

This pamphlet describes the resource file 'rfile', located in the SCPS_RI/bin directory. This file must be configured before the SCPS transparent gateway is used. Figure 1 illustrates how the gateway operates. Essentially, the gateway has two interfaces, denoted AIF and BIF. By convention, AIF is associated with the terrestrial network while interface BIF is associated with the non-wired side. Traffic is routed from a host through the wired network to one side of the SCPS gateway. Traffic is sent from the SCPS gateway through the satellite network to the peer gateway satellite interface. Finally, the traffic is routed from the peer gateway to the destination through the wired network.

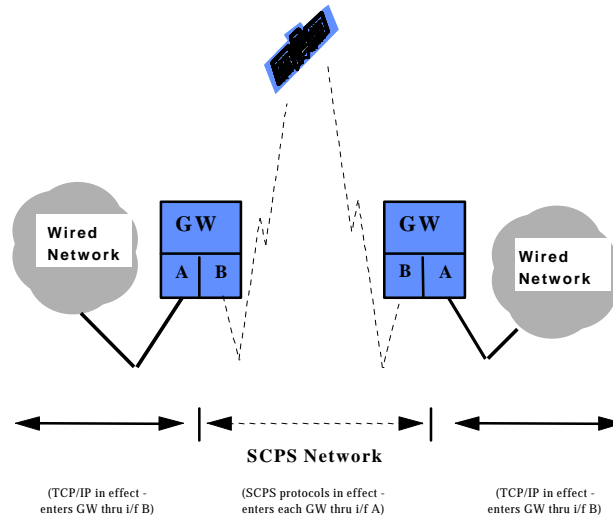


Figure 1 - SCPS Gateway Environment

Each interface has its own configuration setting (buffer space, congestion control algorithms, etc.) that are needed to 'tune' the gateway's performance and to turn off and on various capabilities. Figure 2 provides an exhaustive list of gateway parameters and their default values. **Bolded parameters** are required and *italicized parameters* are recommended for typically gateway use. Failure to provide both a parameter name and value on a single line will result in errors and/or unpredictable behavior.

Below we will describe a simple topology and the minimal set of options a user should use. Figure 3 contains the corresponding rfile. In this example, we will assume that the SCPS NP and SP protocols as well as UDP encapsulation will not be used. Additional rfile parameters may be required depending on the operational requirements and networking environments.

The [A/B]IF_NAME is the name of the interface that data will be sent/received. For example we will assume that pn0 is associated with the terrestrial side while pn1 is associated with the satellite side. Rate control [A/B]IF_RATE should be set to the line rate associated with each side. In this example the terrestrial side is connected to a 10 Mbps ethernet and the satellite has a bandwidth of 4 Mbps. Buffer sizes [A/B]IF_BUF for the transport protocols should be size according to the channel characteristics and physical memory allocated to the gateway process. We well set the buffer sizes on the terrestrial side to 32K while setting the buffer sized on the satellite side to 500K (twice the bandwidth delay product.) Congestion control [A/B]IF_CC is set depending on how the bandwidth is allocated. The VJ congestion control will be used on the terrestrial size and since the 4 Mbps satellite pipe is dedicated to us, we will use pure rate control on the satellite side. Also, note the # symbol can be used for comments.

<u>Parameter Name</u>	<u>Description</u>	<u>Example format</u>
A B IF_NAME	Name of interface	AIF_NAME vx0
<i>[A/B]IF_RATE</i>	Interface Rate Control (bps)	AIF_RATE 5000000 Default value: 200000
<i>[A/B]IF_BUF</i>	Buffer space allocation (bytes)	AIF_BUF 200000 Default value: 32768
<i>[A/B]IF_CC</i>	Type of congestion control: Choices: 0=None 1=Vegas ("SCPS CC") 2=Standard TCP CC	AIF_CC 0 Default value: 2
<i>[A/B]IF_IRO</i>	Initial RTO value (sec)	AIF_IRO 12 Default value: 3
<i>[A/B]IF_MINRTO</i>	Minimum RTO value (micro seconds)	AIF_MINRTO 1000000 Default value: 250000
<i>[A/B]IF_MAXRTO</i>	Maximum RTO value (micro seconds)	AIF_MAXRTO 6000000 Default value: 64000000
<i>[A/B]IF_MTU</i>	Maximum transmission unit (sending) (bytes)	AIF_MTU 1500 Default value <i>system dependent</i>
<i>[A/B]IF_RMTU</i>	Maximum transmission unit (receiving) (bytes)	AIF_RMTU 1500 Default value <i>system dependent</i>
<i>[A/B]IF_DIVPORT</i>	Divert port associated divert sockets Change with extreme caution	AIF_DIVPORT 53001 Default value: <i>AIF_DIVPORT 53001</i> Default value: <i>BIF_DIVPORT 53002</i>
<i>[A/B]IF_NL</i>	Default network layer protocol Choices: 1 - IP 2 - NP	AIF_NL 1 Default value 1
<i>[A/B]IF_LAYERING</i>	Gateway encapsulating method: Choices: 0 - no UDP encapsulation 1 - UDP encapsulation	AIF_LAYERING 0 Default value 0
<i>[A/B]IF_OVERHEAD</i>	Gateway encapsulating method overhead: Choices: 0 - no UDP encapsulation 28 - UDP encapsulation	AIF_LAYERING 0 Default value 0
<i>[A/B]IF_LOCAL_IP</i>	Local IP address for UDP encapsulation	AIF_LOCAL_IP: 10.1.1.1
<i>[A/B]IF_REMOTE_IP</i>	Remote IP address for UDP encapsulation	AIF_LOCAL_IP: 10.1.1.2
<i>[A/B]IF_SCPS_SECURITY</i>	Controls the use of the SCPS SP protocol: Choices: 0 - SCPS SP not used 1 - use SP if possible 2 - SCPS SP is required	AIF_SCPS_SECURITY 2 Default value: 0
C_DIVPORT	Divert port associated divert sockets Change with extreme caution	C_DIVPORT 52000

Figure 2 - List of rfile Parameters

The A interface is associated with the terrestrial side of the traffic

AIF_NAME	pn0
AIF_BUF	32768
AIF_RATE	10000000
AIF_CC	2
AIF_DIVPORT	53001

The B interface is associated with the satellite side of the traffic

BIF_NAME	pn1
BIF_BUF	500000
BIF_RATE	4000000
BIF_CC	0
BIF_DIVPORT	53002

IPFW info

C_DIVPORT	52000
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Figure 3 - Sample rfile