



**USER'S HANDBOOK**

# **OFFICE COMMUNICATIONS GATEWAY (OCG)**

**OCTOBER 2009 (REVISED DECEMBER 2021)**

**DOCUMENT NO. COM-00-05-04  
VERSION B.2**

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## DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	SEP 2009	-----	Initial Release
B	OCT 2009	2 3  4	<p>Paragraph 2.1 – Setup: Expanded and clarified files required for the OCG software installation.</p> <p>Paragraph 3.1 – added ocgconfig.dll identification in ocg.ini file.</p> <p>Replaced all references to “configuration dialog box” with “configuration editor”.</p> <p>Noted for configuration editor windows how to determine ocgconfig.dll version and configuration version in title bar.</p> <p>Table 3-1 – added data field labels and descriptions per updated OCG Configuration Editor.</p> <p>Paragraph 3.3 – updated HUB FEP Configuration process.</p> <p>Table 3-2 – added data field labels and descriptions per updated HUB Configuration Editor.</p> <p>Paragraph 3.4 – updated LCT FEP Configuration process.</p> <p>Table 3-3 – added data field labels and descriptions per updated LCT Configuration Editor.</p> <p>Paragraph 3.4.3 – clarified how to enable Scheduled Dial Backup.</p> <p>Added function keys to menu selections for Add Hub and Add LCT.</p> <p>Added paragraph 4.2.2.6 Clear SSI Trap Queue.</p> <p>Table 4-2 – added Queue Count data field and description.</p> <p>Table 4-5 – added data fields and descriptions for groups dialog box.</p> <p>Table 4-7 LCT Context – added menu function and description for “Reset SSI Thresholds”.</p> <p>Paragraph 4.4 – added note to explain that Terminal window may be cleared by pressing Escape key or button.</p> <p>Paragraph 4.4.1 – updated SLINKS command and Field Description table.</p> <p>Table 4-10 SGROUPS display – added QC (Queue Count).</p> <p>Table 4-11 SESSIONS command – added Node.</p> <p>Table 4-12 SDS Display – added Err and Timer.</p>

<b>Version</b>	<b>Release Date</b>	<b>Sections Changed</b>	<b>Details of Change</b>
		4	Added paragraph 4.4.19 RTEST Added paragraph 4.4.20 ALIAS Added paragraph 4.4.21 CTEST Added paragraph 4.4.22 MPT Paragraph 4.5 – expanded LOG File description
B.1	AUG 2014	ALL	Converted to Siemens branding. No technical content was changed.
B.2	DEC 2021	ALL	Moved document to new template, Changed to Arial font.

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## NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:



### WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION THAT, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.



### CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

**NOTE**

### NOTE

Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Industry, Inc. Application Engineering.

## **ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS**

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Industry, Inc. has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/insertor tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Insertor (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

## GLOSSARY

TERM	DESCRIPTION
AEI Equipment	<u>Automatic Equipment Identification</u> - AEI sites are installed along the track to read and report the train consist information.
AAR	<u>Association of American Railroads</u> - An organization that establishes uniformity and standardization among different railroad systems.
ARES	<u>Advanced Railroad Electronics System</u> - Created by Rockwell International as an alternative to AAR ATCS.
ASERVER	A software application designed by Siemens to centrally organize and distribute all network management traffic in ATCS networks
ATCS	<u>Advanced Train Control System</u> - A set of standards compiled by the AAR for controlling all aspects of train operation.
BCP	<u>Base Communications Package</u> - Defined by the ATCS specifications as the transmitter / receiver base station and associated processors to handle communications between mobile and central office equipment.
CADS	A legacy serial-based CTC system in use at CSX Corp.
CC	<u>Cluster Controller</u> - An ATCS ground network node responsible for the control of BCP's.
Congestion	<u>Congestion mode</u> for a WCC is a condition that results from a system traffic overload, usually caused by very high inbound message traffic under ducting conditions. While in congestion mode, the WCC enforces restrictions on outbound traffic to mitigate the overload and help restore the system to normal.
CPC	<u>Central Protocol Converter</u> - Modular component of Siemens' R/Link™ Radio Control System that converts CTC code line control and indication message data to ATCS-compatible data.
CRC	<u>Cyclical Redundancy Check</u> – A checksum for a data packet that is normally calculated and appended to the data so that the receiver can verify that no data was lost or corrupted during transit.
CTC	<u>Central Traffic Control System</u> – Generic reference to any train control system that regulates the control of railway trackside endpoints via an external communications medium.
DTE device	<u>Data Terminal Device</u> - A device that originates or consumes data.
Ducting	A temporary RF condition that results in unusual coverage patterns for bases and groups, typically over very large distances. This condition is a natural phenomenon that is caused by a combination of atmospheric and weather

TERM	DESCRIPTION
FEP	<u>Front End Processor</u> - An ATCS ground network node responsible for providing network access to ground host and terminal users.
HDLC	<u>High-level Data Link Control</u> - A synchronous serial protocol for exchanging information. The default standard for serial communications between WCCs and BCPs.
HUB	A logical process in ATCS that interfaces to base stations and distributes codeline traffic to and from any number of LCTs. Also referred to as FEPHUB.
IP	See TCP/IP
LAN	<u>Local Area Network</u> – A collection of devices, usually PCs or workstations, that are interconnected for the purpose of sharing data, typically on an Ethernet communications platform.
LCT	<u>Line Control Task</u> - A logical process in ATCS that controls a collection of bases and groups and interfaces them to a CTC office. Commonly referred to as a code line.
LSB	<u>Least Significant Bit</u> of a binary number (having the lowest numerical weight).
MCP/WCP	<u>Mobile/Wayside Communications Package</u> - The radio and associated processor used by mobile and wayside ATCS compatible equipment to communicate to the central office.
MSB	<u>Most Significant Bit</u> of a binary number (having the greatest numerical weight).
NGD	<u>Next Generation Dispatch</u> – An IP-based CTC system designed by Union Switch & Signal currently implemented by CSX Corp.
NMS	<u>Network Management System</u> – A software package comprised of WCCMaint and Aserver applications.
OCG	<u>Office Communications Gateway</u> – A software application that performs the functions of WCCs (controlling HUB and LCT functions). OCG was conceived as an alternative to using WCC hardware where no serial (RS-232) communications is involved (all communications are IP-based).
OSI	<u>Open System Interconnection</u> - A reference model created by the International Standards Organization (ISO) as a framework for networking communications architecture. The model divides network communications design and implementation into seven layers as follows: (1)(bottom layer) Physical, (2) Data Link, (3) Network, (4) Transport, (5) Session, (6) Presentation, (7) Application.
RSSI	<u>Received Signal Strength Indication</u> – see SSI.

TERM	DESCRIPTION
Squitter	A squitter is a specific message in ATCS or ARES that broadcasts the identity of the sender. It is used in several different contexts, including XID and BCP tag messages.
SSI	<u>Signal Strength Indicator</u> - A measure of the relative strength of an incoming RF signal when it was received by a BCP. Same meaning as RSSI.
TCP/IP	<u>Transmission Control Protocol / Internet Protocol</u> - The Internet protocol used to connect a world-wide internetwork of universities, research laboratories, military installations, organizations, and corporations. The TCP/IP includes standards for how computers communicate and conventions for connecting network and routing traffic.
UDP	<u>User Datagram Protocol</u> - A transport protocol used primarily for the transmission of network management information. Not as reliable as TCP.
WCC/FPD	<u>Wayside Communications Controller/Field Protocol Device</u> – Siemens assembly A53401 (9-port model) or A53430 (12-port model) is a LAN-based general purpose platform capable of many communications and codeline functions including front-end processing (FEP), cluster control (CC), and centralized protocol conversion (CPC) in a variety of railroad signal, communications, and network environments. Commonly referred to as a packet switch, WCC, FPD, or RFPD depending on local use and function.
WCCMAINT	Abbreviated form of <u>WCC Maintenance</u> , Siemens' Windows-based utility for maintaining and troubleshooting ATCS networks. Used strictly in conjunction with Aserver.
WCE	<u>WCC-Extended</u> – This is a logical extension of WCC hardware (assembly number A53401 or A53430) that has a unique configuration that allows it to support multiple codelines on one serial port. This implementation is CTC system specific. Contact Siemens for advice on whether this configuration is appropriate for a given CTC system
WCM	<u>Wayside Communications Manager</u> – Siemens assembly A53477, commonly referred to as a 6-port packet switch, which is primarily used as an Ethernet-to-ATCS interface in a field application where the communications transport to the office is IP-based instead of the more traditional RF-based transport.

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# SECTION 1 INTRODUCTION

## 1 INTRODUCTION

### 1.1 Overview

The Siemens Office Communications Gateway (OCG) is a standalone executable program that runs on the Windows® operating system. It was designed to bring the functionality of the Siemens Wayside Cluster Controller (WCC) to the PC platform. The OCG adds diversity and scalability to Advanced Train Control System (ATCS) networks, providing an open-ended means to control large systems with no investment in hardware other than the PC Workstation/Server.

The OCG provides the interface between the Office Dispatch System and the Field Code Line Network for ATCS networks. It is functionally identical to the Siemens Wayside Communications Controller (WCC), but is capable of controlling more Front End Processor (FEP) (HUB/LCT) processes than the WCC. In its current release, the OCG supports up to 32 simultaneous FEP processes, but this limitation is strictly graphical and is meant to keep maintenance screens more manageable. In theory, the only limitation to the number of FEPs in OCG is the level of PC resources available to the application and the loading of the network interface. As a practical limit, and as a design limit for disaster recovery, the OCG will support up to 128 simultaneous FEPs, assuming the machine resources will support it.

The OCG only accepts messages via the network interface. All messages are encapsulated in User Datagram Protocol (UDP)/Internet Protocol (IP), or Transport Control Protocol (TCP)/IP packets. All non-network interfaces (such as serial RS-232 or DC) are unavailable in the OCG. For example, as conventional (WCC-based) systems are migrated to OCG, wireline-connected Base Communication Packages (BCPs) must be updated to communicate over IP-based transports.

The OCG is fully backward compatible with WCC clusters, and may be freely integrated into existing systems, intermixing with conventional WCCs as part of a migration strategy. Appropriately configured individual codelines are quickly and easily transferred from the WCC to the OCG (and back) using the Siemens suite of network management utilities (Aserver/WCCMaint). The OCG will run HUB and Line Control Task (LCT) processes in any combination.

The OCG supports IP-based dial backup for both bases and codeline groups. As part of a robust disaster recovery strategy, multiple identically-configured OCGs may be set up in diverse geographical locations, with all but one configured to be in standby mode. Entire OCGs or individual FEPs within an OCG may be quickly toggled to an online/offline condition with maintenance tools to redirect control of a failed codeline or set of codelines.

It should be noted that, although the OCG will stand alone in very small or test-bed systems, in large-scale systems it is recommended to be used in conjunction with the Aserver/WCCMaint based Siemens NMS system for maximum diagnostic and troubleshooting capability. Not all local OCG displays are designed to assist technicians in a troubleshooting scenario.

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## SECTION 2 INSTALLATION

### 2 INSTALLATION

#### 2.1 Setup

- There is no setup program to run. All files listed below are included in the OCG software package.
- Copy **ocg.exe** into any directory you wish to use as the application directory.
- Copy the correct OCG configuration DLL into the same directory.
  - **bocgconfig.dll** for BNSF only
- OR
  - **cocgconfig.dll** for all others
- Copy the following DLL files into the same directory.
  - **DartZip.dll**
  - **DartSock.dll**
- There are no entries required in the Windows registry.

#### 2.2 Running the OCG Application

Start Windows Explorer and navigate to the directory containing the ocg.exe application file. Start the OCG application as follows:

- Right-click on the ocg.exe file name and select **Open** from the drop-down menu, or
- Double-click on the ocg.exe file name.

**NOTE****NOTE**

There may be many different OCG directories on one computer; however, only one instance of the OCG application may be run at any given time on any one computer.

At startup, the OCG application checks to see if there is already an instance of the OCG application running on the local computer. If this is the case, the second OCG application will shut down automatically.

### **2.3 The First Time the OCG Application is Run**

When the OCG application starts for the first time, it creates the following files in the same directory in which the application file is located:

- ocg.ini
- 3001.ocf (configuration file containing default values such as ATCS address 2.620.01.3001)
- A log file

The OCG comes up offline so as to not interfere with any existing OCGs.

See Chapter 3, *Configuration*, for information on changing the OCG configuration.

### **2.4 Copying an Existing OCG Installation**

It is possible to copy an existing OCG directory from another computer. This allows all of the existing configuration to be copied to a new location without the need to reconfigure the OCG, LCTs, or HUBs.

## SECTION 3 CONFIGURATION

### 3 CONFIGURATION

#### 3.1 Overview

The OCG can be configured locally using the OCG application itself or remotely using the WCCMaint application.

There are three areas of configuration:

- The core OCG application
- The Line Controller Task (LCT)
- The HUB

On startup, the OCG reads the `ocg.ini` file. The `ocg.ini` file indicates to the OCG which file to obtain configuration information from. It also indicates how many LCTs and HUBs there are as well as the LCT and HUB configuration file names.

CONFIGURATION ITEM	EXTENSION
OCG application	.ocf
LCT	.lcf
HUB	.hcf

Sample **ocg.ini** file:

```
[OCG Configuration File]
Name=3950.ocf
ConfigDLLName=cocgconfig.dll; bocgconfig.dll for BNSF only
[HUB]
num_hubs=2
hub_0=6844
hub_1=6855
[LCT]
num_lcts=3
lct_0=5811
lct_1=5822
lct_2=5833
```

The sample `ocg.ini` file above indicates that the OCG application configuration is contained in the file **3950.ocf**, the HUB configurations are contained in files **6844.hcf** and **6855.hcf**, and the LCT configurations are contained in files **5811.lcf**, **5822.lcf**, and **5833.lcf**.

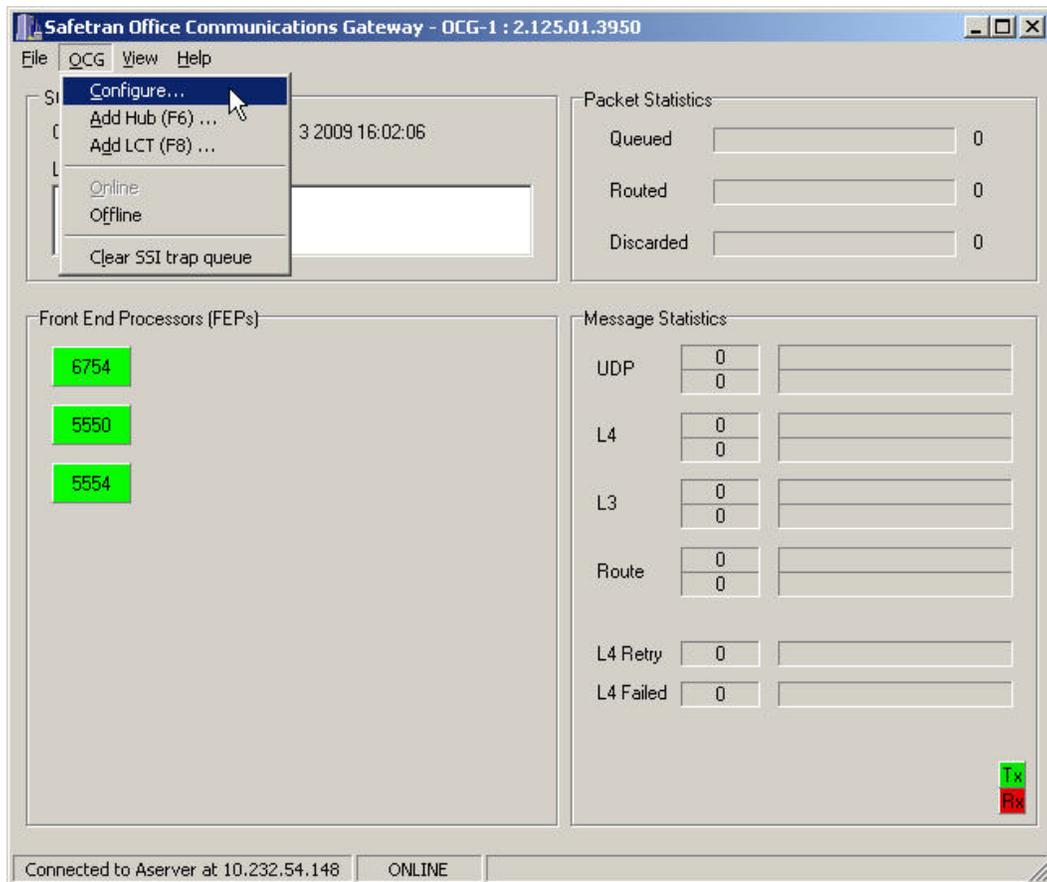
Once these files are read by the OCG software, the user interface shown in Figure 3-1 is displayed

### 3.2 OCG Configuration

To access the OCG Configuration Editor from the user interface, select **OCG**, then **Configure...** from the menu (Figure 3-1).

#### NOTE

**NOTE**  
Refer to Chapter 4 for a complete description of the user interface.



**Figure 3-1 Typical OCG User Interface, OCG Selected**

#### NOTE

**NOTE**  
The numbered icons appearing in the lower left quadrant of the user interface represent the HUBS and LCTs assigned to this OCG. Note that the four digit number corresponds with the HUB or LCT file name. HUB names begin with **6** and LCT names begin with **5**.

The OCG Configuration Editor is displayed (Figure 3-2).

**Figure 3-2 OCG Configuration Editor**

The `ocgconfig.dll` version is shown in the title bar, followed by the OCG Configuration version. For example, in Figure 3-2 above, the `ocgconfig.dll` version is 1.20.0.0, and the OCG Configuration version is 8, as indicated at the end of the dll version 1.20.0.0:8

The OCG Configuration dialog box data fields are described in Table 3-1.

**Table 3-1 OCG Configuration Editor Data Field Descriptions**

<b>DATA FIELD LABEL</b>	<b>DESCRIPTION</b>
System Description	The system description identifies this OCG in WCCMaint.
ATCS address	ATCS address assigned to this OCG. This is a type 2 ATCS address – 2.RRR.NN.DDDD. Where NN must be 01 and DDDD must be 3000-3999.
Multicast IP	Multicast group that OCG will attempt to join if multicast is supported by the host network. This allows the OCG to receive messages sent to that multicast address.
UDP broadcast	Address to which OCG will send route requests. This is the primary means of locating and linking to Aserver. This address may be a subnet or multicast address if supported by the host network.
WCCMaint tab	The OCG cluster tab under which this OCG is to be located in WCCMaint.
Online/Offline	The initial online status for this OCG. This will be a power-up default; if set to offline, the OCG will start up in offline mode regardless of its state when it is shutdown.
UDP Local Port	Specifies the UDP port number used to listen for messages. Default is 5361.
UDP Remote Port	Specifies the UDP port number used to send messages. Default is 5361.
Trace UDP messages	If this is checked then the OCG will trace UDP messages when started.
Trace LCT messages	If this is checked then the OCG will trace LCT messages when started.
Enable L3 UDP broadcast	If checked the OCG will send a RTE_UPDATE message to the UDP broadcast address entered above every 10 seconds.
Enable Shutdown Warning	If checked the OCG will ask the user to verify whether or not to shut down the OCG.
DBU Number of Attempts	The number of times the OCG attempts to test a dial backup link. The OCG sends a message once a minute to test the dial backup link.
DBU Number of minutes delay b/w tests	The number of minutes the OCG waits before testing the next dial backup link for a group. There can be three backup links.
Use LCT's Source Addr	If checked the OCG's LCT source address is used for messages sent to the field. Otherwise the destination address from the first ATCS message received from the group is used as the source address for messages sent back out to the field.
Use Field Node	If checked the node value for field devices that have Type 5 ATCS address are used in the source address for outbound messages to the field.

DATA FIELD LABEL	DESCRIPTION
Use one dispatch socket	If checked the dispatch system will use the one configured TCP port to interface to all the LCTs on the OCG. If not then the dispatch system will use one TCP port for each individual LCT as configured in the LCT itself.
TCP port number	The TCP port number used when the 'Use one dispatch socket' checkbox is checked. Default is 8000.
Duplicate Message Timer	The time that ATCS Layer 4 message numbers are kept in the duplicate message table. Value is in seconds. Default is 60 seconds.
Dispatch Socket Disconnect Time	If no message is received on the dispatch socket for this amount of time (in seconds) then the dispatch socket will be closed which will close the connection to the dispatch system. Default value is 130 seconds. Acceptable range is 60 - 300 seconds.
SERV_NOT_PRIMARY cause code	Value used for the SERV_NOT_PRIMARY service signal sent to the dispatch system. Value for CSX (NGD) is 0x20. Value for NS (UTCS) is 0x06. Default is 0x20.
Ducting Manual Override Timer	If a base is disabled due to too many groups during a ducting event the base can be manually enabled using WccMaint. The base will remain enabled for the number of minutes indicated by this value. Default is 240 minutes (4 hours).

