External Interface Manual

Interface Design Specification

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DOCUMENT HISTORY

Date	Version	Author	Comments
01-06-1997	1.0	Mart v. Herwijnen	Initial revision made by TEN.
14-10-1997	1.1	Ger v. Pelt	Improvements of data.
09-01-1998	1.2	John Meeüsen	Intake by development group DCN + addition Chipcard control + addition Camera control
20-01-1998	1.3	Patrick van Gelder	Update for CRM 101
05-10-1998	2.0	Christian Leibbrandt	Processed review D0507 + CRM 136
26-10-1998	2.1	Christian Leibbrandt	Update for FR 013355, CRM 151, 152, 153, 159, 162, & 163
23-02-1999	3.0	Christian Leibbrandt	Processed review D0541
17-02-2000	3.1	Gerrit Til	Update for FR22035, added OLE automation server Input for review D0576
16-03-2000	4.0	Gerrit Til	Processed review D0576 Document to accepted

Table of Contents

1. GENERAL INTRODUCTION

1.1 Purpose

This manual provides a description of all external interfacing facilities provided by the DCN Congress System from version 7.0 onwards. This includes file formats, descriptions of printouts, logging outputs, API calls and the DCN DDE server and chip card production.

1.2 Scope

This manual is intended for developers who want to create software and/or hardware that interfaces with the DCN system.

1.3 Definitions, Acronyms and Abbreviations

ACN	Audio Communication Network
API	Application Interface
AT	Attendance Registration application
BMP	Bitmap
CCU	Central Control Unit
COP	Code Of Practice
CSV	Comma Seperated Values
DACC	DCN Automatic Camera Control
DB	Database
DCN	Digital Congress Network
DDB	Data Distribution Board
DDE	Dynamic Data Exchange
GUI	Graphical User Interface
LCD	Liquid Christal Display
LD	Text/Status Display application
LED	Light Emitting Diode
MD	Message Distribution application
MM	Microphone Management application
MPC	Multi PC
MV	Multi Voting application
MVGUI	GUI of MV application
n.a.	Not applicable
NETDDE	Network Dynamic Data Exchange
PC	Personal Computer
PV	Parliamentary Voting application
PVGUI	GUI of PV application
RTS	Request To Speak list
SI	System Installation application
SM	Synoptic Microphone Control application
ST	Startup application
VD	Video Display application
WFW	Windows for Workgroups
<CR>	Carriage Return (ASCII code 13)
<EOL>	End Of Line character (<CR> + <LF>)
<ESC>	Escape (ASCII code 27)
<LF>	Line Feed (ASCII code 10)
<SEP>	Separator character
DCNAPI	DCN Application Interface. A set of functions used to manipulate the current delegate information set used by DCN.
Delegate ID	Delegate identification number. A number in the range 1-1000 (single

	CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
Group name	The name of the group for this delegate as determined by the names file. If the delegate is not associated with a group this part is empty.
Screen line	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.
Seat number	The seat number of the delegate.

1.4 References

[INST_MAN]	DCN Installation and Operating manual	3922 988 43314

This document should be referred as: **IDS_EXTINF**

1.5 DCN Releases

This manual was initially based on version 7.0 of the DCN software. Earlier versions of the software may or may not support the facilities described in this manual. This section describes the changes made in this document for changes/additions made in the DCN software since version 7.0.

DCN release	Section	Comment
7.01		Document base
7.10	2.2.3.4	Added DDE data-item: Topic = MICRO, data-item = CR#
	3.2.3	Added response logging
7.20	2.2.1.3	Added DDE data-item: Topic = SESSION, data-item = COUNTRIES
	2.2.1.4	Added DDE data-item: Topic = SESSION, data-item = AUTH
	2.2.2	Removed DDE data-item: Topic = VOTING, data-item = MAJOR
	2.2.2.17	Added DDE data-item: Topic = VOTING, data-item = RESQUO#
	2.2.2.18	Added DDE data-item: Topic = VOTING, data-item = RESMAJ#
	2.2.2.19	Added DDE data-item: Topic = VOTING, data-item = RESAPPR
	2.2.2.20	Added DDE data-item: Topic = VOTING, data-item = ACTQUO
	2.2.2.21	Added DDE data-item: Topic = VOTING, data-item = ACTMAJ
	4.3	Added Latvian
	Chapter 6	Changed format of import/export files Removed Printout chapter
8.00	Chapter 8	Added DCN.INI SETTINGS
	Chapter 9	Added Camera Control Data
9.00	Chapter 5	Added OLE Automation Server

2. DDE LINKS

2.1 Introduction

The DCN Video Display application provides DDE (Dynamic Data Exchange) links. Through these links external programs that have DDE client capability can access information regarding the congress. The DDE server implemented in the Video Display application is a so-called “hot” DDE server. This means that the server refreshes the DDE links whenever there is new data available. The DDE client does not need to ask for an update. The DDE links are also made available as NETDDE links so other PCs connected to the DCN PC through a MS-Windows for Workgroups compatible network can access the information too. Some DCN DDE links can transmit large amounts of data. A DDE client that wants to access DCN DDE links must be able to deal with DDE datablocks up to 64 kilobyte in size. The VD application must be started by the user before the DDE links can be used.

2.1.1 DDE link naming conventions

A DDE link name consists of 3 parts:

1. The service name: This is the name used to address the DDE server. For DCN this name will always be “DCN”.
2. The topic name: This name identifies the class of data that must be transported across the DDE link. For DCN links the topic indicates which DCN application shall provide the data.
3. The data-item name: Topics may have more than one data-item at their disposal. This name identifies which data-item must be sent through the link.

Example: To query the voting number

Service:	“DCN”
Topic:	“VOTING”
Data-item:	“NUM”
DDE link:	“**DCN|VOTING!NUM**”

2.1.2 NETDDE link naming conventions

NETDDE link names are derived from the normal DDE link name in the following manner:

1. The service name is replaced by “\\<servername>\NDDE$”. <Servername> is the network name of the PC on which the Video application is running. (This name is determined by the Network applet in the Windows Control Panel.)
2. The topic name is replaced by “DCN_<topic>$”. <Topic> is the same topic name for the link as used for regular DDE.
3. The data-item name is the same as for regular DDE.

Example: The same link is described as in the example above, this time provided by a PC that has the network name “VIDEO_SERVER”.

Service:	“\\VIDEO_SERVER\NDDE$”
Topic:	“DCN_VOTING$”
Data-item:	“NUM”
NETDDE link:	**“\\’VIDEO_SERVER\NDDE$’\|’DCN_VOTING$’!NUM**”

The NETDDE part in the previous example is given in MS-Excel syntax. Other DDE client applications might require a slightly different syntax especially for the | and ! characters and the quotes that separate the different parts of the link-name. Refer to the documentation of your DDE client application for the exact syntax required by your application.

2.2 DDE link specifications

The following section specifies, for each available DDE link, the name and its purpose, the layout of the data and the requirements that must be met to make the link available.

Note: If a link is available but does not have any data to transmit, each link will send an empty update. Empty updates consist of empty strings for string parts and/or 0 (zero) values for numerical parts.

Note: Because commas are used as a separator in DDE links that transmit data consisting of several parts, undefined behaviour may occur if any string part transmitted through such a DDE link contains commas.

2.2.1 Topic = SESSION

2.2.1.1 Topic = SESSION, data-item = NAMES

Purpose

This link provides the screen line information for each delegate in the current names file.

Layout

```
"delegate ID, screen line, delegate ID, screen line, ..."
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
screen line	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.

'Delegate ID' and 'Screen line' are separated by commas. This sequence is repeated for each delegate, again separated by commas.

Requirements

This link is always available. If there is a names file, the string as described above is sent whenever a change in the delegate database occurs. If there is no names file or the names file is empty, an empty update is sent.

2.2.1.2 Topic = SESSION, data-item = GROUPS

Purpose

This link provides group information for each delegate in the current names file.

Layout

```
"delegate ID, group name, delegate ID, group name, ..."
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
group name	The name of the group for this delegate as determined by the names file. If the delegate is not associated with a group this part is empty.

Delegate ID and group name are separated by commas. This sequence is repeated for each delegate, again separated by commas.

Requirements

This link is always available. If there is a names file the string as described above is sent whenever a change in the delegate database occurs. If there is no names file or the names file is empty an empty update is sent.

2.2.1.3 Topic = SESSION, data-item = COUNTRIES

Purpose

This link provides country information for each delegate in the current names file.

Layout

```
"delegate ID, country name, delegate ID, country name, ..."
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
country name	the name of the country for this delegate as determined by the names file. If the delegate is not associated with a country this part is empty.

Delegate ID and country name are separated by commas. This sequence is repeated for each delegate, again separated by commas.

Requirements

This link is always available. If there is a names file the string as described above is sent whenever a change in the delegate database occurs. If there is no names file or the names file is empty an empty update is sent.

2.2.1.4 Topic = SESSION, data-item = AUTH

Purpose

This link provides authorization information for each delegate in the current names file.

Layout

```
"delegate ID, authorization, delegate ID, authorization, ..."
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
authorization	a number that represents the authorizations the delegate has. It will be the sum of 1 or more of the following numbers: *0* for no authorization *1* for microphone authorization *2* for voting authorization *4* for intercom authorization

Delegate ID and authorization are separated by commas. This sequence is repeated for each delegate, again separated by commas.

