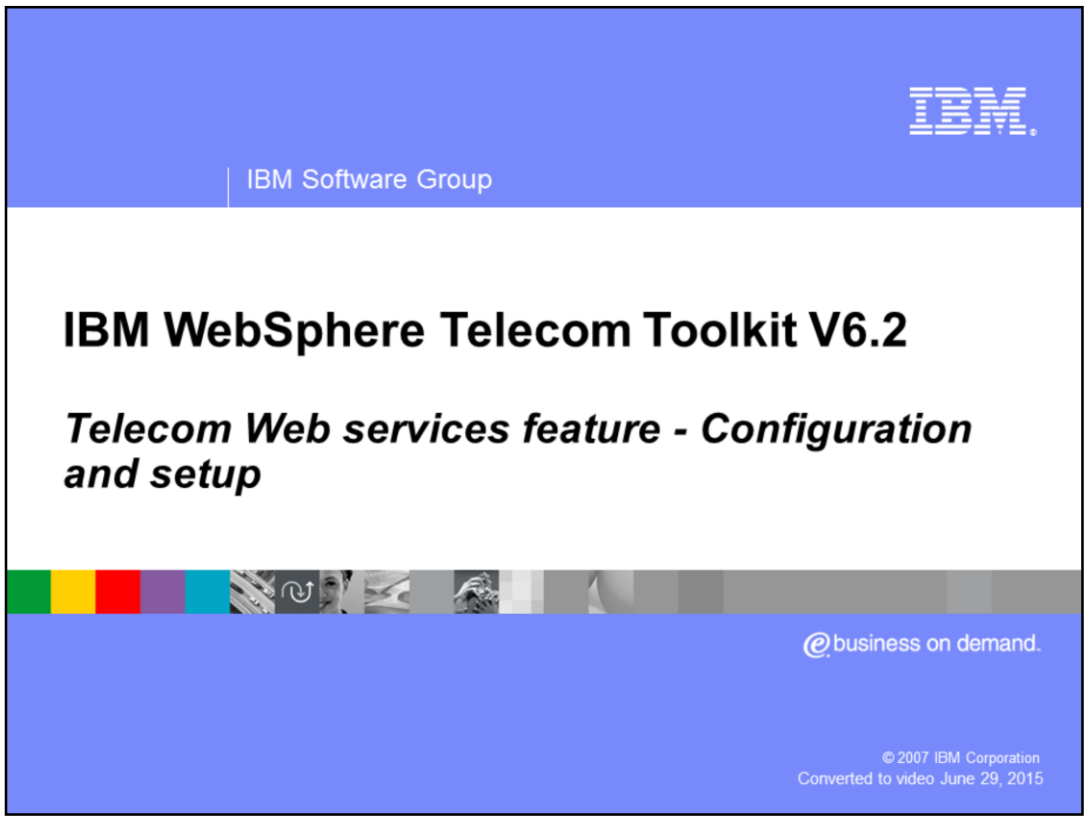
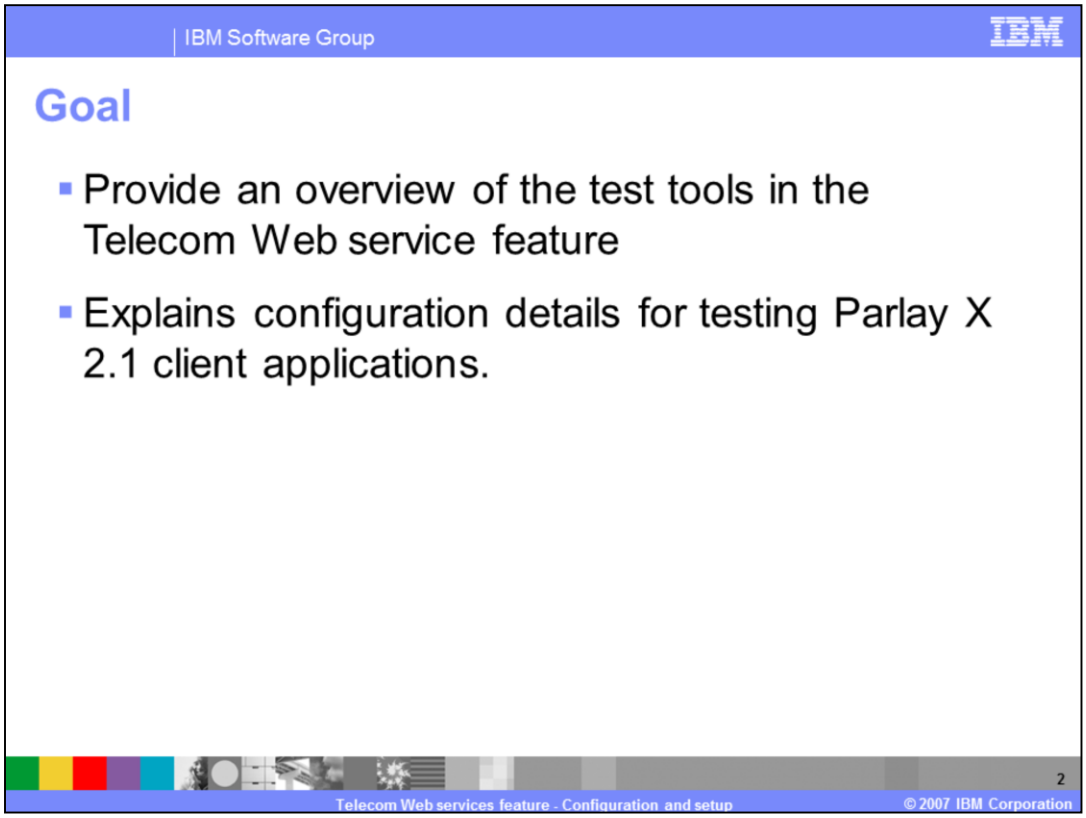
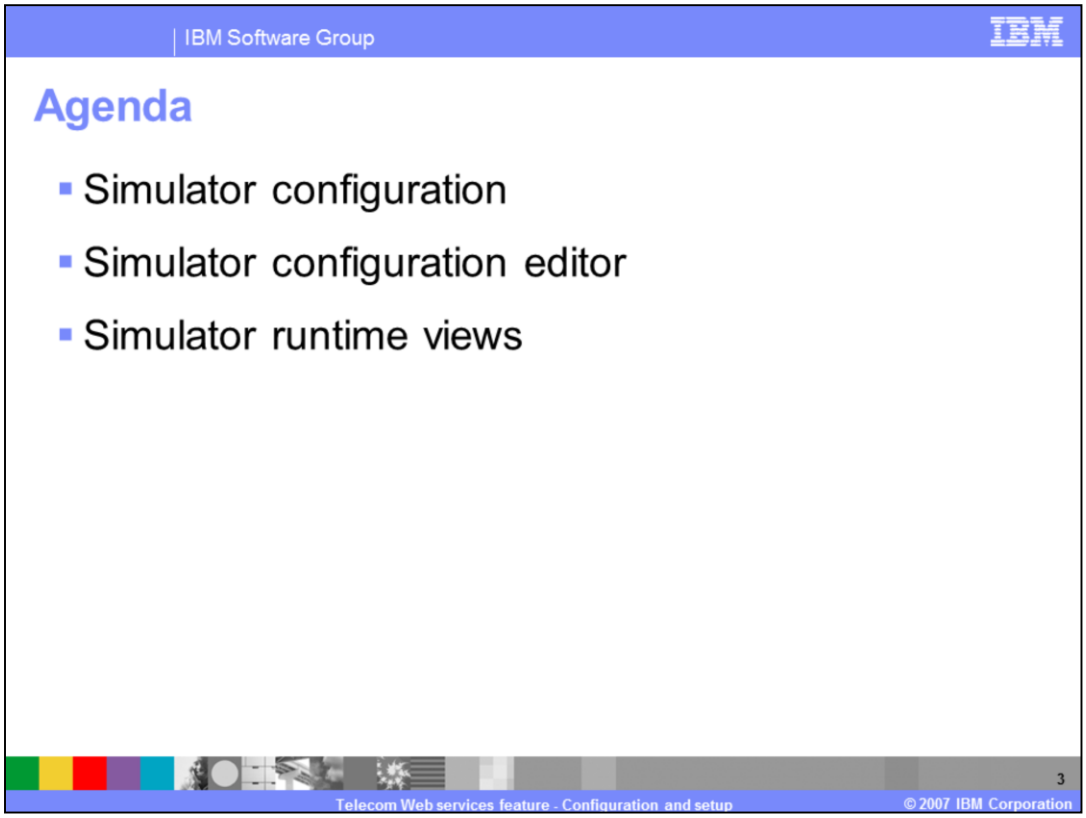


This presentation provides an overview on how to configure the test tools available in the Telecom Web services feature of the IBM WebSphere Telecom Toolkit V 6.2. To get a better understanding on the content of this presentation, review the overview presentation.