When OCG configuration editing is complete, click **Accept** to save changes, or **Cancel** to exit without saving changes.

### 3.3 HUBFEP Configuration

The HUB Configuration Editor can be accessed in either of two ways as follows:

#### 3.3.1 Adding a New HUB

To add a new HUB, press the **F6** key or select **OCG**, then **Add HUB...** on the menu (as shown in Figure 3-3). The HUB Configuration Editor opens (Figure 3-5).



Figure 3-3 “Add HUB...” Function Selection

#### 3.3.2 Editing an Existing HUB/Alternate Method to Create New Hub

To edit the configuration of an existing HUB, right-click on the HUB’s highlighted icon and select **Configure....**(Figure 3-4). As an alternate method of adding a new HUB, click on the **Add Hub** selection or press the **F6** key. The HUB Configuration Editor opens (Figure 3-5).

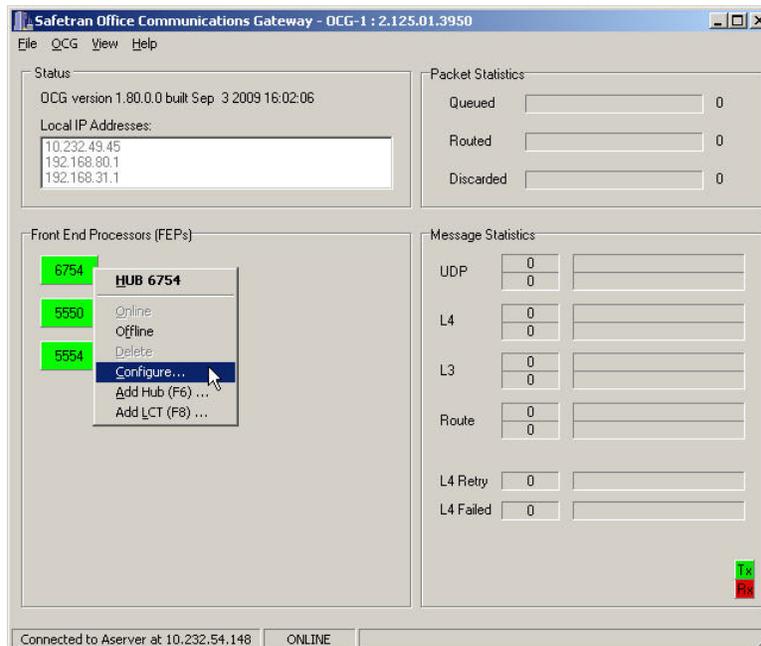
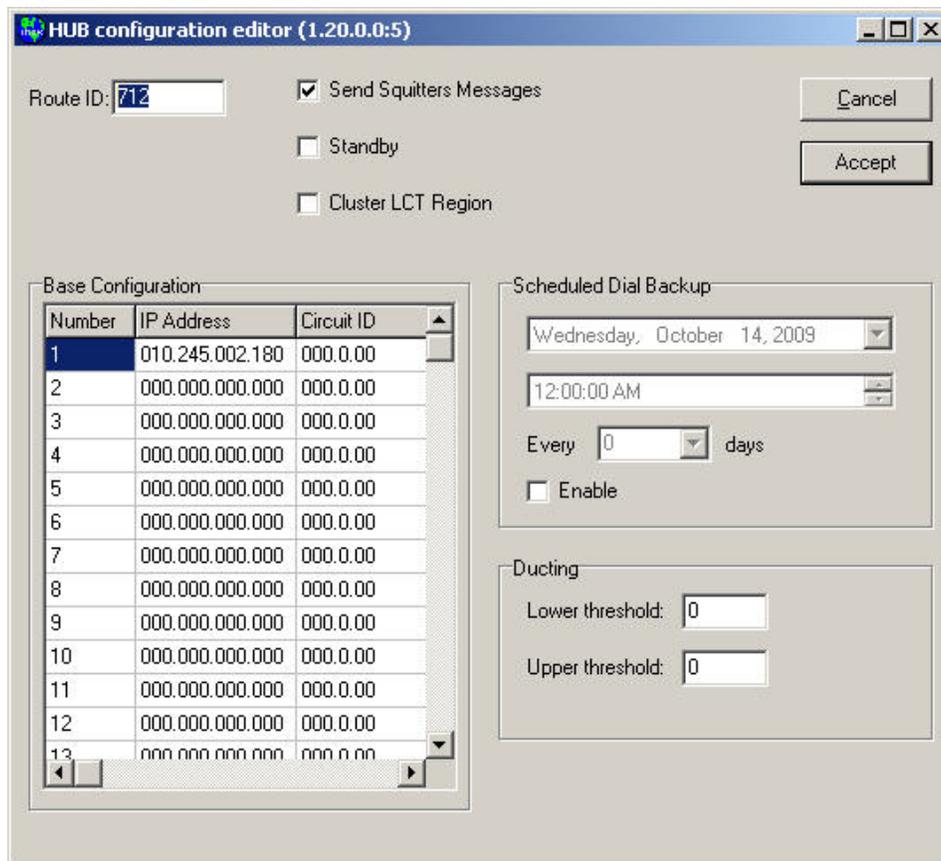


Figure 3-4 Selection to Edit an Existing HUB/Create a New HUB



**Figure 3-5 HUB Configuration Editor**

The `ocgconfig.dll` version is shown in the title bar, followed by the HUB Configuration version. For example, in Figure 3-5 above, the `ocgconfig.dll` version is 1.20.0.0, and the HUB Configuration version is 5, as indicated at the end of the dll version 1.20.0.0:5

The HUB Configuration Editor data fields are described in Table 3-2.

**Table 3-2 HUB Configuration Editor Data Field Descriptions**

DATA FIELD LABEL	DESCRIPTION
Route ID	This is the 3-digit line number. The HUB will use this to create region 6000 + (line number) , in this example 6712.
Send Squitters Messages	If this box is checked, the HUB will send BCP_ID time-stamp messages every 30 seconds. These messages are not used on all systems.
Standby	If this box is checked, this HUB will be immediately placed in standby when it is created. Also, this is the default state for this HUB whenever this OCG is restarted.
Cluster LCT Region	Obsolete. This option was originally used for compatibility with WCC LCT regions and is no longer used.
IP Address	The IP address of every base belonging to this HUB is manually entered in this table. This facilitates quick switching between OCGs, because when an OCG is started, it looks in this table and sends a route update to every (IP) base. This way, each base instantly knows the 'new' IP address of the OCG to which it must send all inbound traffic.
Circuit ID	The circuit ID, or base ID, of every IP base belonging to this HUB is manually entered here along with its IP address. The base ID is an assigned 16-bit value that is used as a unique tag for each base.
Scheduled Dial Backup	The entire codeline can be tested on a schedule basis by configuring the Scheduled Dial Backup portion of the dialog box see paragraph 3.4.3).
Ducting Lower Threshold Upper Threshold	If the number of groups on a HUB is higher than the Upper Threshold value then the HUB is considered to be experiencing a ducting event. Alarms will be logged in the OCG and sent to the NMS. Once the number of groups on a HUB goes below the Lower Threshold value then the HUB is no longer considered to be experiencing a ducting event. Alarm clear messages will be logged in the OCG and sent to the NMS.

### 3.4 Line Control Task (LCT)/FEP Configuration

The LCT Configuration Editor can be accessed in either of two ways, as explained below.

#### 3.4.1 Adding a New LCT

To add a new LCT, press the **F8** key or select **LCT**, then **Add LCT...** on the menu (as shown in Figure 3-6). The LCT Configuration Editor opens (Figure 3-8).



Figure 3-6 “Add LCT...”Function Selection

#### 3.4.2 Editing an Existing LCT/Alternate Method to Create New LCT

To edit the configuration of an existing LCT, right-click on the LCT’s highlighted icon and select **Configure...** (Figure 3-7). As an alternate method of adding a new LCT, click on the **Add LCT** selection or press the **F8** key. The LCT Configuration Editor opens (Figure 3-8).

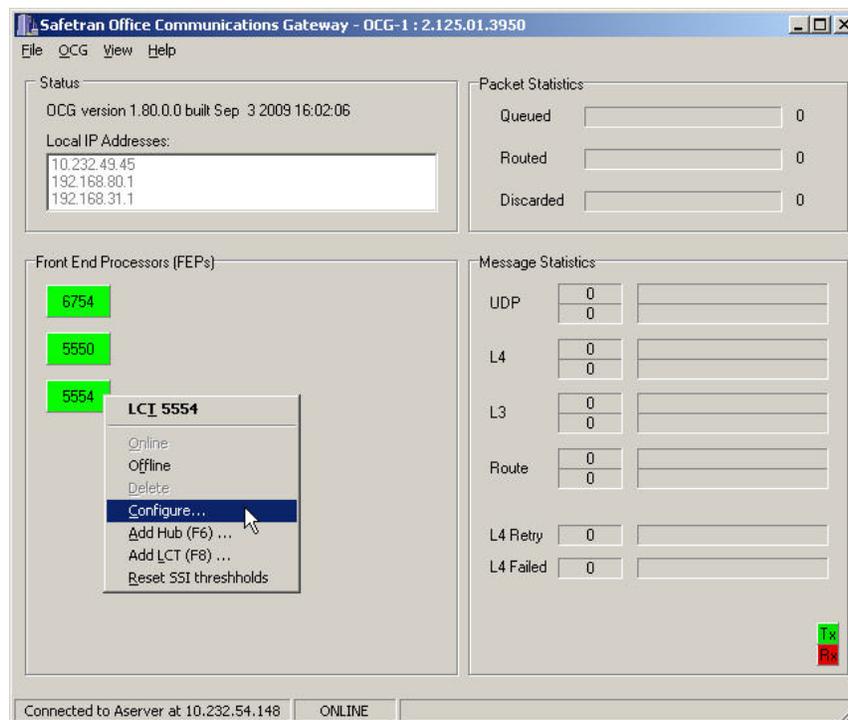
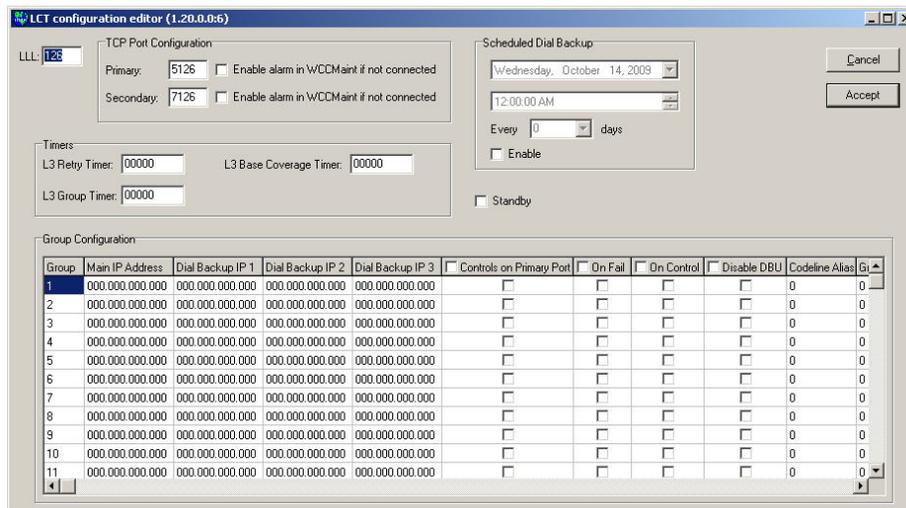


Figure 3-7 Selection to Edit an Existing LCT/Create a New LCT



**Figure 3-8 LCT Configuration Editor**

The ocgconfig.dll version is shown in the title bar, followed by the LCT Configuration version. For example, in Figure 3-8 above, the ocgconfig.dll version is 1.20.0.0, and the LCT Configuration version is 6, as indicated at the end of the dll version 1.20.0.0:6.

The LCT Configuration Editor data fields are described in Table 3-3

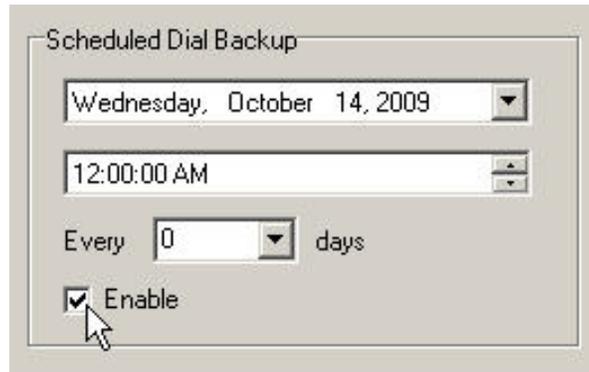
**Table 3-3 LCT Configuration Editor Data Field Descriptions**

DATA FIELD LABEL	DESCRIPTION
LLL	The LLL number is the 3-digit codeline number. For example, entering 126 in this field will cause OCG to create LCT region 5126 (5000 + codeline number).
TCP Port Configuration - Primary	The TCP port configuration creates TCP socket connections to the CTC system. For Next Generation Dispatch (NGD), the Primary socket is set to the same as the LCT region (5126).
TCP Port Configuration - Secondary	The secondary socket allows a connection to CADs via a pass-through connection provided by a WCC Extended (WCE). This socket is numbered as 7000 + the line number (7126 in this example).
<b>NOTE</b>	
When the LLL number is entered, the primary and secondary socket numbers are automatically entered to conform to this standard. However the socket number can be changed by entering different numbers in the text boxes.	
Enable alarm in WCCMaint if not connected	If this box is checked, the OCG will flag the socket as being in alarm if there are no client connections. WCCMaint uses this flag to signal the user that a socket connection to NGD (or CADs) has failed.

DATA FIELD LABEL	DESCRIPTION
L3 Retry Timer	Outbound messages are re-sent after six seconds by default if there is no response from the field. This retry interval is configurable to 'n' seconds by entering a non-zero value in this field. A value of 0 (zero) leaves the default of six seconds intact.
L3 Group Timer	If the OCG has not received a message from a group in this number of seconds then it is considered to be offline. A message is logged in the OCG and a group offline message is sent to the dispatch system. If this value is set to zero the default value of 150 seconds is used.
L3 Base Coverage Timer	The OCG has a coverage table for each group which includes the bases through which the group sends messages in to the office. If the OCG has not received a message from a group through a particular base in this number of seconds then the base is removed from the coverage table for that group only. If this value is set to zero then the default value of 180 seconds is used. If the group is a SEAR then the default value is 3 days.
Scheduled Dial Backup	The entire codeline can be tested on a schedule basis by configuring the Scheduled Dial Backup portion of the dialog box (see paragraph 3.4.3).
Standby	If this box is checked, this LCT will be immediately placed in standby when it is created. Also, this is the default state for this LCT whenever this OCG is restarted.
Main IP Address	Enter the main (primary path) IP address for IP-enabled groups (WCMS) in this field.
Dial Backup IP 1,2,3	The dial backup IP addresses for each group in this codeline. There can be up to three dial backup IP addresses per group.
<p><b><u>NOTE</u></b></p> <p>For the following columns with checkboxes, there is a master checkbox in the top row of the column that will check or uncheck the entire column.</p>	
(check box) Controls on Primary Port	Each check box in this column corresponds to a Group. If a check box is checked, controls from the primary port (NGD) will be allowed to be sent to the associated group. Otherwise, outbound traffic from the primary CTC port to the group is inhibited. Traffic from the secondary port is not affected.
(check boxes) On Fail, On Control, Disable DBU	Each group can be configured to go to automatic dial backup when the codeline goes offline (On Fail) or when an outgoing message is retried (On Control) by checking the appropriate check box. On Fail and On Control can both be enabled for a group. Check the last column to disable dial backup for the group.

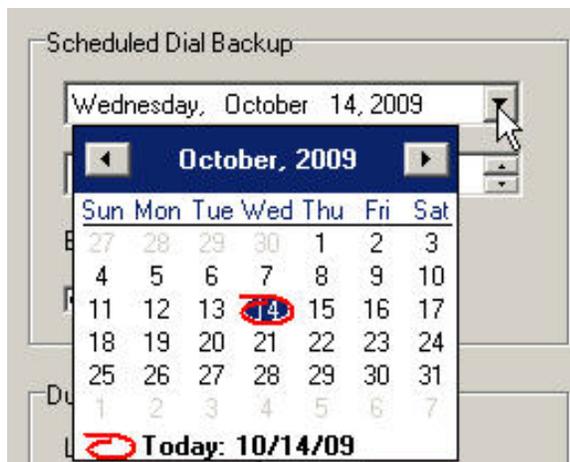
### 3.4.3 Configuring Scheduled Dial Backup Date and Time

Click on the Enable checkbox to insert a checkmark which will enable the scheduling function (Figure 3-9).



**Figure 3-9 Enabling the Scheduled Dial Backup Function**

Click on the down arrow in the date box to display a calendar that is used to select a start date for the Scheduled Dial Backup test (Figure 3-10).



**Figure 3-10 Accessing the Scheduled Dial Backup Calendar**

The month, day, and year values can also be edited directly in the date box:

- Click on the month, day or year field and use the up or down arrow keys on the keyboard to change the value,
- or click on the day or year and enter a value using the keyboard number keys.

The time box contains the start time for the test. The hour, minute, seconds, and AM/PM fields are all distinct fields for editing. The values can be modified as follows:

- Click on the desired field and then use the spin buttons in the time box to change values,
- or enter the values directly using the keyboard number keys.

**NOTE****NOTE**

Although the **seconds** field is displayed, it is not used in determining the start time.

The **Every** \_\_\_\_\_ **days** field indicates how often the background dial backup test is to run. Enter the value as follows:

- Click the down arrow in the box, select a value from 1 to 31 from the drop-down menu, or
- Enter any value directly in the box using the number keys.

Some sample values:

- A value of zero makes this a onetime test. The test will run only once.
- A value of 7 will have the test run on the same day of the week every week.
- A value of 14 will have the test run on the same day of the week every other week.

The **Enable** check box enables the scheduled dial backup.

**NOTE****NOTE**

If an LCT is offline, scheduled backup testing will not be run.

Click **Accept** to save all changes. Click **Cancel** to close the configuration dialog box without saving any changes.

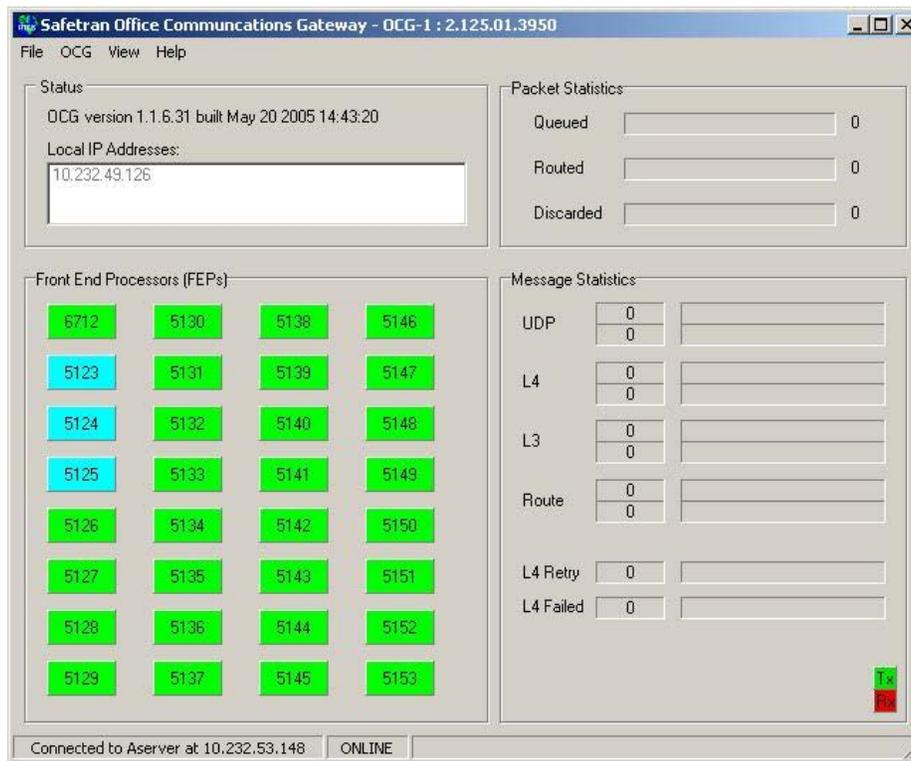
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## SECTION 4 USER INTERFACE

### 4 USER INTERFACE

#### 4.1 OCG Overview Screen

The OCG overview screen (Figure 4-1) is the primary user interface for the OCG. The various elements of the overview screen are described in the following paragraphs.