Examples

```
1,5,2,2
```

In this example delegate 1 has microphone and intercom authorization. Delegate 2 only has voting authorization.

Requirements

This link is always available. If there is a names file the string as described above is sent whenever a change in the delegate database occurs. If there is no names file or the names file is empty an empty update is sent.

2.2.2 Topic = VOTING

2.2.2.1 Topic = VOTING, data-item = NUM

Purpose

Supplies the number of the current vote.

Layout

A decimal number in the range 1-9999.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.2 Topic = VOTING, data-item = NAME

Purpose

Supplies the name of the current vote.

Layout

A string of at most 20 characters.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.3 Topic = VOTING, data-item = SUBJECT

Purpose

Supplies the motion subject text of the current vote.

Layout

A string of at most 132 characters containing the 4 lines of the subject text, without separators between them. (If there are commas in the string they are part of the subject text.)

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.4 Topic = VOTING, data-item = KIND

Purpose

Supplies the type of the current vote.

Layout

A string containing one of the following texts (or their translations if DCN is installed in another language):

- “Parliamentary”
- “For/Against”
- “Audience Response”
- “Rating”
- “Multiple Choice”
- “Opinion Poll”

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.5 Topic = VOTING, data-item = ANSWLEG

Purpose

Supplies the legends of the possible answers in a vote.

Layout

A string containing the legend texts separated by commas. Each legend is at most 10 characters long.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.6 Topic = VOTING, data-item = ANSWTXT

Purpose

Supplies the full descriptive texts of the possible answers in a multiple choice or opinion poll vote.

Layout

```
“fixed_legend 1, answer_legend 1, description 1,
 fixed_legend 2, answer_legend 2, description 2,
 ...”
```

where:

fixed_legend X	The legend as shown on the LCD’s. The fixed legend consist of a single character.
answer_legend X	The legend of the answer as shown on the numeric hall - displays. Each answer legend is at most 10 characters long.
description X	The full description of the answer. The description is at most 66 characters (2 lines of 33 characters without separators).

Requirements

A multiple choice or opinion poll vote is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.7 Topic = VOTING, data-item = ANSWCOR

Purpose

Indicates which of the possible answers in a multiple choice vote is/are correct and which is/are false.

Layout

```
“legend 1, value 1, legend 2, value 2, ...”
```

where:

legend X	the legend of the answer
value X	The digit “1” if this is a correct answer or digit “0” otherwise.

Requirements

A multiple choice vote is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.8 Topic = VOTING, data-item = DISPSET

Purpose

Indicates the display settings as they are used for the voting results window.

Layout

```
“two results, answers”
```

where:

two results	The digit “1” if there are two results displayed on the graphical user interface or “0” otherwise.

answers The digit “1” if the answer display is on or digit “0 otherwise.

Requirements

At least one of the voting applications is running and the result-windows is enabled.

2.2.2.9 Topic = VOTING, data-item = STATE

Purpose

Indicates the current state of the vote.

Layout

```
“statestring, statenr”
```

where:

statestring ‘Stop’, ‘Start’ or ‘Hold’ (contents depends on the GUI language).
statenr 0, 1 or 2 (0 = Start, 1 = Stop, 2 = Hold).

Note: After a restart is issued the link will send “Start” instead of “Restart”. “Start” should be interpreted as “Vote is in progress”.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.10 Topic = VOTING, data-item = RVT

Purpose

Indicates the remaining vote time when a voting timer is used.

Layout

```
“votingtime”
```

where:

votingtime A string containing the remaining vote time in seconds, or empty if no voting timer is used.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.11 Topic = VOTING, data-item = ROLLCALL

Purpose

Indicates which delegate is voting when roll call voting is taking place.

Layout

```
“seat number, screen line”
```

where:

seat number The seat number of the delegate.
screen line Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI. If no roll call vote is underway an empty string is sent.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.12 Topic = VOTING, data-item = TOTGRP##

Purpose

Returns the number of delegates participating in a vote for group number ##.

Layout

```
"group name, present, not voted"
```

where:

group name	the name of group number ##. ## is a number in the range 0-32. If 0 is used the group name is always "ALL" and the other fields refer to the total number present and not voted.
present	the number of delegates in this group who are present
not voted	indication how many did not vote.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to "On". Unless TOTGRP0 is requested the vote must be an open vote.

2.2.2.13 Topic = VOTING, data-item = ANSGRP##

Purpose

Returns for all possible answers the number of delegates in group ## who selected that answer.

Layout

```
"group name, legend 1, votes 1, legend 2, votes 2, ..."
```

where:

group name	the name of group number ##. ## is a number in the range 0-32. If 0 is used the group name is always "ALL" and the other fields refer to the total number present and not voted.
legend X	the legend text of answer X
votes X	the number of delegates in the group who selected that answer.

Requirements

At least one of the voting applications is running and the Hall Display setting in the voting application is set to "On". Unless ANSGRP0 is requested the vote must be an open vote.

2.2.2.14 Topic = VOTING, data-item = VOTGRP##

Purpose

Returns for group ## the total percentage in an Audience Response or Rating vote.

Layout

```
"group name, percentage"
```

where:

group name	the name of group number ##. ## is a number in the range 0-32. If 0 is used the group name is always "ALL" and the other fields refer to the total number present and not voted.
percentage	a value from 0.0 to 100.0

Requirements

Audience Response or Rating vote is running and the Hall Display setting in the voting application is set to "On". Unless VOTGRP0 is requested the vote must be an open vote.

2.2.2.15 Topic = VOTING, data-item = IRES

Purpose

Returns the selected answer for each delegate. (Individual voting results.)

Layout

```
"delegate ID, legend, delegate ID, legend, ..."
```

where:

delegate ID	a number in the range 1-1500 that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
legend	the legend text of the selection made by that delegate.

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to “On”. The vote must be an open vote.

2.2.2.16 Topic = VOTING, data-item = RESWIN#

Purpose

Returns the contents of Results window 1 (# = 1) or 2 (# = 2) on the PC screen.

Layout

```
“num, group name, present legend, present, not voted legend, not voted, answers”.
```

where:

num	the voting number. A decimal number in the range 1-9999.
group name	the name of the group currently displayed.
present legend	the legend text of the “Present” string.
present	the number of delegates present for this group.
not voted legend	the legend text of the “Not voted” string.
not voted	the number of delegates who have not voted in this group.
answers	a percentage ranging from 0.0-100.0 if it is an Audience Response or Rating vote and the display style is set to “Results per vote for group/total”. In all other cases the ‘answers’ field looks like: `“legend 1, votes 1, legend 2, votes 2, ...”`

where:

legend X	the answer legend
votes X	the corresponding result

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to “On”.

2.2.2.17 Topic = VOTING, data-item = RESQUO#

Purpose

Returns the quorum contents of Results window 1 (# = 1) or 2 (# = 2) on the PC screen. Will only return data if quorum enabled and not equal ‘none’.

Layout

```
“required quorum, authorised present”
```

where:

required quorum	the number of delegates which must be present.
authorised present	the number of delegates present with voting authorization.

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to “On”. Only for Parliamentary and For/Against kind of voting and if quorum is enabled.

2.2.2.18 Topic = VOTING, data-item = RESMAJ#

Purpose

Returns the majority contents of Results window 1 (# = 1) or 2 (# = 2) on the PC screen. Will only return data if majority enabled and not equal ‘none’.

Layout

```
"required majority, majority"
```

where:

required majority	the number of delegates which must approve the voting before the voting can be accepted.
majority	the number of delegates which approve the voting.

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to "On". Only for Parliamentary and For/Against kind of voting and if majority is enabled.

2.2.2.19 Topic = VOTING, data-item = RESAPPR

Purpose

Returns whether or not the current (active in control window) voting is approved.

Layout

```
"voting result"
```

where:

voting result	this will be empty if the vote is running. When the vote is stopped it will contain the result of the voting. I.e. "YES" if the quorum is reached (if quorum is used) and majority is reached. Otherwise "NO" will be returned.

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to "On". Only for Parliamentary and For/Against kind of voting, motion approved text enabled, majority is enabled and the majority name not equal 'none'.

2.2.2.20 Topic = VOTING, data-item = ACTQUO

Purpose

Returns the actual data regarding the quorum settings. Will only return data if majority enabled and not equal 'none'.

Layout

```
"quorum name, required quorum, authorised delegates"
```

where:

quorum name	the name of the quorum calculation algorithm currently used. A string of at most 10 characters.
required quorum	the number of delegates which must be present.
authorised delegates	the number of delegates present with voting authorisation.

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to "On". Only for Parliamentary and For/Against kind of voting and if quorum is enabled.

2.2.2.21 Topic = VOTING, data-item = ACTMAJ

Purpose

Returns the actual data regarding the majority settings. Will only return data if majority enabled and not equal 'none'.

