APPENDIX A

CiscoWorks Blue Maps and SNA View Database Tables

This appendix describes the layout of the CiscoWorks Blue Maps and SNA View database tables. The following Sybase 10 tables are described:

- Tables Common to RSRB and DLSw
- RSRB Tables
- DLSw Tables
- SNA View Database Tables—These tables are described here, rather than in an appendix of the CiscoWorks Blue SNA View Installation and Reference Manual, so that all tables can be described in one place.

Certain tables that exist in the Sybase database are not described in this appendix.



Caution Do not modify database table information. For Sybase-knowledgable users, refer to the schema files located in *\$CWBROOT/etc*.

Database Table Conventions

Table A-1 lists the conventions used in defining fields.

Convention	Description
int	A whole number between $2^{31} - 1$ (2,147,483,647) and -2^{31} (-2,147,483,648) inclusive. Storage size is 4 bytes.
smallint	A whole number between $2^{15} - 1$ (32,767) and -2^{15} (-32,768) inclusive. Storage size is 2 bytes.
tinyint	A whole number between 0 and 255 inclusive. Storage size is 1 byte.
NULL	A field that does not have to be filled in. The word <i>null</i> does not have to be entered; the field may be left blank.
varchar	A variable character defined by the number of characters in parentheses.
text	A text string.
image	A block of data.

 Table A-1
 Database Field Conventions

Table-to-table links throughout the database structure are accomplished using *id* fields (such as device_id, people_id, and admin_id).

Note Sybase software is case sensitive, so enter all database tables in lower case.

A-2 CiscoWorks Blue Maps Installation Guide

CiscoWorks Blue Database Tables

Tables Common to RSRB and DLSw

Devices Table

This table stores necessary information about known devices, with one record per device. There is an update trigger on the status field, and an insert and delete trigger on the entire table that increments the sequence number field in the Logical Views table for Global, Virtual Ring, and Focus Views.

Field Name	Field Type	Field Value	Description
device_id	numeric(9,0)	IDENTITY	Unique device ID generated by Sybase at the time of insertion into the table. Used as the primary index into the table.
device_name	char(32)	NOT NULL UNIQUE	device name or IP address.
rd_community	char(32)	NULL	Read community string.
community	char(32)	NULL	Write community string.
platform_id	int	NULL	Platform type.
disc_status	smallint	NULL	Discovery status.
protocols	smallint	NULL	Contains a bit to represent each protocol enabled on the router device. Facilitates determination of protocols configured on the device.
status	smallint	NULL	Status is either <i>active</i> (111) or <i>inactive</i> (113) at time of insertion into the table. This field changes at discovery time depending on the SNMP response.
properties		NULL	Not used.

Table A-2 Devices Table

CiscoWorks Blue Maps and SNA View Database Tables A-3

Process Table

This table maintains the status of ownership information of RSRB daemons. The daemons update this table when they are started.

Field Name	Field Type	Field Value	Description
id	smallint	NOT NULL UNIQUE	Process ID number of a daemon.
status	smallint	NULL	Current status of this daemon.
name	char(20)	NULL	Logical name of the owner of this daemon.
unix_id	int	NULL	Process ID.
dtime	datetime	NULL	Date and time of this daemon's startup.
parameters	char(30)	NULL	Command line parameters used to start this daemon.

Table A-3 Process Table

Logical Views Table

This table associates a sequence number to each type of view. This sequence number is passed to the GUI with every view. Sequence numbers are updated by several Sybase triggers set on devices, peer tables, and PU tables. When a change occurs in any of those tables that causes a view to change, the sequence number is incremented. By checking the sequence number, the GUI determines whether a view is up to date.

Table A-4	Logical View Table			
Field Name	Field Type	Field Value	Description	
type	smallint	NOT NULL	View type.	
sequence	int	NULL	Sequence number of this view.	

A-4 CiscoWorks Blue Maps Installation Guide

Client List Table

This table maintains a list of GUI applications that are registered with the Monitor daemon so that views can be updated. The Monitor daemon initializes its client list by reading entries from this table at startup. It updates this table by adding an entry for each registration request received and by deleting an entry for each de-registration request received. To clear the client list, start the Monitor daemon with the **-c** option, or truncate this table manually.