**Figure 4-1 Typical OCG Overview Screen**

##### 4.1.1 Title Bar

The title bar contains the OCG system description (“OCG-1” in Figure 4-1 above) followed by the ATCS address (2.125.01.3950) for this OCG.

##### 4.1.2 “Status” Area

The Status area displays the OCG version number and when the OCG software was built. It also displays the IP address(es) of the OCG computer. If there is more than one IP address, each is shown on a new line in the Local IP Addresses box

### 4.1.3 “Front End Processors (FEPs)” Area

The ‘Front End Processors (FEPs)’ area displays an icon for each LCT or HUB that is running on the OCG. If the icon is green the FEP is online. If the icon is aqua the FEP is offline. The numbers on the icons are the four digit region id – 5nnn for LCTs and 6nnn for HUBs.

#### NOTE

#### NOTE

The icons do not reflect the status of any field devices (such as control points or bases).

The icons will **not** turn red to indicate offline devices and the assumption can **not** be made that all field devices are present because the icon is green. The WCCMaint utility is used for an overview of the status of individual bases and groups.

### 4.1.4 “Packet Statistics” Area

The ‘Packet Statistics’ area displays information about the Message Router. **Queued** indicates the current number of messages queued up to be processed by the Message Router. **Routed** indicates the number of messages that have been routed in the last second. **Discarded** indicates the number of messages that have been discarded in the last second because no route was found. These values are updated every second.

### 4.1.5 “Message Statistics” Area

The ‘Message Statistics’ area displays information about different types of messages. These statistics are updated every second. The message types are described in Table 4-1.

There are two horizontal bars for the first four message types:

1. Top bar shows the number of messages transmitted in green (sent by the OCG).
2. Bottom bar shows the number of messages received in red (received by the OCG).

**Table 4-1 Message Type Descriptions**

MESSAGE TYPE LABEL	DESCRIPTION
<b>UDP</b>	Indicates the number of messages on UDP port 5361.
<b>L4</b>	Indicates the number of ATCS Layer 4 messages on UDP port 5361. These are typically Network Management System (NMS) messages.
<b>L3</b>	Indicates the number of ATCS Layer 3 messages on UDP port 5361.
<b>Route</b>	Indicates the number of ROUTE_REQUEST and ROUTE_UPDATE messages on UDP port 5361. These types of messages are not ATCS messages.
<b>L4 Retry</b>	Indicates the number of ATCS Layer 4 messages that have not received ATCS acknowledgments and are therefore retried on UDP port 5361.
<b>L4 Failed</b>	Indicates the number of ATCS Layer 4 messages that have been retried 5 times on UDP port 5361 and are deleted due to a lack of

MESSAGE TYPE LABEL	DESCRIPTION
	response.

#### 4.1.6 Status Bar

The Status Bar is located at the bottom of the screen. It displays:

- The status of the connection to the Aserver (connected or not) and the IP address of the Aserver.
- The online/offline status of the OCG.
- Informational messages in the last portion of the status bar such as when the OCG configuration file has been modified and saved.

#### 4.2 Main Menus

The following paragraphs describe the menus available from the menu bar at the top of the screen (**Error! Reference source not found.**).

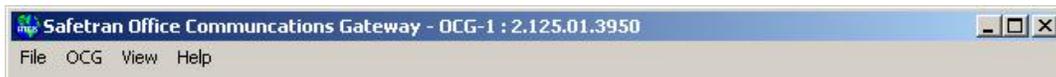


Figure 4-2 Menu Bar

##### 4.2.1 File Menu

Click **File** on the menu bar to reveal the file menu.

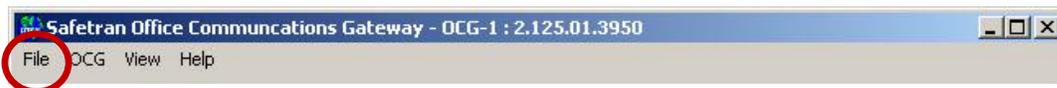


Figure 4-3 File Menu

##### 4.2.1.1 Exit

Select **Exit** to close the OCG application (Figure 4-4). A prompt requesting confirmation (Figure 4-5) appears unless the *ShutdownWarning* parameter in the *ocg.ini* file is set to false.



Figure 4-4 Exit Button



**Figure 4-5 OCG Exit Confirmation Prompt**

## 4.2.2 OCG Menu

Click **OCG** on the menu bar to reveal the OCG menu. The menu functions and their Function Key shortcuts (Fx) are described in the following paragraphs.



**Figure 4-6 OCG Menu**

### 4.2.2.1 Configure...

Select **Configure...** to open the OCG Configuration Editor (see paragraph 3.2).

### 4.2.2.2 Add HUB (F6)...

Select, **Add HUB (F6)...** to open the HUB Configuration Editor (see paragraph 3.3).

If the **Accept** button on the HUB Configuration Editor is clicked, then a new HUB will be added to the OCG

### 4.2.2.3 Add LCT (F8)...

Select **Add LCT (F8)...** to open the LCT Configuration Editor.

If the **Accept** button on the LCT Configuration Editor is clicked, then a new LCT will be added to the OCG.

### 4.2.2.4 Online

Select **Online** to place the OCG online. If an FEP is configured to be online, then that FEP will go online as well.

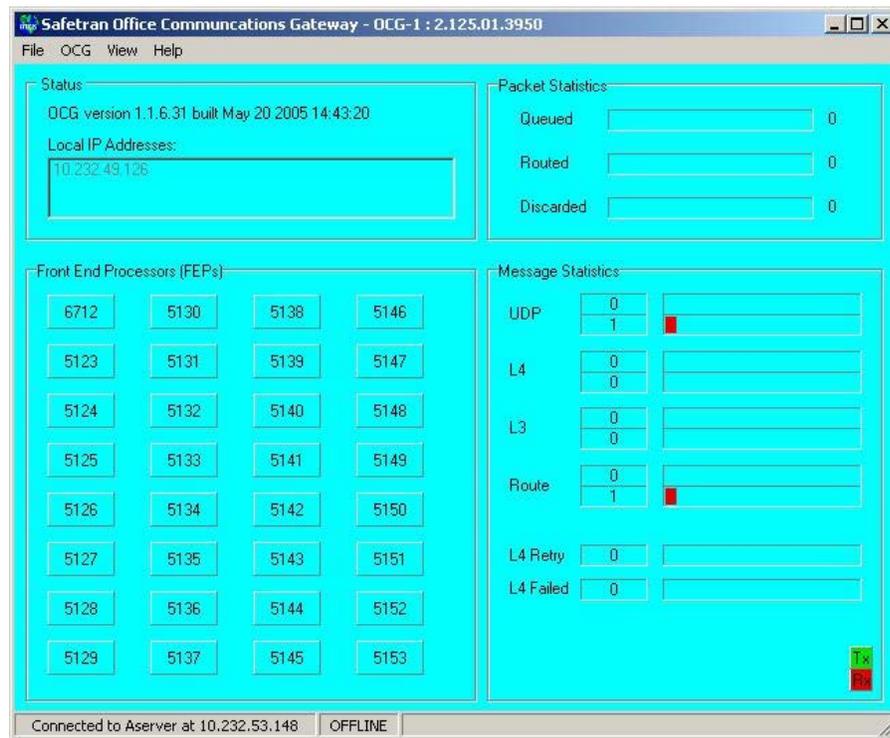
The status bar at the bottom of the Overview screen changes to indicate 'ONLINE' and changes the background for most of the Overview screen to the normal window background color.

#### 4.2.2.5 Offline

Select **Offline** to place the OCG offline. This action also places all FEPs offline.

The status bar at the bottom of the Overview screen changes to indicate 'OFFLINE' and changes the background for most of the Overview screen to aqua (see Figure 4-7). This insures that a user can easily distinguish when the OCG application is offline.

The LCTs and HUBs will not route or generate any operational traffic (controls, indications, route updates, etc) when they are offline. They will however route and generate NMS traffic.



**Figure 4-7 Typical OCG Overview Screen in Offline Mode**

#### 4.2.2.6 Clear SSI Trap Queue

Select Clear SSI (Signal Strength Indicator) Trap Queue to clear any SSI alarms that are queued up to be sent to the NMS.

### 4.2.3 View Menu

Click **View** on the menu bar to reveal the View menu. The menu functions are described in the following paragraphs.



**Figure 4-8 View Menu**

#### 4.2.3.1 Links...

Select **Links...** to opens the Links dialog box (Figure 4-9). The dialog box data fields are described in Table 4-2.

IP Address	Route ID	Disable	Tag	Ptype	Used	Connected	Num Pkts Txd	Num Pkts Rxd	Snd Seq Num	Rcv Seq Num	Link Timer	Up Timer	Que Count
10.232.49.33	9017:O	N	754.1.4	45	Y	N	157	157	0	0	287	000	0
10.232.54.148	9999:I	N	0.0.0	0	Y	Y	1326	1327	188	114	179	000	0

**Figure 4-9 Links Dialog Box with Typical Entries**

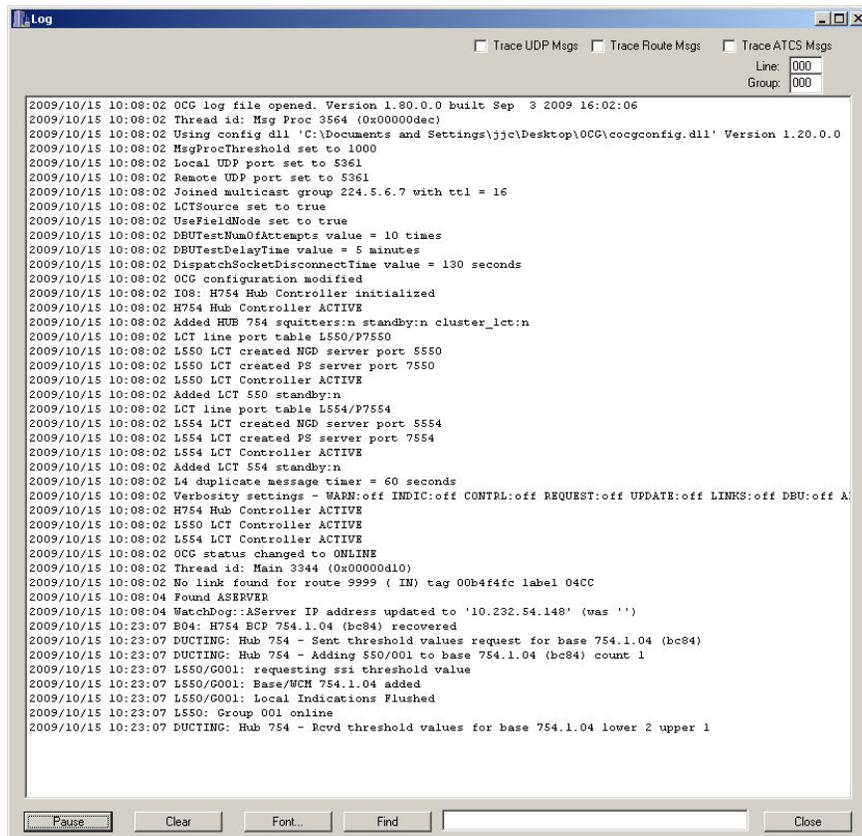
**Table 4-2 Links Dialog Box Data Field Description**

DATA FIELD	DESCRIPTION
<b>IP Address</b>	This is the IP address of the device on the other end of the “link”. This could be the Aserver PC, a WCM, a BCP, etc.
<b>Route ID</b>	Route ID identifies the routing region assigned to this link. Routing regions include LCT codeline regions and other internal routes used between OCGs/WCCs. The routing region suffix ( I or O ) indicates whether the route is Inbound (from field equipment toward the office) or Outbound.  For example, region 5523: I is an inbound route for codeline 523. Indications for this codeline will be sent to this route. Some internal routes are 9017 for Layer 3 connections (HUBs), 9999 for NMS (Aserver) and 9997 for temporary routes.

DATA FIELD	DESCRIPTION
<b>Disable, (Y or N)</b>	Indicates whether or not the link is disabled. When disabled, the OCG will not send messages on this link. If there is another link enabled – it will send messages on the other link. If there is no other link defined or enabled, the messages will still be sent on the link <b>even if it is disabled</b> .
<b>Tag</b>	Identifies a specific Base or WCM.
<b>Ptype (path type)</b>	Two-digit number Identifies a link as follows: <ul style="list-style-type: none"> <li>• Primary (first digit 4)</li> <li>• Secondary (first digit 8)</li> <li>• Base (second digit 5)</li> <li>• WCM (second digit 8)</li> </ul>
<b>Used, (Y or N)</b>	Indicates whether or not the OCG has sent an ATCS message over that link.
<b>Connected, (Y or N)</b>	Indicates whether or not an ATCS Layer 4 connection exists with the device on the other end of the link. Currently this only applies to the link to the NMS system (Aserver).
<b>Num Pkts Txd and Num Pkts Rxd</b>	Indicate the number of ATCS packets transmitted or received by the OCG on that link, respectively.
<b>Snd Seq Num and Rcv Seq Num</b>	These are the ATCS Layer 3 sequence numbers for that link. These will normally be non-zero only for the link to the NMS system (Aserver).
<b>Link Timer</b>	This is a countdown timer that tells how many seconds until the link will time out and be removed. The timer is reset to 300 seconds (5 minutes) when messages are received on the link.
<b>Up Timer</b>	This is used on primary links only when a secondary link exists. If a secondary link (such as a dial backup link) is being used and the primary link comes back up, then the secondary link is still used until the primary link has been up for 15 minutes. The Up Timer is set to 900 seconds (15 minutes) when a link is established and counts down to zero.
<b>Queue Count</b>	The number of messages waiting to be transmitted on this link. If no queue exists, will display hyphen '-'.

### 4.2.3.2 Log...

Select **Log...** to open the Log dialog box (Figure 4-10). The dialog box data fields and controls are described in Table 4-3.



**Figure 4-10 Log Dialog Box with Typical Entries**

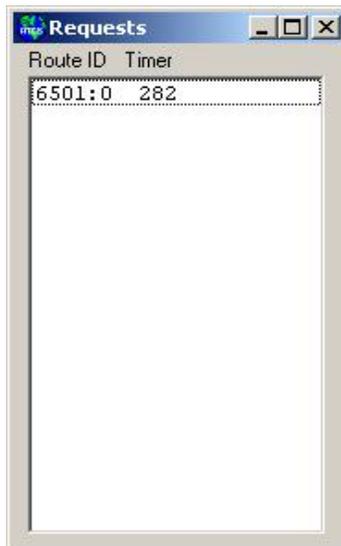
The log window (with scroll bar) can contain up to 5000 log messages from the log file. Once the window reaches 5000 entries, the first 1000 entries (oldest entries) are deleted from the window (not the log file) leaving room for 4000 history entries and 1000 new entries.

**Table 4-3 Log Dialog Box Data Field & Control Descriptions**

<b>DATA FIELD / CONTROL</b>	<b>DESCRIPTION</b>
<b>Pause</b>	Click this button to stop the window from scrolling whenever a new entry is made. The button label changes to <b>Scroll</b> when it is clicked. When the <b>Scroll</b> button is clicked it will enable scrolling again (and the button label changes back to <b>Pause</b> ).
<b>Clear</b>	Click this button to remove all entries from the window (but not the log file).
<b>Font</b>	This button allows the font and font size used in the log window to be changed. Even though other choices are available in the font dialog window (such as style, effects, and color), only the font and size changes are applied to the font used in the log window.
<b>Find</b>	This button allows a user to search for text entered in the edit box to the right of the button. When the button is clicked, the first line of the data log containing the entered text will be highlighted. As return (if the edit box has the focus) is pressed or the <b>Find</b> button is clicked again, the next line containing the text will be highlighted.
<b>Close</b>	Click this button to close the log dialog.
<p><b><u>NOTE</u></b></p> <p>Several check boxes across the top of the window allow the user to select certain types of messages to be traced (display message information and data) in the log window. These trace functions are described below.</p>	
<b>Trace UDP Msgs</b>	Check this box to display all messages sent or received by the OCG on UDP port 5361.
<b>Trace Route Msgs</b>	Check this box to display all route request messages received by the OCG <i>that the OCG will respond to</i> and the route update messages sent back to the requestor. If the OCG will not respond to a route request then the message is not shown in the log.
<b>Trace ATCS Msgs</b> <b>Line:</b> <b>Group:</b>	Check this box to display all messages for a given LCT based on line and/or group. If line and group values are 0, then messages for all LCTs are displayed. If line is 123 and group is 0, then all messages for LCT 5123 will be displayed. If line is 123 and group is 3, then all messages for group 3 on LCT 5123 will be displayed.

### 4.2.3.3 Requests...

Select **Requests...** to open the Requests dialog box (Figure 4-11).



**Figure 4-11 Requests Dialog Box**

This lists the outstanding route requests. There can be up to 16 outstanding route requests at any given time. The route request will remain in the route request list until the timer times out (5 minutes) or until a device responds with a route update message containing the requested route.

### 4.2.3.4 Routes...

Select **Routes...** to open the Routes dialog box (Figure 4-12). The dialog box data fields are described in Table 4-4.

Route	Dir	Stby	Packets	More	Tag
6754	0	0	00161	N	00b3eefc
6754	1	0	00160	N	00b3eefc
9998	0	0	00000	Y	00b3eefc
9017	0	0	00000	N	00b3eefc
5550	1	0	00160	N	00b4f4fc
5550	0	0	00000	N	00b4f4fc
9998	0	0	00000	Y	00b4f4fc
5554	1	0	00000	N	00b4f4fc
5554	0	0	00000	N	00b4f4fc
9999	0	0	00000	N	00b26bc0
3950	0	0	00000	N	00b26bc0
9998	0	0	00000	N	00b26bc0
9003	0	0	01355	N	00b4f9e4
9015	0	0	00160	N	00b4f9e4
9016	1	0	00000	N	00b62d88

**Figure 4-12 Routes Dialog Box with Typical Entries**

**Table 4-4 Routes Dialog Box Data Field Descriptions**

DATA FIELD	DESCRIPTION
<b>Route</b>	Route ID identifies the routing region assigned to this link. Routing regions include LCT codeline regions and other internal routes used between the OCGs/WCCs. The routing region suffix ( I or O ) indicates whether the route is Inbound (from field equipment toward the office) or Outbound.
<b>Dir</b>	This value indicates the direction relative to the office – 0 is outbound, 1 is inbound.
<b>Stby</b>	This value indicates a route is standby (1) or active (0).
<b>Packets</b>	This value indicates the number of packets that have been routed to this route.
<b>More, (Y or N)</b>	This parameter indicates whether or not there is another route in the table with the same route ID.
<b>Tag</b>	This alphanumeric code is used along with the route ID to uniquely identify a route.

#### 4.2.3.5 Groups...

Select **Groups...** to open the Groups dialog box (Figure 4-13). The dialog box data fields are described in Table 4-5.

