To get the serial number of a SD card on Symbian OS v9

```
class TCidDecoder
{
 public:
  #define LO_NIBBLE(val) (val & 0x0F)
  #define HI_NIBBLE(val) ((val >> 4) & 0x0F)
  #define IS_ASCII(val) (val >= 0x20 && val < 0x7F)

 public:
  TCidDecoder(TDesC8& aBuf, TBool aSDCard)
  {
   iBuf.Copy(aBuf);
   iSDCard = aSDCard;
  };

  // constructor which tries to deduce whether card is an MMC or SD card
  TCidDecoder(TDesC8& aBuf)
  {
   iBuf.Copy(aBuf);
   iSDCard = ETrue;
   if (HI_NIBBLE(iBuf[2]) != 0)
    iSDCard = EFalse;
   TInt sdMonth = LO_NIBBLE(iBuf[1]);
   if (sdMonth == 0 || sdMonth > 12)
    iSDCard = EFalse;

   // get this year so we can check for daft years
   TTime now;
   now.HomeTime();
   TDateTime dateTime = now.DateTime();
   TInt year = dateTime.Year();

   TInt sdYear = HI_NIBBLE(iBuf[1]) + (LO_NIBBLE(iBuf[2]) << 4) + 2000;
   if (sdYear > year) // stupid year ?
    iSDCard = EFalse;

  // // Oid should be ascii for SD and binary for MMC - but this isn't always true
  // if (!IS_ASCII(iBuf[13]) || !IS_ASCII(iBuf[14]))
  // iSDCard = EFalse;
  };

  void ManufacturingDate(TInt& aYear, TInt& aMonth)
  {
   if (iSDCard)
   {
    aYear = HI_NIBBLE(iBuf[1]) + (LO_NIBBLE(iBuf[2]) << 4) + 2000;
    aMonth = LO_NIBBLE(iBuf[1]);
   }
   else
   {
    aYear = LO_NIBBLE(iBuf[1]) + 1997;
    aMonth = HI_NIBBLE(iBuf[1]);
   }
  }

  TUint32 SerialNumber()
  {
   if (iSDCard)
    return( (iBuf[6]<<24) | (iBuf[5]<<16) | (iBuf[4]<<8) | (iBuf[3]) );
   else
    return( (iBuf[5]<<24) | (iBuf[4]<<16) | (iBuf[3]<<8) | (iBuf[2]) );
  }

  void ProductRevision(TInt& aMajor, TInt& aMinor)
  {
   if (iSDCard)
   {
    aMajor = (iBuf[7] & 0xF0) >> 4;
    aMinor = iBuf[7] & 0x0F;
   }
   else
   {
    aMajor = (iBuf[6] & 0xF0) >> 4;
    aMinor = iBuf[6] & 0x0F;
   }
  }

  void ProductName(TBuf<6>& aName)
  {
   aName.SetLength(5);
   aName[0] = iBuf[12];
   aName[1] = iBuf[11];
   aName[2] = iBuf[10];
   aName[3] = iBuf[9];
   aName[4] = iBuf[8];
   if (!iSDCard)
    aName.Append(iBuf[7]);
  };

  void Oid(TBuf<2>& aOid)
  {
   aOid.SetLength(2);
   aOid[0] = iBuf[14];
   aOid[1] = iBuf[13];
  };

  TUint8 ManufactureID()
  {
   return iBuf[15];
  }
  TBool IsSdCard()
  {
   return iSDCard;
  };
```


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```
 public:
  TBuf8<16> iBuf;
  TBool iSDCard; // MMC card if false, SD card otherwise
};
```


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