

9.9.2. No Activity Last 90 Days by Organization

The “No Activity Last 90 Days by Organization” preset report also creates a web grid listing all extensions that have not been involved in a call in the last 90 days. However, this report associates those extensions with the organization and subscriber information. The report columns are Organization, Extension Name, Extension, IP Address, Switch Name, Last Date Used and # Extensions. The report is grouped by Organization and then sorted by Extension Name. The report also includes grand totals so the total number of extensions will be listed on top row of web grid. Extensions with no organization assigned are listed on next row. Note that IP addresses are only available for OpenScope 4000/HiPath 4000, OpenScope Voice and Cisco platforms.

Extension Name	Extension	IP Address	Switch Name	Last Date Used	# Extensions
			Impact (HP4K)		103
+ EICON Susan Conrad	3405	10.12.0.205	Impact (HP4K)		50
+ Impact DNIT Network IPDA Phone	1496	10.12.12.196	Impact (HP4K)		1
+ Impact Technologies			Impact (HP4K)		18
+ Keller Williams			Impact (HP4K)		32
+ TAMAR EICON Vacant	3401	10.12.0.201	Impact (HP4K)		1

9.10. Number Management Preset Reports

There are five Number Management preset reports available.

9.10.1. DID Numbers by Switch

The “DID Numbers by Switch” preset report creates a web grid with details about all DID numbers within the Private Network, the Switch or the specific Consumer tree entity where you requested the report. Typically, this report should be run from the Private Network node. The report is grouped by Range Switch and then Status with subtotals at each grouping plus the grand total. The report columns include Number, Extension, Extension Name, Date Last Used, Date Last Configured and Totals. This report allows the user to drill into the data to find specific information about individual DID numbers.

Number	Extension	Extension Name	Date Last Configured	Date Last Used	Hold Until Date	Total Available	Total In Use	Total On Hold	Total Reserved	Total Aging	Total
						899	29	12	14	0	944
Any						500	0	0	1	0	501
- St. Louis OSV						62	0	9	2	0	73
+ Available						62	0	0	0	0	62
+ On Hold						0	0	9	0	0	9
+ Reserved						0	0	0	2	0	2
- STL HiPath 4000						327	29	3	11	0	370
+ Available						327	0	0	0	0	327
+ In Use						0	29	0	0	0	29
+ On Hold						0	0	3	0	0	3
3147431401	1401			01/29/16	07/07/16						
3147431431	1431			01/15/16	06/29/16						
3147431432	1432			12/29/15	06/19/16						
- Reserved						0	0	0	11	0	11
3147431400	1400	Impact Main Number		05/13/16							
3147431402	1402	Xpressions									
3147431403	1403	Xpressions		03/14/16							
3147431404	1404	Xpressions		03/21/16							
3147431405	1405	Xpressions									
3147431420	1420	Tech Support ACD		05/12/16							
3147431430	1430	Sales ACD		05/12/16							

9.10.2. DID Numbers on Hold

The “DID Numbers on Hold” preset report creates a web grid with details about each DID number that is in a “Hold” state within the Private Network, the Switch or the specific Consumer tree entity where you requested the report. The report columns

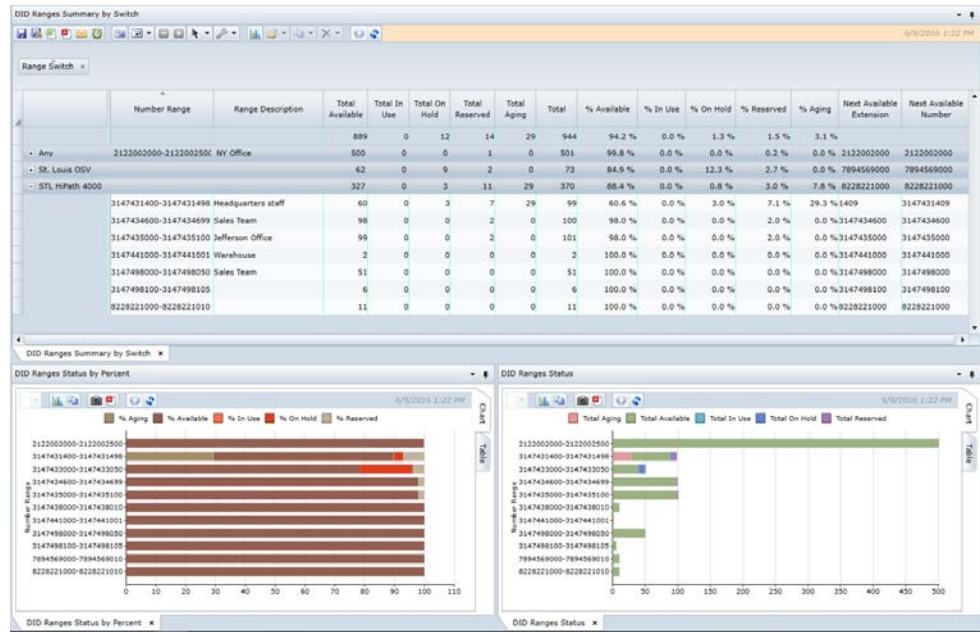
include Number, Extension, Range Switch, Hold Until Date, Hold Comment, User Name and Total On Hold. This report allows the user to see how long the number will be held, who put the number on hold and any related comments.