Layout

```
"majority name, required majority, majority"
```

where:

majority name	the name of the majority calculation algorithm currently used. A string of at most 10 characters.
required majority	the number of delegates which must approve the voting before the voting can be accepted.
majority	the number of delegates which approve the voting.

Requirements

At least one voting application is running and the Hall Display setting in the voting application is set to “On”. Only for Parliamentary and For/Against kind of voting and if majority is enabled.

2.2.3 Topic = MICRO

2.2.3.1 Topic = MICRO, data-item = MIC##

Purpose

Returns information on the microphones that are currently ON. ## is in the range 1-19.

Layout

```
“delegate ID, screen line, speechtime”
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
screen line	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.
speechtime	the remaining or elapsed speechtime for this delegate, depending on the speechtime setting in Microphone Management Control.

Remark: This DDE link combines all “speaking delegates” from the notebook and the speaker-list. E.g. if two notebook and three regular delegates are speaking, links MIC1 and MIC2 return the notebook delegates and links MIC3 to MIC5 return the regular delegates in the same order as they would appear in Microphone Management. The first speaking delegate in the notebook in Microphone Management is MIC1. The last delegate in the speaker-list is MIC5.

Requirements

Either Synoptic Microphone Control or Microphone Management is running.

2.2.3.2 Topic = MICRO, data-item = RTS##

Purpose

Returns information about the microphones that are currently in the request list. ## is the position in the request list (range 1 to <length of request list>). The request list can contain a maximum of 5, 10, 20, 50 or 100 delegates.

Layout

```
“delegate ID, screen line”
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
screen line	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.

Requirements

Either Synoptic Microphone Control or Microphone Management is running.

2.2.3.3 Topic = MICRO, data-item = RTSL

Purpose

Returns information about the last entry in the request list.

Layout

```
"delegate ID, screen line"
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
screen line	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.

Requirements

Either Synoptic Microphone Control or Microphone Management is running.

2.2.3.4 Topic = MICRO, data-item = CR#

Purpose

Returns information about the microphones that are currently in the response request list. # is the position in the request list (range 1 to 5).

Layout

```
"delegate ID, screen line"
```

where:

delegate ID	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
screen line	is the screen line for this delegate with a layout as specified in the Delegate Database application.

Requirements

Either Synoptic Microphone Control or Microphone Management is running.

2.2.4 Topic = ATTREG

2.2.4.1 Topic = ATTREG, data-item = TOTALS

Purpose

Returns the number of delegates who are registered by the Attendance Registration application.

Layout

```
"present text, number present, absent text, number absent"
```

where:

present text	the string “Present” or the translation if the DCN is not installed in English.
number present	the number of delegates registered as present by Attendance Registration.
absent text	the string “Absent” or the translation if the DCN is not installed in English.
number absent	the number of delegates not registered as present by Attendance Registration.

Requirements

The Attendance Registration application is running and any form of Attendance Registration is enabled.

2.2.4.2 Topic = ATTREG, data-item = ATTEND

Purpose

Returns the absent/present status and current seat number for each delegate.

Layout

```
"delegate ID 1, seat number 1, status 1, delegate ID 2, seat number 2, status 2, ..."
```

where:

delegate Id X	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
seat number X	The seat number of the delegate.
status X	the text “Present” or “Absent” depending on whether the delegate is registered as present by the Attendance Registration application. In non-English versions of DCN the texts “Present” and “Absent” are replaced with the appropriate translation.

Requirements

The Attendance Registration application is running and any form of Attendance Registration is enabled.

2.2.5 Topic = MESSAGE

2.2.5.1 Topic = MESSAGE, data-item = HALL

Purpose

Returns the last message sent to the hall display by the Message Distribution application.

Layout

A string containing the message text without any separators. 132 characters maximum.

Requirements

The Message Distribution application is running.

3. CONTROL-PC SERIAL LOGGING

3.1 Introduction

The Synoptic Microphone Control, Microphone Management and Startup DCN software application modules can perform event logging and send the information to the serial ports of the PC. In the case of a multi-PC DCN installation, this serial logging can be done on any of the connected PCs. It does not matter which PC is running the application. Configuration settings for the serial ports are carried out in the Windows Control Panel.

3.2 Microphone Activity logging

3.2.1 Introduction

Microphone Activity logging is done by the Synoptic Microphone Control and/or Microphone Management application. It provides a compact real-time logging of all microphone and request-to-speak actions that take place in the DCN system. A possible use for this feature is directing cameras to focus on the current speaker.

3.2.2 Configuration

This output is enabled by the “Microphone Activity logging to Aux” option in either Synoptic Microphone Control or Microphone Management. By default it uses COM-port 2 on the local PC, but it can be routed to any COM-port or even to a different PC by adding the following section to DCN.INI:

```
[MicActLogging]
ComPort=X
ComPortPCID=NR
```

where:

ComPort	‘X’ is the COM-port number (1-4).
ComPortPCID	If ComPortPCID is omitted it defaults to the PC the DCN is currently using. On a single PC system ‘NR’ is always 1. In case of a multi-PC system, ‘NR’ is the number of the PC on which the output must be produced. (The multi-PC server is 1, the clients get a number in the range 2-10 using the Multi-PC Config Utility.)

3.2.3 Data layout

Each microphone action produces a short ASCII string terminated by a carriage return and newline character.

The string has the following layout:

```
<action code> <state> <seat number>
```

where:

action code	$	It is a microphone on/off event.
	&	It is a microphone request on/off event.
	#	It is a priority button on/off event.
	*	It is a response request on/off event
state	1	On
	2	Off
	3	All off

seat number The seat number of the unit where the event occurred. This is always a 4 character code consisting out of the characters 0 - 9 and A - Z. If necessary, leading zeros are added. If the 'state' is 3 the seat number is always '0000' (4 zeros) which is otherwise an illegal seat number.

Examples:

```
$10001<CR><LF>     Seat 1, microphone on.
&30000<CR><LF>     All requests off.
#20B31<CR><LF>     Seat B31, priority button off.
*10034<CR><LF>     Seat 34 response request on
```

3.3 Microphone Activity printing

3.3.1 Introduction

Microphone Activity printing is done by the Synoptic Microphone Control and/or Microphone Management application. It provides a real-time logging of all microphone actions that take place in the DCN system. The difference between this output and the activity logging described in the previous section is that this output provides more readable information. The activity printing is intended to be a form of event logging which can be read by an operator.

3.3.2 Configuration

This output is enabled by the "Microphone Activity to Printer" option in either Synoptic Microphone Control or Microphone Management. By default it uses COM-port 1 on the local PC, but it can be routed to any COM-port or even to a different PC by adding the following section to DCN.INI:

```
[MicActLogging]
PrtPort=X
PrtPortPCID=NR
```

where:

PrtPort 'X' is the COM-port number (1-4).

PrtPortPCID If ComPortPCID is omitted it defaults to the PC the DCN is currently using. On a single PC system 'NR' is always 1. In case of a multi-PC system, 'NR' is the number of the PC on which the output must be produced. (The multi-PC server is 1, the clients get a number in the range 2-10 using the Multi-PC Config Utility.)

remark: The operator can change baudrate and port settings using control panel of windows.

3.3.3 Data layout

Each microphone action produces an ASCII string terminated by a carriage return and newline character.

The string has the following layout:

```
<time><event><seat number><screen line><CR><LF>
```

where:

time Time of the event in hh:mm:ss format (hours:minutes:seconds).

event One of the following texts:

```
MICROPHONE ON
MICROPHONE OFF
PRIORITY ON
PRIORITY OFF
ALL SPEAKERS OFF
```

seat number The seat number of the delegate. Empty if the event is "ALL SPEAKERS OFF".

screen line Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI. Empty if the event is “ALL SPEAKERS OFF”.

Examples:

```
13:14:03 MICROPHONE ON 02A1 John Doe
13:16:56 ALL SPEAKERS OFF
```

This means:

At 13:14:03 John Doe at seat 2A1 switches his microphone on.
At 13:16:56 The chairman switches all speakers off.

3.4 Error logging

3.4.1 Introduction

Error logging is done by the Startup application. It provides a compact real-time logging of all error codes.

3.4.2 Configuration

This output is enabled by the “Error logging to Aux” option in the Startup application. By default it uses COM-port 1 on the local PC, but it can be routed to any COM-port or even to a different PC by adding the following section to DCN.INI:

```
[ErrorLogging]
ComPort=X
ComPortPCID=NR
```

See section 3.2.2 for the description of these fields.

3.4.3 Data layout

Each error produces a short ASCII string terminated by a carriage return and newline character.

The string has the following layout:

```
<action code><state><error code>
```

where:

action code	%	It is an error
state	1	Default (no special meaning)
error code	The ‘error code’ is a 4-digit hexadecimal number that indicates which error has occurred and can have the following values: 1701 CCU not available 3201 Slave CCU connected (multi-CCU only) 3202 Slave CCU disconnected (multi-CCU only) 3208 Unit disconnected	

Note: The layout of this output is identical to the Microphone Activity logging layout. This is intentional, to make processing of the data produced on these outputs easier if both outputs are routed to the same COM-port.

4. DELEGATE DATABASE IMPORT/EXPORT

4.1 Introduction

The Delegate Database DCN application can import and export a names file in ASCII format. This allows external programs to produce or process DCN names files. These import/export names files are also used to transfer a names file to a newer version of the DCN software. The old names file is exported from the old database and then imported into the new one. Exported names files are “upwardly-compatible”. This means that newer DCN versions can read old files, but not the other way around.

4.2 Configuration

Some values in the import file may be left blank in which case they will be automatically set to default values. These defaults are usually empty strings, 0 in case of numerical values or yes in case of the authorization fields. The default separator for the fields in the import file is the comma.

Before a file is imported, new default values for the authorization fields and the import separator can be set by adding a section to the DCN.INI file as described below (values shown are the defaults):