Field Name	Field Type	Field Value	Description
ip_address	int	NOT NULL	IP address of client.
udp_port	smallint	NOT NULL	The UDP port on which this client listens.
requests	smallint	NULL	Not used.

Table A-5 Client List Table

RSRB Tables

Address ID Table

This table maps the IP address used for RSRB to the device ID. There is typically one IP address per device for RSRB, but there can be multiple IP addresses if the router defines more than one virtual ring. This table is used to establish peer relationships between routers by matching IP addresses in the Peer Table.

Table A-6	Address ID Table			
Field Name	Field Type	Field Value	Description	
device_id	numeric(9,0)	NOT NULL	Unique device ID from the Device table.	
ip_address	int	NULL	IP address used by this device for RSRB.	

CiscoWorks Blue Maps and SNA View Database Tables A-5

Membership Table

This table maintains a list of all devices connected or attached to a real or virtual ring. It is useful in drawing virtual-ringcentric views and in determining which real rings are associated with each of the routers in the view.

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Table A-7	Membership Table				
Field Name	Field Type	Field Value	Description		
device_id	numeric(9,0)	NOT NULL	The index into this table. Unique ID of this device from the Devices table.		
ring_no	smallint	NOT NULL	The virtual or real ring number of this device.		
ring_type	smallint	NOT NULL	Indicates whether the ring is real or virtual		

Ring Bridge Table

This table maintains information about relationships between real and virtual rings on every known RSRB device. This table maps directly to the (ring, bridge, ring) tuples extracted from the RIF of each device. Given a (ring, bridge, ring) tuple, the device being referenced can be determined. The PU's RIF is parsed to extract (ring, bridge, ring) tuples, and, by referring to this tuple, the dependency list for the PU can be determined.

There is typically one virtual ring defined per router, so this table will have no more entries than the number of real token ring interfaces on the device. In terms of router configuration commands, every "source-bridge <real-ring> <bridge-no> <virtual ring>" results in one table entry. The total number of entries in this table is an indication of the number of token rings in the network that are bridged using RSRB.

Table A-8	Ring Bridge Table			
Field Name	Field Type	Field Value	Description	
device_id	numeric(9,0)	NOT NULL	The index into this table (from the Devices table).	

A-6 CiscoWorks Blue Maps Installation Guide

Field Name	Field Type	Field Value	Description
ring1	smallint	NULL	The number of token ring 1.
type1	smallint	NULL	Indicates whether ring 1 is real or virtual.
bridge	smallint	NULL	The bridge number between ring 1 and 2.
ring2	smallint	NULL	The number of token ring 2.
type2	smallint	NULL	Indicates whether ring 2 is real or virtual.

Peer Table

This table contains information about RSRB peers defined on every device, with one record per peer definition per router. The poller constantly updates the status of the peers in this table. There are triggers for additions and deletions to this table.

Field Name	Field Type	Field Value	Description
device_id	numeric(9,0)	NOT NULL	The index into this table from the Devices table.
vring	smallint	NULL	The virtual ring on which the peer is defined.
pindex	smallint	NULL	A peer index to allow retrieval of statistical information about a given peer relationship.
ip_addr	int	NULL	The remote IP address of the peer, if any.
encap	smallint	NULL	Encapsulation.
state	smallint	NULL	Current state of this peer. A trigger on this field causes update of the sequence number for RSRB-related views.
latest	smallint	NULL	Used by the poller for updating peer entries.

Table A-9Peer Table

CiscoWorks Blue Database Tables

DLSw Tables

DLSw Address ID Table

Field Name	Field Type	Field Value	Description
device_id	numeric(9,0)	NOT NULL	
ip_address	int	NULL	

DLSw Peer Table

Field Name	Field Type	Field Value	Description
device_id	numeric(9,0)	NOT NULL	
domain	smallint	NULL	Transport Mechanism.
local_addr	int	NULL	Local Transport Address.
remote_addr	int	NULL	Remote Transport Address.
state	smallint	NULL	State of the peer connection.
config_index	smallint	NULL	Configuration index.
type	smallint	NULL	Setup type.
latest	smallint	NULL	Used for updating.