**Figure 4-13 Groups Dialog Box with Field Descriptions****Table 4-5 Groups Dialog Box Data Field Descriptions**

DATA FIELD	DESCRIPTION
<b>Address</b>	This is the group ATCS address – type 5 (5.RRR.NN.LLGG) or type 7 (7.RRR.LLL.GGG.SS.DD)
<b>Base-1</b>	This is a BCP or WCM tag (also called circuit ID or pbase) of the primary field device that this group communicates through. An asterisk indicates which Base device the OCG is using to send messages out through.
<b>SSI</b>	This is the signal strength of received messages from the Base-1 device.
<b>Max</b>	This is the maximum signal strength ever received from any Base device.
<b>PType</b>	This is the path type of the link to the Base-1 device. Two-digit number Identifies a link as follows: <ul style="list-style-type: none"> <li>• Primary (first digit 4)</li> <li>• Secondary (first digit 8)</li> <li>• Base (second digit 5)</li> <li>• WCM (second digit 8)</li> </ul>

<b>DATA FIELD</b>	<b>DESCRIPTION</b>
<b>BTmr-1</b>	This 120 second (2 minute) timer indicates how long it has been since a message was received via this base. If the timer times-down to 0 (zero), then the base will be removed from the coverage table for this group.
<b>R</b>	Rx inbound message indicator value of 1 indicates that a message has been received since the last time coverage was switched away from this base. Value of 0 (zero) indicates that no messages have been received.
<b>Base-2, Base-3</b>	These tags and their corresponding SSI and PType entries are for any other Base devices that this group may be communicating through.
<b>Online</b>	Indicates whether or not ATCS messages are being received from the group. 1 = yes, 0 = no
<b>SSI Threshold</b>	This is the SSI value below which an SSI alarm is reported for this group and above which an SSI recovered message is reported.
<b>Ctrl Enable</b>	Status indication whether controls received from an LCT's primary TCP port (which should be communicating with the NGD system) will be sent to this group. 1 = controls enabled, 0 = controls not enabled
<b>Timer</b>	This 150-second (2 ½ minute) timer indicates how long it has been since a message was received from the group. If the timer times down to 0 then the group will be considered to be offline.
<b>Tx Fail</b>	This value indicates the number of messages not delivered to the group. Message delivery is retried 5 times and if no response from the group is received, the message is thrown away and the Tx Fail counter is incremented.
<b>Tx Retry</b>	This value indicates the number of times a message has been retried. If a message is sent to a group but no acknowledgement is received for the L3 retry time (configured in the LCT configuration dialog) – typically 6 seconds – then the message is sent again. The message is resent up to 5 times (see Tx Fail above).
<b>Queue Cnt</b>	The number of messages waiting to be transmitted on this link. If no queue exists, will display hyphen '-'.
<b>Indic Tmr</b>	The number of seconds which have passed since the last indication message was received by this group.
<b>isize</b>	The number of indication data bytes for this group.
<b>idata</b>	The last received indication data values for this group.
<b>src addr</b>	The ATCS source address for messages sent to this group.

## 4.2.4 Help Menu

Click **Help** on the menu bar to reveal the Help menu.



**Figure 4-14 Help Menu**

### 4.2.4.1 About...

Select **About...** to open the About screen (Figure 4-15). This display contains the OCG version number plus the date and time that this version of the OCG was built.

Click **OK** to close the display.



**Figure 4-15 OCG About Screen**

### 4.3 Context (Popup) Menus

The following paragraphs describe the context menus available by right-clicking on certain display elements.

#### 4.3.1 HUB Context Menu

Right-clicking any HUB icon on the overview screen activates a context menu for that FEP (see Figure 4-16). The FEP name is displayed in bold text at the top of the context menu to identify which FEP is being acted on. The menu functions are described in the Table 4-6.

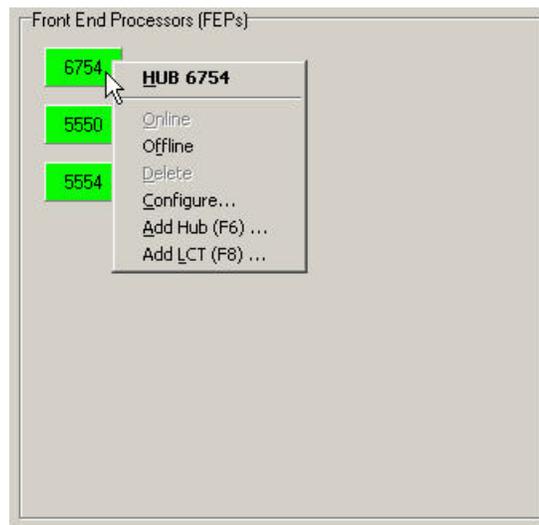


Figure 4-16 Typical HUB Context Menu

Table 4-6 HUB Context Menu Function Descriptions

MENU FUNCTION	DESCRIPTION
<b>Online</b>	Select to place the FEP online.
<b>Offline</b>	Select to place the FEP offline.
<b>Delete</b>	Select to delete the FEP. The FEP must be offline for this menu item to be enabled.
<b>Configure...</b>	Select to open the configuration dialog box for this FEP (paragraph 3.3).
<b>Add HUB...</b>	Select to open the HUB configuration dialog box (paragraph 3.3).
<b>Add LCT...</b>	Select to open the LCT configuration dialog box (paragraph 3.3).

### 4.3.2 LCT Context Menu

Right-clicking any LCT icon on the overview screen activates a context menu for that FEP (see Figure 4-17). The FEP name is displayed in bold text at the top of the context menu to identify which FEP is being acted on. The menu functions are described in the Table 4-7.

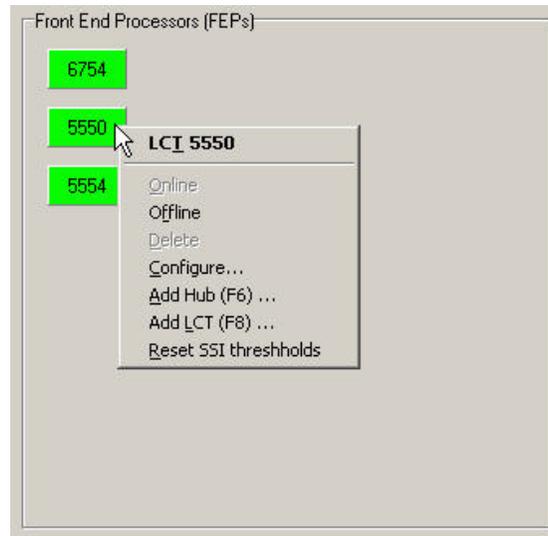


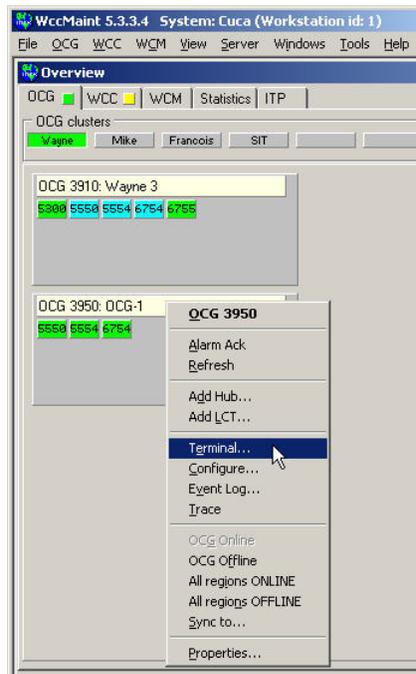
Figure 4-17 Typical LCT Context Menu

Table 4-7 LCT Context Menu Function Descriptions

MENU FUNCTION	DESCRIPTION
<b>Online</b>	Select to place the FEP online.
<b>Offline</b>	Select to place the FEP offline.
<b>Delete</b>	Select to delete the FEP. The FEP must be offline for this menu item to be enabled.
<b>Configure...</b>	Select to open the configuration dialog box for this FEP (paragraph 3.4).
<b>Add HUB...</b>	Select to open the HUB configuration dialog box (paragraph 3.4).
<b>Add LCT...</b>	Select to open the LCT configuration dialog box (paragraph 3.4).
<b>Reset SSI Thresholds</b>	Clears the configured threshold values and clears any threshold alarms for this LCT.

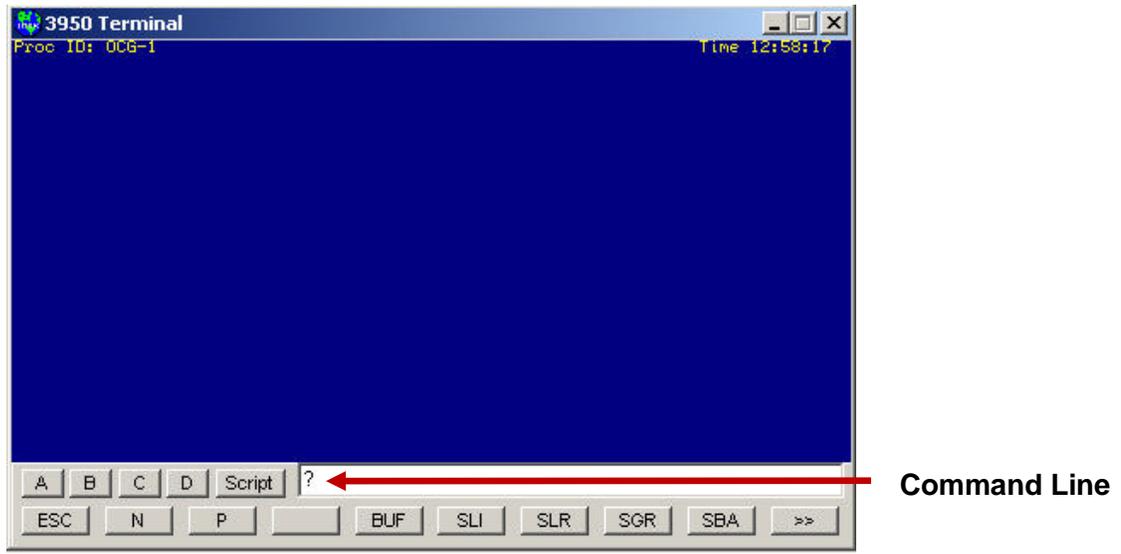
## 4.4 Remote Commands

1. From the WCCMaint Overview screen (Figure 4-18), select the OCG tab.
2. Select an OCG cluster and then right-click on the desired OCG.
3. Select the **Terminal...** menu function and the Terminal window will be displayed (Figure 4-19).



**Figure 4-18 Selecting Terminal Function from WCCMaint**

When the Terminal window first appears the data display area is blank. Type 'HELP' or a question mark (?) on the command line and press Enter on the keyboard to display a list of commands for the OCG (see Figure 4-20).

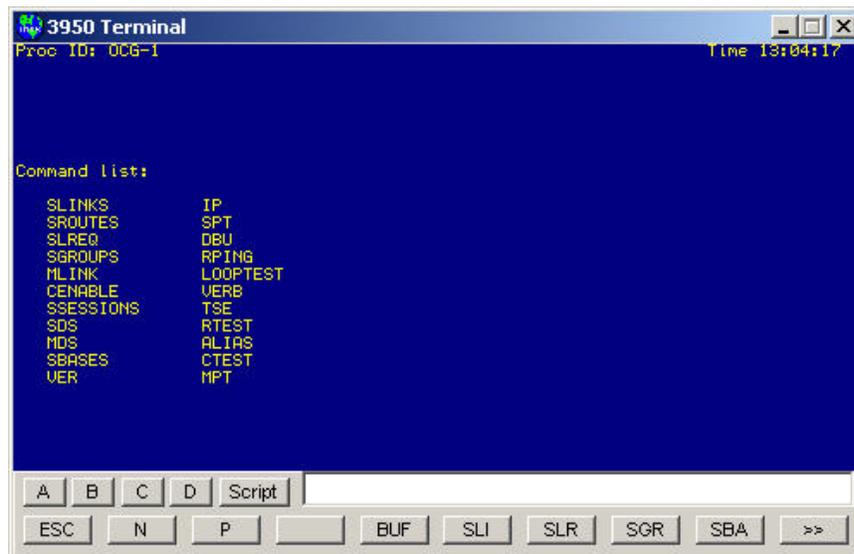


**Figure 4-19 Terminal Window in WCCMaint**

**NOTE**

**NOTE**

Either pressing the Esc key on the keyboard or clicking the [ESC] button at the bottom of the Terminal window will clear the window contents.

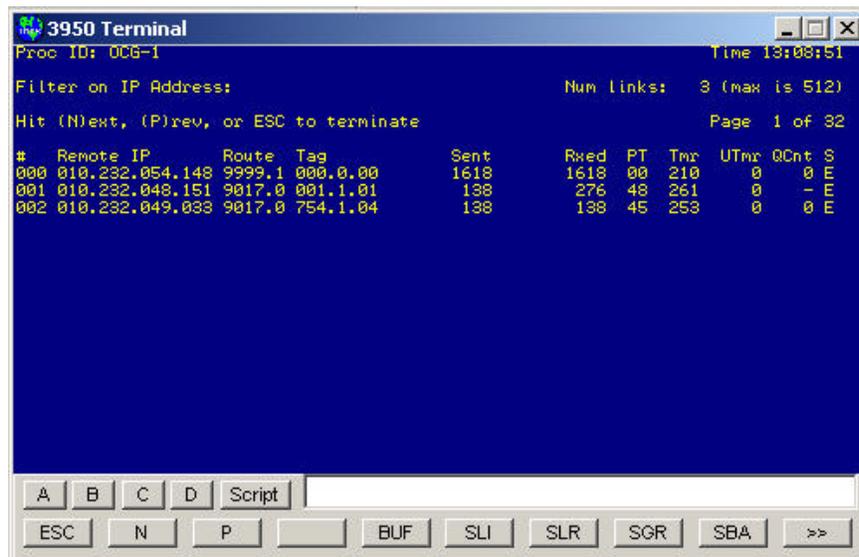


**Figure 4-20 Remote Command List in WCCMaint Terminal Window**

To issue a command, enter the command name on the command line as it appears in the list, then press Enter on the keyboard. Note that when jumping from one command to another it may be necessary to clear the Terminal window first. The commands are described in the following paragraphs.

#### 4.4.1 SLINKS

The SLINKS command displays information similar to that available using the View/Links... function (paragraph 4.2.3.1). To filter on a specific IP address, type the IP address after the SLI command. For example, “SLI 10.232.48.130” will only show links to 10.232.48.130, if there are any. The display fields are described in Table 4-8.



```

3950 Terminal
Proc ID: 0C6-I                               Time 13:08:51
Filter on IP Address:                          Num Links:  3 (max is 512)
Hit (N)ext, (P)rev, or ESC to terminate      Page  1 of 32
# Remote IP      Route Tag      Sent      Rwd  PT  Tmr  UTmr  QCnt  S
000 010.232.054.148 9999.1 000.0.00    1618    00  210   0    0  E
001 010.232.048.151 9017.0 001.1.01     138    276  48  261   0    -  E
002 010.232.049.033 9017.0 754.1.04     138    138  45  253   0    0  E

```

A B C D Script

ESC N P BUF SLI SLR SGR SBA >>

Figure 4-21 SLINKS Command Display (Typical)

**Table 4-8 SLINKS Display Field Descriptions**

DISPLAY FIELD	DESCRIPTION
#	Link number.
Remote IP	This is the IP address of the device on the other end of the “link”. This could be the Aserver PC, a WCM, a BCP, etc.
Route	<p>Route identifies the routing region assigned to this link. Routing regions include LCT codeline regions and other internal routes used between the OCGs/WCCs. The routing region suffix (1 or 0) indicates whether the route is Inbound (1) (from field equipment toward the office) or Outbound (0).</p> <p>For example, region 5523: I is an inbound route for codeline 523.</p> <p style="text-align: center;"><b><u>NOTE</u></b></p> <p>The numbers 1 and 0 are used interchangeably with the letters I and O to indicate Inbound and Outbound, respectively.</p>
Tag	Identifies a specific Base or WCM.
Sent and Rxed	Indicate the number of ATCS packets transmitted or received by the OCG on that link, respectively.
PT (path type)	<p>Two-digit number Identifies a link as follows:</p> <ul style="list-style-type: none"> <li>• Primary (first digit 4)</li> <li>• Secondary (first digit 8)</li> <li>• Base (second digit 5)</li> <li>• WCM (second digit 8)</li> </ul>
Tmr (Timer)	This is a countdown timer that tells how many seconds until the link will time out and be removed. The timer is reset to 300 seconds (5 minutes) when messages are received on the link.
UTmr (Up Timer)	This is used on primary links only when a secondary link exists. If a secondary link (such as a dial backup link) is being used and the primary link comes back up, then the secondary link is still used until the primary link has been up for 15 minutes. The UTmr is set to 900 seconds (15 minutes) when a link is established and counts down to zero.
QCnt	The number of messages waiting to be transmitted on this link. If no queue exists, will display hyphen ‘-’.
S	Shows link status: <b>E</b> = enabled, <b>D</b> = disabled

#### 4.4.2 SROUTES

The SROUTES command displays information similar to that available using the View/Routes... function (paragraph 4.2.3.4). The display fields are described in Table 4-9.

```

3950 Terminal
Proc ID: OCG-1                               Time 13:39:46

Hit (N)ext, (P)rev, or ESC to terminate

Route  Dir  Stby  Packets  Count  Chan  Timer
6754   0    0     193     0000   000   0000
6754   1    0     179     0000   000   0000
9998   0    0      2      0000   000   0000
9017   0    0      0      0000   000   0000
5550   1    0     179     0000   000   0000
5550   0    0      8      0000   000   0000
9998   0    0      2      0000   000   0000
5554   1    0     169     0000   000   0000
5554   0    0      21     0000   000   0000
9999   0    0      0      0000   000   0000
3950   0    0      76     0000   000   0000
9998   0    0      0      0000   000   0000
9003   0    0    26920   0000   000   0000
9015   0    0     348     0000   000   0000
9016   1    0      0      0000   000   0000

```

Figure 4-22 SROUTES Command Display (Typical)

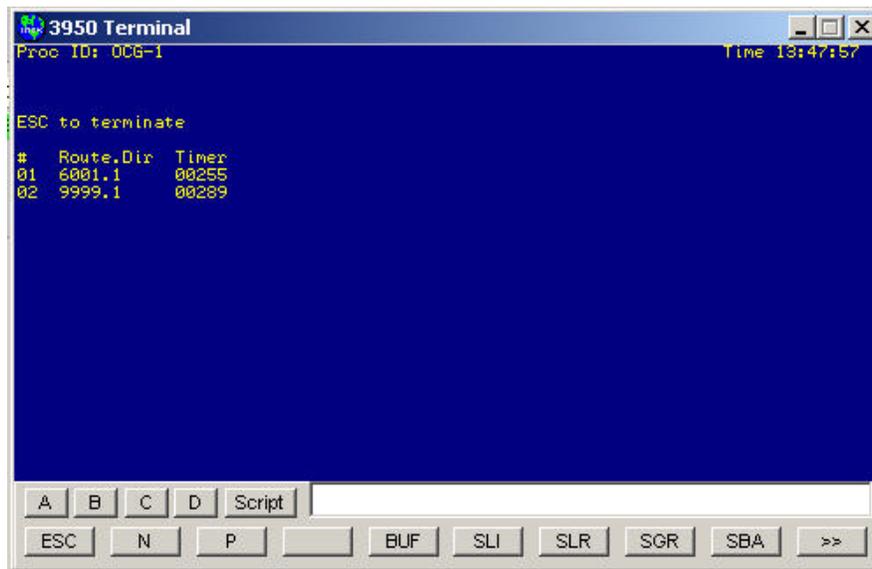
Table 4-9 SROUTES Display Field Descriptions

DISPLAY FIELD	DESCRIPTION
<b>Route</b>	Route ID identifies the routing region assigned to this link. Routing regions include LCT codeline regions and other internal routes used between OCGs/WCCs. The routing region suffix ( I or O ) indicates whether the route is Inbound (from field equipment toward the office) or Outbound.
<b>Dir</b>	This value indicates the direction relative to the office – 0 is outbound, 1 is inbound.
<b>Stby</b>	This value indicates a route is standby (1) or active (0).
<b>Packets</b>	This value indicates the number of packets that have been routed to this route.
<b>Count</b>	Obsolete. No longer used by OCG. Will be deleted in next version.
<b>Chan (Channel)</b>	Obsolete. No longer used by OCG. Will be deleted in next version.
<b>Timer</b>	Obsolete. No longer used by OCG. Will be deleted in next version.

### 4.4.3 SLREQ

The SLREQ command displays information similar to that available using the View/Requests... function (paragraph 4.2.3.3).

This function lists the outstanding route requests. There can be up to 16 outstanding route requests at any given time. The route request will remain in the route request list until the timer times out (5 minutes) or until a device responds with a route update message containing the requested route.



```
3950 Terminal
Proc ID: DCG-1                               Time 13:47:57
ESC to terminate
# Route.Dir  Timer
01 6001.1    00255
02 9999.1    00289
```

**Figure 4-23 SLREQ Command Display (Typical)**

#### 4.4.4 SGROUPS

The SGROUPS command displays information similar to that available using the View/Groups... function (paragraph 4.2.3.5). The display fields are described in Table 4-10.

