How to create access points

Access points are required to establish connection for data transfers. Its always a nice feature to create an access point in code than to go to settings and do.

In this page I will give code snippet for creating a WLAN access point and a sample application for creating a GPRS access point.

Creating a WLAN access point (With WEP security settings)

A wireless access point (WAP or AP) is a device that connects wireless communication devices together to form a wireless network. The WAP usually connects to a wired network, and can relay data between wireless devices and wired devices. Several WAPs can link together to form a larger network that allows "roaming". (In contrast, a network where the client devices manage themselves - without the need for any access points - becomes an ad-hoc network.) WAPs have IP addresses for configuration.

The following headers are required for this

```
#include <commdb.h>        // link against commdb.lib
#include <apselect.h>      // link against apengine.lib
#include <aplistitem.h>
#include <apdatahandler.h>
#include <apaccesspointitem.h>
#include <wlancdbcols.h>   // for security settings
```

A WLAN access point can be created using the following code snippet.

Creating a WLAN access point:

```
CApAccessPointItem *wlan = CApAccessPointItem::NewLC();
wlan->SetNamesL(_L("NewAP"));
wlan->SetBearerTypeL(EApBearerTypeWLAN);
wlan->WriteTextL(EApWlanNetworkName, _L("WlanAP"));
wlan->WriteUint(EApWlanSecurityMode,2);
          // security mode 2 refers to WEP.
wlan->WriteUint(EApWlanNetworkMode,1);
          // network mode refers to whether its AdHoc or Infrastructure mode.
```

Store it into the CommsDb

```
CCommsDatabase *commDb = CCommsDatabase::NewL();
CleanupStack::PushL(commDb);
CApDataHandler *handler = CApDataHandler::NewLC(*commDb);
TInt err = commDb ->BeginTransaction();
TUint32 newApId = handler->CreateFromDataL(*wlan);
CleanupStack::PopAndDestroy(3); // handler, commDb, wlan
```

For Symbian OS v9.1 necessary to use capability 'WriteDeviceData', else CreateFromDataL() generate leave KErrAbort (-39).

Setting the security settings:

```
enum TWEPKeyFormat
   {
   EAscii,                 // Ascii format
   EHexadecimal            // Hex format
   };

enum TWEPKeyInUse
   {
   EKeyNumber1,            // Key number 1
   EKeyNumber2,            // Key number 2
   EKeyNumber3,            // Key number 3
   EKeyNumber4             // Key number 4
   };

enum TWEPAuthentication
   {
   EAuthOpen,              // Open authentication
   EAuthShared             // Shared authentication
   };

handler->AccessPointDataL(newApId,*wlanNew1);
//wlanNew1 is an object of CApAccessPointItem

wlanNew1->ReadUint( EApIapServiceId, newalanid );

// we need to get the IAP id to manupulate the security settings.


iKeyData.Copy(_L("626ABB616A"));
//Should be the same value to which the WLAN router is configured

iKeyFormat=EAscii;           // TWEPKeyFormat
iAuthentication=EAuthShared; // TWEPAuthentication
iKeyInUse=EKeyNumber3;       // TWEPKeyInUse

wLanServiceTable = db->OpenViewMatchingUintLC(
                                              TPtrC(  WLAN_SERVICE ),
                                              TPtrC( WLAN_SERVICE_ID ),
                                                     newalanid
                                              );
// Give the corresponding IAP ID
```


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```
 errorCode = wLanServiceTable->GotoFirstRecord();

 TBool ival =ETrue;
 if ( errorCode == KErrNone )
 {
 wLanServiceTable->UpdateRecord();
 }
 else
 {
 TUint32 dummyUid( KUidNone );
 User::LeaveIfError( wLanServiceTable->InsertRecord( dummyUid ) );
 // Save link to LAN service
 wLanServiceTable->WriteUintL( TPtrC( WLAN_SERVICE_ID ), newApId);
 }

// Save index of key in use (1,2,3 or 4)
 TRAP(error,wLanServiceTable->WriteUintL(
                                        TPtrC( WLAN_WEP_INDEX ),
                                        ( TUint32& ) iKeyInUse )
                                         );

// Save the authentication type (shared or Open)
 TRAP(error,wLanServiceTable->WriteUintL(
                                         TPtrC( WLAN_AUTHENTICATION_MODE ),
                                         ( TUint32& )iAuthentication )
                                         );

// save the correct keydata corresponding to the router configuration
 TRAP(error,wLanServiceTable->WriteTextL(
                                         TPtrC( WLAN_WEP_KEY3 ),
                                         iKeyData )
                                         );

// Save the format of the key (Hexadecimal or Ascii)
 wLanServiceTable->WriteUintL(
                               TPtrC( LAN_WEP_KEY3_FORMAT ),
                               ( TUint32& ) iKeyFormat
                              );
 wLanServiceTable->PutRecordChanges();
 err = db->CommitTransaction();
             // End a transaction.
             // Call after `InsertRecord()` or `UpdateRecord()`.
```

NOTE: The Key In Use, the Key format and the Key data should be the same as the WLAN router or else the connection will not be established.

Creating a GPRS access point

An access point is:

An Internet network to which a mobile can be connected.

A set of settings which are used for that connection.

A particular option in a set of settings in a mobile phone.

Find the **sample application** from the following link which creates a GPRS access point.

File:IAPSampleEx.zip

Internal links

- Internet Access Point
- Reading internet access points from the device
- Mandatory tables for creating GPRS access point
- How to create access point

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