Number	Extension	Range Switch	Hold Until Date	Hold Comment	User Name	Total On Hold
						12
3147431401	1401	STL HiPath 4000	06/24/16	Summer internship - project code S534	impact	
3147431431	1431	STL HiPath 4000	06/29/16	Holding for Val Jerrison	impact	
3147431432	1432	STL HiPath 4000	06/19/16	Holding for Jason in Finance	impact	
3147433004	3147433004	St. Louis OSV	06/19/16	Holding for Jason in Finance	impact	
3147433005	3147433005	St. Louis OSV	06/19/16	Holding for Jason in Finance	impact	
3147433006	3147433006	St. Louis OSV	06/19/16	Holding for Jason in Finance	impact	
3147433007	3147433007	St. Louis OSV	07/09/16	On hold for Marketing - Project 1342	impact	
3147433008	3147433008	St. Louis OSV	07/09/16	On hold for Marketing - Project 1342	impact	
3147433009	3147433009	St. Louis OSV	07/09/16	On hold for Marketing - Project 1342	impact	
3147433010	3147433010	St. Louis OSV	07/09/16	On hold for Marketing - Project 1342	impact	
3147433011	3147433011	St. Louis OSV	07/09/16	On hold for Marketing - Project 1342	impact	
3147433012	3147433012	St. Louis OSV	07/09/16	On hold for Marketing - Project 1342	impact	

9.10.3. DID Ranges Summary by Switch

The “DID Ranges Summary by Switch” preset report creates a web grid providing a high level view of the DID ranges within the Private Network, the Switch or the specific Consumer tee entity where you requested the report. The report columns include Range Switch, Number Range, Range Description, Totals, % Totals, Next Available Number and Next Available Extension. The report is grouped by Range Switch then sorted by Number Range. This provides a quick overview of each block so you can quickly see how many numbers are in each state (Available, In Use, On Hold, Reserved and Total) and the next available number in the range that you can assign. There is also a grand total line displaying the quantity of numbers in each state. There are two associated charts:

- DID Ranges Status – Stacked Bar chart graphing the quantity of numbers in each status (Aging, Available, In Use, On Hold, Reserved) for each number range.
- DID Ranges Status by Percent – Stacked Bar chart graphing the percentage of numbers in each status (Aging, Available, In Use, On Hold, Reserved) for each number range.



9.10.4. Next Available DID Number

The “Next Available DID Number” preset report creates a web grid that quickly highlights the next available DID number for all DID blocks within the Private Network, the Switch or the specific entity where you requested the report. Note that the Next Available Number is determined based on (1) the oldest Date Last Used, (2) the oldest Date Last Configured or (3) the next ascending numerical number. The report columns include Number Range, Range Description, Next Available Number, Next Available Extension, Date Last Used and Date Last Configured. The report is grouped by Range Switch and sorted by Number Range.

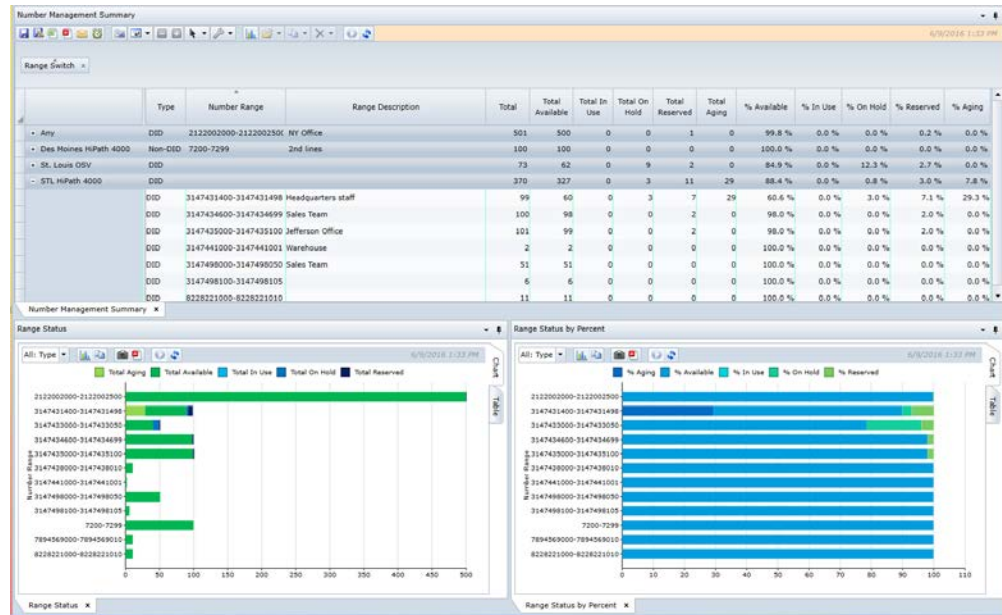
The screenshot displays the 'Next Available DID Number' report window. It features a table with columns for Number Range, Range Description, Next Available Number, Next Available Extension, Date Last Used, and Date Last Configured.