The goals of this presentation are to provide an overview of the test tools. It also explains the configuration of the test tools to test Parlay X 2.1 client applications.

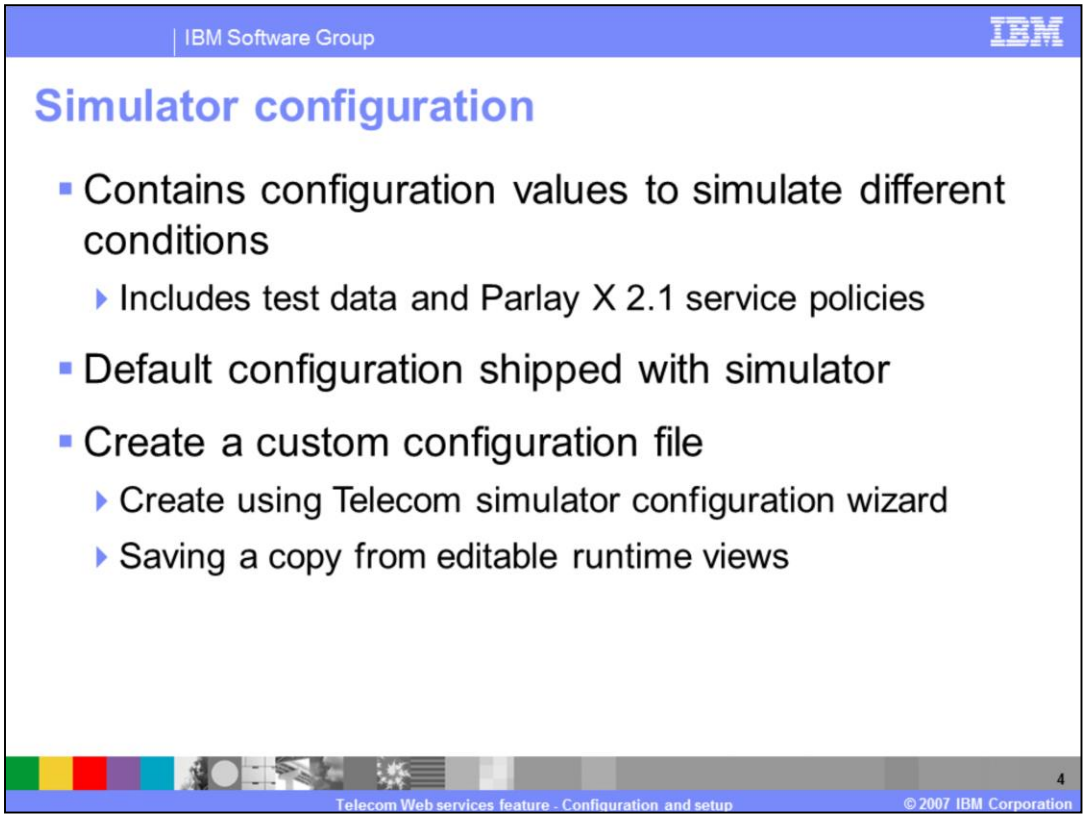


The agenda of this presentation covers the various test tools which include:

- The Simulator configuration represented by an XML configuration file

- The Simulator configuration editor used to edit a simulator configuration file and

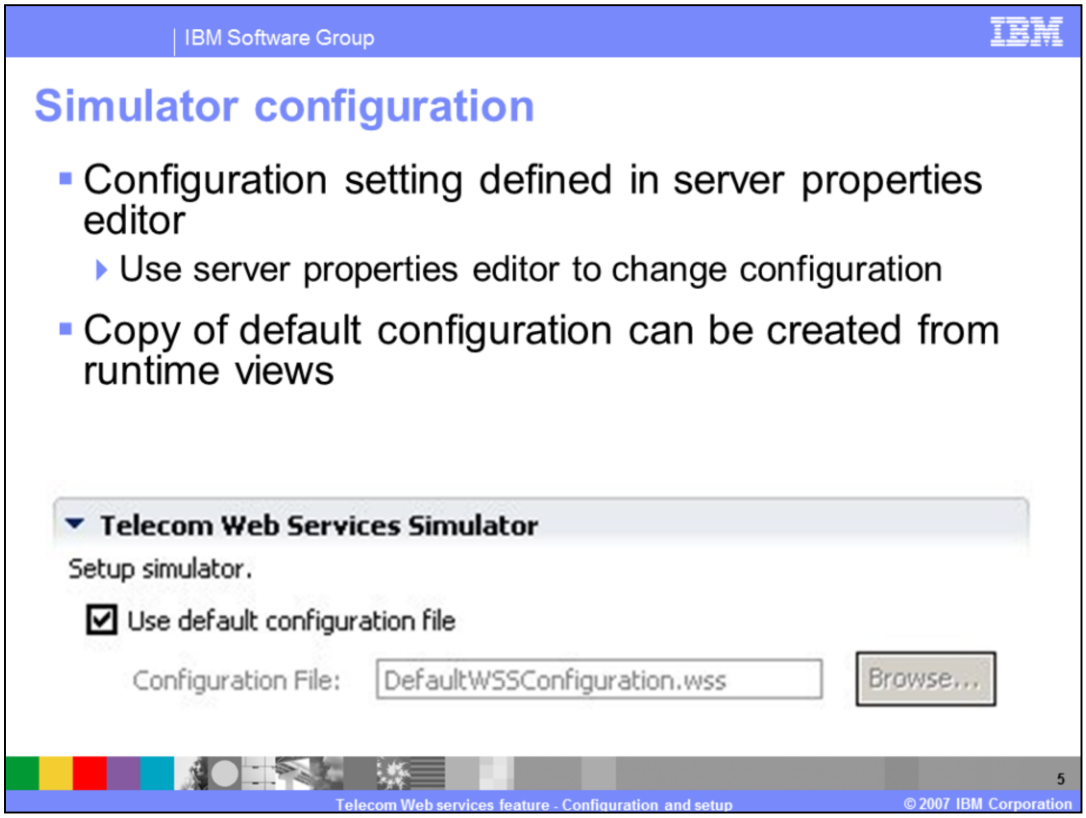
- The runtime views that display the test results and the runtime simulator data when the application is running.



The simulator configuration provides various configuration values that include the test data and service policies defined for various Parlay X services.

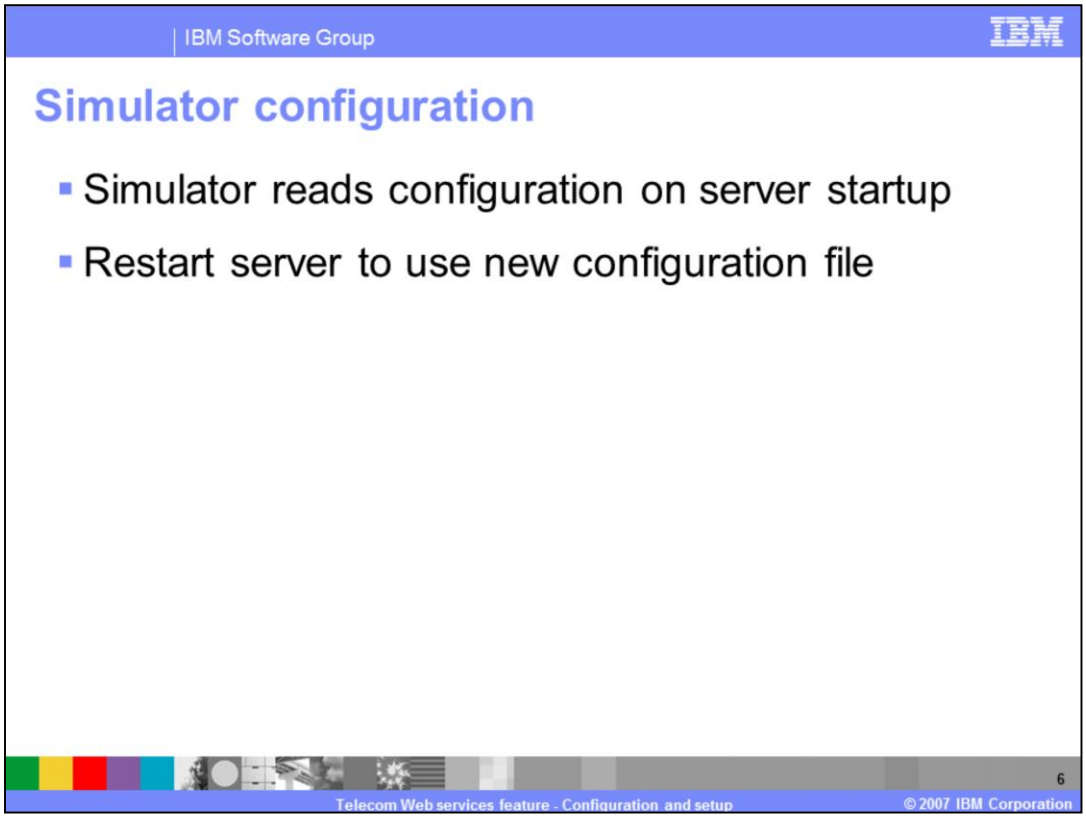
The configuration values are used by the simulator to emulate different conditions in testing user applications. The Toolkit provides a Simulator configuration and uses it as the default.