```
[Database]
ImportSeparator=,
Authorization=Yes
```

where:

ImportSeparator	Defines the separator character between fields in the import file.
Authorization	Determines the default value for the voting-, microphone- and intercom-authorization (Yes or No).

Note: Upon export of a names file, any separator character that appears as part of an exported text is replaced by a single space. This ensures that the names file can be re-imported using the same setting for the separator character.

4.3 Layout import/export file

The CSV files are ASCII based files and numerical values are represented by strings (card code 1234 is represented by the string 1234). When omitted fields are followed by other fields the separators of the omitted fields must be present in the line. The separators of the fields omitted at the end of the line can be omitted (also see examples in this section).

First line of the file:

```
DCN NAMES 5.0<SEP>filename<SEP>pinsize<SEP>width field1<SEP>field1<SEP> field2<EOL>
```

where:

DCN NAMES x.0	Where x represents the DCN software version number. Fixed text that indicates the type of file and the version of DCN that produced the file. (Required entry.) In this fixed text, the letter ‘x’ represents the major version number of the DCN software (Version 5.0 shown in the line above).
filename	The name under which this file appears in the DCN application, not the csv file name. String with length >0 and < 13 characters. (Required entry)
pinsize	Size of the pincode. Range: 3,4,5, default 3. (Can be omitted)
width field1	The size in characters of the first screen line field. Range: 0-30, default 15. (When no value is given the default is used)
field1, field2	The fields to use for the first and second parts of the screen

line. These can be any of the following strings: Last Name, First Name, Seat Number, Group, Country, Title, Interpretation, User Display, Card Code, PIN Code, Vote Weight, Birthday, Company, Street, Post Code, City, E-Mail, Fax, Phone. (Can be omitted)

field1 and field2 defaults to [None].

<*SEP*>	Indicates a separator character.
<*EOL*>	Indicates an end of line (carriage return (0x0D) and newline character(0x0A)).

Example:

```
DCN NAMES 7.0,Test DB,4,20,Last Name,Company
```

This example gives the first line of a DCN 7.x import file. The file will be called “Test DB” within the DCN program. It uses 4-digit PIN-codes and the screen line contains the last name and company name of each delegate, with the last name consisting of 20 characters.

Note: If DCN is installed in a language other than English, the names for field1 and field2 are translated. Refer to the corresponding entry fields in the Delegate Database application for the correct field names in your version of the DCN software.

The following table defines the fields which make up the second and following lines (depending on the amount of delegate records) of the CSV file. Each line represents a delegate record. The following fields are defined :

```
delegate ID<SEP>lastname<SEP>firstname<SEP>seat number<SEP>group<SEP>country
name<SEP>title <SEP>audio language<SEP>display language<SEP>card code<SEP>PIN
code<SEP>authorization voting<SEP>authorization microphone<SEP>authorization
intercom<SEP>voting weight<SEP>birth date<SEP>company name<SEP>street<SEP>ZIP
code<SEP>city<SEP>E-mail address<SEP>fax number<SEP>phone number<EOL>
```

where:

<*delegate ID*>	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number. (Required entry.)
<*lastname*>	string with up to 40 characters. (Can be omitted.)
<*firstname*>	string with up to 14 characters. (Can be omitted.)
<*seat number*>	The seat number of the delegate. string consisting of four characters within the range 0..9,A..Z (e.g. 0001 or 2CHR, must be unique. (Can be omitted only if a card code for this record is available.)
<*group name*>	The name of the group for this delegate as determined by the names file. If the delegate is not associated with a group this part is empty. String with up to 20 characters, max. 32 different group names per file. (Can be omitted.)
<*country name*>	string with up to 20 characters, max. 200 different country names per file. (Can be omitted.)
<*title*>	string with up to 14 characters, max. 50 different titles per file. (Can be omitted.)
<*audio language*>	string with up to 12 characters, max. 32 different audio languages per file. (Can be omitted.)
<*display language*>	a string representing the language of this particular delegate, DCN displays the texts in this required language on the DCN unit. (Can be omitted.) See remark and table below.
<*card code*>	a number within the range 1..999999999 must be unique within the file. (Can be omitted only if a seat number for this record is available.)
<*PIN code*>	<pinsize> (see first line definitions) digits in the range 1..5. (Can be omitted.)
<*authorization voting*>	DCN language independent text **NoVoting** or **Voting** (=default). (Can be omitted.)

<*authorization microphone*>	DCN language independent text **NoMicro** or **Micro** (=default). (Can be omitted.)
<*authorization intercom*>	DCN language independent text **NoIntercom** or **Intercom** (=default). (Can be omitted.)
<*voting weight*>	a number within the range 1..99999999 (1=default). (Can be omitted.)
<*birth date*>	string with up to 19 characters. (Can be omitted.)
<*company name*>	string with up to 19 characters. (Can be omitted.)
<*street*>	string with up to 40 characters. (Can be omitted.)
<*ZIP code*>	string with up to 9 characters. (Can be omitted.)
<*city*>	string with up to 19 characters. (Can be omitted.)
<*E-mail address*>	string with up to 19 characters. (Can be omitted.)
<*fax number*>	string with up to 19 characters. (Can be omitted.)
<*phone number*>	string with up to 19 characters. (Can be omitted.)

The delegate ID is a unique number that identifies this particular delegate. Its range is 1-1000 for a single-CCU and 1-1500 for a multi-CCU system. The other fields correspond directly to the entry fields in the Delegate Database application.

Delegate ID is required, but the other fields may be left blank or can be omitted all together.

Example:

```
1,Doe,John,A1,My group,United States,Dr.,English,,12345678,123,Voting,NoMicro
```

This is the entry for Dr. John Doe, sitting at seat A1. He is from the United States, belongs to group “My group” and has English as audio language. Display language is as default. His card code is 12345678 with PIN code 123. He has voting but no microphone authorization, and all other fields are omitted and thus left as default.

Remark: The display language can be one of the following strings :

language abbreviation	language	language abbreviation	language
ALB	Albanian	**ITA**	Italian
ARA	Arabic	**JAP**	Japanese
BUL	Bulgarian	**KOR**	Korean
CAT	Catalan	**LV**	Latvian
CHI	Chinese	**MAL**	Malay
CZE	Czech	**NOR**	Norwegian
DAN	Danish	**PER**	Persian
DU	Dutch	**POL**	Polish
ENG	English	**POR**	Portuguese
FIN	Finnish	**ROU**	Romanian
FR	French	**RUS**	Russian
GER	German	**SER**	Serbia
GRE	Greek	**SPA**	Spanish
HEB	Hebrew	**SWE**	Swedish
HUN	Hungarian	**TUR**	Turkish
IND	Indonesian		

The DCN system holds a subset of six different languages from the table above. If another language, other than the six available, is present in the import file this delegate’s display language will be English. These abbreviations are DCN language version independent.

5. DCN API

5.1 Introduction

Delegate information, which is normally modified by means of the Delegate Database application and stored in the DCN database engine can be activated by selecting a names-file in the startup application. The selected names-files will then be the current working environment for delegate information.

Two libraries (a 16 bits DLL and an OLE automation server, the one used depends on the preferences and environment of the caller) provide the ability to download delegate information into the current working environment. I.e. the information is NOT stored in the database but only in memory. The download overwrites or replaces the names-file which is present in the current working environment.

5.1.1 DCNAPI.DLL

The standard 16 bits Windows DLL (DCNAPI.DLL) allows an external program to perform Apply operations and to produce ID-cards and their labels. In order to use the API functions, the Delegate Database application must be present (but not necessarily running). A C/C++ include file that prototypes the functions, defines result codes and contains some C examples is provided with the DCN software (DCNAPI.H).

5.1.2 DCNOLE.EXE

To allow other applications (32 bit) to call the functions from DCNAPI.DLL, an OLE automation server exists (DCNOLE.EXE). This automation server is a wrapper for the original DCNAPI.DLL, but because it is an OLE automation server it is easier to use from 32 bits applications, e.g. Microsoft Office 97.

5.2 API functions

5.2.1 ApplyAll

DLL format:

```
WORD DCNAPI_ApplyAll(LPCSTR ImportFileName);
```

OLE automation server format:

```
long ApplyAll(LPCSTR ImportFileName);
```

Inputs:

ImportFileName — Filename including the full path for an “Apply format” import-file. This format is described in section 5.3.

Return values:

DCNAPI_NOERROR	There are no errors.
DCNAPI_ERROR_DCN_NOT_RUNNING	DCN is not running.
DCNAPI_ERROR_NO_AUTHORISATION	The Delegate Database application is not available.
DCNAPI_ERROR_NO_APPLY_ALLOWED	This function is not currently permitted because: • A voting round is currently running. • Attendance Registration is active. • The DCN is running off-line i.e. is not connected to a running CCU.
DCNAPI_GENERALERROR	An internal error has occurred. Make sure the import file is in the correct format and the

communication with the CCU is ok.

Description:

The ApplyAll function will import all delegates present in the specified import file. The newly imported names file will become the new current names file in Startup as if it was opened using “Open names file” in the file menu of Startup.

Note: Because the information that is imported in this manner is sent directly to the connected CCU it is not added to the DCN database as a regular names file. Therefore this names file cannot be used in the Delegate Database application.

5.2.2 ApplyOne

DLL format:

```
WORD DCNAPI_ApplyOne
(
    WORD   DelegateId,
    LPCSTR LastName,
    LPCSTR ScreenLine,
    LPCSTR SeatNumber,
    LPCSTR GroupName,
    LPCSTR DisplayLanguage,
    LONG   CardCode,
    LONG   PinCode,
    BOOL   VoteAuthorization,
    BOOL   MicroAuthorization,
    BOOL   IntercomAuthorization,
    WORD   VotingWeight
);
```

To allow higher voting weights (as in the database application) an extended version of the original call is provided:

```
WORD DCNAPI_ApplyOneEx
(
    WORD   DelegateId,
    LPCSTR LastName,
    LPCSTR ScreenLine,
    LPCSTR SeatNumber,
    LPCSTR GroupName,
    LPCSTR DisplayLanguage,
    LONG   CardCode,
    LONG   PinCode,
    BOOL   VoteAuthorization,
    BOOL   MicroAuthorization,
    BOOL   IntercomAuthorization,
    DWORD  VotingWeight
);
```

OLE automation server format:

```
long ApplyOne
(
    short  DelegateId,
    LPCSTR LastName,
    LPCSTR ScreenLine,
    LPCSTR SeatNumber,
    LPCSTR GroupName,
    LPCSTR DisplayLanguage,
    long   CardCode,
    long   PinCode,
    short  VoteAuthorization,
    short  MicroAuthorization,
```

```
    short  IntercomAuthorization,
    long   VotingWeight
);
```

Inputs:

DelegateId	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
LastName	Last name of the delegate. 40 characters maximum.
ScreenLine	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.
SeatNumber	Default seat number for this delegate. The number is checked for validity. 4 characters, only digits and upper case characters A-Z are allowed.
GroupName	The name of the group for this delegate as determined by the names file. If the delegate is not associated with a group this part is empty. 20 characters maximum. This group name must already be present in the current names file.
DisplayLanguage	Display language for the delegate. The default is English if the specified language is not available.
CardCode	Card code of the delegate's ID-card. This is in the range 1-999999999.
PinCode	PIN code to be used for identification. The digits of the pin code can only be in the range of 1-5.
VoteAuthorization	Voting authorization (0 = No, 1 = Yes).
MicroAuthorization	Microphone authorization (0 = No, 1 = Yes).
IntercomAuthorization	Intercom authorization (0 = No, 1 = Yes).
VotingWeight	The voting weight for weighted voting. This is in the range 1-99999999 (DCNAPI_ApplyOne only 1 – 65535). The default is 1 if the range is exceeded.

Return values:

DCNAPI_NOERROR	There are no errors.
DCNAPI_ERROR_DCN_NOT_RUNNING	DCN is not running.
DCNAPI_ERROR_NO_AUTHORISATION	The Delegate Database application is not available.
DCNAPI_ERROR_NO_APPLY_ALLOWED	This function is not currently permitted because: • A voting round is currently running. • The DCN is running off-line i.e. is not connected to a running CCU. • The seat number, card code or PIN code field has changed and Attendance Registration is active. • There is no current names file.
DCNAPI_GENERALERROR	An internal error has occurred. Make sure the import file is in the correct format and the communication with the CCU is ok.
DCNAPI_ERROR_BAD_CARDCODE	The card code is out of range.
DCNAPI_ERROR_BAD_PINCODE	The PIN code has too many numbers or uses digits outside the range 1-5.
DCNAPI_ERROR_INVALID_SEATNR	The seat number is invalid.
DCNAPI_ERROR_GROUP_NOT_PRESENT	The group given is not present in the currently open names file in ST.

Description:

The ApplyOne function applies existing data which has changed, or new data for a single delegate. The apply is carried out on the currently open names file in Startup. The ApplyOne

on changed delegate data is only allowed if the 'seat number', 'card code' and the 'PIN code' fields are not changed when Attendance Registration is activated.

Note: Because the information that is imported in this manner is sent directly to the connected CCU, it does not modify the DCN database. As a result the Delegate Database application will not show changes made using this function.

Note: If DCN is installed in a language other than English, the name to be entered by the parameter szDisplayLanguage is also translated. Refer to the corresponding entry field in the Delegate Database application for the language names that are available in your version of the DCN software.

Note: DCNAPI_ApplyOne is obsolete, it is only present for backward compatibility. Please use DCNAPI_ApplyOneEx instead.

5.2.3 ProduceCard

DLL format:

```
WORD DCNAPI_ProduceCard
(
    BOOL   WriteCode,
    BOOL   MakeLabel,
    LONG   CardCode,
    LPCSTR CardField1,
    LPCSTR CardField2,
    LPCSTR CardField3,
    LPCSTR CardField4,
    LPCSTR CardField5,
    LPCSTR CardField6
);
```

OLE automation server format:

```
long ProduceCard
(
    short  WriteCode,
    short  MakeLabel,
    long   CardCode,
    LPCSTR CardField1,
    LPCSTR CardField2,
    LPCSTR CardField3,
    LPCSTR CardField4,
    LPCSTR CardField5,
    LPCSTR CardField6
);
```

Inputs:

WriteCode	Writes the card code when set.
MakeLabel	Writes the card label when set.
CardCode	Card code which is written on the card.
CardField1	User definable field for the card label. Max. 23 characters.
CardField2	idem
CardField3	User definable field for the card label. Max. 11 characters.
CardField4	idem
CardField5	idem
CardField6	idem

Card label layout	
Field 1	
Field 2	
Field 3	Field 5

Field 4	Field 6

Return values:

DCNAPI_NOERROR	There are no errors.
DCNAPI_ERROR_DCN_NOT_RUNNING	DCN is not running.
DCNAPI_ERROR_NO_AUTHORISATION	The Delegate Database application is not available.
DCNAPI_ERROR_CARDDEVICE_FAILURE	The card-encoder reported an error. (No card inserted. Card is not writeable.)
DCNAPI_ERROR_BAD_CARDCODE	The card code is out of range.

Description:

The Produce card function sends the given information to the card encoding device and/or the card label printer, connected to the DCN-system.

Note: Within the Delegate Database application it is only possible to use values from the database as text on the card labels. The ProduceCard function allows any text to be placed on the card labels.

5.2.4 Terminate

OLE automation server format:

```
long Terminate()
```

Description:

The terminate function tells the automation server that the calling application is finished with it and that it can be removed from memory.

5.3 Apply file format

The API function ApplyAll uses an import file that contains the delegate data. This file has the following structure:

First line of the file:

```
DCN APPLY 5.0<SEP>filename<SEP>pinsize<EOL>
```

where:

DCN APPLY x.0	Fixed text that indicates the type of file and the version of DCN for which the file was produced (Required entry). In this fixed text, the letter 'x' represents the major version number of the DCN software (Version 5.0 shown in the line above).
filename	The name of this file in the DCN Startup application. 8 characters maximum (Required entry.)
pinsize	Size of the pincode. Range: 3,4,5, default 3.
<SEP>	Indicates a separator character.
<EOL>	Indicates an end of line (carriage return (0x0D) and newline character(0x0A)).

Example:

```
DCN APPLY 4.0,Test DB,4
```

This example gives the first line of a DCN 4.x apply file. The file will be called "Test DB" in the DCN program. It uses 4-digit PIN-codes.

The other lines in the apply file give all the information for one delegate. Layout is as follows:

```
delegate id<SEP>lastname<SEP>screenline<SEP>seat number<SEP>group<SEP>display
language<SEP>card code<SEP>PIN code<SEP>authorization voting<SEP>authorization
microphone<SEP>authorization intercom<SEP>voting weight<EOL>
```

The delegate ID is a unique number that identifies this particular delegate. It is in the range 1-1000 for a single CCU and 1-1500 for a multi-CCU system. The other fields correspond directly to the entry fields in the Delegate Database application. The authorization voting field

is set to either "**Voting**" or "**NoVoting**", the authorization microphone field is set to either "**Micro**" or "**NoMicro**" and the authorization intercom field is set to either "**Intercom**" or "**NoIntercom**". These texts are DCN language independent.

Delegate ID is necessary, but the other fields may be left blank or can be omitted.

Example:

```
1,Doe,My first name is John,A1,My group,English,12345678,123,Voting,NoMicro
```

This is the entry for Doe. He is sitting at seat A1 and has a screen line with the text "My first name is John". He belongs to group "My group" and has English as the display language. His card code is 12345678 with PIN code 123. He has voting but no microphone authorization and all other fields are omitted and therefore contain the default values.

Note: The apply file format is a subset of the import file format. Because the data is not used in the Delegate Database application, only the data that is relevant for the CCU is stored in the apply file.

Note: If the DCN is installed in a language other than English, the name entered in the display language field is also translated. Refer to the corresponding entry field in the Delegate Database application for the language names that are available in your version of the DCN software.

5.4 DCN OLE Automation Server

To use the automation server it must be registered with the windows environment first. After it is registered, it can be started and it's methods can be used. When the calling application is finished with it, it must call the terminate method to instruct the server to stop. The data imported into DCN will remain valid, also when the automation server is stopped.

A sample database is installed into the sample directory during DCN installation, which shows the use of the automation server.

5.4.1 Registering the server

Any OLE server needs to be registered in the Windows environment, the DCNOLE application has a build in register mechanism. To register the server just run the server once, e.g. from the command line, or double click on it in explorer. It will register itself so other applications can use it.

5.4.2 Start the server

Example in Visual Basic for Applications:

```
Dim dcn As Object
Set dcn = CreateObject("DcnOle.Server")
```

5.4.3 Call methods

Example in Visual Basic for Applications:

```
Dim eRetVal As Integer
eRetVal = dcn.ApplyAll("MYDATA.CSV")
```

5.4.4 Stop the server

Example in Visual Basic for Applications:

```
Dim eRetVal As Integer
eRetVal = dcn.Terminate()
```

```
Set dcn = Nothing
```

Note: To stop the server and remove it from memory, please call the terminate method. This will instruct the server to stop.

6. VOTING IMPORT/EXPORT

6.1 Introduction

The DCN Voting applications can import voting scripts and export voting results. The voting import and export takes into account the ImportSeparator setting in the Database section of DCN.INI:

```
[Database]
ImportSeparator=,
```

This setting determines what character is used to separate fields in import and/or export files. The default separator is a comma (“,”). The default separator will be used when no separator is specified in the DCN.INI-file.

6.2 Import voting script

6.2.1 Introduction

In voting scripts the DCN operator can prepare a voting even if the DCN system is not running. A voting script is a simple ASCII file that describes one or more voting rounds. When imported into the DCN, these voting rounds are the same as those made with the Multi and/or Parliamentary Voting applications.

6.2.2 Import file layout

Settings that do not apply for a particular type of vote are simply ignored, but the separator characters that delimit these entries must be present.

File starts with the line:

```
DCN VOTING SCRIPT 5.0<SEP>script name<EOL>
```

where:

DCN VOTING SCRIPT x.0	Indicates the type of file and the version of DCN required to handle it. (required entry) In this fixed text, the letter ‘x’ represents the major version number of the DCN software (Version 5.0 shown in the line above).
script name	Name of the script to be stored in the database. 8 characters maximum. A script cannot be imported if it has a name which is already present in the DCN system. (required entry).
<SEP>	Indicates a separator character.
<EOL>	Indicates an end of line (carriage return (0x0D) and newline character(0x0A)).

A 2-line entry follows for each vote:

First line:

```
voting number<SEP>voting name<SEP>voting subject<SEP>voting kind<SEP>voting
menu<SEP>not used<SEP>not used<SEP>interim results<SEP>number of answers<EOL>
```

where:

voting number	This must be in the range 1-9999. (The default is 1 for the first vote and is incremented for each subsequent vote in the script.)
voting name	20 characters maximum. Default empty.
voting subject	132 characters maximum. Default empty.
voting kind	A number in the range 1-6 that specifies the type of vote: See table 1 for explanation. The default is 1 for the first vote and is the previous value for subsequent votes.

voting menu	A number in the range 1-7 that specifies the layout for the possible answers on the delegate LCD screens: See table 2 for explanation. The default is 1 for the first vote and is the previous value for subsequent votes.
not used	The fields are not used, and can be left blank.
interim results	A number in the range 0-4 that specifies the interim results setting. See table 3 for an explanation of these values. The default is 0 for the first vote and is the previous value for all subsequent votes.
number of answers	A number that indicates how many answers are possible in this vote. This is a required entry. There is no default.
<SEP>	Indicates a separator character.
<EOL>	Indicates an end of line (carriage return (0x0D) and newline character(0x0A)).

Table 1: Voting kind numbering	
1	Parliamentary vote
2	For/Against vote
3	Audience Response vote
4	Rating vote
5	Multiple Choice vote
6	Opinion Poll vote

Table 2: Voting menu settings	
1	No, Yes
2	No, Abstain, Yes
3	For, Against
4	--, -, 0, +, ++
5	1, 2, 3, ...
6	A, B, C, ...
7	..., C, B, A

Table 3: Interim results settings	
0	None
1	Total
2	Total + Individual
3	Total on PC only
4	Total + Individual on PC only

Second line:

```
answer legend<SEP>answer text<SEP>answer correct<EOL>
```

where:

answer legend	Legend text for this answer (10 characters maximum).
answer text	Descriptive text for this answer (66 characters maximum).
answer correct	In a multiple choice vote, this setting indicates whether the answer is correct (TRUE) or incorrect (FALSE).

Note: This line is repeated for the number of answers.

6.3 Export voting results

6.3.1 Introduction

In DCN Voting applications, it is possible to automatically save the final voting results for a single voting round. This section specifies the layout of such an export file.

6.3.2 Results export file layout

The results export file is composed of the following lines of data (in this order):

identification	This section is the 1st line in the file.
answer legend	This section consists of lines repeated for each possible answer in this vote (see table 1, section 6.2.2).
date and time	This section contains the date and time the voting was stopped.
total results	This section consists of a part with a fixed number of lines with the totals and a part consisting of lines repeated for each possible answer in this vote (see table 1, section 6.2.2). I.e. totals per answer.
individual results	This section is conditional and consists of a line for each

delegate.

6.3.2.1 Identification

```
DCN RESULT 5.0<SEP>voting number<SEP>voting name<SEP>voting subject<SEP>voting
kind<SEP>number of answers<EOL>
```

where:

DCN RESULT x.0	Indicates the type of file and the version of DCN that produced it. In this file type indication, the letter 'x' represents the major version number of the DCN software (Version 5.0 shown in the line above).
voting number	A number in the range 1-9999.
voting name	The name of the vote.
voting subject	The voting subject text.
voting kind	A number in the range 1-7 that specifies the type of vote: See table 1 for explanation.
number of answers	The number of possible answer options in this vote.

6.3.2.2 Answer legend

This line is repeated 'number of answers' times:

```
answer legend<SEP>answer text<SEP>answer correct<EOL>
```

where:

answer legend	Legend text for the answer.
answer text	Descriptive text for the answer.
answer correct	In a multiple choice vote, this setting indicates whether the answer is correct (TRUE) or incorrect (FALSE).

6.3.2.3 Date and time

This line contains the date and time the voting was performed (the exact time will indicate the time the voting is stopped).

```
DD-MM-YYYY  HH:MM<EOL>
```

where:

DD-MM-YYYY	Date of voting, DD = day (2 digits), MM = month (2 digits), YYYY = year (4 digits).
HH:MM	Time of voting, HH = hour (2 digits, 24 hour military time format), MM = minutes (2 digits)

6.3.2.4 Total results

```
<total voting results> <EOL>
<present legend> <SEP> <number of present> <EOL>
<not voted legend> <SEP> <number of not voted> <EOL>
<quorum name> <SEP> <required quorum> <SEP> <authorised delegates> <EOL>
<majority name> <SEP> <required majority> <SEP> <majority> <EOL>
```

where:

total voting results	The average result (0-1000) of an Audience Response or Rating type voting.
present legend	Legend text
number present	The number of voters registered as present
not voted legend	Legend text
number not voted	The number of present voters who have not voted
quorum name	The name of the used Quorum formula
required quorum	The number of authorised delegates that must be present for a voting to become approved, it will be 65535 (0xFFFF) when no quorum is required
authorised delegates	The number of authorised delegates present

majority name	The name of the used Majority formula
required majority	The number of “for”- or “yes”-votes necessary for a voting to become approved, it will be 4294967295 (0xFFFFFFFF) when no majority is required)
majority	The number of “for”- or “yes”-votes

This line is then repeated ‘number of answers’ times:

```
<answer option legend> <SEP> <answer option result> <SEP> <EOL>
```

where:

answer option legend	Answer text
answer option result	The number of voters who selected this answer.

6.3.2.5 Individual results

This line is repeated for each delegate (if selected):

```
delegate id<SEP>screen line<SEP>group<SEP>answer legend vote<EOL>
```

where:

delegate id	A number in the range 1-1000 (single CCU) or 1-1500 (multi-CCU) that identifies the delegate in the delegate database. Each delegate has a unique ID-number.
screenline	Text of 33 characters which identifies the delegate as text. Can be generated by either the DB application or using DCNAPI.
group	The name of the group for this delegate as determined by the names file. If the delegate is not associated with a group this part is empty.
answer legend	The legend of the answer given by the delegate.

6.4 Export Multiple Choice voting script + results

6.4.1 Introduction

In the Multiple Choice Voting application, it is possible to save a script and any voting results in a single export file. It is a special king of export file as it only contains Multiple Choice voting and contains the information of all votings in the script.

6.4.2 Script + results export file layout

The results export file is composed of the following lines of data (in this order):

identification	This section is the 1st line in the file.
voting info	This section consists of a part with a fixed number of lines with the voting description and a part consisting of lines repeated for each possible answer in this vote. This entire section is repeated for each voting in the script.
individual results	This section consists of one fixed line plus one line per voting for each delegate with voting authorization.

6.4.2.1 Identification

```
DCN MC RESULT 5.0<SEP>script name<SEP>number of votings<EOL>
```

where:

DCN MC RESULT x.0	Indicates the type of file and the version of DCN that produced it. In this file type indication, the letter ‘x’ represents the major

	version number of the DCN software (Version 5.0 shown in the line above).
script name	Name of a script (20 characters maximum).
number of votings	The number of votings in the script.

6.4.2.2 Voting info

This entire section is repeated ‘number of votings’ times.