Number Range	Range Description	Next Available Number	Next Available Extension	Date Last Used	Date Last Configured
Any	2122002000-2122002500 NY Office	2122002000	2122002000		
St. Louis OSV		7894569000	7894569000		
STL HiPath 4000		8228221000	8228221000		
	3147431400-3147431498 Headquarters staff	3147431409	1409	10/25/15	
	3147434600-3147434699 Sales Team	3147434600	3147434600	11/04/15	11/06/15
	3147435000-3147435100 Jefferson Office	3147435000	3147435000	10/08/15	10/08/15
	3147441000-3147441001 Warehouse	3147441000	3147441000	08/26/15	09/30/15
	3147498000-3147498050 Sales Team	3147498000	3147498000	11/06/15	
	3147498100-3147498105	3147498100	3147498100	10/08/15	10/25/15
	8228221000-8228221010	8228221000	8228221000	11/04/15	

9.10.5. Number Management Summary

The “Number Management Summary” preset report is very similar to the “DID Ranges Summary by Switch” but this preset includes both DID and Non-DID ranges and does not include Next Available Number and Next Available Extension fields in the web grid. The report is grouped by Range Switch then sorted by Type then Number Range. This provides a quick overview of each block so you can quickly see how many numbers are in each state (Available, In Use, On Hold, Reserved and Total). There is a grand total line displaying the quantity of numbers in each state. There are two associated charts:

- Range Status – Stacked Bar chart graphing the quantity of numbers in each status (Aging, Available, In Use, On Hold, Reserved) for each number range. Quick filter is Type allowing you to filter by DID or Non-DID.
- Range Status by Percent – Stacked Bar chart graphing the percentage of numbers in each status (Aging, Available, In Use, On Hold, Reserved) for each number range. Quick filter is Type allowing you to filter by DID or Non-DID.



9.11. Destination Rate Plan Preset Report

There is a single Destination Rate Plan preset report called “Rate Changes Last 30 Days.” This report creates a web grid that highlights changes that have been made to international rates within a selected Destination Rate Plan in the past 30 days. Note the user must select the Destination Rate Plan in the Properties screen (as highlighted by red arrow below) for the rates to appear in the report.

9.12. Audit Log Preset Reports

There are two Audit Log Preset reports available.

9.12.1. Audit Log Current Day

The “Audit Log Current Day” preset report creates a web grid listing all activities for all users for the current day. It is sorted by Time. You can easily filter and group to drill down to the information you need.

9.12.2. Audit Log by User Last 7 Days

The “Audit Log by User Last 7 Days” preset report creates a web grid listing all activities for all users for the past seven days plus the current day. It is grouped by the User Name and then Date. You can then drill down into the detail activity.

Audit Log by User Last 7 Days

6/2/2015 10:28 AM

User Name x Date x

	Time	Module	Action	Comment
+ becky		Reporting Service		
+ becky2		Reporting Service		
- impact				
+ 05/26/15		Reporting Service		
+ 05/27/15		Reporting Service		
+ 05/28/15		Reporting Service		
+ 05/29/15		Reporting Service		
+ 05/30/15		Reporting Service		
+ 05/31/15		Reporting Service		
+ 06/01/15		Reporting Service		
- 06/02/15				
	07:59:24 AM	Reporting Service	Login	SessionKey=20150602125923003
	08:01:43 AM	Dashboard Client	Saved Template	Template=Audit Log Current Day
	08:01:43 AM	Reporting Service	View Report	Template=Audit Log Current Day Total runtime=0.134 Rows output=2
	08:04:18 AM	Reporting Service	View Report	Template=Audit Log Current Day Total runtime=0.010 Rows output=74
	08:08:35 AM	Dashboard Client	Saved Template	Template=Audit Log Current Day

9.13. Status Log Preset Report

The “Current Day Status Log” preset report creates a web grid listing activities for the current day. It is sorted in ascending order by Date/Time field. You can easily filter and group to drill down to the information you need. Or, use the right mouse click options for additional details.