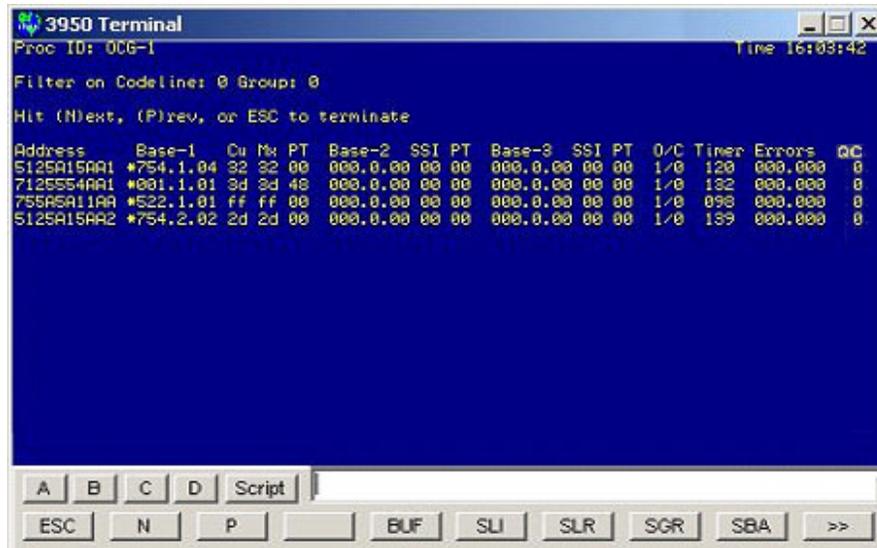


Figure 4-24 SGROUPS Command Display (Typical)

Table 4-10 SGROUPS Command Display (Typical)

DISPLAY FIELD	DESCRIPTION
<b>Address</b>	This is the group ATCS address – type 5 (5.RRR.NN.LLGG) or type 7 (7.RRR.LLL.GGG.SS.DD)
<b>Base-1</b>	This is a BCP or WCM tag (also called circuit ID or pbase) of the primary field device that this group communicates through.  <b>NOTES</b>  1. An asterisk preceding the tag indicates which Base device the OCG is using to send messages out through. 2. A Base tag preceded by an 'L' indicates that the base is locked.
<b>Cu</b>	This is the signal strength of received messages from the Base-1 device.
<b>Mx</b>	This is the maximum signal strength of received messages from all three Base devices.
<b>PT</b>	This is the path type of the link to the Base-1 (primary) device. Two-digit number Identifies a link as follows: <ul style="list-style-type: none"> <li>• Primary (first digit 4)</li> <li>• Secondary (first digit 8)</li> <li>• Base (second digit 5)</li> <li>• WCM (second digit 8)</li> </ul>

DISPLAY FIELD	DESCRIPTION
<b>Base-2, Base-3</b>	<p>These tags and their corresponding SSI and PT entries are for any other Base devices that this group may be communicating through.</p> <p style="text-align: center;"><b><u>NOTES</u></b></p> <ol style="list-style-type: none"> <li>1. An asterisk preceding the tag indicates which Base device the OCG is using to send messages out through.</li> <li>2. A Base tag preceded by an 'L' indicates that the base is locked.</li> </ol>
<b>O/C (Online/Control enable)</b>	<p>The digit to the left of the forward slash (O value) indicates whether or not ATCS messages are being received from the group. 1 = yes, 0 = no</p> <p>The digit to the right of the forward slash (C value) is a status indication of whether or not controls received from an LCT's primary TCP port (which should be communicating with the NGD system) will be sent to this group.</p> <p>1 = controls enabled, 0 = controls not enabled</p>
<b>Timer</b>	<p>This 150-second (2 ½ minute) timer indicates how long it has been since a message was received from the group. If the timer times down to 0 then the group will be considered to be offline.</p>
<b>Errors</b>	<p>The value to the left of the decimal point indicates the number of messages not delivered to the group. Message delivery is retried 5 times and if no response from the group is received, the message is thrown away and the Tx Fail counter is incremented.</p> <p>The value to the right of the decimal point indicates the number of times a message has been retried. If a message is sent to a group but no acknowledgement is received for the L3 retry time (configured in the LCT configuration dialog) – typically 6 seconds – then the message is sent again. The message is resent up to 5 times (see above).</p>
<b>QC</b>	<p>The number of messages waiting to be transmitted on this link. If no queue exists, will display hyphen '-'.</p>

#### 4.4.4.1

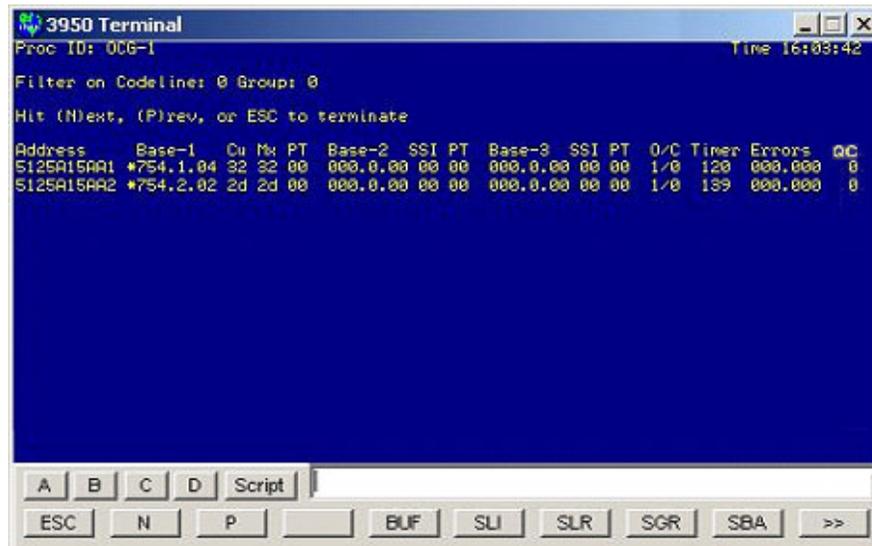
The SGROUPS command takes two filter parameters – line (LLL) and group (GGG). The command structure to enter on the command line is as follows:

Command syntax: SGROUPS <LLL> <GGG>

Where <LLL> is the codeline number and <GGG> is the number of a specific group on the designated codeline.

If LLL is non-zero, then all of the groups on the specified codeline only will be displayed. Figure 4-25 shows all groups on codeline 550.

If LLL is non-zero and GGG is non-zero then a specific group on the specified codeline will be displayed. Figure 4-26 shows group 2 on codeline 550.



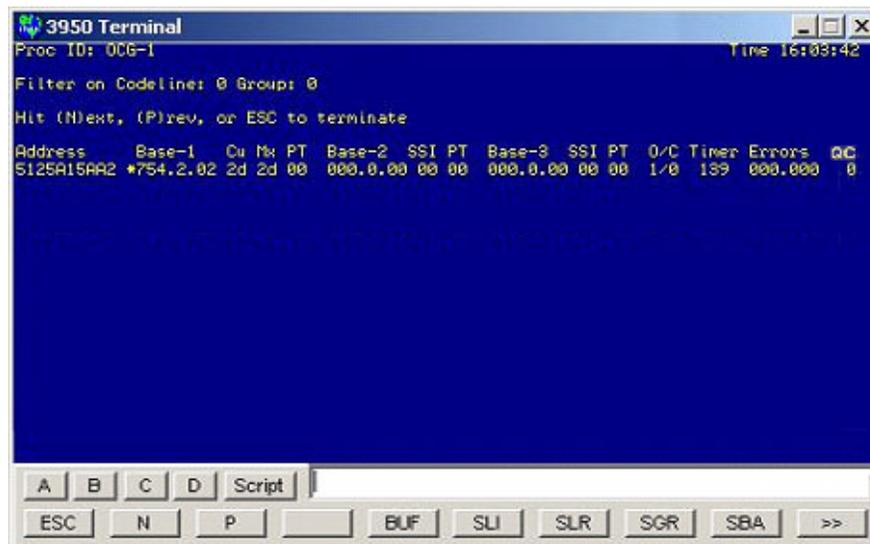
```

3950 Terminal
Proc ID: 006-1                               Time 16:03:42
Filter on Codelines: 0 Group: 0
Hit (N)ext, (P)rev, or ESC to terminate

Address   Base-1  Cu Mx PT  Base-2  SSI PT  Base-3  SSI PT  O/C Timer Errors  QC
5125A15AA1 *754.1.04 32 32 00  000.0.00 00 00  000.0.00 00 00  1/0 120 000.000  0
5125A15AA2 *754.2.02 2d 2d 00  000.0.00 00 00  000.0.00 00 00  1/0 139 000.000  0

```

**Figure 4-25 SGROUPS Command Filtered to Show Line 550 Groups Only**



```

3950 Terminal
Proc ID: 006-1                               Time 16:03:42
Filter on Codelines: 0 Group: 0
Hit (N)ext, (P)rev, or ESC to terminate

Address   Base-1  Cu Mx PT  Base-2  SSI PT  Base-3  SSI PT  O/C Timer Errors  QC
5125A15AA2 *754.2.02 2d 2d 00  000.0.00 00 00  000.0.00 00 00  1/0 139 000.000  0

```

**Figure 4-26 SGROUPS Command Filtered to Show Line 550 Group 2 Only**

#### 4.4.5 MLINK

The MLINK (Modify Link) command allows a user to enable, disable, or remove a link.

Command syntax: MLINK <link number> <cmd>

Where <link number> is the link number displayed in the first column of the SLINKS window and <cmd> is E – enable, D – disable, or R – remove.

An entry is made in the log when this command is executed. Sample entries are shown below.

```
2005/05/17 14:53:15 Link 3 Disabled
2005/05/17 14:53:25 Link 3 Enabled
```

#### 4.4.6 CENABLE

The CENABLE command allows a user to enable or disable controls received via the LCT Primary TCP Socket (NGD).

Command syntax: CENABLE <LLL> <GGG> <cmd>

Where LLL is the codeline number, GGG is the group number, cmd is E for enable or D for disable. When this command is executed the configuration for the LCT is modified and saved.

An entry is made in the log when this command is executed. Sample entries are shown below.

```
2005/05/17 16:01:00 Cenable for 550/1: 1
2005/05/17 16:01:05 Cenable for 550/1: 0
```

#### 4.4.7 SSESSIONS

The SSESSIONS (Show Sessions) command displays session information about all control points and MCPs. A typical SSESSIONS command display is shown in Figure 4-27. The display fields are described in Table 4-11.

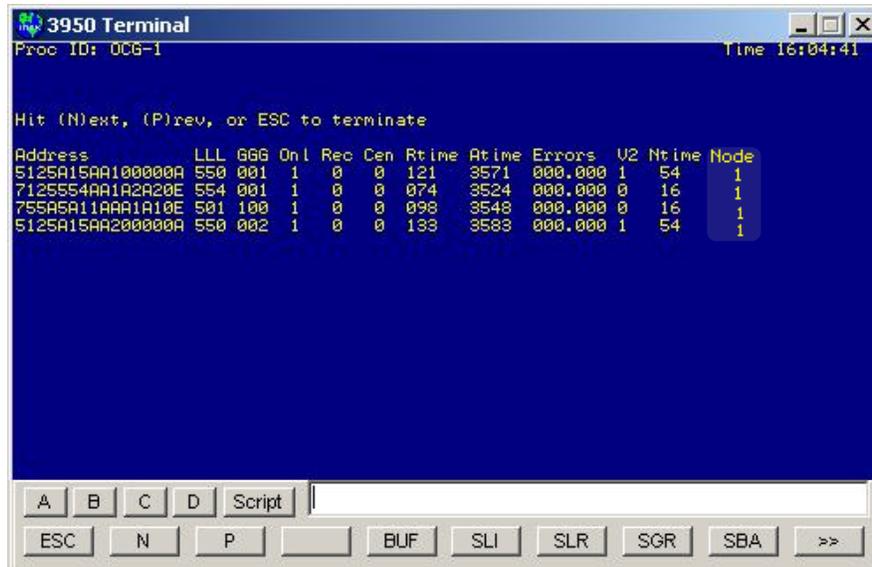


Figure 4-27 SSESSIONS Command Display (Typical)

Table 4-11 SESSIONS Display Field Descriptions

DISPLAY FIELD	DESCRIPTION
<b>Address</b>	The ATCS address.
<b>LLL and GGG</b>	The line and group numbers from the ATCS address – pulling them out makes it easier to find a particular location.
<b>Onl</b>	Indicates online (1) or offline (0).
<b>Rec</b>	Indicates that the recall flag is set (1) or is not set (0). When the recall flag is set and an indication is received, then the indication is sent up to the office whether or not the indication data has changed.
<b>Cen</b>	Indicates controls enabled (1) or disabled (0). These are controls received from the LCT Primary TCP socket (NGD).
<b>Rtime</b>	This is a 150 second (2 ½ minute) timer that will indicate how long it has been since a message was received from the group. If the timer times down to 0 then the group will be considered to be offline.
<b>Atime</b>	This is the session timer. Even if the Rtime timer counts down to zero and the group is considered offline, the information for the session is maintained until the Atime timer times out. This allows tracking for a group that is intermittent.
<b>Errors</b>	The number to the left of the decimal point is the Tx Fail count. The number to the right of the decimal point is the Tx Retry count.
<b>V2</b>	This indicates a version 2 codeline (1) or a non-version 2 codeline (0). See notes below.

DISPLAY FIELD	DESCRIPTION
<b>Ntime</b>	This is the NMS update timer. When this times down to zero a message is sent to the NMS system to provide current information about this group.
<b>Node</b>	Node value used for Type 5 outbound destination address. e.g. 5. <u>RRR</u> . <u>NN</u> . <u>DDDD</u> <div style="text-align: center;">           ↑     ↑     ↑            Railroad Node Device         </div>

**NOTE****NOTE**

Version 2 codelines use the following messages:

- SAFETRAN\_CONTROL\_MSG(2,3,1 – 0x04C1)
- SAFETRAN\_CONTROL\_ACK(2,3,3 – 0x04C3)
- SAFETRAN\_RECALL\_MSG (2,3,5 – 0x04C5)
- SAFETRAN\_INDICATION\_MSG(2,3,2 – 0x04C2)
- SAFETRAN\_INDICATION\_ACK(2,3,4 – 0x04C4)

Non-version 2 codelines use the following messages:

- CODELINE\_CONTROL\_MSG(9,0,1 – 0x1201)
- CODELINE\_RECALL\_MSG(9,1,8 – 0x1248)
- CODELINE\_INDICATION\_MSG(9,2,11 – 0x128B)

**4.4.8 SDS**

The SDS (show Dispatch System) command displays the status of the TCP socket connections to the dispatch system. A typical SDS command display is shown in Figure 4-28. The display fields are described in Table 4-12.

```

3950 Terminal
Proc ID: OCG-1                               Time 15:58:28

Hit (N)ext, (P)rev, or ESC to terminate

Route  Port  A   IP           RPort    Tx      Rx    Err  Timer
550 P  5550  1   010.232.049.045 1484     287    2     0    108
550 S  7550  0
554 P  5554  1   010.232.049.045 1487     281    2     0    116
554 S  7554  0

```

**Figure 4-28 SDS Command Display (Typical)**

**Table 4-12 SDS Display Field Descriptions**

DISPLAY FIELD	DESCRIPTION
<b>Route P / S</b>	Indicates the two TCP server sockets for a given LCT. There is a primary socket and a secondary socket. The two sockets provide different interfaces. The primary socket (P) should normally be used. The secondary socket (S) is a legacy interface that should not be used.
<b>Port</b>	This is the TCP server socket port number.
<b>A (Active)</b>	Indicates an active (1) or inactive (0) connection.
<b>IP</b>	Indicates the IP address of the dispatch system computer.
<b>RPort</b>	Indicates the TCP port number. This is for diagnostic use by Siemens personnel.
<b>Tx and Rx</b>	Indicate the number of ATCS packets sent or received by the OCG over this socket connection.
<b>Err</b>	The number of errors that have occurred while transmitting messages to the dispatch system.
<b>Timer</b>	The disconnect timer value in seconds. See “Dispatch Socket Disconnect Time” in Table 3-1.

#### 4.4.9 MDS

Use the MDS (Modify Dispatch System) command to close a TCP socket which is open to a dispatch system.

Command syntax: MDS PPPP            where PPPP is the TCP server socket port number.

Note that this does not close the TCP *server* socket which would prevent any connections from the dispatch system on that server socket. It merely closes the active socket that was created during the connection process.

Use this command to reset a socket connection that has apparently stopped working properly.

#### 4.4.10 SBASES

There are two displays that the SBASES (Show Bases) command can activate.

1. **SBASES** displays all of the bases and WCMs known by the LCTs (see Figure 4-29). The display fields are described in Table 4-13

```

3950 Terminal
Proc ID: 006-1                               Time 16:06:21

Hit (N)ext, (P)rev, or ESC to terminate

Base      Timer Tx   Rx
754.1.04 (bc84) 00301 00000 00027
001.1.01 (0041) 00135 00000 00021
522.1.01 (8281) 00280 00000 00025
754.2.02 (bc92) 00254 00000 00002

A B C D Script |
ESC N P | BUF SLI SLR SGR SBA >>

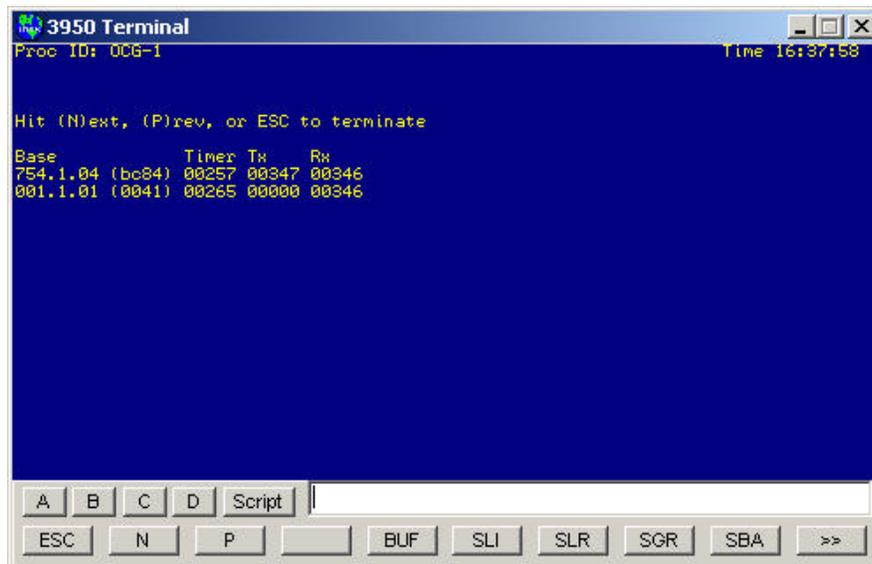
```

**Figure 4-29 SBASES Command Display (Typical for SBASES Command)**

**Table 4-13 SBASES Display Field Descriptions (SBASES Commands)**

DISPLAY FIELD	DESCRIPTION
<b>Base</b>	Is the BCP or WCM tag.
<b>Timer</b>	Indicates how long until the BCP or WCM times out.
<b>Tx</b>	Indicates the number of messages sent.
<b>Rx</b>	Indicates the number of messages received.

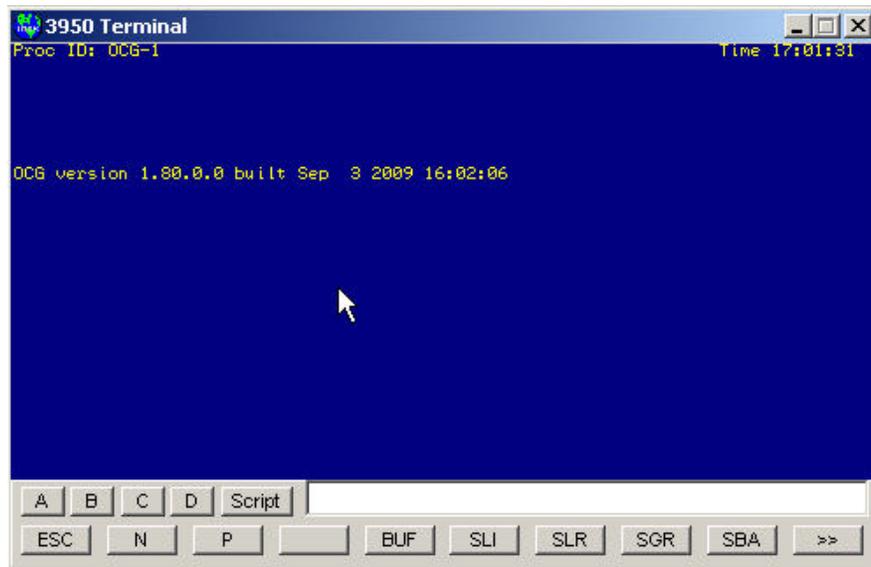
2. **SBASES 6nnn** displays all of the bases for a particular HUB (6nnn is the HUB region ID such as 6754) (see Figure 4-30). The display fields are described in Table 4-14.