```
voting number<SEP>voting name<SEP>voting subject<SEP>number of answers><EOL>
```

where:

See section 6.3.2.1 for a description of the fields.

This line is then repeated ‘number of answers’ times:

```
<answer legend> <SEP> <answer text> <SEP> <answer correct>
```

where:

See section 6.3.2.2 for a description of the fields.

6.4.2.3 Individual results

This entire section is repeated for each delegate with voting authorization.

```
delegate id<SEP>screenline<SEP>group<SEP>number of correct answers<EOL>
```

where:

number of correct answers	The number of answers given by the delegate which matched the answer with correct indication on in the script.

See section 6.3.2.5 of the description of the fields not described here.

This line is then repeated ‘number of votings’ times:

```
answer legend<EOL>
```

where:

See section 6.3.2.2 for a description of the fields.

7. SYNOPTIC MICROPHONE CONTROL BMP IMPORT

In the Synoptic Microphone Control DCN application, it is possible to import a BMP image to use as a background for the synoptic display. An example of this could be displaying a floorplan of the congress hall on screen. The DCN uses all imported BMP images from the "bitmap" sub-directory of the DCN directory. If you want to remove a BMP image from a Synoptic Microphone Control layout without having to delete the layout and start a new you can simply delete the BMP file from the bitmap-directory manually. This can only be done when the DCN software is NOT running.

Any standard Windows BMP image-file can be used but the following restrictions apply:

- Images larger than 1280 x 1280 pixels will be clipped at the right and/or bottom border to fit into the display.
- If there is not enough memory to load the entire image it is truncated at the bottom border.
- Images that are not compatible with the Windows video-driver in use will not be loaded. (This is a restriction of Windows itself.) In some cases Windows will automatically convert the BMP file to a convenient format, although that may degrade the quality of the image. Refer to table 1 to see which BMP formats can be used with a given video-driver.

Table 1: Video-driver and BMP depth relations

Video-driver	16 color BMP	256 color BMP	16.8 million color BMP
16 colors	Supported	Automatic conversion	Not supported by Windows 3.x. Automatic conversion on Windows 95/98
256 colors	Supported	Supported	Not supported by Windows 3.x. Automatic conversion on Windows 95/98
More than 256 colors	Supported	Supported	Supported

Note: Using so-called 24 bit (16.8 million color) BMP files requires a lot of computer memory which decreases computer performance. Therefore using very large (above 800 x 600 pixels) 24 bit BMP files is only recommended if the computer has at least 16 MB of memory.

Table 2: Typical memory use

Image size (typical dimensions)	Memory 256 color image	Memory 24 bit image
640 x 480 pixels	0.3 MB	0.9 Mb
800 x 600 pixels	0.5 MB	1.5 MB
1024 x 768 pixels	0.8 MB	2.4 MB

Note: When using MPC, the client PC will use the BMP file with the same name as the master in the "Bitmap" subdirectory.

Note: BMP files cannot be rotated. The layout itself can be rotated.

8. DCN.INI SETTINGS

8.1 Introduction

Some less frequently changed settings can be changed in the file DCN.INI, located in the Windows directory of the control PC. For normal use these settings can be left unaltered. In this chapter, the syntax and function of these DCN.INI-file settings are described.

8.2 Chip Card Production

To be more flexible in the future, a ‘configure uplink data’ message is introduced from DCN version 8.0 onwards. With this message units are informed where and how much data is to be read from a reserved part of a chip card. In this way the usage of data as card code is more flexible.

The following DCN.INI section determines card code settings (values shown are the defaults):

```
[Startup]
ChannelFormat=0
DataStart=25
DataLength=9
```

where:

ChannelFormat	Not used in PC and CCU software yet. The units however must be prepared to send data according to the future requirements.
DataStart	Start of the DCN data on the chip card. Where the card code data can start depends on the type (memory size) of chip card.
DataLength	Length of the DCN data on the chip card. If the length is less than 9, leading zeroes are added in case a card code should be read. Length greater than 9 are not supported yet and reserved for future use.

8.3 Disable User Text on unit LCD

In case a language-specific character set is used, the possibility exists that some characters will not be supported by the Liquid Crystal Displays on the delegate units. To prevent the display of these characters, a ‘disable user text’ setting is introduced from DCN version 8.0 onwards. When this setting is set to ‘Yes’, all user configurable texts (delegate screenlines, voting subjects, etc.) will not be displayed on the unit LCD’s.

The following DCN.INI section determines this setting (values shown are the defaults):

```
[Startup]
DisableUserText=No
```

where:

DisableUserText	When set to ‘Yes’, all user configurable texts will not be displayed on the unit LCD’s.

8.4 More than 15 Simultaneous Interpretation Channels

It is possible to select more than 15 interpreter channels in Simultaneous Interpretation. When more than 15 interpreter channels are selected, the CCU is dedicated to interpretation only, and normal DCN contribution units cannot be used. Instead special interpretation hardware including interpreter desks and channel selectors must be used. This equipment is available from Philips Projects on special order. For a more detailed description of this mode, see the LBB 3572 Software User Manual, Appendix A.

The following DCN.INI section determines this setting (30 channels used in this example):

```
[Interpretation]
Channels=30
```

where:

Channels	Number of Simultaneous Interpretation Channels. Maximum number of channels is 30.

8.5 Disable Number of Present indication

Normally, the number of delegates present during a voting is determined by the number of delegates that pressed the 'PRESENT' key on their units. When the LBB 3575 or LBB 3576 PC-software is used, this number can also be determined by the number of authorised delegates in the delegate database (100%-votes setting set to 'Authorised'), or the number of people that actually casted a vote (100%-votes setting set to 'Casted'). In these 2 cases, the 'Present'-legend on the LBB 3583 Text Display and the LBB 3584 Video Display will switch to 'Authorised' or 'Casted'. However, on the unit LCD's and the LBB 3583 numeric displays, this legend will not be changed. This might be experienced as confusing. To prevent confusion, the display of the number of 'Authorised' or 'Casted' delegates on unit LCD's and LBB 3583 numeric displays can be disabled.

The following DCN.INI section determines this setting (value show is the default):

```
[Startup]
DisablePresentNumber=No
```

where:

DisablePresentNumber	When set to 'Yes', the display of number of Authorised Delegates or Casted Votes will be disabled.

8.6 Alter Screen line length of Synoptic

Altering the default screen line length of Synoptic Microphone. When a screen line is displayed instead of a microphone icon, two lines of maximum of 15 characters are displayed by default. It is possible to change the number of characters displayed on each line to any number between 0 and 15. Ths would be useful if, for example, it was necessary to save layout screen space. To alter the default setting you must edit the DCN.INI file:

```
[Synoptic]
ScreenLineLength=#
```

where:

ScreenLineLength	length between 0 and 15

9. CAMERA CONTROL DATA

9.1 Introduction

The Camera Control software application modules can generate camera related commands to be used for a video switcher and send these commands to the serial port of the CCU.

For the serial communication a fixed set of settings is used to initialise the serial port. These settings are:

```
Baudrate = 19200
Data bits = 8
Stop bits = 1
Parity = none
```

9.2 Camera Control Commands

Camera control commands are divided into three categories, which each fulfil a subset during the use of the camera control application. The categories are:

Installation Commands	Commands which are used during the installation of the camera assignments. During this process the seats are chained to a camera and a pre-position. During this process also the preparation and operational commands can be used.
Preparation Commands	Commands which are used during preparation of the camera control. That is during start-up of the camera application. During this process also the operational commands can be used.
Operational Commands	Commands which are used during operational process of the camera control.

In the following table describes which command is used in which category:

Command	Installation	Preparation	Operation
TOP-TITLE-OVERRIDE	Yes	Yes	Yes
BOTTOM-TITLE-OVERRIDE	Yes	Yes	Yes
MON-OVL-ENABLE	No	Yes	No
MON-CAM	Yes	No	No
MON+CAM	No	No	Yes
PREPOS-SET	Yes	No	No
PREPOS	Yes	Yes	Yes

9.2.1 TOP-TITLE-OVERRIDE

Display top “text” over the camera title shown on monitor (mon#).

Command Syntax