Current Day Status Log


9/24/2015 2:44 PM

Drag a column here to group by that column

Name	Activity	Date/Time	Description	Support File	Status	Severity
St. Louis OSV	Collect and Store	09/24/15 12:35:05 AM	9/23/2015 scheduled OpenScape storage request.		Failure	Low
STL HiPath 4000	Collect and Store	09/24/15 02:30:29 AM	9/23/2015 scheduled 4000 storage request.	d_20150923.cdr	Warning	Low
STL HiPath 4000	Scheduled Reports	09/24/15 02:00:13 PM	Processing report schedule.		Success	Low
STL HiPath 4000	Collect and Store	09/24/15 02:36:21 PM	9/24/2015 scheduled 4000 storage request.	d_20150924.cdr	In Progress	Low

10. Frequently Asked Questions


- I don’t see a tab that I created. What happened to it?

You may have frames “stacked” so it is behind another frame. If you have stacked several frames, you may not see the tab for it. Look for the arrow  to cycle through the tabs. Or, it could be in “sliding” mode and appear as a tab along the perimeter of the dashboard.

- Can I do multiple sorts on a report?

For multiple sorts, click the first column and then hold down the Control key and click the next column. To remove sorts, use tool bar (wrench) option of “clear all sorts” or simply click on another column to remove previous sorts and sort by another column.

- Why are some of the column names in the “Include” box on the report Properties screen bold?

The field is currently used in a filter, sort, grouping or a chart and cannot be removed from the template until the field is no longer included in any of these. If your goal is to not display the column in your web grid but you want it in a chart, for instance, use the Hide or show Columns toolbar option  on the web grid to hide the column.

- Why are some of the values in my report in italics?

The Silverlight Network Utilization reports use italics or bold font to highlight the following conditions. (Note: These fields are marked with an asterisk in the HTML reports.)

- “Date/Time” with date or “Day” column: Non-primary date is italicized.
- “Date/Time” with hour or interval or “Hour” column: Non-primary time is italicized.
- “Trunk Configured”: If value has changed from previous value, value is bold.

- Is there a way to select a range of values instead of individually clicking on items in a list?

Yes, you may select a range or ranges of values in list boxes such as the Available or Include Columns, Clearing Cause list for Call Forensics reports or Clearing Cause alarm and more. Note that the following also works when selecting items in the Explorer tree that you want to drag down to a Virtual Group.

- To select a range, click on the first entity, hold down the Shift key and click on the last entity in the list you want to include.
- To deselect a value in the range or to add another single entity outside the range, hold the Ctrl key and click the entities to remove or add.
- To select a second range after highlighting first range, hold down the Ctrl key and click on the first entity in second range, hold down the Shift and Ctrl keys and click on the last entity in the list you want to include.

- Why do call counts between Network and CDR reports not align exactly?

The counts may vary for multiple reasons, such as:

- Timing issues - Talk versus Seizure time used for determining period and server times
- Trunk group assignment for Call Records will be different than trunk reports. For instance, a call with multiple segments may easily have no Trunk Group on the Call Record because the trunk group is not the same for all segments.
- For “current period”, there will be a difference because network call counts are not trued up until end of day processing. For instance, a call that lasts 30 minutes will not be included in network interval yet.

- How does Traffic Analyst collect and report QoS information?

The collection of QoS information varies based on the switch platform.

- Collecting QoS information in a Unify HiPath/OpenScape 4000 or OpenScape Voice environment requires configuring devices (phones, gateway cards) to send QoS SNMP traps to Traffic Analyst server. You have the option to set the “Report Mode” to EOR (End of Reporting Interval) or EOS (End of Session). For most accurate results, Impact recommends EOR as this will provide more granular information. The QoS metrics are available in both Call Forensics and Network QoS reports. Refer to Traffic Analyst Data Dictionary for more information.
 - For Cisco Unified Communications Manager, the QoS data is received directly from the switch in the CMR file. The QoS metrics are available in both Call Forensics and Network QoS reports. Refer to Traffic Analyst Data Dictionary for more information.
 - For Avaya CS1000, the IP Phone Zone Traffic Report 16 intrazone and interzone data output from the switch is downloaded and included in the Network Zone QoS report. Refer to Traffic Analyst Data Dictionary for more information.
- Are there defined QoS metrics to use for my reports?

Traffic Analyst allows you to set any QoS threshold values for your filters and reports. Each organization typically has their own threshold levels that they use. Below are some recommendations that you may choose to implement to detect and highlight poor quality of service.

- Latency greater than 200 ms
 - Jitter greater than 120 ms
 - Percent packet loss greater than 4%
 - MOS less than 4.0
 - R-Factor less than 80
- Why are the MOS and R-Factor columns not always populated when there are other QoS values populated in the record?

There could be various reasons these fields are blank. At times, the MOS or R-Factor information is simply not included in the QoS data feed from the switch. In some cases, other information (such as latency, packet loss or jitter) is not provided so the MOS and R-Factor cannot be accurately calculated. For example, for Unify devices, if the call duration is less than or equal to the QoS “report interval” (typically 10 seconds), then the latency values may not be populated and therefore no MOS or R-Factor will be calculated for that event.