You can create a custom simulator configuration file and use it with the simulator instead of the default. The default configuration is not accessible; but you can create a copy of it from one of the editable runtime views. The best practice is to create new configuration or make a copy of the default configuration file and save it under a different name and use the newly saved file.

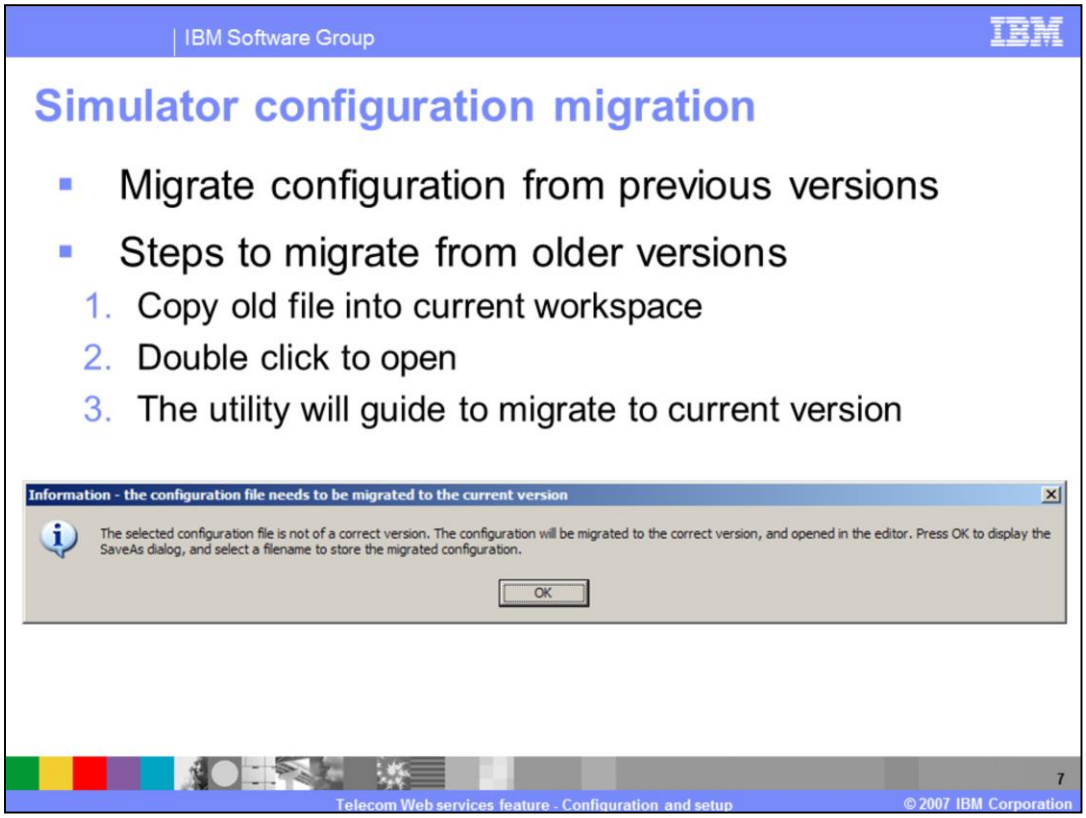


The UI to change the default configuration is provided in the WebSphere Application Server properties editor as shown in this figure.

To launch the editor double click on the server in the servers view and expand the Telecom Web Services Simulator section in the Server properties editor. Un-checking the “Use default configuration file” check box enables the Configuration File text entry and the browse button can be used to select the appropriate configuration file from the file system.

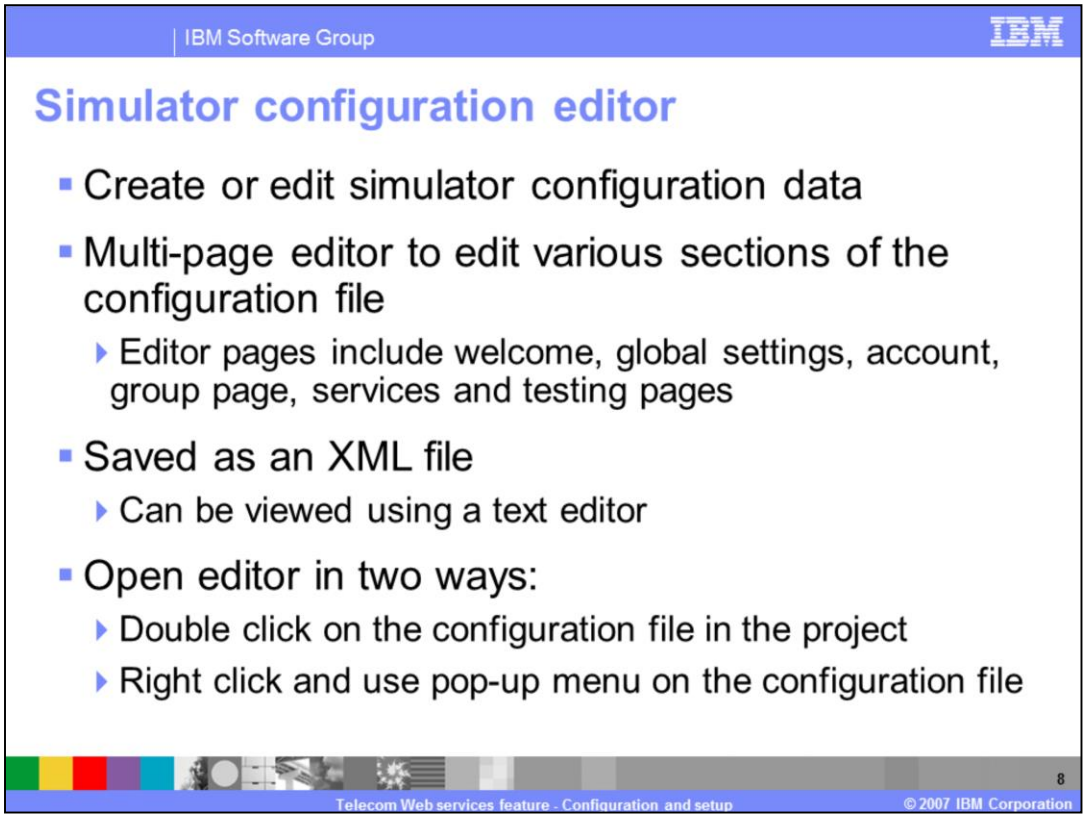


The simulator is deployed and run as an enterprise application in the websphere V6.1 unit test environment of application developer. The simulator configuration used by the simulator is read on application server startup. The application server needs to restarted if the configuration is changed for the simulator to pick up the configuration changes.