DLSw Circuit Table

Field Name	Field Type	Field Value	Description
device_id	numeric(9,0)	NOT NULL	
mac1	binary(12)	NULL	Local MAC address.
sap1	binary(2)	NULL	Local SAP.
if_index	smallint	NULL	Interface index.
dlc_type	smallint	NULL	Data link connection type.
rif	binary(18)	NULL	Route information.

A-8 CiscoWorks Blue Maps Installation Guide

Field Name	Field Type	Field Value	Description
mac2	binary(12)	NULL	Remote mac address.
sap2	binary(2)	NULL	Remote SAP.
location	smallint	NULL	Location.
domain	smallint	NULL	Transport domain.
remote_addr	int	NULL	Remote transport address.
origin	smallint	NULL	Origin.
state	smallint	NULL	State of the circuit.
latest	smallint	NULL	Used for updating.

SNA View Database Tables

The database tables in this section are available only when the CiscoWorks Blue SNA View product is installed. SNA View supplements the functionality of RSRB and DLSw only.

Physical Unit (PU) Table

This table contains information about all physical units (PUs) discovered by the SNA driver. It is initially populated by the SNA discovery process, but is constantly updated by the status manager that runs in the background. This table contains information about the PU name, MAC address, RIF (if available), PU type, Local and remote MAC addresses, local and remote SAPs, and current status. PU_ID, a unique number assigned to every PU, is the primary index into this table. There is exactly one record in this table per PU. There is a trigger on the status column that increments the sequence number for the PU/LU view in the Logical Views table.

Table A-10 Physical Unit (PU) Tab

Field Name	Field Type	Field Value	Description
pu_id	numeric(9,0)	IDENTITY	Unique identifier of this PU.
pu_name	varchar(17)	NOT NULL	PU name as defined in VTAM.
pu_type	smallint	NULL	PU type; type 2.1 is stored as 21

CiscoWorks Blue Maps and SNA View Database Tables A-9

CiscoWorks Blue D	Database	Tables
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Field Name	Field Type	Field Value	Description
status	smallint	NULL	Current status of this PU.
pu_mac	binary(12)	NULL	Local MAC address (PU MAC address).
ncp_mac	binary(12)	NULL	Remote MAC address.
pu_sap	binary(2)	NULL	Local SAP.
ncp_sap	binary(2)	NULL	Remote SAP.
xid	binary(4)	NULL	VTAM exchange ID.
rif	binary(18)	NULL	Routing information field (RIF).
ring_no	smallint	NULL	The real token ring number on which this PU resides, or 0 if there is no RIF for this PU from which to extract the number.

Logical Unit (LU) Table

This table contains information about logical units, with one record per known LU. LU status changes are linked to PU status changes, so there is no trigger mechanism to update sequence numbers in the logical views table.

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Field Name	Field Type	Field Value	Description
pu_name	char(10)	NULL	The PU to which this LU is attached.
lu_name	char(18)	UNIQUE	The name of this LU.
status	smallint	NULL	The status of an LU is the same as the status of the PU to which it is attached.

 Table A-11
 Logical Unit (LU) Table

Alert Table

This table stores the first 600 bytes of alert information received for an SNA resource. The most recent 5 kinds of alerts are maintained per PU, with a count of the number of occurrences of each.

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Field Name	Field Type	Field Value	Description
pu_name	char(29)	NOT NULL	The name of the SNA resource.
alert_id	smallint	NOT NULL	A unique ID for this kind of alert.
counter	smallint	NULL	The number of times this kind of alert was received.
dt_first	int	NULL	The time this kind of alert was first received.
dt_last	int	NULL	The time this kind of alert was last received.
dt_sent	int	NULL	The time this information was sent to the alert manager.
alert	image	NULL	The first 600 bytes of hexadecimal alert data.

Table A-12 Alert Table

CiscoWorks Blue Database Tables

A-12 CiscoWorks Blue Maps Installation Guide