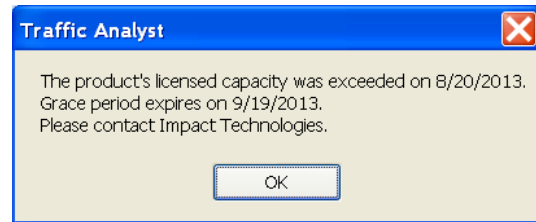
- For my Cisco network, what does the IP address field represent?

This field identifies the v4 IP address of the device that originates the call signaling.

- For Cisco Unified IP Phones, this field specifies the v4 address of the phone.
- For PSTN calls, this field specifies the v4 address of the H.323 gateway.
- For intercluster calls, this field specifies the v4 address of the remote Cisco Unified Communications Manager.
- Default - 0. If the v4 address does not exist for the originating device, this field equals 0.

- What happens if my license is exceeded?

There are notifications available if you exceed your licensed capacity. As an Administrator, it is recommended that you turn on two existing System alarms: License Near Capacity and License Over Capacity. You can be warned via the alarm report and/or an e-mail as you approach your capacity limit and then also

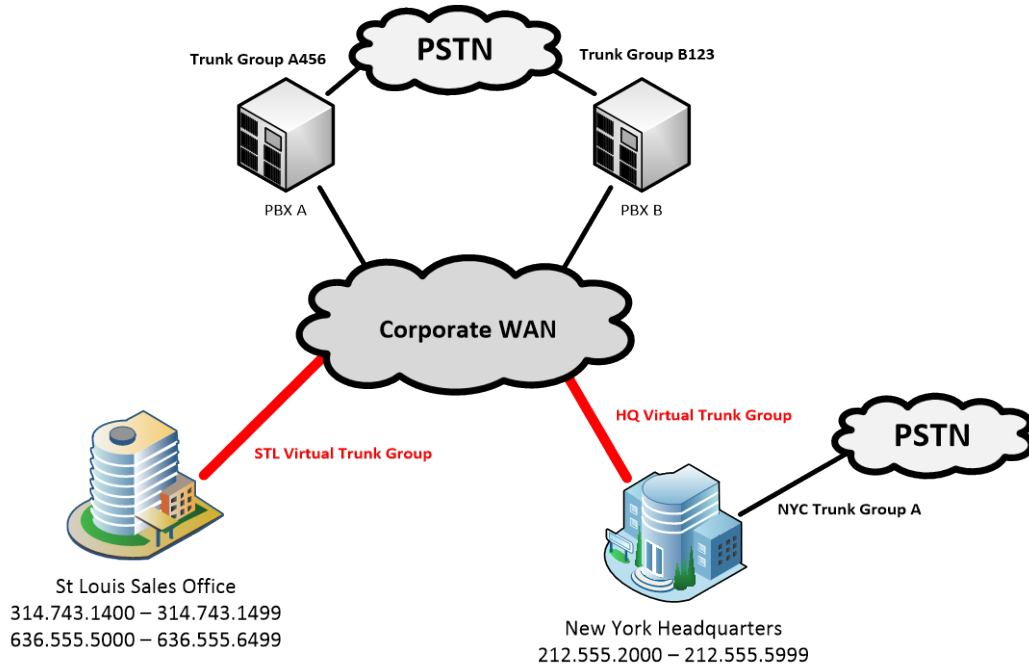


notified when the capacity is exceeded. Additionally, when your capacity is exceeded, Administrators will receive the following message when you log into the dashboard. Contact Impact Technologies to increase your capacity during the grace period to assure there is no interruption in service.

- What is a Virtual Trunk Group?

Virtual trunk groups support analytics for network data for a specific office/branch. This is typically applicable for environments with large SIP switches and remote locations. There is no physical trunk but data is calculated based on a group of phone extensions for a Location. The goal is to provide insight into usage, calls and bandwidth requirements. As an example, New York Headquarters location below has both a WAN connection to the corporate network and trunk group to connect to the local PSTN. In this example, there is a single extension range defined for location but Traffic Analyst supports many. Virtual Trunk Groups allow you to track all traffic that flows between the corporate WAN and the location, denoted here by the red HQ Virtual Trunk Group.

- Calls to and from extensions at the St Louis Sales office to NY Headquarters would be included
- Calls between extensions at the NY Headquarters would not be included (no traffic generated over virtual trunk group)
- If a station at another location places a call and it is routed to the NY Headquarters location and traverses out the NYC Trunk Group A to the PSTN, that call load will be included



- Why are some of my extensions in the Consumer Explorer tree but not all of them?