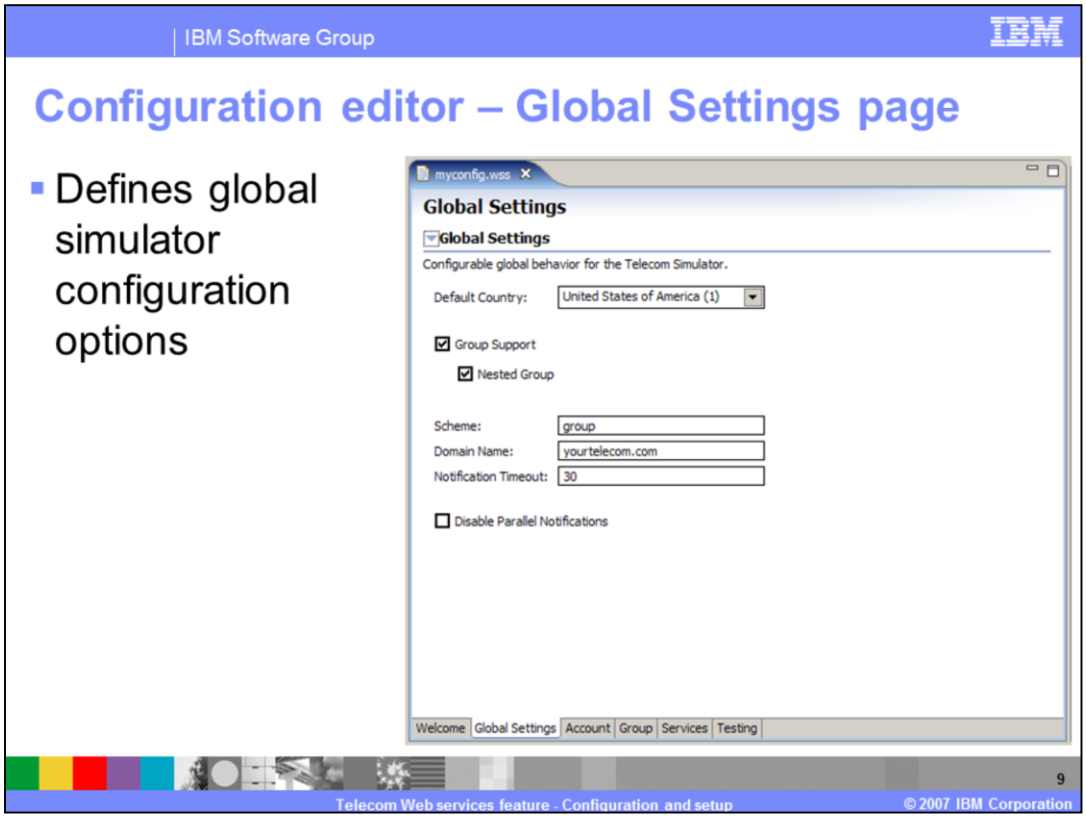
The format of the simulator configuration in version 6.2 has changed from version 6.1.1 due to the addition of support for new Parlay X Web services.

The configuration files from previous releases need to be migrated to the current version. To migrate, copy the old simulator configuration file into the current project and double click to open it. The migration utility pops-up an information dialog, as shown in this slide, asking you to confirm the migration and guiding you through the steps to migrate to the current version.



The simulator configuration editor is used to edit existing simulator configurations or add new configuration data. It is multi page editor with each page providing sections for editing various configuration data. The multi page editor includes welcome, global settings, account, group, services and testing pages. The welcome page is a quick start page that provides links to the other pages of the configuration editor.

The simulator configuration is saved as an XML file with .wss file extension and the source can be viewed with a text editor. More than one simulator configuration file can be created per project. The editor is launched by double clicking on the configuration file or using Open With -> Web Services Simulator Configuration editor context menu on the file. Changes to a configuration file are not dynamically reflected in the running simulator. The application server needs to be restarted to reflect the changes.



The global settings page of the simulator configuration editor contains settings global to the simulator which include the default country, group and nested group support, and the domain name for groups.

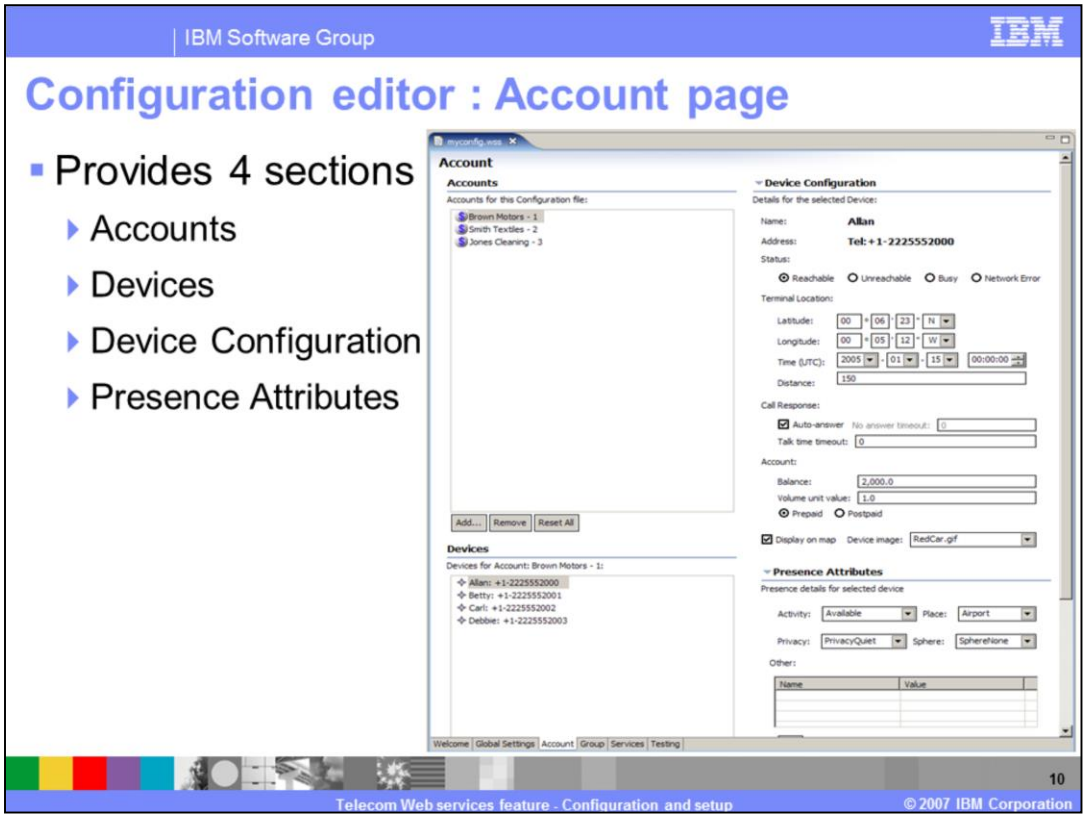
The Default country code is used for an address when a request comes into the

Simulator that does not already have a country code. The Group Support option indicates whether requests with a Group URI will be allowed by services that optionally can accept a Group URI as input. A request to process a group when it is not supported will result in a Policy Exception being thrown by the simulator.

The Nested Group option indicates whether services that can accept a Group URI as input will handle groups within groups. A request to process a nested group when it is not supported will result in a Policy Exception being thrown by the simulator.

The Scheme name setting is prefixed to form the fully qualified group URI for groups configured in the simulator. This value must comply with Request for Comments (RFC) 2396. The Domain name setting is appended to form the fully qualified group URI. This value must comply with RFC 2396.

The Disable Parallel Notifications option is used by the Terminal Location and Terminal Status services for debugging purposes. Enabling this option causes these services to only accept one notification of a device change at a time to simplify testing with these APIs.



The Accounts page of the simulator configuration editor provides 4 sections to add, remove or change configuration data.

The four sections include Accounts, Devices, Device Configuration and Presence

Attributes. The Accounts section is used to add and remove accounts using the Add and Remove buttons in this section. The Reset All button is used to reset existing account values to the default values pre-defined as service policies in the tool. The Add and Remove buttons in the Device section are used to add and remove devices from an Account. An Account can have one or more devices. The Device configuration section has several settings to configure values for a device which include:

- The status of a device

- The terminal location of the device expressed as latitude and longitude values

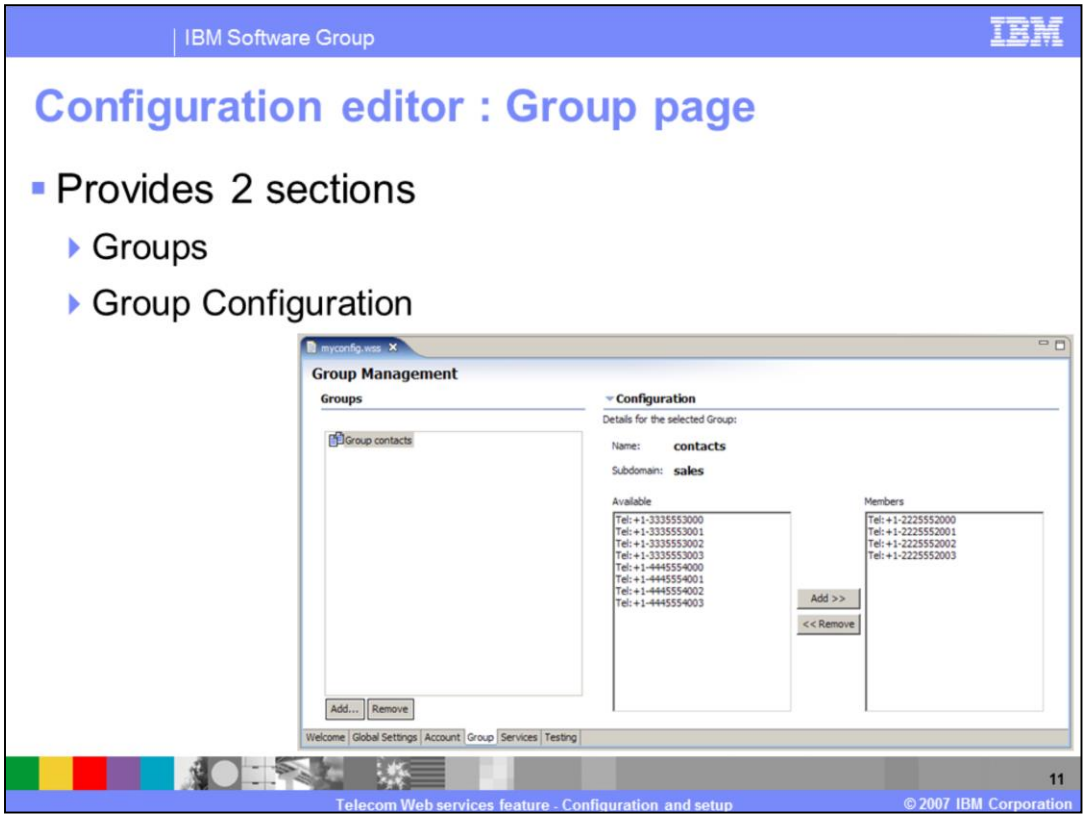
- The account balance of a device.

The presence attributes section has several configuration settings to configure the simulation of the presence information of a device that include:

- Activity, which specifies whether the device is busy

- Place, which specifies the physical location of a device like at home or office.

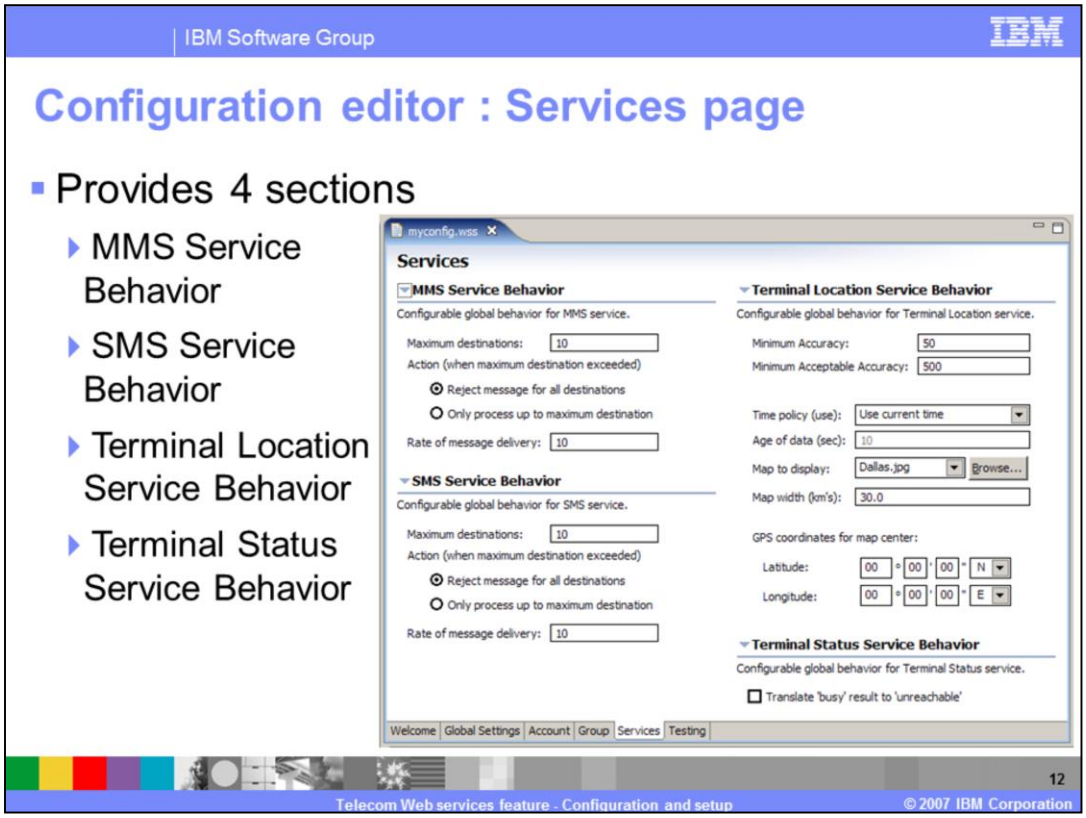
- Privacy, which defines if the device owner is willing to share his presence information.



The Group page provides 2 sections for group management.

Groups in a service provider network refer to the various lists of devices that a presentity would have in their buddy list. There could be one or more groups listed per device, one or more devices per group and one or more sub groups within a group.

The groups section of the group page provides controls to add or remove groups. The configuration section is used to define the configuration of a group by adding or removing devices from a group or adding or removing a sub group from a group.



The Services page provides 4 sections for configuring the behavior of 4 telecom services that include:

- Multimedia Message Service also know as MMS
- Short Message Service also known as SMS
- Terminal Location
- Terminal Status

The MMS and SMS services have the same configurable settings that include the maximum destinations setting which defines the maximum number of destinations an MMS or an SMS message could be sent. The Rate of message delivery setting which defines the number of devices an MMS or SMS message is sent per second, for example a value of 10 requests that a message be delivered to 10 devices per second.

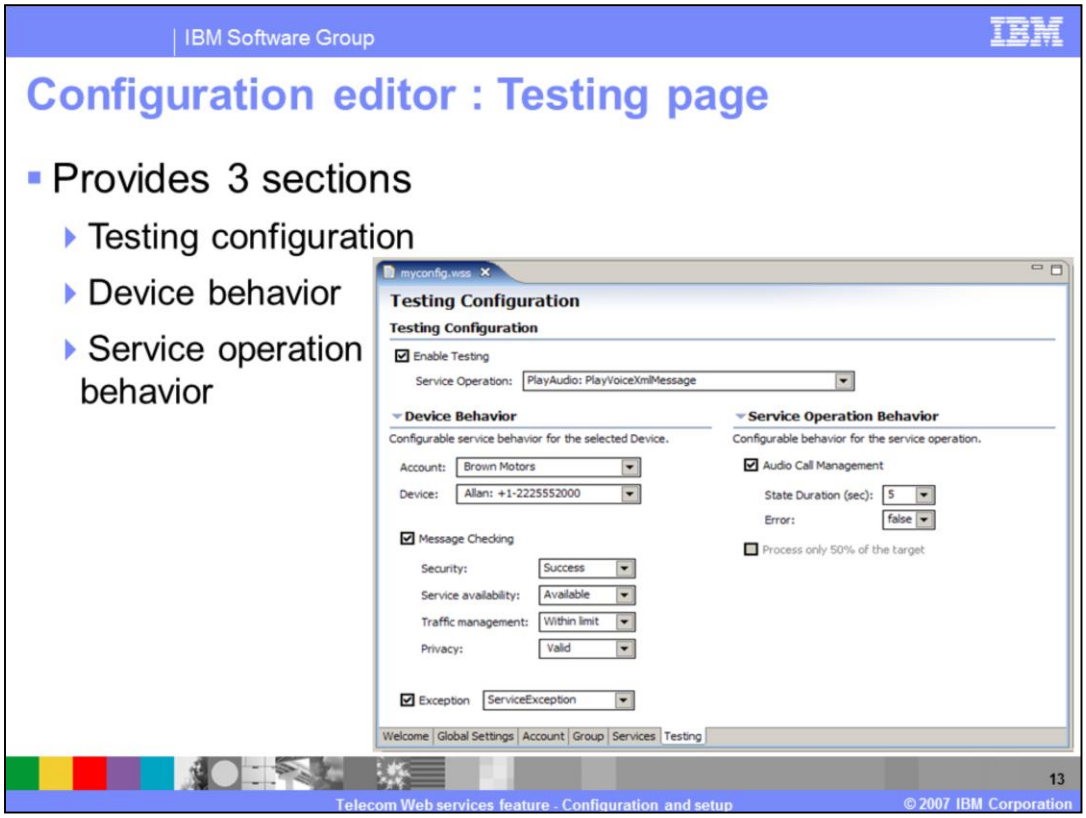
The terminal location service settings include the minimum accuracy, minimum acceptable accuracy, map to display and the Global Positioning System (GPS) coordinates for the map center.

