audiocommander's ACMidiProtocol implements default CC controllers to enable inter-application and inter-device communication and synching possibilities.

If, for example, two devices have implemented this protocol, one can change the harmony or bpm at one device and the other device automatically changes its harmony/bpm to the new values.

This version can be used for plain C as well as Objective-C:

```
/*
 *  ACMidiProtocol.h
 *  mX series
 *
 *  Created by audiocommander on 08.03.2007
 *  Copyright 2006-2007 Michael Markert, http://www.audiocommander.de
 *
 *  v0.0.1  08.03.07    first version as one protocol document
 *  v0.0.2  29.03.07    added 4-char scale identifiers
 *  v0.0.3  01.05.07    added ACMidiProcessing <NSProtocol>
 *
 *
 *  description:
 *      MIDI Definition Listing for AC- & ZS-Applications
 *      Protocol Definitions for MIDI Controller Numbers
 *
 */

/*
* Released under GNU General Public License
 * http://www.gnu.org/licenses/gpl.html
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PRODUCT
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 */


#ifdef __OBJC__
    #pragma mark Cocoa ACMidiProtocol
#import <Foundation/Foundation.h>

@protocol ACMidiProcessing <NSCoding>

-(unsigned int)processMIDIMessage:(Byte*)message
                         ofLength:(unsigned int)length
                           atTime:(unsigned int)timeStamp;
```

```
@end

#endif /* __OBJC__ */



#ifndef _ACMIDIPROTOCOL_H
#define _ACMIDIPROTOCOL_H



// Protocol Version Number for future compatibily
#define ACMIDICTRLPROTOCOL_VERSION      0x03




// ***** CONTROLLER CHANGES *****
// The CC's use unused entries from the official Midi Tables
(ACMidiDefines.h)
// Controllers 14..31 undefined & general purpose  & undefined and
// Controllers 80..90 general purpose & undefined
// Controllers 102..119 undefined
#ifdef _DEBUG_C
    #pragma mark -
    #pragma mark ++ CONTROLLER ++
#endif

// ** SENSORS / AIN **
// These are the default CC numbers for sensory measures
// send:    YES
// receive: NO
// forward: NO
#ifdef _DEBUG_C
    #pragma mark Sensors / AIN
#endif

#define MIDI_CC_SENSOR_A                        20  // 0x14
#define MIDI_CC_SENSOR_B                        21  // 0x15
#define MIDI_CC_SENSOR_C                        22  // 0x16
#define MIDI_CC_SENSOR_D                        23  // 0x17
#define MIDI_CC_SENSOR_E                        24  // 0x18
#define MIDI_CC_SENSOR_F                        25  // 0x19
#define MIDI_CC_SENSOR_G                        26  // 0x20
#define MIDI_CC_SENSOR_H                        27  // 0x21

// ** HARMONY **
// harmony & scale setting methods
// send:    YES if input by HUI
// receive: YES
// forward: NO
```

```
#ifdef _DEBUG_C
    #pragma mark Harmony
#endif

#define MIDI_CC_HARMONY_BASE                    80  // 0x50, 0-11, see
MIDI_NOTE_x
#define MIDI_CC_HARMONY_SCALE                   81  // 0x51, 0:none,
1-127:scaleNum
#define MIDI_CC_HARMONY_BASE_LISTEN             82  // 0x52, 0-63:OFF,
64-127:ON
#define MIDI_CC_HARMONY_SCALE_RELATIVE_PREV     83  // 0x53, 0-63:OFF,
64-127:ON
#define MIDI_CC_HARMONY_SCALE_RELATIVE_NEXT     84  // 0x54, 0-63:OFF,
64-127:ON
#define MIDI_CC_HARMONY_RANDOM                  85  // 0x55, 0x63:OFF,
64-127:ON
#define MIDI_CC_HARMONY_RANDOM_RELATIVE         86  // 0x56, 0x63:OFF,
64-127:ON

#define MIDI_CC_HARMONY_DETECTION               79  // 0x49, 0x63:OFF,
64-127:ON

// ** SCALES **
// scale names
#ifdef _DEBUG_C
    #pragma mark Scales
#endif

#define SCALE_NONE                              @"    "
#define SCALE_AEOLIAN                           @"AEO "
#define SCALE_AHABA_RABBA                       @"AHAB"
#define SCALE_ALGERIAN                          @"ALG "
#define SCALE_ARABIAN                           @"arab"
#define SCALE_AUGMENTED                         @"AUGM"
#define SCALE_BLUES                             @"Blue"
#define SCALE_BLUES_MAJOR                       @"BLUE"
#define SCALE_BLUES_MINOR                       @"blue"
#define SCALE_BYZANTINE                         @"BYZ "
#define SCALE_CHROMATIC                         @"chro"
#define SCALE_DIATONIC                          @"DIA "