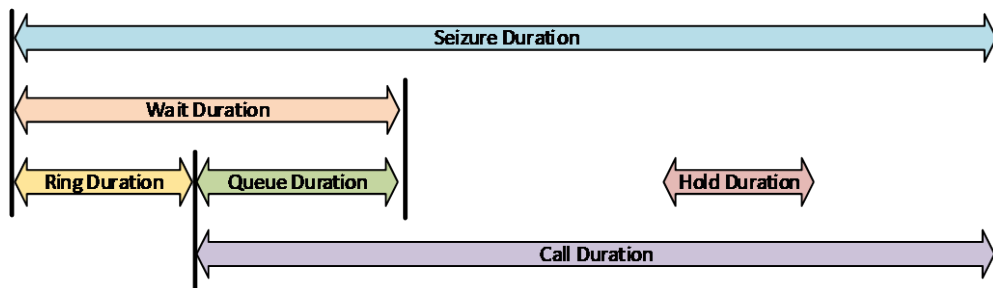
The extensions/numbers appear in the tree based on one of the following reasons:

- The extension was included in an Organization File import. Refer to Section 5.3.4 above for additional information.
- The extension is included in extension range for a Location. Refer to Section 2.6.7.1.
- The extension was manually added to a Subscriber in the tree.
- The extension was from an OpenScope Voice platform where a Station Name and/or Department were configured in the PBX for that extension.

Extensions will not appear in the tree based on usage alone or when they are defined as part of Number Management.

- How do all the various duration fields in Call Forensics report relate?

The graphic below shows the relationship.



One exception case is when a caller receives a busy signal. The duration that the caller listens to the busy tone is not included in Wait or Ring Duration but since the channel is seized, the time does count in Seizure Duration. Also note for a report with Calls (not Segments), the values may not total as in the example below for 11/07 and 11/09. In this case, the Seizure Duration may be less than the sum of the other fields as explained above due to overlapping segment activity (such as the time a call is ringing during a transfer).

		Ring Duration	Queue Duration	Wait Duration	Call Duration	Seizure Duration
	+ 11/03/16	00:02:10	00:00:00	00:02:10	00:00:00	144:00:32
	+ 11/06/16	00:00:59	00:00:00	00:00:59	00:00:17	00:01:16
	+ 11/07/16	00:15:00	00:00:00	00:15:00	04:13:55	04:28:54
	+ 11/08/16	00:07:03	00:00:00	00:07:03	06:19:20	06:26:23
	+ 11/09/16	00:10:37	00:00:00	00:10:37	03:58:01	04:08:36

Appendix A: Editing Charts

This Appendix provides explanation for the many options available when creating and editing charts.

General

The General tab will be used most often to set the chart pallet, including a Quick Filter and adjusting margins for your legend.

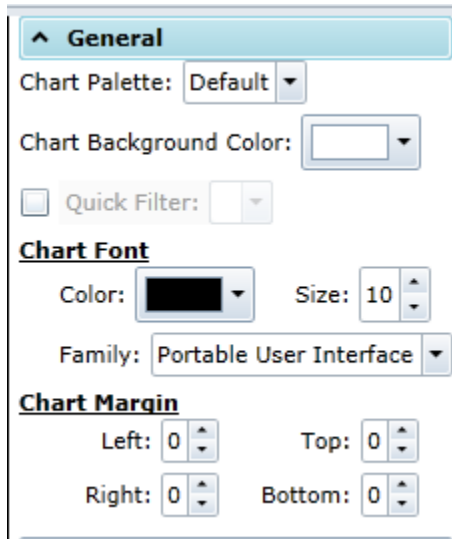


Chart Palette: Changes the color of the data displayed.

Chart Background Color: Changes the color of the background of the chart.

Quick Filter: Allows the user to quickly sort through data to drill down to specifics that they would like to see.

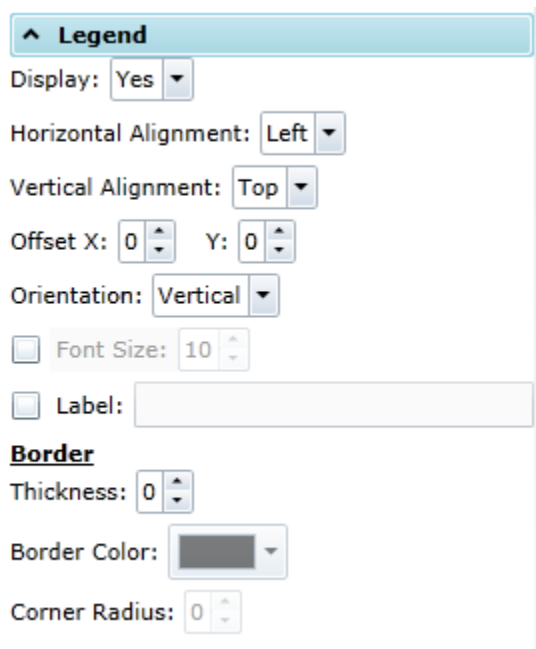
Chart Font: Allows the user to choose the color and size of the font.

