Chapter 3

Custom SGITCL Extensions

This chapter provides a brief introduction to the extension packages included with SGITCL that are not likely to be found on other platforms.

tclObjSrv—for Objectserver

The *tclObjSrv* library is a Tcl Motif interface to the IRIX Cadmin distributed object system; see objectserver(1M) for details. To use the *tclObjSrv* library, first initialize it with **dlopen**:

```
moat> dlopen libtclObjSrv.so init ObjSrv_Init
199.99.99.1
moat> .hostObject info
```

The **ObjSrv_Init** routine returns the IP address of the current host. You can change to a different host by setting the *_objAddr* variable to the IP address of that machine. The **hostObject** routine retrieves object information for the current class.

See the tclObjSrv(3Tcl) reference page for more information about the *tclObjSrv* library.

rstat—Kernel Statistics

The *rstat* library is a Tcl interface to the *rstatd* kernel statistics daemon; see rstatd(1M) for details. This library is self-initializing: the first time you call an *rstat* procedure, SGITCL does a **dlopen** of *librstat.so*. The *rstat* library offers two commands that can be used to gather remote statistics from within Tcl programs:

nfsping	Returns 1 if NFS daemons are running on the given *hostname*, 0 if not
rstat	Returns a value pair list of kernel statistics on the remote *hostname*

For more information about the *rstat* library, try the Tcl help facility:

```
sgitcl> help rstat/rstat
```

sautil—for Network Maps

The *sautil* library is a Tcl interface to system administration utilities for dealing with network information maps, for example YP maps for password, group, hosts, networks, protocols, and services. To use the *sautil* library, first initialize it with **dlopen**:

```
% ypmatch joeuser passwd
joeuser::508:10:Joseph User,,,,,,,<eng>:/home/joeuser:/usr/bin/tcsh
% sgitcl
sgitcl> dlopen libsautil.so init SAUtil_Init
sgitcl> getpwnam pwent joeuser
pw_name pw_passwd pw_uid pw_gid pw_comment pw_gecos pw_dir pw_shell
sgitcl> set pwent(pw_shell)
/usr/bin/tcsh
```

In the example above, **getpwnam** returns the array element identifiers for the password entry array *pwent*. The **set** command shows that these array elements have been filled in according to the YP password map entry for *joeuser*.

System administration utilities for dealing with network information maps have the same names as standard C library routines for dealing with */etc* files for password, group, hosts, networks, protocols, and services. These utilities are self-documenting—they print the proper usage if issued without arguments. Table 3-1 shows the utilities available:

Table 3-1 *sautil* Library for Network Information

YP Map	Utilities Available
group	getgrnam, getgrgid, getgrent, setgrent, endgrent
hosts	hostname, hostid, sysid, gethostbyname, gethostbyaddr gethostent, sethostent, endhostent
networks	getnetbyname, getnetbyaddr, getnetent, setnetent, endnetent
passwd	pwcrypt, setpwent, getpwent, endpwent, getpwnam, getpwuid
protocols	getprotobyname, getprotobynumber, getprotoent, setprotoent, endprotoent
services	getservbyname, getservbyport, getservent, setservent, endservent

For more information about each of the *sautils* utilities above, use the Tcl help facility, giving the name of a YP map and a utility:

```
sgitcl> help sautils/YPmap/utility
```

SNMP—Simple Network Management

The *snmp* library is a Tcl interface for SNMP (simple network management protocol) as implemented on IRIX 6.2. The *snmp* library is self-initializing: the first time you call one of its library procedures, SGITCL does a **dlopen** of *libsnmp.so*.

These are the supported SNMP library procedures:

snmpget	retrieve a list of hostnames and SNMP variables
snmpgetnext	get the next hostname variable in a list
snmpgettable	retrieve a simple value or an SNMP table
snmpresolve	return the appropriate IP address of a given hostname
snmpping	return round-trip time for ICMP echo request (requires *root* privilege)

For more information about procedures in the *snmp* library, use the Tcl help facility:

```
sgitcl> help snmp/snmpping
```

wwwHelp—Web Browser Help

The *wwwHelp* library is a Tcl Motif interface to build a help menu that invokes the Netscape™ Web browser for displaying help. The **wwwHelpMenu** routine reads a ViewKit *helpmap* file, by default from */usr/share/help*, and constructs a help menu.

sgiHelp—ViewKit Help

The *sgiHelp* library is a Tcl Motif interface to the entire range of ViewKit help facilities. Before using these routines, you need to open the *libsgihelp.so* dynamic library:

```
moat> dlopen libsgihelp.so
```

These procedures parse a Viewkit helpmap file to create a help menu with either help pages or contextual help. Here is a list of related help routines:

sgiHelpMenu	process entries from a *helpmap* file to build a help menu
sgiVersionCallback	create a dialog box containing version information

sgiHelpSubMenu
: read a *helpmap* file to build a help menu and any necessary submenus

sgiOnContextHelp
: retrieve contextual help based on question-mark mouse pointer

Support for Silicon Graphics Widgets

The Tcl Motif libraries include support for the following custom SGm widgets:

- help menus in IRIS ViewKit™ style
- the icon-panel library
- SGm widgets (sgiGrid, sgiThumbWheel, sgiDropPocket, sgiPrintBox, sgiFinder, sgiVisualDrawingArea).
- Dt widgets (dtComboBox, dtDropDownList dtDropDownComboBox)
- Xbae Matrix widget (xbaeMatrix)

See TmSgiGrid(3Tm), TmSgiPanel(3Tm), and TmThumbWheel(3Tm) for more information about these widgets.