**Figure 4-30 SBASES Command Display (Typical for SBASES 6nnn command)****Table 4-14 SBASES Command Display Field Descriptions (SBASES 6nnn command)**

DISPLAY FIELD	DESCRIPTION
<b>Base</b>	This is the BCP tag.
<b>Timer</b>	Indicates how long until the BCP times out.
<b>Tx</b>	Indicates the number of messages sent in the past minute.
<b>Rx</b>	Indicates the number of messages received in the past minute.

#### 4.4.11 VER

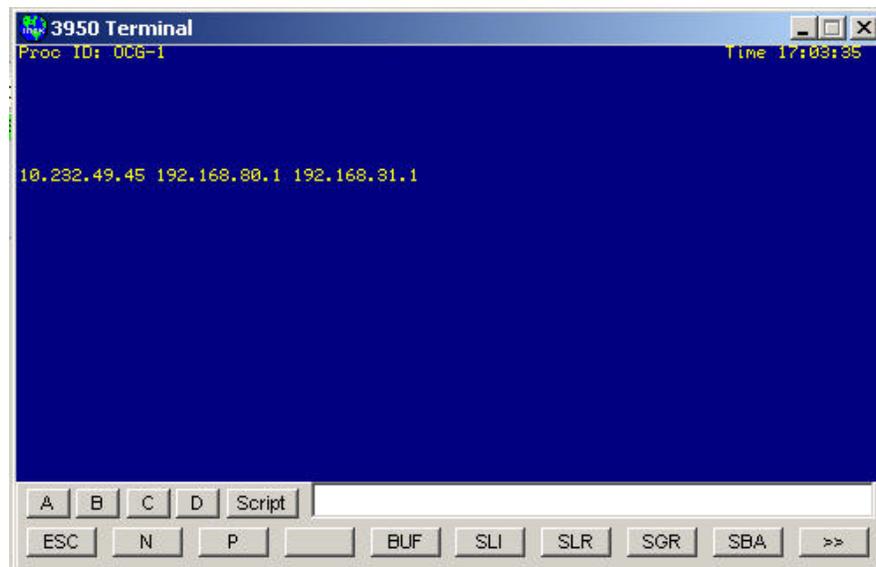
Use the VER command to display the OCG version information (Figure 4-31).



**Figure 4-31 VER Command Display (Typical)**

#### 4.4.12 IP

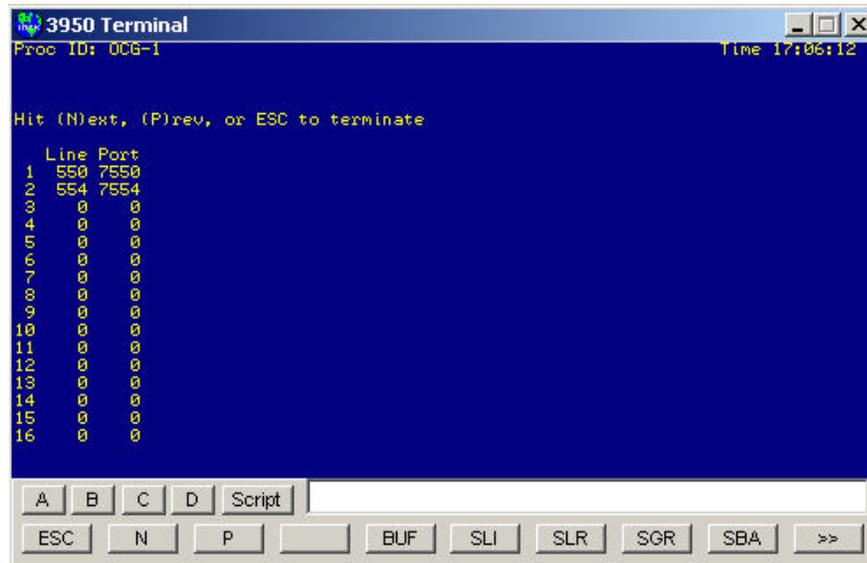
Use the IP command to display the OCG IP address(es) (Figure 4-32).



**Figure 4-32 IP Command Display (Typical)**

#### 4.4.13 SPT

The SPT command displays the Line/Port table for the LCT secondary TCP ports (Figure 4-33). This is a diagnostic command for use by Siemens personnel.



**Figure 4-33 SPT Command Display (Typical)**

#### 4.4.14 DBU

The DBU command displays the dial backup information for the LCTs. This is a diagnostic command for use by Siemens personnel. Sample display information is shown below.

2005/05/18 16:20:43	Line	All	Group	Mode	State	Enable	Counter	Status	Last
2005/05/18 16:20:43	550	N	001	test one	testip1	Y	10	pending	12/30/1899
2005/05/18 16:20:43	550	N	001	test one	testip1	N	0	normal	12/30/1899
2005/05/18 16:20:43	550	N	001	test one	testip1	N	0	normal	12/30/1899

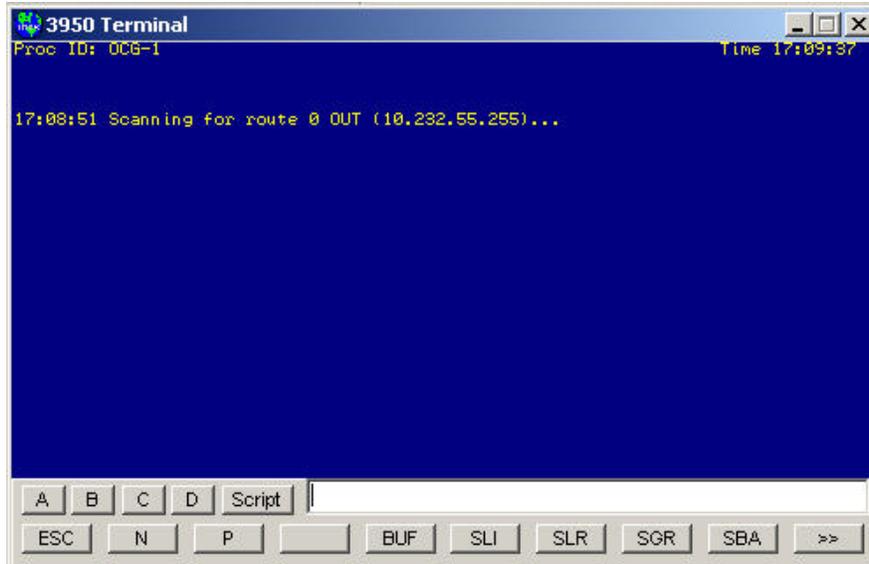
#### 4.4.15 RPING

The RPING (Route Ping) command sends a route request message to the OCG UDP Broadcast address and displays any responses it receives.

Command syntax: RPING rrrr 0/1

Where rrrr is the region ID (such as 5501 or 6724) and 0/1 means outbound/inbound.

For the example in Figure 4-34, the command was RPING 5501 0. A route request for route 5501 outbound was sent to IP address 10.232.55.255 which is a subnet broadcast address. A response was received from 10.232.54.13.



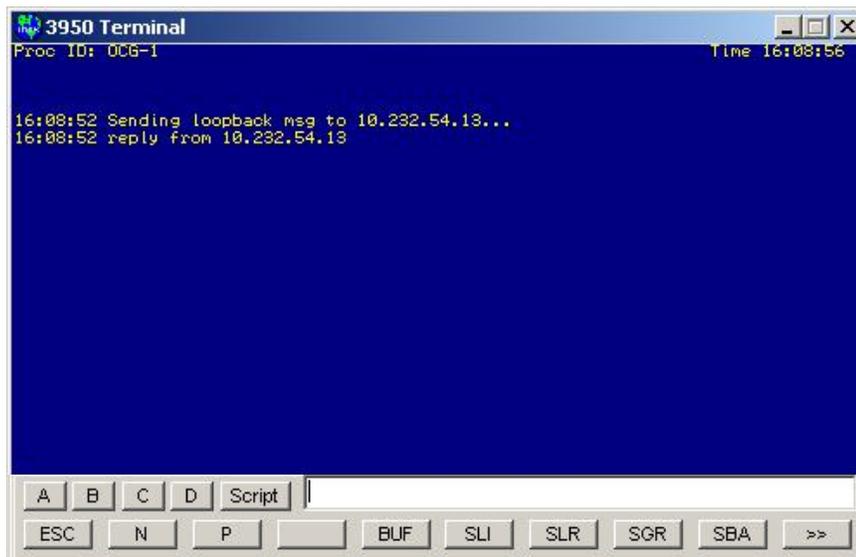
**Figure 4-34 RPING Command Display (Typical)**

#### 4.4.16 LOOPTEST

The LOOPTEST command sends an ATCS loopback message to a specified IP address.

Command syntax is LOOPTEST ip where ip is an IP address.

For the example in Figure 4-35, the command was LOOPTEST 10.232.54.13 and a response was received.



**Figure 4-35 LOOPTEST Command Display (Typical)**

#### 4.4.17 VERB

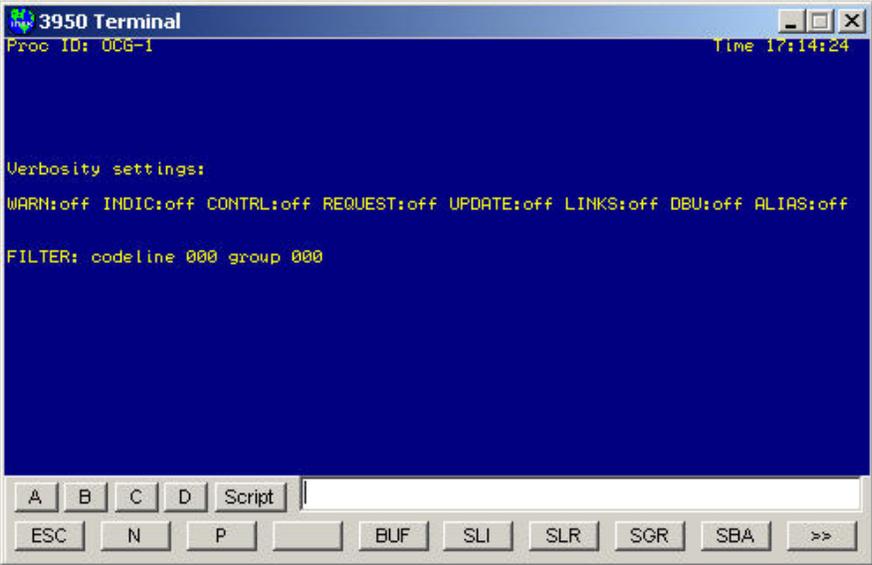
The VERB command is used to set the verbosity level for the OCG log. Because the OCG can run so many FEPs it can be difficult to find a particular type of log entry. The VERB command allows a user to select what type of log entries are displayed in the log. Some log entries are not controlled by this command as they are deemed important enough to always be shown.

The VERB command syntax is: VERB verb\_type: setting  
OR  
VERB FILTER LLL GGG

Where verb\_type is WARN, INDIC, CONTROL, REQUEST, UPDATE, LINKS, DBU or ALIAS  
setting is 'on' or 'off', LLL is line, and GGG is group.

(WARN = warnings, INDIC = indications, CONTROL = controls and recalls, REQUEST = route requests, UPDATE = route updates, LINKS = link manager messages, and DBU = dial back up ALIAS = group alias.)

The FILTER can be used to view only a particular line or a particular group on a line. To restore viewing all lines and groups set LLL and GGG to 0 (Figure 4-36).



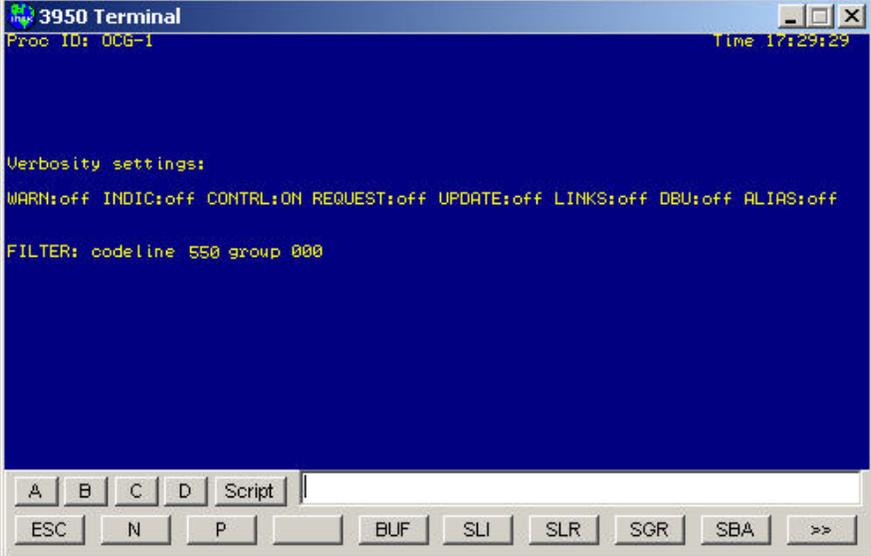
```
3950 Terminal
Proc ID: OCG-1                               Time 17:14:24

Verbosity settings:
WARN:off INDIC:off CONTRL:off REQUEST:off UPDATE:off LINKS:off DBU:off ALIAS:off

FILTER: codeline 000 group 000
```

**Figure 4-36 VERB Command to View All Lines and Groups**

The command example in Figure 4-37 sets the verbosity to allow controls for all groups on codeline 550 to be displayed in the log.



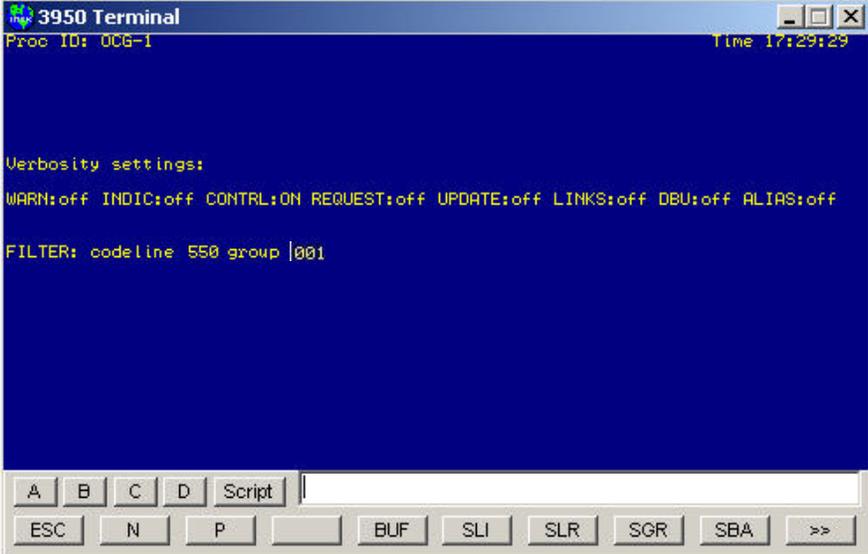
```
3950 Terminal
Proc ID: OCG-1                               Time 17:29:29

Verbosity settings:
WARN:off INDIC:off CONTRL:ON REQUEST:off UPDATE:off LINKS:off DBU:off ALIAS:off

FILTER: codeline 550 group 000
```

**Figure 4-37 VERB Command to View Controls for All Groups on Codeline 550**

The example in Figure 4-38 sets the verbosity to allow controls for group 1 on codeline 550 to be displayed in the log.



```
3950 Terminal
Proc ID: OCG-1                               Time 17:29:29

Verbosity settings:
WARN:off INDIC:off CONTRL:ON REQUEST:off UPDATE:off LINKS:off DBU:off ALIAS:off

FILTER: codeline 550 group |001
```

**Figure 4-38 VERB Command to View Controls for Group 1 on Codeline 550**

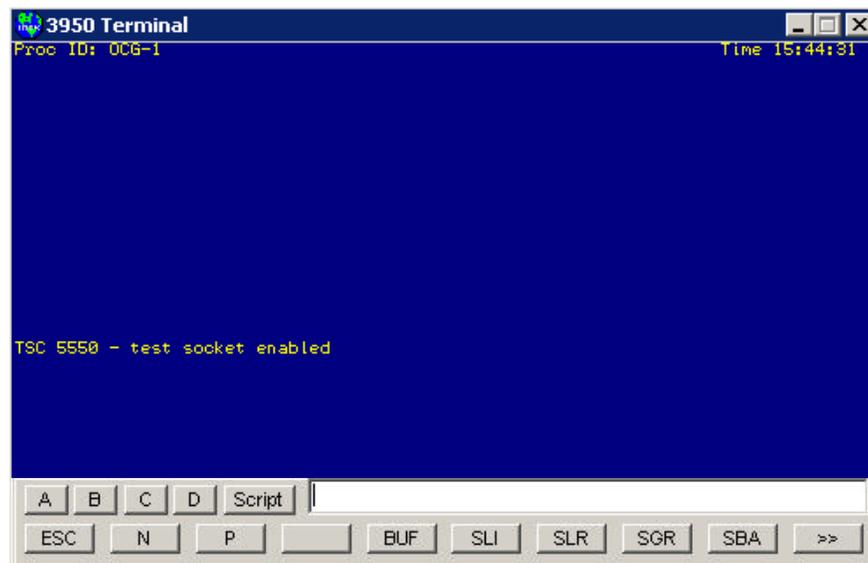
#### 4.4.18 TSETSE

The TSE command (Test Socket Enable) controls the LCT Test Socket function. When an LCT is put into this test mode, an additional client connection is allowed on the primary NGD socket. This second client connection is specifically used for a test server to temporarily control one or more groups on the LCT for testing. When a group is being tested by the test server, it cannot be controlled by the primary NGD server (see Appendix B for further details on the test mode).

TSE command syntax: TSE <LCT number> <command>

Where <LCT number> is the codeline that is to be tested (e.g., 5550) and <command> is one of the following three commands:

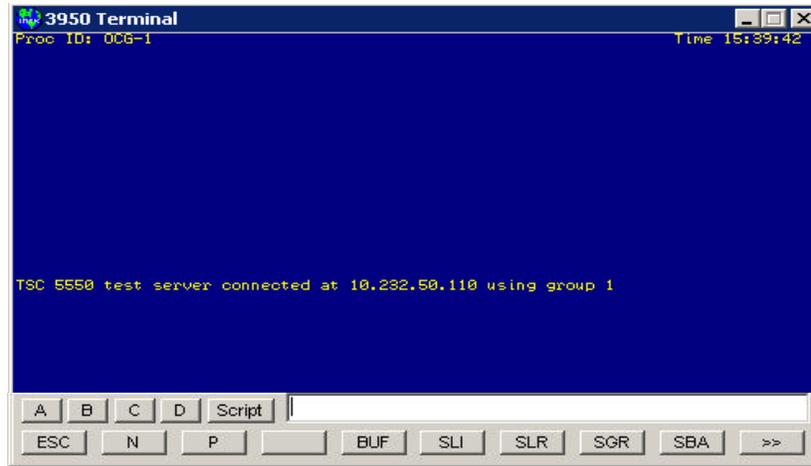
**ENABLE** - Start the test mode by enabling the second (test) client connection to the primary TCP socket (Figure 4-39). When test mode is invoked, OCG will allow a second connection to the LCT socket and make the assumption that this second connection is to a test server. If no second connection takes place for 10 minutes, OCG will cancel test mode automatically. If TSE is invoked with no command parameter, ENABLE is assumed.



**Figure 4-39 Terminal Screen After “TCS TSE 5550 ENABLED” Entered**

**DISABLE** - This will cancel test mode. If there is a current connection to the test server, it will be disconnected.

**STATUS** – This will report the status of the test server (if connected) and which groups, if any, are currently preempted (Figure 4-40). The status display is static and the STATUS command must be reentered if additional groups are preempted.



**Figure 4-40 Terminal Screen with Result of STATUS STATUS Command**

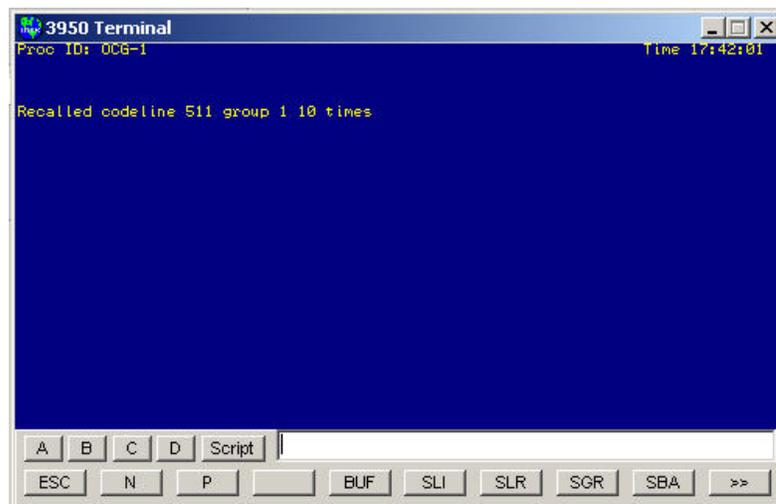
#### 4.4.19 RTEST

The RTEST (Recall Test) command sends an ATCS Recall message to the line and group specified. There must be a link to the group for a recall message to be sent. If the group is not in the group list for this OCG then the OCG will not know how to send the recall message to the group and it will not be sent.

