

```
1 /*+++++
... +++++
2
3 $Id: tcp.c,v 1.17 2001/08/10 01:59:00 davidc Exp $
4
5 Copyright (c) 2001 BeComm Corporation
6
7 Filename:
8
9     tcp.c
10
11 Abstract:
12
13     The implementation of the TCP portion of the SocketLib API. This is
... the
14     Win32 (NT/95/CE) version using the standard sockets interface
... exported
15     by WinSock.
16
17 Owner:
18
19     David Costanzo (davidc)
20
21 -----
... ----*/
22
23 #include <windows.h>
24 #include <winsock2.h>
25 #include <process.h>
26 #include <assert.h>
27
28 #define SOS_DEBUG_ZONE "/classes/socket/tcp"
29 #include <sosstrings.h>
30 #include <sosisocket.h>
31 #include "socket.h"
32 #include "tcp.h"
33
34 SOS_SOURCE_VERSION("$Id: tcp.c,v 1.17 2001/08/10 01:59:00 davidc Exp $");
35
36 /*+++++
... +++++
37 Constants
38 -----
... ----*/
```

```
40 #define ERROR_BIND_FAILED          SOS_Error
41 #define ERROR_SOCKET_FAILED        SOS_Error
42 #define ERROR_BIND_FAILED          SOS_Error
43 #define ERROR_CONNECT_FAILED       SOS_Error
44 #define ERROR_GETSOCKNAME_FAILED   SOS_Error
45
46
47 /* size of buffer to allocate for each read */
48 static const size_t g_TcpRecvSize = 1500;
49
50 /* largest amount to call send() with */
51 static const size_t g_MaxSendSize = 2048;
52
53
54 /*+++++
...
55 Data Types
56 -----*/
...
57
58 /* TCP socket context to be passed back and
59 forth with caller of this library */
60 struct _SOS_ISOCKET_TCP {
61     SOCKET          NativeSocket;
62     int             RefCount;
63     SOS_ISOCKET_TCP_CONNECT    ConnectedCallback;
64     SOS_ISOCKET_TCP_RECEIVE    RecvCallback;
65     SOS_ISOCKET_CLOSED        ClosedCallback;
66     SOS_ISOCKET_ADDRESS       SocketAddr;
67     void*            UserContext;
68
69     SOS_BOOLEAN        PeerHasClosed;
70     SOS_BOOLEAN        WeHaveClosed;
71
72     unsigned long      NativeConnectionThread;
73 };
74
75
76 struct _SOS_ISOCKET_TCP_LISTEN {
77     SOS_ISOCKET_TCP    Socket;
78     unsigned long      NativeListenThread;
79 };
80
81
82 /* TcpConnectionWorkerProc - type */
```

```
83
84 typedef struct _CONNECTION_PARAM          CONNECTION_PARAM;
85
86 typedef enum _TCP_CONNECT_FUNCTION_ID {
87     TCP_CONNECT_FUNCTION_ID_TcpOnConnect,
88     TCP_CONNECT_FUNCTION_ID_TcpOnReceive,
89     TCP_CONNECT_FUNCTION_ID_TcpOnClose,
90 } TCP_CONNECT_FUNCTION_ID;
91
92 struct _CONNECTION_PARAM {
93
94     TCP_CONNECT_FUNCTION_ID  FunctionId;
95
96     union _CONNECTION_PARAMS {
97
98         struct _CONNECTION_PARAM_ON_CONNECT {
99             SOS_ISOCKET_TCP *      Socket;
100             void *                  OutUserContext;
101         } OnConnect;
102
103
104         struct _CONNECTION_PARAM_ON_RECEIVE {
105             SOS_ISOCKET_TCP *      Socket;
106             void*                  Buffer;
107             size_t                  BufferLength;
108             SOS_FREEPROC           BufferFree;
109         } OnReceive;
110
111
112         struct _CONNECTION_PARAM_ON_CLOSE {
113             SOS_ISOCKET_TCP *      Socket;
114         } OnClose;
115
116     } Params;
117 };
118
119
120 /* TcpSendWorkerProc types */
121
122 typedef struct _TCP_SEND_WORKER_PROC TCP_SEND_WORKER_PROC;
123
124 struct _TCP_SEND_WORKER_PROC {
125     SOCKET      NativeSocket;
126     void *      Buffer;
127     size_t      BufferLength;
```

```
128     SOS_STATUS  OutStatus;
129 };
130
131
132 /*+++++
...
133 Internal Routines
134 -----
...
135 -----*/
136
137 /*++
138 Routine Name:
139
140     TcpSocketCreate
141
142 Routine Description:
143
144     This routine allocates and initializes an SOS_ISOCKET_TCP struct.
145     It does not call any sockets routines.
146     The structure is returned with a reference count of 1.
147
148 Parameters:
149
150     SOCKET NativeSocket - [in]
151         The native socket handle.
152
153     SOS_ISOCKET_TCP_CONNECT ConnectedCallback - [in]
154         The user-defined function to call when a socket connection
155         has been established.
156
157     SOS_ISOCKET_TCP_RECEIVE RecvCallback - [in]
158         The user-defined RecvCallback.
159
160     SOS_ISOCKET_CLOSED ClosedCallback - [in]
161         The user-defined ClosedCallback.
162
163     const struct sockaddr_in* RemoteSockAddr - [in]
164         The remote socket address.
165         This parameter is optional.
166
167     const SOS_ISOCKET_ADDRESS* SocketAddr - [in]
168         The socket address.
169
170     void* UserContext - [in]
```

```
171     The user context to pass into RecvCallback and ClosedCallback.
172
173 Return Value:
174
175     SOS_ISOCKET_TCP* -
176     A pointer to a newly allocated SOS_ISOCKET_TCP structure with
177     a reference count of 1.
178     NULL, if the structure could not be created.
179
180 --*/
181 static
182 SOS_ISOCKET_TCP*
183 TcpSocketCreate(
184     SOCKET                NativeSocket,
185     SOS_ISOCKET_TCP_CONNECT    ConnectedCallback,
186     SOS_ISOCKET_TCP_RECEIVE    RecvCallback,
187     SOS_ISOCKET_CLOSED        ClosedCallback,
188     const SOS_ISOCKET_ADDRESS * SocketAddr,
189     void*                   UserContext
190 )
191 {
192     SOS_ISOCKET_TCP* tcpSocket;
193
194     /* allocate enough size for the larger SOS_ISOCKET_TCP_LISTEN */
195     tcpSocket = malloc(sizeof(SOS_ISOCKET_TCP_LISTEN));
196     if (tcpSocket != NULL) {
197
198         tcpSocket->NativeSocket        = NativeSocket;
199         tcpSocket->ConnectedCallback    = ConnectedCallback;
200         tcpSocket->ClosedCallback       = ClosedCallback;
201         tcpSocket->RecvCallback         = RecvCallback;
202         tcpSocket->SocketAddr           = *SocketAddr;
203         tcpSocket->UserContext          = UserContext;
204
205
206         tcpSocket->PeerHasClosed        = SOS_False;
207         tcpSocket->WeHaveClosed         = SOS_False;
208
209         tcpSocket->RefCount              = 1;
210     }
211
212     return tcpSocket;
213 }
214
215
```

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