The minimum accuracy setting is the preferred accuracy that will be allowed to be requested by a Web service client. Any requests for accuracy less than this value will result in a policy exception being thrown. The minimum value, measured in meters, is the distance the device can be from the reported location.

The minimum acceptable accuracy setting is the preferred acceptable accuracy that will be allowed to be requested by a Web service client. Any requests for an acceptable accuracy less than this value will result in a policy exception being thrown. This must be equal to, or greater, than the minimum accuracy value.

The Map to display setting is the map that is displayed in the Map runtime view, explained in later slides. This setting lets you select an existing geographical map from the list or select an external map in JPEG format. The latitude and longitude values are set as degrees, minutes and seconds.

The Terminal status behavior section has one setting which is the “Translate busy to unreachable” setting. This setting causes a device to show up in the service network with an unreachable status when it is in a busy state.

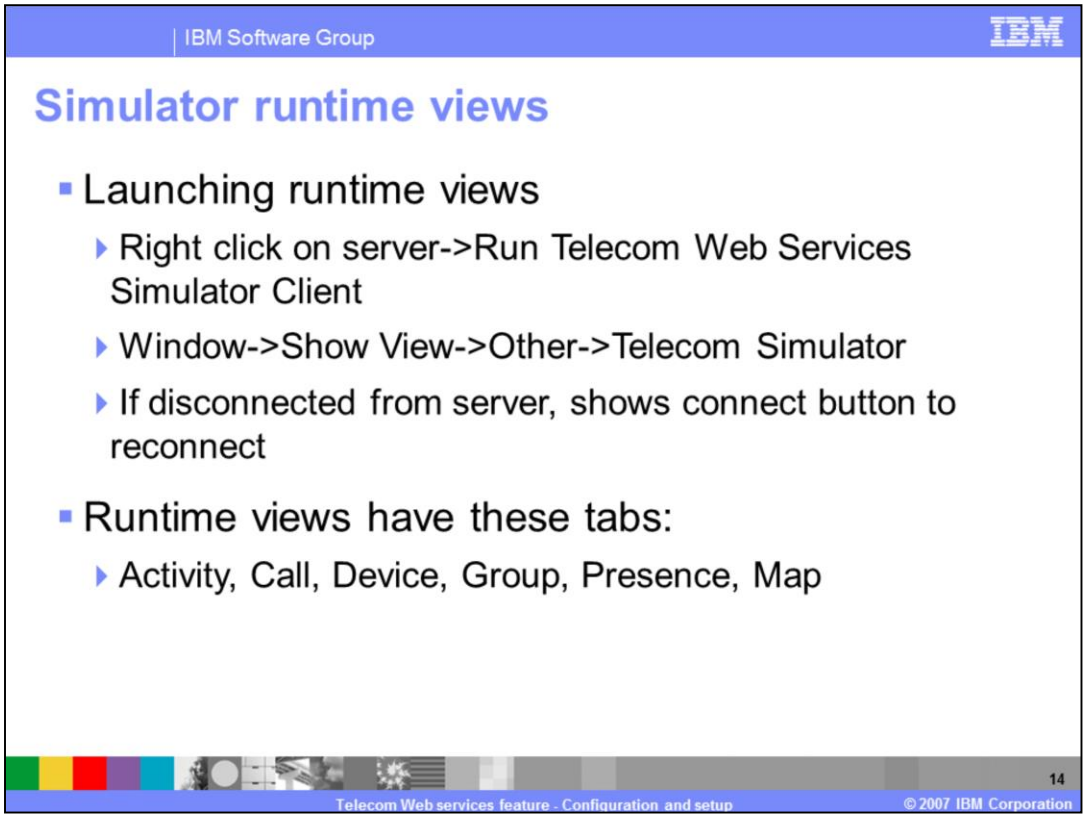


The Testing page provides settings that can enable or disable devices and define Parlay X API error conditions.

The Service Operation drop down contains a list of API's, grouped by Parlay X services, which can be selected after checking the Enable Testing check box. Once an API is selected, you can configure the error conditions of this API for testing your application.

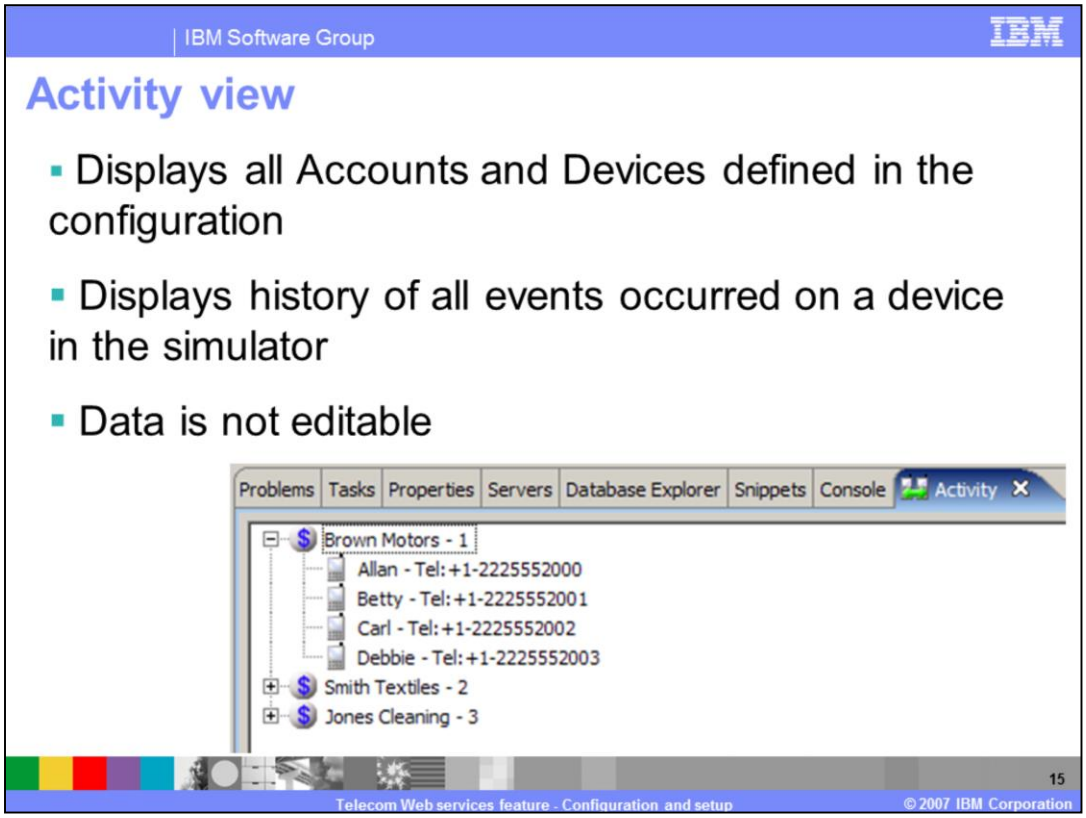
The Device Behavior section provides settings to select an Account and Device to test the Service behavior for the selected API. The Message Checking settings are used to customize various behaviors which include security, service availability, traffic management and privacy for specific Parlay X API's.

The Service Operation Behavior section provides settings to define the duration of an audio call and to set error conditions for the call after audio is played. The "Process only 50% of the target" check box is a setting which limits 50% of the devices in a group to process requests for group based APIs, such as GetStatusForGroup and GetLocationForGroup.



The simulator runtime views display the simulator configuration data and updates when this data changes in the simulator during runtime. The runtime views are automatically launched and connected to the simulator when the simulator is deployed on the application server. The views can also be opened using the menu option Window -> Show View -> Other -> Telecom simulator. To open a view or a set of views, select the views in the telecom simulator category and click OK. Each runtime view has a connect button to reconnect the view to the simulator if a connection is lost. There are six runtime views that display all of the simulator configuration and runtime data. The six runtime views include:

Activity, Call, Device, Group, Presence and Map.



The activity view displays all of the accounts and devices defined in the simulator configuration being used by the Web services simulator. For each device in an account the view displays the history of events that occurred on a device within the simulator. These events are user triggered events to test Parlay X client applications for various Parlay X services. Some of the events you would see in the activity view include:

For SMS messages, the message delivery time stamp, message type, and the SMS message.