Command syntax: RTEST line group number.

Where line is the codeline (LLL), group is the group (GGG) and number is the number of recall messages to send.

Example: RTEST 511 1 10 (Send 10 recall messages to Codeline 511, group 1 - Figure 4-41 Terminal Screen with Result of RTEST Command)



**Figure 4-41 Terminal Screen with Result of RTEST Command**

#### 4.4.20 ALIAS

The ALIAS command lists the Alias table for the OCG.

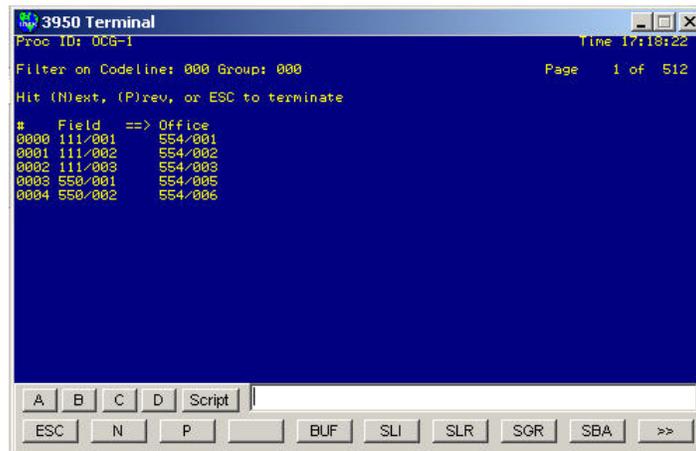
Command syntax: ALIAS [LLL] [GGG]

Examples:

ALIAS (lists the whole table - Figure 4-41)

ALIAS 111 (lists the table for line 111 - Figure 4-42)

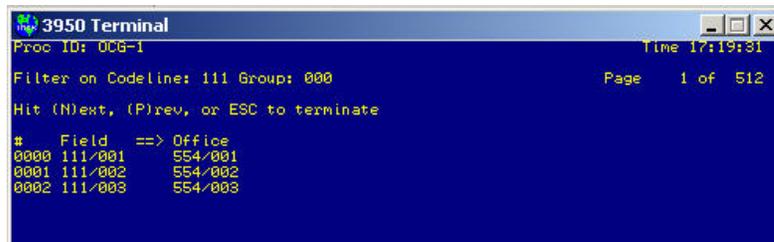
ALIAS 111 001 (lists the table for line 111 group 001 - Figure 4-43)



```
3950 Terminal
Proc ID: OCG-1                               Time 17:19:22
Filter on Codeline: 000 Group: 000           Page 1 of 512
Hit (N)ext, (P)rev, or ESC to terminate

# Field ==> Office
0000 111/001 554/001
0001 111/002 554/002
0002 111/003 554/003
0003 550/001 554/005
0004 550/002 554/006
```

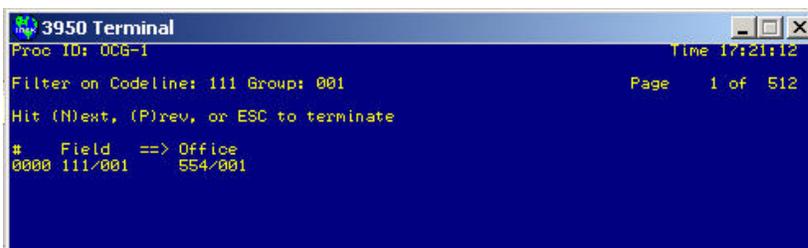
Figure 4-42 Terminal Screen with Result of ALIAS Command



```
3950 Terminal
Proc ID: OCG-1                               Time 17:19:31
Filter on Codeline: 111 Group: 000           Page 1 of 512
Hit (N)ext, (P)rev, or ESC to terminate

# Field ==> Office
0000 111/001 554/001
0001 111/002 554/002
0002 111/003 554/003
```

Figure 4-43 Terminal Screen with Result of ALIAS 111 Command



```
3950 Terminal
Proc ID: OCG-1                               Time 17:21:12
Filter on Codeline: 111 Group: 001           Page 1 of 512
Hit (N)ext, (P)rev, or ESC to terminate

# Field ==> Office
0000 111/001 554/001
```

Figure 4-44 Terminal Screen with Result of ALIAS 111 001 Command

#### 4.4.21 CTEST

The CTEST (Control Test) command sends an ATCS Control message to the line and group specified. There must be a link to the group for a control message to be sent. If the group is not in the group list for this OCG then the OCG will not know how to send the control message to the group and it will not be sent.

Command syntax: CTEST line group data

Where line is the codeline (LLL), group is the group (GGG) and data is the control data to send.

Example:

```
CTEST 511 1 00 01 00 3f 00
```

Send a control message to Codeline 511, group 1 with control data '00 01 00 3f 00' (**Error! Reference source not found.**).

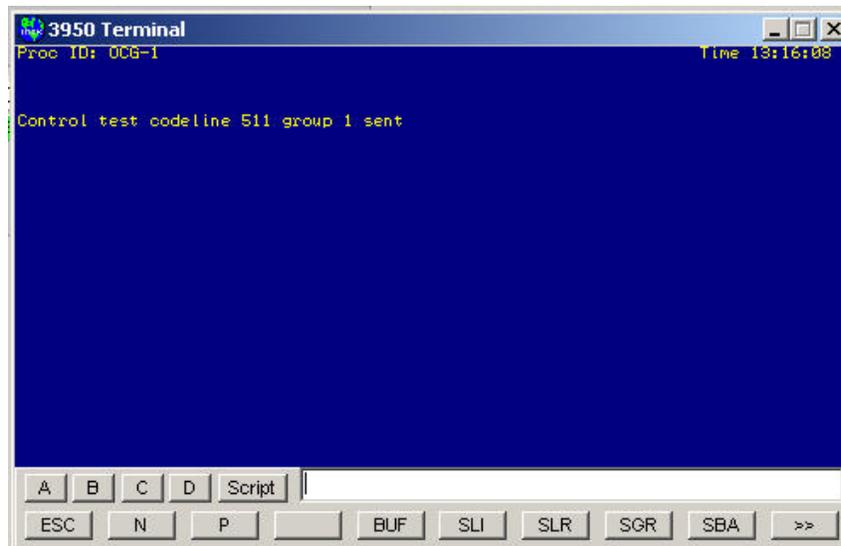


Figure 4-45 Terminal Screen with Result of CTEST 511 1 Command

#### 4.4.22 MPT

**NOTE****NOTE**

This is an advanced command available for troubleshooting with the assistance of Siemens personnel.

The MPT (Message Process Threshold) command sets a new value for the Message Process Threshold value. If the number of packets on the queue to be processed by the message handler goes over this value then the OCG will stop and delete the current message handler process and create and start a new one.

Command syntax: MPT [value]

Where value is the number of messages allowed before restarted the message processor. If value is not entered then the current value is displayed.

Default value = 1000.

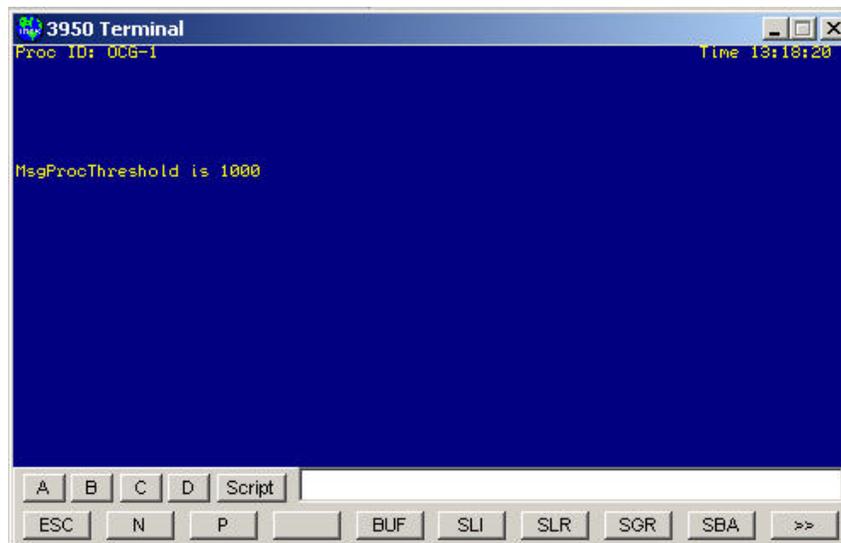
Example:

MPT 1000

Sets the message process threshold value to 1000 messages (Figure 4-46).

MPT

MsgProcThreshold is 1000



**Figure 4-46 Terminal Screen with Result of MPT Command**

## 4.5 Log Files

The primary purpose for log files is to store information used to diagnose problems.

Log files cover a 24 hour period starting at midnight. The OCG will open a log file when it is started and then close the log file at midnight and open a new log file with a new name. A log file is also closed when the OCG is shut down.

Log files are named "OCGDDDD YYYY MM DD.log" and are created in the same directory as the OCG executable. DDDD is the last four digits (the device portion) of the OCG's ATCS address.

Log messages are listed in Appendix A.

Log files can optionally be compressed and stored in a specified directory at the end of the day.

Configuration is specified in the OCG ini file as follows:

In the [Program Options] section, the "CompressLogFile" entry enables or disables this feature, and the "ArchiveFolder" entry specifies the directory file path in which to place the compressed file.

Example: (OCG.ini)

```
[Program Options]
CompressLogFile=true
ArchiveFolder=C:\Safetran\OCG\logarchive\
```

**NOTE:** In the ArchiveFolder file path, the trailing back slash (\) is required.

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## SECTION 5

# BASIC TROUBLESHOOTING

## 5 BASIC TROUBLESHOOTING

### 5.1 Overview

This section covers basic troubleshooting of the OCG application. It provides a framework on which to build.

### 5.2 Links

The OCG sends and receives messages via *links* to and from other devices such as bases, WCMs, other OCGs, the dispatch system, and the network management system (Aserver/WCCMaint).

How links are established, used and dropped is the key to troubleshooting the OCG. If a link is not in place then messages will not flow properly – so verifying that the proper links are in place is often the first step in diagnosing a problem.

Once a user has verified that the proper links are in place established, the next step is to trace messages to see that they are indeed flowing through the system as expected.

There are two types of links:

- the UDP link to office and field devices
- the TCP link to the dispatch system

#### 5.2.1 Establishing UDP Links

When the OCG receives a message, it has to determine where to send it. Once it determines where to send the message it checks to see if that destination is local (inside the OCG) or external (to an office or field device). If the destination is local, the OCG handles the messages without looking at links. If the destination is external, the OCG looks through the link table to see if there is a link already established to the external device.

If there is no link established, the OCG broadcasts a route request message to all devices. When the device that is handling that route receives the route request message, it will send a route update message to the OCG indicating that it is the device handling that route. At this point a link table entry is created for the link.

The link table entry contains the IP address of the device, the route ID, and the tag (also called pbase or circuit ID) for that link. When the OCG needs to send a message via that route or tag, it will find the link and know what IP address to send the message to.

To summarize how a link is established – the OCG broadcasts a route request message, gets a route update message back from the correct device and makes a new entry in the link table. Each entry is called a link.

### **5.2.2 Establishing TCP Links**

These links are established by the dispatch system. The OCG LCTs have TCP server sockets waiting for the dispatch system to request a TCP socket connection. The dispatch system uses the same route request/route update mechanism as described above to learn which OCG is handling a certain codeline.

The dispatch system broadcasts a route request message to all OCGs (other devices may receive the message but should ignore them). The OCG that is handling a certain route will send a route update message back to the dispatch system. Now the dispatch system knows the IP address of the OCG and establishes a TCP socket connection with the OCG.

The OCG keeps session information about this TCP socket connection such as the IP address of the dispatch system and the number of packets transmitted and received.

### **5.2.3 Using Links**

Use the show links (SLINKS) remote command to see all the UDP links and use the show dispatch system (SDS) remote command to see all the TCP sockets links. These commands will show link activity – when messages are transmitted or received.

### **5.2.4 Dropping UDP Links**

When the timer shown in the SLINKS command gets close to timing out (~30 seconds left), the OCG will broadcast a route request message to all devices. If it gets a response (route update message) from the same IP address then the timer is reset to 5 minutes (300 seconds). If it does not get a response, then it tries twice more. If it still doesn't get a response the link is timed out and removed from the link table. The link has been dropped.

### **5.2.5**

TCP links are normally dropped by the dispatch system. There is also a remote command (MDS) that can be used to force the link to drop.

### 5.3 Tracing Messages

Once links are established, a user can move on to tracing messages through the system because the user now knows where the messages should be going. Follow messages from field devices into the OCG LCT (via a HUB if it's a radio codeline). Then watch the messages go from the OCG LCT to the dispatch system. Watch messages go in the other direction as well.

The VERB (verbosity) command can be useful in tracing the controls and indications that a user is interested in. Use VERB INDIC ON to show only indication messages in the OCG log. Use VERB CONTROL ON to show only control messages in the OCG log. Use VERB FILTER LLL GGG to show only messages from a particular codeline (LLL) and/or group (GGG). Set GGG to 0 to display all groups on a codeline.

The checkboxes at the top of the OCG Log window can also be used to enable tracing.

### 5.4 Miscellaneous

If controls are not being sent to the field, check to see if controls are enabled in the LCT configuration first. The control enable checkbox applies to dispatch systems only connected on the primary TCP port only.

Do not put more than one FEP with the same region ID online at the same time. For example don't put LCT 5123 online on two different OCGs at the same time, or don't have LCT 5123 online on an OCG and LCT 5123 online on a WCC at the same time.

Be sure that each OCG has a unique ATCS address.

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## APPENDIX A LOG MESSAGES

### APPENDIX A LOG MESSAGES

#### A.1 Log Message Format

The format for log messages is:

*YYYY/MM/DD HH:MM:SS Message*

Where YYYY is the year, MM is the month, DD is the day, HH is the hour, MM is the minute, SS is the seconds and *Message* is the content of the message.

Example:

```
2005/01/25 09:22:15 OCG log file created
```

#### A.2 Messages

##### **Added HUB LLL squitters:n standby:n cluster\_lct:n**

A HUB has been added to the OCG. It will handle region 6LLL. A few of the configuration items are also listed for diagnostic purposes.

##### **A04: HLLL BCP LLL.n.nn down**

HUB message indicating that base LLL.n.nn has timed out (3 minutes).

##### **B04: Base LLL.n.nn added**

LCT message indicating that base LLL.n.nn has been newly discovered and added to the base table.

##### **B04: Group LLL/GGG offline**

LCT message indicating that group (GGG) on line (LLL) has timed out (5 minutes) but is not removed from the group table until it hasn't been heard from for 1 hour. There is no message logged when a group is removed from the base table.

##### **B04: Group LLL/GGG online via IP nnn.nnn.nnn.nnn**

LCT message indicating that group (GGG) on line (LLL) has been newly discovered. The IP address of the device that the message was received from is included for diagnostic purposes.

##### **B04: HLLL BCP LLL.n.nn (xxxx) recovered**

HUB message indicating that base LLL.n.nn has been newly discovered and added to the base table.

**BaseL3: deleted timed out base 3125a35aa4**

HUB message indicating that a base has timed out and has been deleted from the internal table of bases.

**BaseL3: added base 3125a35aa4**

HUB message indicating that a base has been added to the internal table of bases

**DBU: LLL/GGG dbu on codefail disabled**

The LCT group (GGG) on line (LLL) has timed out and gone into codefail. The automatic dial backup process attempted to start but did not because the group is not configured to start the dial backup process on codefail in the LCT configuration.

**Found ASERVER**

A link to Aserver has been established.

**Ground Contact LLL/GGG:**

A ground contact message (REQUEST\_MCP\_RESET\_MSG) has been received from the MCP for group (GGG) on line (LLL).

**HLLL HUB Controller ACTIVE**

HUB 6LLL has been placed in active mode.

**HLLL HUB Controller STANDBY**

HUB 6LLL has been placed in standby mode.

**I08: HLLL HUB Controller initialized**

HUB 6LLL has been initialized.

**Joined multicast group n.n.n.n with ttl = 16**

The OCG application has joined the configured multicast group where n.n.n.n is the multicast IP address (224.5.6.7 for example) and ttl is time to live value which is always 16.

**L3 Inbound Retry LLL/GGG: seq n1 ch\_group n2**

The LCT ATCS layer 3 processor has detected that a packet from group (GGG) on line (LLL) has been resent. The ATCS transmit/send sequence number (n1) and channel group (n2) are displayed for diagnostic purposes. This is different from a duplicate packet.

For radio lines, a packet may be sent by a control point and received by more than one base. Each base will forward the packet to the LCT on the OCG. The OCG assumes that each packet is a duplicate of the first one received if it is received within 3 seconds of the first packet. If it is received after 3 seconds has passed then it is assumed that the control point has resent the packet.

**L3 Indicate update LLL/GGG: xx ... xx**

The LCT has received an indication message from group (GGG) on line (LLL). The indication message will be sent up to the office either because the state data has changed or because the office has asked for it via a recall message. The indication data bytes are displayed in hex for diagnostic purposes.

**L4 Duplicate Msg LLL/GGG: num n1 part n2**

The LCT ATCS layer 4 processor has detected a duplicate message from group (GGG) on line (LLL). The ATCS layer 4 message number (n1) and part (n2) are displayed for diagnostic purposes.

**Lnnn LCT created NGD server port pppp**

LCT Lnnn has created a server socket for NGD messages on TCP port pppp.

**Lnnn LCT Controller ACTIVE**

LCT Lnnn has been placed in active mode.

**Lnnn LCT Controller STANDBY**

LCT Lnnn has been placed in standby mode.

**LCT created PS server port pppp**

LCT Lnnn has created a server socket for CAD messages on TCP port pppp. CAD messages flow through a WCE (aka Packet Switch) hence the term PS.

**LCT line port table Lnnn/Ppppp**

LCT has mapped the CAD server socket TCP port Ppppp to Line Lnnn. WCEs have a limited number of sockets available so one CAD server socket may be used by many LCTs to interface with one WCE.

**Link entry n/256 to IP nnn.nnn.nnn.nnn id RRRR (dir) timed out**

A link entry in the OCG has timed out (5 minutes). The link number (n) out of the max number of entries (256), the IP address, the region ID (RRRR) and the direction (dir) IN or OUT referenced to the office are displayed for diagnostic purposes.

**Local Indications Flushed**

The local copy of indications that is kept by the LCT has been flushed.

**No link found for route RRRR (dir) tag xxxxxxxx label xxxx**

The OCG is trying to route a message to route RRRR and is unable to find a route in the route table or in the link table. The direction (dir) is IN or OUT referenced to the office. The tag is useful only to Siemens personnel. The label is the ATCS message label.

### **OCG configuration modified**

The OCG configuration has been modified. This occurs whenever the configuration is modified – locally or remotely.

### **OCG log file created**

The OCG log file has been created by the OCG application. This occurs when the OCG application has been started and no log file exists. In addition, new log files are created daily at midnight. The current log file is closed and then a new log file is created and opened.

### **OCG log file opened. Version n.n.n.n built Mmm dd yyyy hh:mm:ss**

The OCG log file has been opened. This occurs when the OCG application starts or after a new log file has been created. The OCG application version and build date and time are also placed in the log.

### **OCG status changed to ONLINE**

OCG has been placed online as opposed to offline.

## APPENDIX B TEST MODE FOR OCG LCTS

### APPENDIX B TEST MODE FOR OCG LCTS

#### B.1 Overview

OCG provides a special test mode for use in association with LCTs. The purpose of the test mode is to allow a second connection to the LCT's primary TCP socket, a condition that is not allowed under normal circumstances.

When the test mode is invoked, OCG establishes the following set of conditions:

- A second TCP client connection to the primary LCT TCP socket is allowed
- The second connection is assumed to be to a test server
- Any traffic generated to a field group by the test server will preempt the group
- Outbound traffic to preempted groups will only be allowed if originating from the test server
- Preempted groups are returned to the control of the primary server only when the test mode is terminated

Test mode allows testing and cutover of individual groups on a codeline, and the removal (preemption) of certain groups on a 'live' codeline. Control of test mode is via OCG terminal commands executed from WCCMaint.