Family: Choose the font type.

Chart Margin: Adjust the margins of the chart as needed. This is typically used in conjunction with displaying a legend.

Legend

The Legend tab will be used to determine where and how the legend is displayed on the chart.



Legend configuration panel showing settings for display, alignment, offset, orientation, font size, label, border, and corner radius.

Display: Choose whether or not to display the legend.

Horizontal Alignment: Display the legend on the right, center, or left side of the graph.

Vertical Alignment: Display the legend at the top, the center, or the bottom of the graph.

Offset: Adjust the legend, as needed along the X and Y axis.

Orientation: Display the variables vertically or horizontally in comparison to each other.

Font Size: Adjust the font size of the variables in the legend.

Label: Create a label for the legend.

Border

Thickness: Determines how thick the border, up to a thickness of five, around the legend table will be.

Border Color: determines what color to make the border.

Corner Radius: The corner radius of the border and can either be square or circular.

Item Axis

The Item Axis tab is used to configure the axis properties which charts the independent variable(s).

Item Axis

Axis Type: Y

Axis Label:

Font Size: 10

Label Font Size: 10

Minimum: 0.00

Axis Position: Near

Reversed Axis

Label Angle: 0

Display Every 1 Items

Date Format: Default

Time Format: Default

Grid Line

Thickness: 1

Line Color:

Axis Type: Notifies the user if this is displayed along the X or Y axis.

Axis Label: Give the axis a name.

Font Size: Determine the size of the font of the data markers along the axis.

Label Font Size: Determines the size of the axis label.

Minimum: Changes the spacing between intervals along the axis.

Axis Position: Determines which side of the chart to label the axis on.

Reverse Axis: Flips the data order along the axis.

Label angle: Changes the angle of the labeling along the axis.

Display every _ items: Determines in what increments the data is displayed along the axis.

Date Format: Determines the order in which the date is displayed dd/mm/yy, mm/dd/yy, etc.

Time Format: Determines how the time displayed.

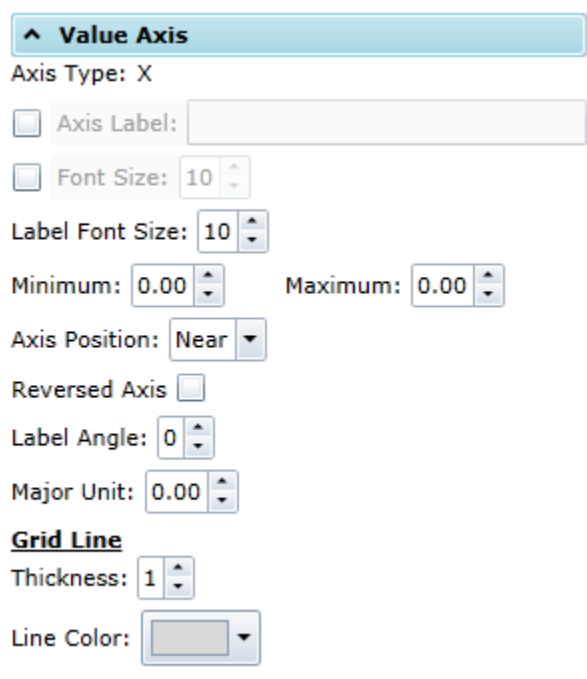
Grid Lines

Thickness: Determines how the grid lines from the axis will be.

Line Color: Allows you to change the color of the grid lines from the Y axis.

Value Axis

The Value Axis tab is used to configure the axis properties which charts the dependent variable(s).



Value Axis

Axis Type: X

Axis Label: [text box]

Font Size: 10

Label Font Size: 10

Minimum: 0.00 Maximum: 0.00

Axis Position: Near

Reversed Axis

Label Angle: 0

Major Unit: 0.00

Grid Line

Thickness: 1

Line Color: [color picker]

Axis Type: Tells the user which axis this data is displayed along.

Axis Label: Allows the user to label the axis.

Font Size: determines the size of font to use on the data markers along the axis.

Label Font Size: determines the size of font to use on the axis label

Minimum: sets the lowest parameter for data points.

Maximum: sets the highest parameter for data points.

Axis position: Determines where the data is displayed along the axis

Reverse axis: Determines the order in which you want the data increments displayed along the axis (i.e. low to high or high to low).

Label Angle: Determines the angle at which the data increments are displayed along the axis.

Major unit: Determines the unit to use when determining the spacing between grid lines along the axis.