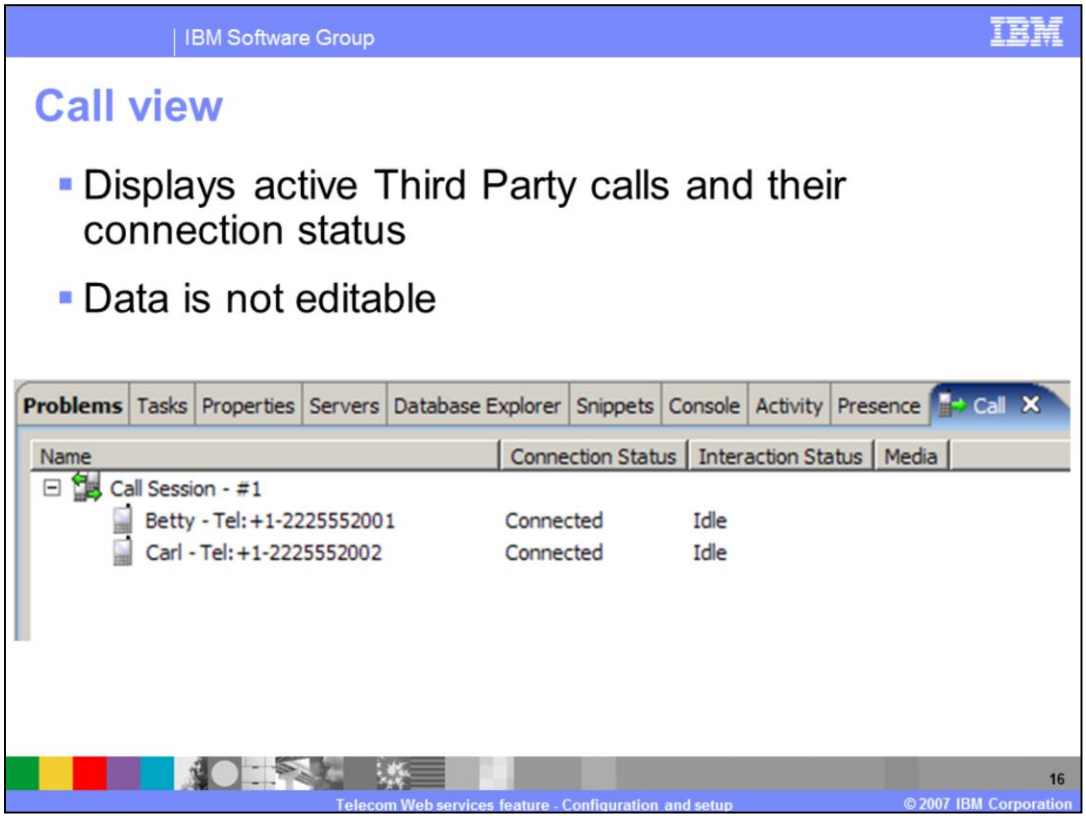
For MMS messages, the message delivery time stamp, message type, message subject, and attachment type.

For Audio Call messages, the time, audio type, and appropriate parameters.

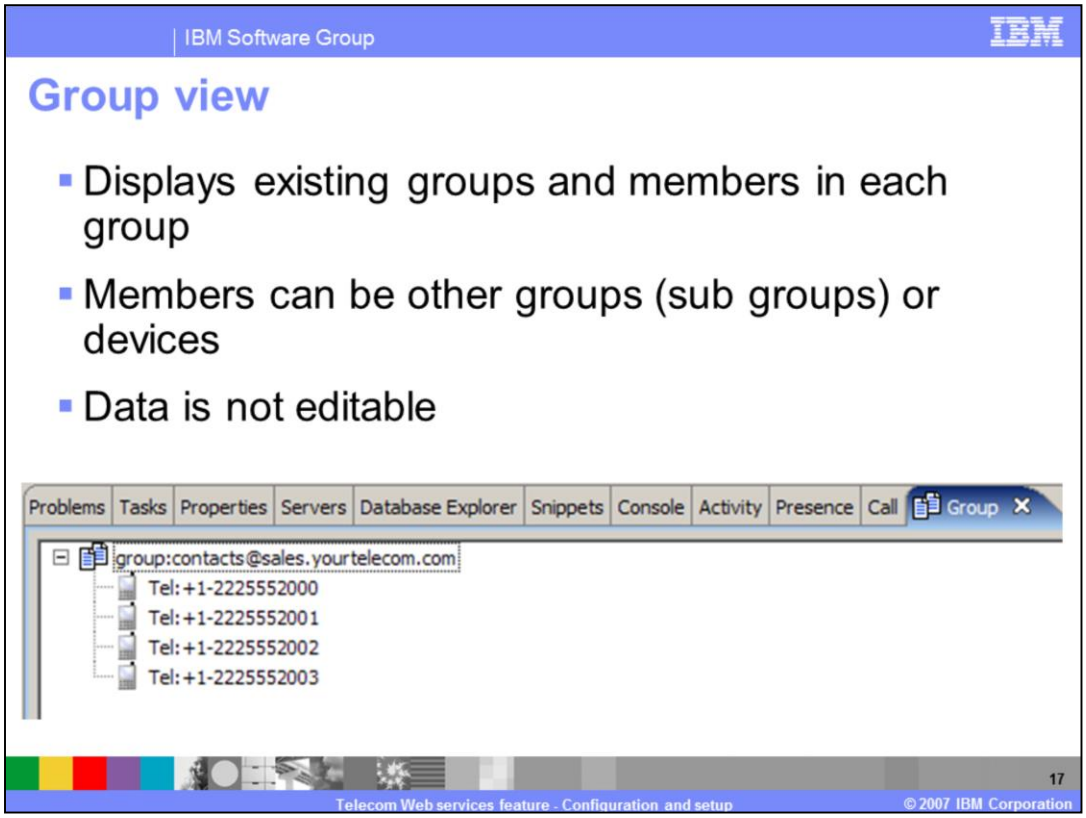
For Account transactions, the transaction time stamp, message type, operation, and appropriate parameters

For Payment transactions, the time, message type, operation, and appropriate parameters

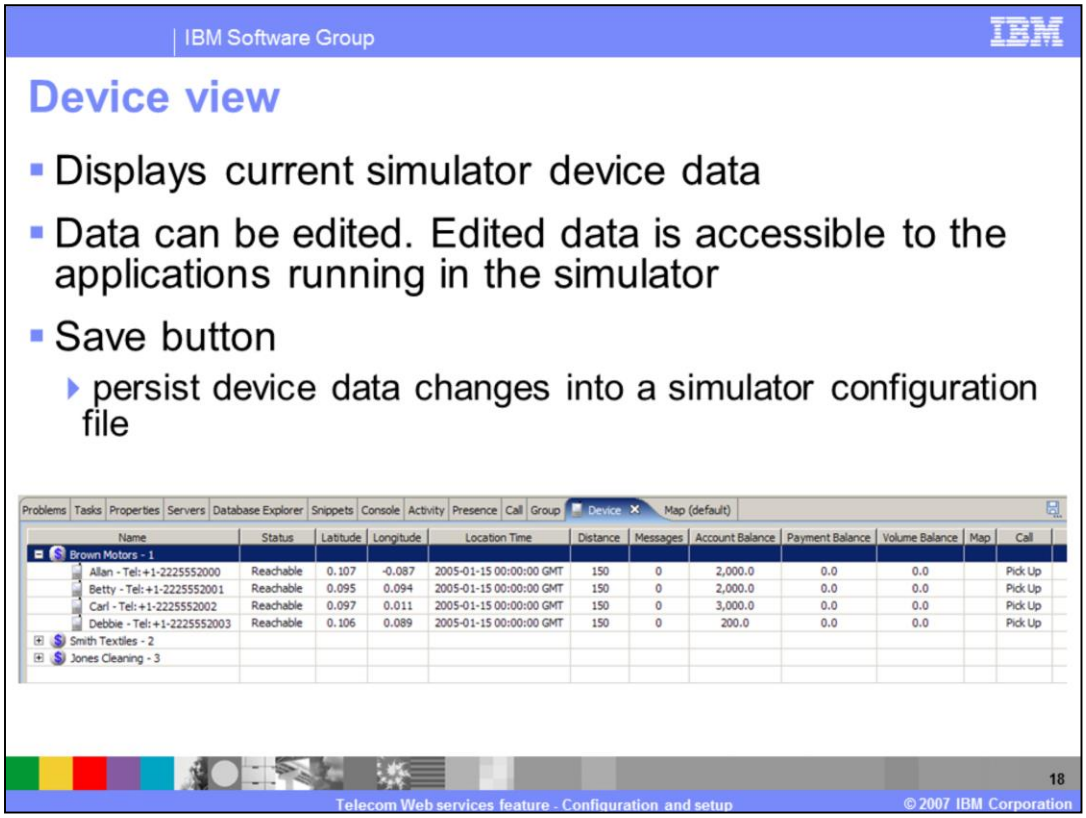
The figure in this slide shows a screen capture of the activity view where the simulator is using the default simulator configuration. The top level elements in the activity view are accounts and the second level elements are the devices in those accounts. The account view is non-editable so simulator data can not be changed from this view. New accounts and devices can be added using the Accounts page in the simulator configuration editor.