#define SCALE_DORIAN                            @"DOR "
#define SCALE_FULLTONE                          @"FULL"
#define SCALE_GIPSY_MINOR                       @"gyps"
#define SCALE_HARMONIC_DOUBLE                   @"hrmD"
#define SCALE_HARMONIC_MINOR                    @"harm"
#define SCALE_HUNGARIAN_MAJOR                   @"HUNG"
#define SCALE_HUNGARIAN_MINOR                   @"hung"
#define SCALE_HUNGARIAN_PERSIAN                 @"PERH"
#define SCALE_JAPANESE                          @"JAP "
#define SCALE_JAPANESE_DIMINISHED               @"JAPd"
#define SCALE_KUMOI                             @"KUMO"
```

```
#define SCALE_LOCRIAN                           @"LOC "
#define SCALE_LYDIAN                            @"LYD "
#define SCALE_MAJOR                             @"MAJ "
#define SCALE_MELODIC_MAJOR                     @"MELO"
#define SCALE_MELODIC_MINOR                     @"melo"
#define SCALE_MINOR                             @"min "
#define SCALE_MI_SHEBERACH                      @"MISH"
#define SCALE_MIXOLYDIAN                        @"MIX "
#define SCALE_MOHAMMEDAN                        @"MOHA"
#define SCALE_NEOPOLITAN_MAJOR                  @"NEO "
#define SCALE_NEOPOLITAN_MINOR                  @"neo "
#define SCALE_ORIENTAL                          @"ORNT"
#define SCALE_OVERTONE                          @"OVER"
#define SCALE_PELOG                             @"PLOG"
#define SCALE_PENTATONIC                        @"PENT"
#define SCALE_PENTATONIC_BLUES                  @"PBLU"
#define SCALE_PENTATONIC_MAJOR                  @"PMAJ"
#define SCALE_PENTATONIC_MINOR                  @"Pmin"
#define SCALE_PERSIAN                           @"PERS"
#define SCALE_PHRYGIAN                          @"PHRY"
#define SCALE_SPANISH                           @"SPAN"

// indian scales
#define SCALE_INDIAN_
#define SCALE_INDIAN_
#define SCALE_INDIAN_BHAVAPRIYA                 @"BAVA"
#define SCALE_INDIAN_DHATUVARDHANI              @"DATU"
#define SCALE_INDIAN_HEMAVITI                   @"HEMA"
#define SCALE_INDIAN_JHANKARADHVANI             @"JHAN"
#define SCALE_INDIAN_KAMAVARDHANI               @"KAMA"
#define SCALE_INDIAN_NAVANITAM                  @"NAVA"
#define SCALE_INDIAN_NITIMATI                   @"NITI"
#define SCALE_INDIAN_RAGHUPRIYA                 @"RAGU"
#define SCALE_INDIAN_RAMAPRIYA                  @"RAMA"
#define SCALE_INDIAN_SALAGAM                    @"SALA"
#define SCALE_INDIAN_SANMUKHAPRIYA              @"SAMU"
#define SCALE_INDIAN_SUBHAPANTUVARALI           @"SUBH"
#define SCALE_INDIAN_SUVARNANGI                 @"SUVA"


// scale-ID's
#define SCALE_ID_NONE                           0
#define SCALE_ID_MAJOR                          1
#define SCALE_ID_MINOR                          2
#define SCALE_ID_HARMONIC_MINOR                 3
#define SCALE_ID_BLUES_MINOR                    4
#define SCALE_ID_BLUES_MAJOR                    5
#define SCALE_ID_DORIAN                         6
#define SCALE_ID_JAPANESE                       7
#define SCALE_ID_JAPANESE_DIMINISHED            8
#define SCALE_ID_KUMOI                          9
```

```
#define SCALE_ID_LOCRIAN                        10
#define SCALE_ID_LYDIAN                         11
#define SCALE_ID_MI_SHEBERACH                   12
#define SCALE_ID_MIXOLYDIAN                     13
#define SCALE_ID_PELOG                          14
#define SCALE_ID_PENTATONIC                     15
#define SCALE_ID_PENTATONIC_BLUES               16
#define SCALE_ID_PENTATONIC_MAJOR               17
#define SCALE_ID_PENTATONIC_MINOR               18
#define SCALE_ID_PHRYGIAN                       19
#define SCALE_ID_SPANISH                        20


// ** QUANTIZERS **
#ifdef _DEBUG_C
    #pragma mark Quantizers
#endif

#define QUANTIZE_BPM                            87  // 0: 60bpm to 127:
187bpm
#define QUANTIZE_TOGGLE_NEXT                    89
#define QUANTIZE_SET                            90

#define SYNC_STOP                               62  // like System Realtime
Stop
#define SYNC_START                              63  // like System Realtime
Start



#endif /* _ACMIDIPROTOCOL_H */
```

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