#### B.2 Test Mode Commands Structure

The command to launch test mode is Test Socket Control (TSC).

Command syntax is: TSC <codeline number> <command>

Where <codeline number> is the LCT region number (5xxx), which is also the TCP socket number used by NGD and the Test Server, and <command> is one of the following:

- ENABLE - Starts test mode
- DISABLE - Ends test mode
- STATUS - Displays test status

If TSC is invoked with no command, ENABLE is assumed.

#### B.3 Basic Test Mode Operation

Once the test mode is enabled, OCG will allow a second connection to the LCT TCP socket. If no connection is made within 10 minutes, OCG will cancel test mode automatically. In the following example, test mode is established on codeline 5550.

In WCCMaint, open a terminal window to the OCG and enter **TSC 5550 EN** to begin test mode.

**NOTE****NOTE**

Once test mode is invoked, any subsequent connection to the LCT socket will be considered to be from a test server, regardless of its source. **It is up to the user to ensure that test mode connections are coordinated and controlled to prevent a second (primary) NGD server from connecting at the wrong time.**

With test mode enabled, the test server may be brought online. Once connected, the test server may begin testing on any desired group. When the test server connects to a group with an L4 SYNC, the group under test is considered preempted and now 'belongs' to the test server exclusively.

When a group is preempted, OCG sends a CODELINE\_STATION\_STATUS message to the primary (NGD) server to indicate the group is offline. From this point on, the primary server will not be able to send any outbound messages to the group.

A preempted group is under the full control of the test server. The test server may preempt as many groups as necessary, and **once preempted, groups cannot be released back to the primary server.**

**NOTE****NOTE**

The only way to restore a group to the control of the primary server is to terminate the test mode altogether.

Once the test server has established the TCP socket to the LCT, test mode will continue indefinitely until terminated either by dropping the test server TCP connection or by using the TSC terminal DISABLE command.

At any time during the test cycle, entering the command **TSC 5550 ST** will return the current status of the test server and any preempted groups. A typical test server status message is shown below.

**TSC 5550 test server connected at 10.245.55.132 using groups 1,4,5,17**

This is a one-time display and does not update dynamically.

### B.3.1 Test Mode Termination

Test mode is normally terminated in either of two ways:

1. By terminal command in WCCMaint (TSC 5550 DISABLE)
2. By dropping the TCP client connection at the test server

The test will naturally terminate if the LCT process or the OCG itself is terminated. In addition, should the primary NGD connection drop for any reason while test mode is active, OCG no longer has the ability to discern test connections from legitimate connections, and will therefore terminate the test mode, dropping ALL TCP connections to the LCT. The LCT socket is then immediately available for connection; however, the first connection will be assumed to be that of the primary NGD server. **It is up to the user to enforce coordination between NGD and test servers should this scenario occur.**

### B.3.2 Establishing a Test Connection

In the following example, OCG 3950 is running LCT 5550 and Group 1 is to be tested.

1. To begin test mode, open a terminal window to the OCG and enter **TSC 5550 EN** (Figure B-1).

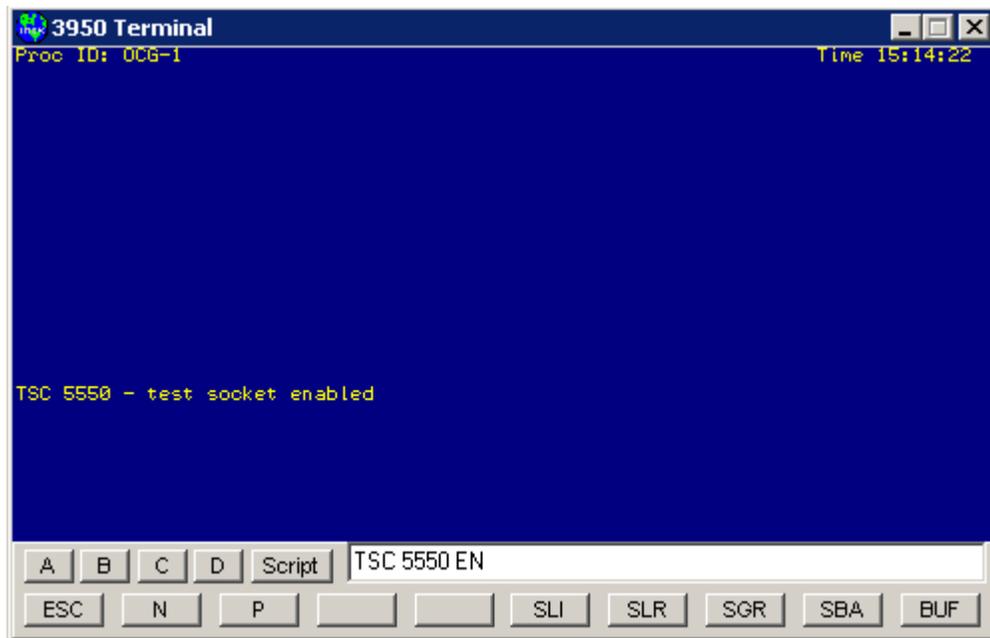


Figure B-1 Terminal Display with TSC 5550 Enabled

2. Once the test mode is enabled, the second (test) TCP connection may be established (Figure B-2)

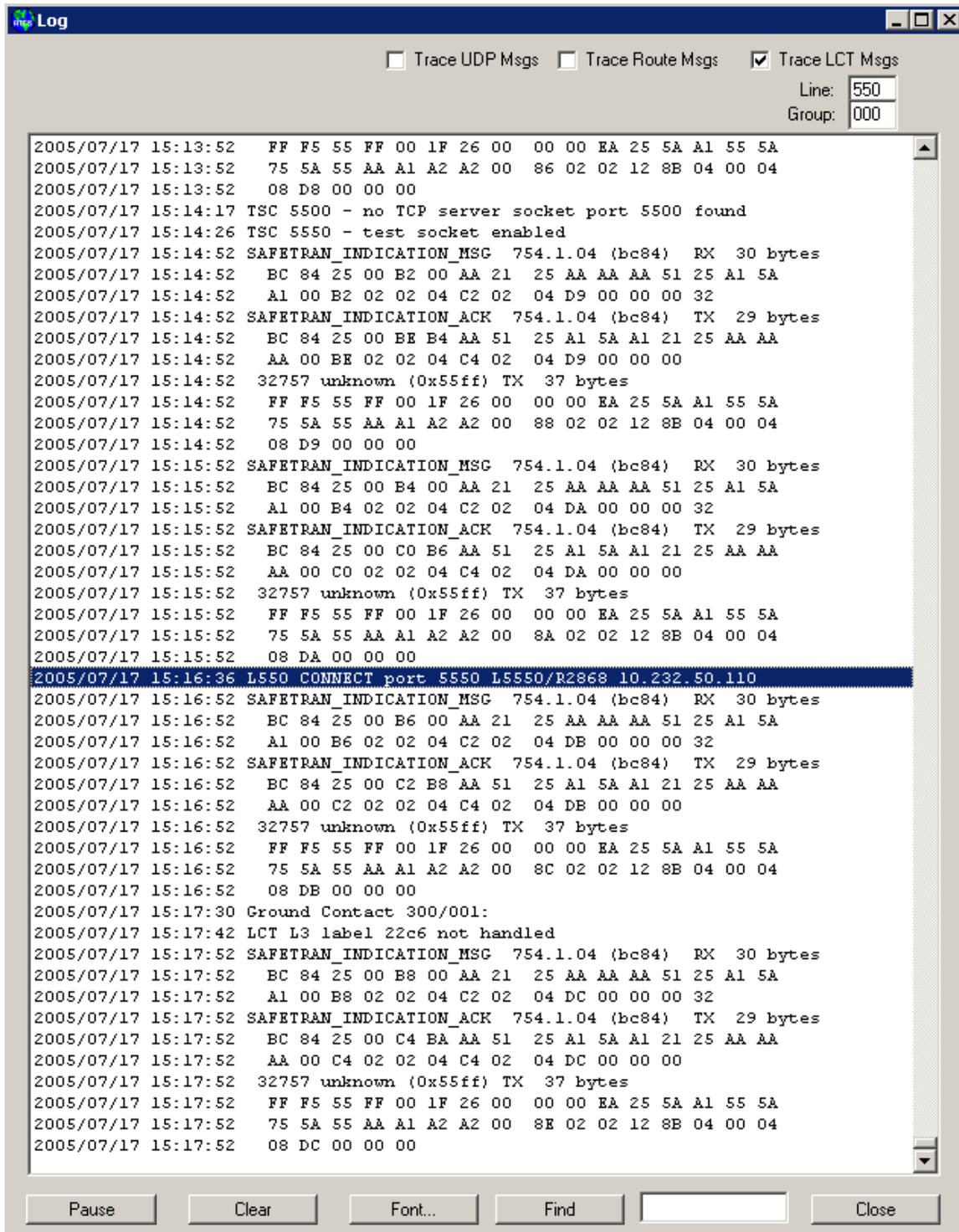


Figure B-2 Trace LCT Message Log Display

3. Figure B-3 shows the status of a group that has been preempted.

```

Log
Trace UDP Msgs Trace Route Msgs Trace LCT Msgs
Line: 550
Group: 000

2005/07/17 15:17:52 SAFETRAN_INDICATION_ACK 754.1.04 (bc84) TX 29 bytes
2005/07/17 15:17:52 BC 84 25 00 C4 BA AA 51 25 A1 5A A1 21 25 AA AA
2005/07/17 15:17:52 AA 00 C4 02 02 04 C4 02 04 DC 00 00 00
2005/07/17 15:17:52 32757 unknown (0x55ff) TX 37 bytes
2005/07/17 15:17:52 FF F5 55 FF 00 1F 26 00 00 00 EA 25 5A A1 55 5A
2005/07/17 15:17:52 75 5A 55 AA A1 A2 A2 00 8E 02 02 12 8B 04 00 04
2005/07/17 15:17:52 08 DC 00 00 00
2005/07/17 15:18:52 SAFETRAN_INDICATION_MSG 754.1.04 (bc84) RX 30 bytes
2005/07/17 15:18:52 BC 84 25 00 BA 00 AA 21 25 AA AA AA 51 25 A1 5A
2005/07/17 15:18:52 A1 00 BA 02 02 04 C2 02 04 DD 00 00 00 32
2005/07/17 15:18:52 SAFETRAN_INDICATION_ACK 754.1.04 (bc84) TX 29 bytes
2005/07/17 15:18:52 BC 84 25 00 C6 BC AA 51 25 A1 5A A1 21 25 AA AA
2005/07/17 15:18:52 AA 00 C6 02 02 04 C4 02 04 DD 00 00 00
2005/07/17 15:18:52 32757 unknown (0x55ff) TX 37 bytes
2005/07/17 15:18:52 FF F5 55 FF 00 1F 26 00 00 00 EA 25 5A A1 55 5A
2005/07/17 15:18:52 75 5A 55 AA A1 A2 A2 00 90 02 02 12 8B 04 00 04
2005/07/17 15:18:52 08 DD 00 00 00
2005/07/17 15:19:52 SAFETRAN_INDICATION_MSG 754.1.04 (bc84) RX 30 bytes
2005/07/17 15:19:52 BC 84 25 00 BC 00 AA 21 25 AA AA AA 51 25 A1 5A
2005/07/17 15:19:52 A1 00 BC 02 02 04 C2 02 04 DE 00 00 00 32
2005/07/17 15:19:52 SAFETRAN_INDICATION_ACK 754.1.04 (bc84) TX 29 bytes
2005/07/17 15:19:52 BC 84 25 00 C8 BE AA 51 25 A1 5A A1 21 25 AA AA
2005/07/17 15:19:52 AA 00 C8 02 02 04 C4 02 04 DE 00 00 00
2005/07/17 15:19:52 32757 unknown (0x55ff) TX 37 bytes
2005/07/17 15:19:52 FF F5 55 FF 00 1F 26 00 00 00 EA 25 5A A1 55 5A
2005/07/17 15:19:52 75 5A 55 AA A1 A2 A2 00 92 02 02 12 8B 04 00 04
2005/07/17 15:19:52 08 DE 00 00 00
2005/07/17 15:20:46 010.232.050.110 0000 unknown (0x2600) RX 29 bytes
2005/07/17 15:20:46 00 00 26 00 00 00 AE 75 5A 55 AA A1 A2 A2 25 5A
2005/07/17 15:20:46 A1 55 5A 00 02 02 02 D5 06 02 26 00 01
2005/07/17 15:20:46 32757 unknown (0x55ff) TX 31 bytes
2005/07/17 15:20:46 FF F5 55 FF 00 19 26 00 00 00 EA 25 5A A1 55 5A
2005/07/17 15:20:46 75 5A 55 AA A1 A2 A2 00 94 02 02 12 8E 04 01
2005/07/17 15:20:46 TSE 550/001 CODELINE STATION STATUS offline sent to primary socket
2005/07/17 15:20:46 TSE 550/001 preempted
2005/07/17 15:20:46 32757 unknown (0x55ff) TX 29 bytes
2005/07/17 15:20:46 FF F5 55 FF 00 17 26 00 00 00 EA 25 5A A1 55 5A
2005/07/17 15:20:46 75 5A 55 AA A1 A2 A2 00 00 02 02 D5 07
2005/07/17 15:20:53 SAFETRAN_INDICATION_MSG 754.1.04 (bc84) RX 30 bytes
2005/07/17 15:20:53 BC 84 25 00 BE 00 AA 21 25 AA AA AA 51 25 A1 5A
2005/07/17 15:20:53 A1 00 BE 02 02 04 C2 02 04 DF 00 00 00 32
2005/07/17 15:20:53 SAFETRAN_INDICATION_ACK 754.1.04 (bc84) TX 29 bytes
2005/07/17 15:20:53 BC 84 25 00 CA C0 AA 51 25 A1 5A A1 21 25 AA AA
2005/07/17 15:20:53 AA 00 CA 02 02 04 C4 02 04 DF 00 00 00
2005/07/17 15:20:53 32757 unknown (0x55ff) TX 37 bytes
2005/07/17 15:20:53 FF F5 55 FF 00 1F 26 00 00 00 EA 25 5A A1 55 5A
2005/07/17 15:20:53 75 5A 55 AA A1 A2 A2 00 02 02 02 12 8B 04 00 04
2005/07/17 15:20:53 08 DF 00 00 00

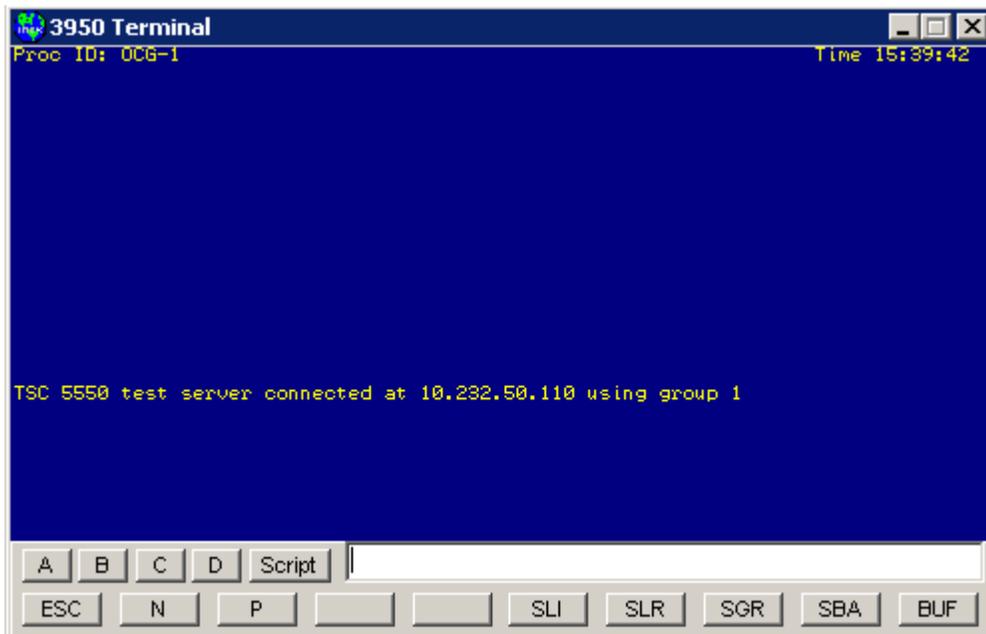
```

Figure B-3 Status of Preempted Group

**NOTE**

**NOTE**  
Note that the primary server is also notified that the group is offline (unavailable).

From WCCMaint you may show the status of the test at any time by typing **TSC 5550 STATUS** in the OCG terminal window (see typical status message in figure B-4).



**Figure B-4 Display Test Status Screen**

Once testing is complete, the test cycle may be terminated by closing the test server connection (Figure B-5).

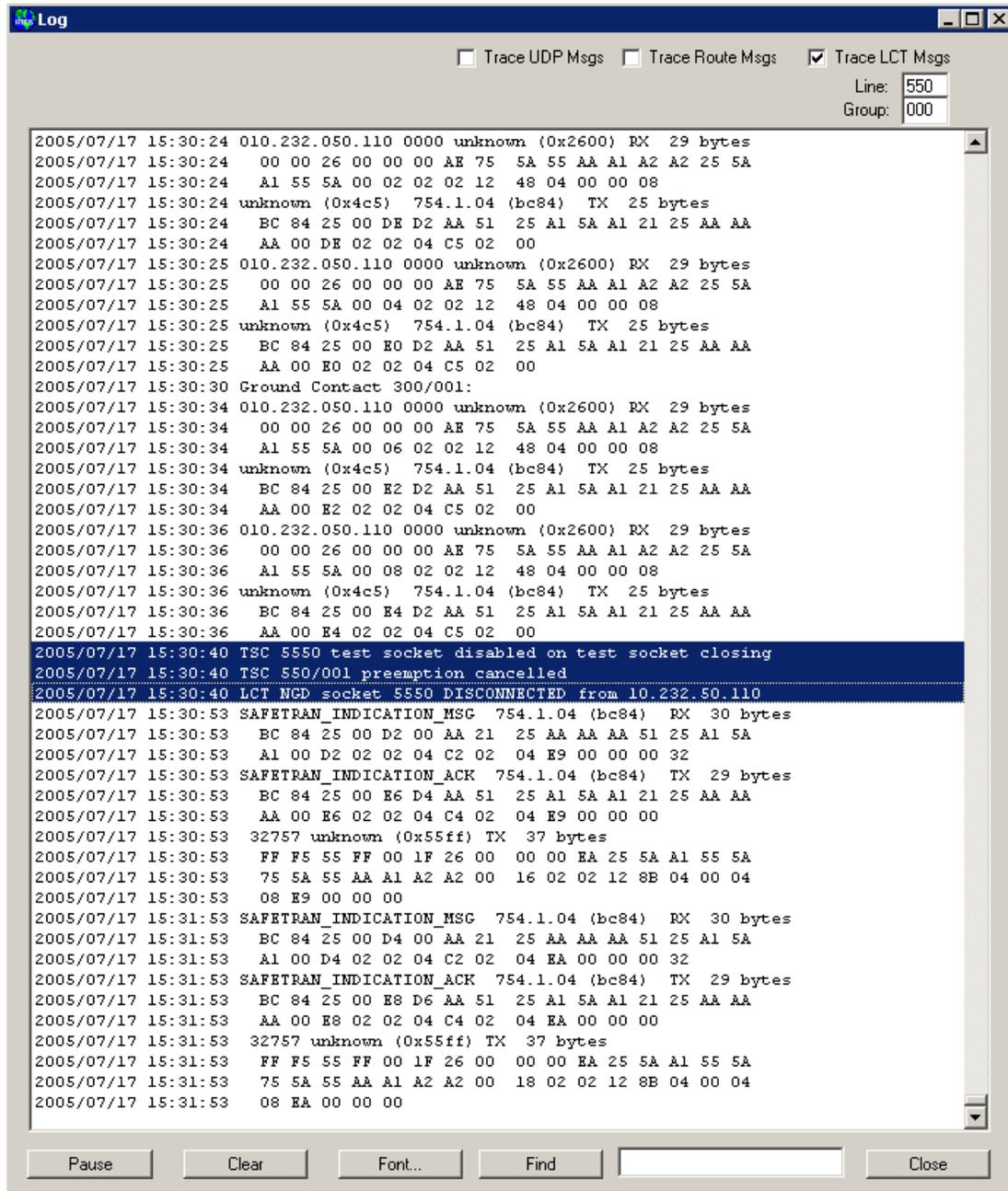


Figure B-5 Terminating Test Server Connection

The primary server may now resync with Group 1 and reestablish control. Note that the OCG logs all test conditions, including group preemptions and releases, and any change in socket status.

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