The call view displays all of the calls placed between 2 devices, the call connection and the interaction status between the 2 devices. The data in this view is not editable. This screen capture shows a call that was placed between Betty and Carl with a connection status of “Connected” and an interaction status of Idle.

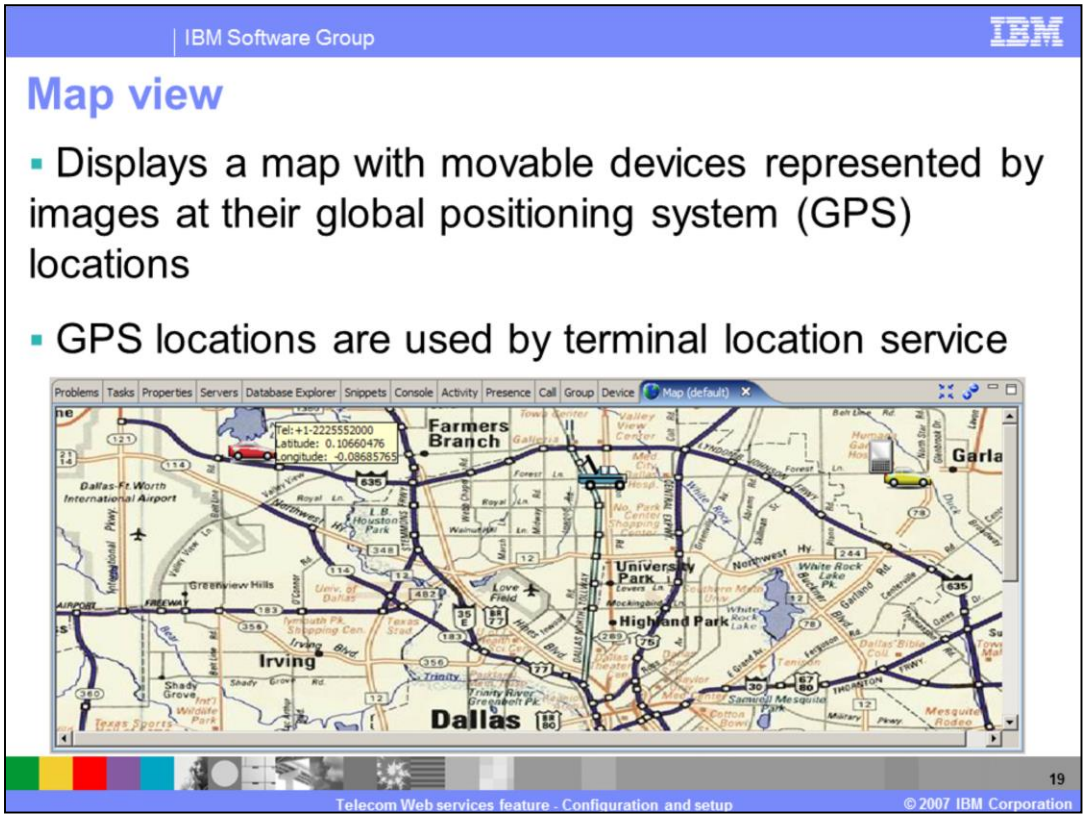


The group runtime view displays all of the groups and its members as a tree view. The members of a group can be devices or sub groups. The tree view only displays one branch which includes the members of a group. This means that if a group contains another group, the sub-groups members will not be expandable. However, that group will appear elsewhere in the view, and can be expanded to reveal its members. Groups and their members can be added through the Group Management configuration page in the configuration editor, or by using the Group APIs.



The device runtime view displays all of the accounts and devices along with the various attributes of a device. The various device attributes include status, location, account balance and whether the device is on a call. This view is editable and can be used to simulate different device states just as in a real telecommunication network. This slide shows a screen capture of this view. This view comes in handy for simulating a third party call where both of the devices in a call show their status as “ringing”, “pick up” or “hang up”. Note that checking the “Translate busy result to unreachable” check box in the terminal status page of the simulator configuration editor, will cause the device to act as "unreachable" if the device status is set to "busy".

The Map column in the view provides a check box that can be used if you want the device to be displayed in the map view. The "Save As" button can be used to create a copy of the currently running configuration.



The Map runtime view displays a background map with movable devices, represented by images, at their Global Positioning System locations. To display an individual device on the map, you need to perform two actions:

1. Select the “Display on map” check box and select an image for the device from the “Device image” drop down on the accounts page of the configuration editor.

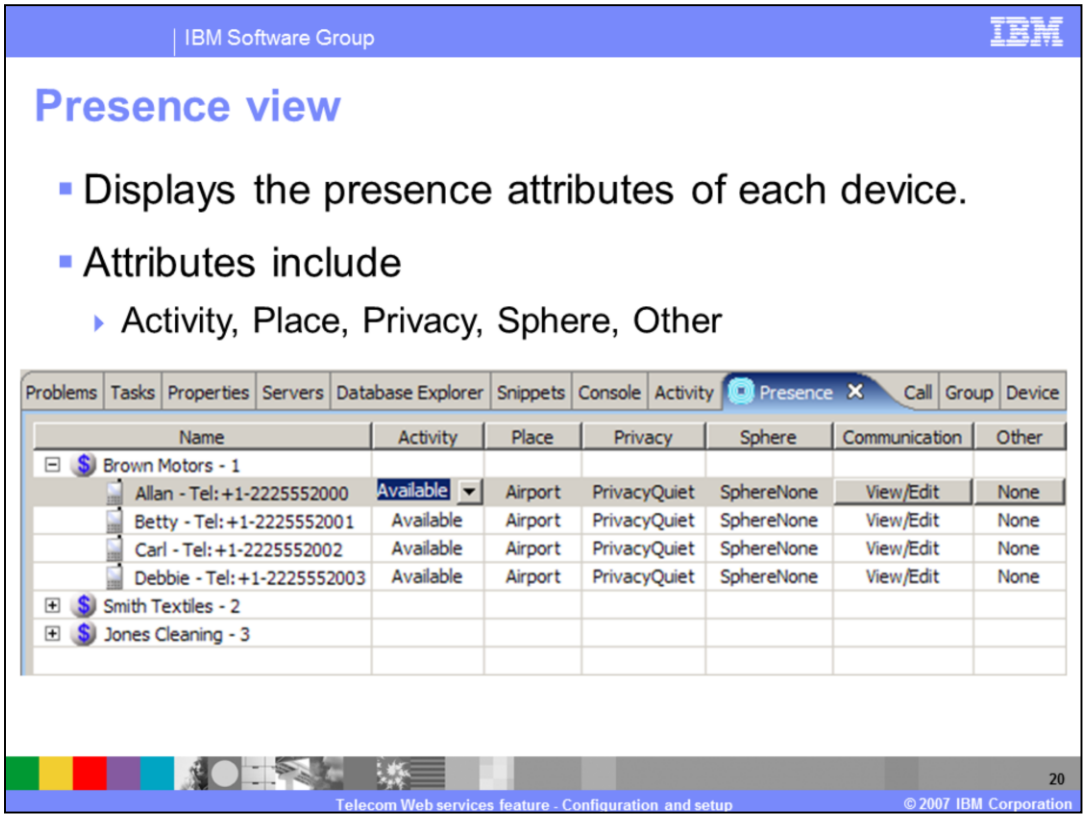
2. The map column for the device, in the device view, should be checked.

You can access device details like its location as longitudinal and latitudinal coordinates and TEL URI by clicking on the device icon on the map. You can select devices on the map with the mouse and drag them to different locations.

When Devices are moved on the map, their corresponding coordinates are updated in the simulator, and the device runtime view reflects their new locations.

The icon used to represent the device on the map is contingent on the Device status.

When the Map view is loaded, the map, as specified in the simulator configuration file, is loaded in the view.



The presence runtime view shows the presence attributes of all devices in all accounts.

The attributes include:

Activity, which tells the subscriber the device's current status. For example: Away, Do Not Disturb, and so on...

Place, which tells the subscriber the current location of the device. For example: Airport, Mall, or a Train.

Privacy, which tells the subscriber the current privacy setting of the device.

Sphere, which tells the subscriber the device's current mode of operation. For example: Work or Home

Other, which can be any new type of user defined presence attribute which is defined by the Parlay X client application.

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