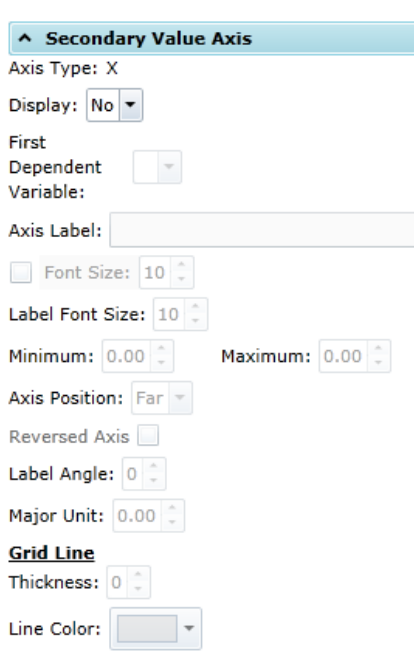
Grid Lines

Thickness: Determines how thick the grid lines from the Y axis will be.

Line Color: Allows the user to change the color of the grid lines from the axis.

Secondary Value Axis

The Secondary Value Axis tab is available when the included dependent variables on the chart are defined in different units (such as calls versus duration).



The screenshot shows a configuration panel titled "Secondary Value Axis". It contains the following settings:

- Axis Type: X
- Display: No (dropdown)
- First Dependent Variable: (empty dropdown)
- Axis Label: (empty text box)
- Font Size: 10 (spin box)
- Label Font Size: 10 (spin box)
- Minimum: 0.00 (spin box) Maximum: 0.00 (spin box)
- Axis Position: Far (dropdown)
- Reversed Axis: (checkbox)
- Label Angle: 0 (spin box)
- Major Unit: 0.00 (spin box)
- Grid Line**
- Thickness: 0 (spin box)
- Line Color: (color picker)

Axis Type: Tells the user which axis this data is displayed along.

Display: Determines whether or not secondary data will be displayed.

First Dependent Variable: Select which variable will be considered the first dependent variable.

Axis Label: Allows the user to label the axis.

Font Size: determines the size of font to use on the data markers along the axis.

Label Font Size: determines the size of font to use on the axis label

Minimum: sets the lowest parameter for data points.

Maximum: sets the highest parameter for data points.

Axis position: Determines where the data is displayed along the axis

Reverse axis: Determines the order in which you want the data increments displayed along the axis (I.e. low to high or high to low).

Label Angle: Determines the angle at which the data increments are displayed along the axis.

Major unit: Determines the unit to use when determining the spacing between grid lines along the axis.

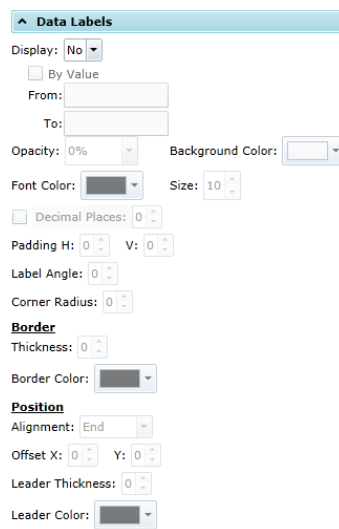
Grid Lines

Thickness: Determines how thick the grid lines from the y axis will be.

Line Color: Allows the user to change the color of the grid lines from the axis.

Data Labels

The Data Label tab defines if and how each data value will appear on the chart.



Display: Labels each line so that the user does not have to hover over the data lines to get a value

By Value: allows you to set a low and high parameter.

Opacity: Allows for a change in the data label opacity from lighter to darker.

Background Color: changes the background around the label

Font Color: changes the color of the data labels

Size: changes the font size of the data labels

Decimal Places: Allows the display of up to 6 decimal places on the data labels

Padding: If the label is tight, this allows for a little more room for the label, or padding. You can choose 1-10. **H:** Moves the data label to the right along the x-axis. **V:** Moves the data label down along the Y axis.

Label Angle: Determines at which the data label is displayed

Corner Radius: adjusts the radius around the data label, which will go from square to oval or circular

Border

Thickness: Sets a border around the data labels, and how thick it should be.

Border Color: Determine what color the border around the data label is to be

Position

Alignment: Determines where the border label will be displayed; at the base, in the middle, or at the end of the data.

Offset: X: Displays the data label along the x axis at intervals from the data. Y: Displays the data label along the y axis at intervals from the data.

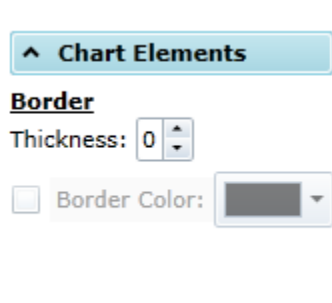
Leader: A line between the data label value of that particular column

Leader Thickness: Adjust how thick or thin the leader line should be.

Leader Color: Adjust the color of the leader line

Chart Elements

Chart Elements tab is used to determine what the border around the chart looks like.



Border

Thickness: Adjust the thickness of the border line.

Border Color: Adjust the color of the border line.