```
TOP-TITLE-OVERRIDE “text” mon#
```

where:

text Text to display on the monitor. String of at most 16 characters.

mon# Monitor number. A decimal number in the range 0 - 255.

This command overrules the text displayed on the top line, where normally the camera text is located. DCN uses this command to clear the camera text for the audience monitors.

9.2.2 BOTTOM-TITLE-OVERRIDE

Display bottom "text" over the camera title shown on monitor (mon#).

Command Syntax

```
BOTTOM-TITLE-OVERRIDE "text" mon#
```

where:

text Text to display on the monitor. String of at most 16 characters.
mon# Monitor number. A decimal number in the range 0 - 255.

This command overrules the text displayed on the bottom line, where normally the monitor text is located. DCN uses this command to show the name of the delegate currently speaking and visible on the monitor.

9.2.3 MON-OVL-ENABLE

Enable/Disable monitor overlay information on monitor (mon#).

Command Syntax

```
MON-OVL-ENABLE mon# data1 data2
```

where:

mon# Monitor number. A decimal number in the range 0 - 255.
data1 Determines if camera number, titles and status information will be displayed (0 = do not display, 1 = display).
data2 Value determines if time and date information will be displayed (0 = do not display, 1 = display).

This command enables/disables overlay information on monitor.

9.2.4 MON-CAM

Switch camera (cam#) to monitor (mon#) and update keyboard (kyb#).

Command Syntax

```
MON-CAM mon# kyb# cam#
```

where:

mon# Monitor number. A decimal number in the range 0 - 255.
kyb# Keyboard number. A decimal number in the range 0 - 4. 1 is used for the DACC.
cam# Camera number. A decimal number in the range 0 - 255

This command switches the camera view to monitor and updates the keyboard.

9.2.5 MON+CAM

Switch physical camera (cam#) to monitor (mon#).

Command Syntax

```
MON+CAM mon# cam#
```

where:

mon# Monitor number. A decimal number in the range 0 - 255.
cam# Camera number. A decimal number in the range 0 - 255

This command switches the physical camera to a monitor.

9.2.6 PREPOS-SET

Set pre-position (pp#) for camera (cam#).

Command Syntax

```
PREPOS-SET cam# pp#
```

where:

cam#	Camera number. A decimal number in the range 0 - 255
pp#	Preposition number to be programmed. A decimal number in the range 0 -255.

Note that this command should connect the current camera position of the camera to the selected pre-position number.

9.2.7 PREPOS

Call pre-position (pp#) on camera (cam#).

Command Syntax

```
PREPOS cam# pp#
```

where:

cam#	Camera number. A decimal number in the range 0 - 255
pp#	Preposition number to be recalled. A decimal number in the range 0 - 255.

Note that this command should restore a previously set camera position. This implies that the camera could rotate, swivel and zoom to the appropriate position.

9.3 Camera installation import/export

9.3.1 Introduction

In the Camera installation application, it is possible to export and to import the camera installation data. This section specifies the layout of such an import/export file.

9.3.2 Import/export file layout

The import/export file is composed of the following lines of data (in this order):

identification	This section is the 1st line in the file.
camera definition	This section consists of lines repeated for each camera definition.
camera seat assignment	This section consists of lines for each seat assignment.

9.3.2.1 Identification

```
DCN CAMERA 8.0<SEP>filename<SEP>number of audience monitors<SEP>movement
time<SEP>screen line usage<SEP>camera override<SEP>number of camera
definitions<SEP>number of seat assigments<EOL>
```

where:

DCN CAMERA x.0	Indicates the type of file and the version of DCN that produced it. In this file type indication, the letter 'x' represents the major version number of the DCN software (Version 8.0 shown in the line above).
number of audience monitors	Indicates how many audience monitors are present. A number in the range 1-4 (default = 1).
movement time	Time in seconds to switch to overview camera when a camera is changing position. A fractional number in the range 0-60 in steps of .5.
screen line usage	A number defining how the screen lines are displayed. The number can have the following values: 0 Use the first 16 characters from the screenline (namesfile) as bottom text. 1 Use seattext 1 (see section 9.3.2.3) as bottom text. 2 Use the first 16 characters from the screenline as top text and the next 16 character as bottom text. 3 Use seattext 1 as top title and seattext 2 as bottom text (see section 9.3.2.3).
camera override	Defines the camera override mode: 0 The camera will stay at the currently speaking delegate or chairman, until the speakers' microphone is switched off, even if new speakers switch on their microphones. 1 The camera will switch to a new speaker as soon as the speakers' microphone is switched on.
number of camera definitions	The number of camera definitions in this file.
number of seat assignments	The number of seat assignments in this file.
<SEP>	Indicates a separator character.
<EOL>	Indicates an end of line (carriage return (0x0D) and newline character(0x0A)).

9.3.2.2 Camera definition

This line is repeated 'number of camera definitions' times:

```
camera number<SEP>prepositions<SEP>title<EOL>
```

where:

camera number	Camera number. A decimal number in the range 0 - 255
prepositions	The number of prepositions the camera supports (default = 99, -1 for a fixed camera).
title	Camera Title. A string of at most 16 characters.

9.3.2.3 Camera seat assignment

This line is repeated 'number of seat assignments' times:

```
seat number<SEP>unit ID<SEP>camera<SEP>preposition<SEP> seattext1<SEP>seattext2<EOL>
```

where:

seat number	The seat number of the delegate.
unit ID	The ID of the unit where seat number belongs to.
camera	Camera number. A decimal number in the range 0 - 255
preposition	Preposition number to be programmed. A decimal number in the range 0 - 255.
seattext1	Text to display on the monitor. String of at most 16 characters.
seattext2	Text to display on the monitor. String of at most 16 characters.

10. DATA DISTRIBUTION BOARD LBB 3512

10.1 Introduction

The DCN Data Distribution Board (DDB) is a DCN unit that is used to implement several features in the DCN system. It has a serial output for connecting the various types of hall displays and digital outputs that can be switched by inputs on another DDB or by the interpreter units connected to the DCN network. For information on DDB DIP-switch settings, connector pins, etc. please refer to DCN Installation and Operation manual [INST_MAN].

10.2 Hall displays

10.2.1 Introduction

A DCN hall display is a device that shows conference information to the public, usually on some kind of large LED screen. The standard DCN hall displays contain an internal DDB. It is possible to connect a different display to a DDB board as long as it is capable of handling the serial data sent by the DDB. To be able to use the hall displays the LD application must be running.

For hall display the DDB must be set in passive mode with one of the hall display addresses as specified in the Installation and Operating manual [INST_MAN]. Since passive mode is used on the DDB it is possible to connect several DDB using the same address. Each of these will receive the same information.

Note: Except for the numeric display, all hall displays require that the DDB is set for a 19200 baud connection. The numeric display can be connected to either 9600 or 19200 baud. The RS232 settings; baud-rate (9600 or 19200) ,8 data-bits, 1 stop-bits, no parity, no handshake.

The serial data sent from the DDB to the display consists of ASCII text with ANSI escape codes for special functions. Additionally, the <CR> should be interpreted as “move the cursor to column 1 of the current line”. The <LF> should be interpreted as “move the cursor 1 row down in the current column”.

The status display is a special case. It receives ANSI codes and binary data.

10.2.2 Required ANSI support

The hall display connected to a DDB should be capable of handling all the ANSI escape codes specified in this section. (Not all of these codes are currently in use but they should be implemented in the hall display for future compatibility.)

Note: Whether ANSI co-ordinates start at 0 or 1 is often a matter of debate. The DCN defines the top-left corner of the display as having co-ordinates (1,1).

<esc>[<line number>;<column number>H or
<esc>[<line number>;<column number>f

Cursor position: Moves the cursor to the specified position. If you do not specify a position (e.g. “<esc>[;H”), the cursor moves to the upper-left corner of the screen (line 1, column 1). Both versions have the same effect.

<esc>[<numlines>A

Cursor up: Moves the cursor up by the specified number of lines without changing columns. If the cursor is already on the top line, this sequence should be ignored. If omitted, numlines has a default value of 1.

<esc>[<numlines>B

Cursor down: Moves the cursor down by the specified number of lines without changing columns. If the cursor is on the bottom line, this sequence should be ignored. If omitted, numlines has a default value of 1.

<esc>[<numcolumns>C

Cursor right: Moves the cursor to the right by the specified number of columns without changing lines. If the cursor is already in the far right column, this sequence should be ignored. If omitted, numcolumns has a default value of 1.

<esc>[<numcolumns>D

Cursor left: Moves the cursor to the left by the specified number of columns without changing lines. If the cursor is already in the far left column, this sequence should be ignored. If omitted, numcolumns has a default value of 1.

<esc>[2J

Erase display: Clears the screen and moves the cursor to the home position (line 1, column 1).

<esc>[K

Erase line: Clears all characters from the cursor position to the end of the line (including the character at the cursor position). The cursor remains in the same place.

10.2.3 Numeric hall display (address 248)

The numeric hall display is used to display voting results and possibly a voting timer during a parliamentary vote. This is the only hall display type that does not require a DCN control PC.

It displays 6 lines of numeric characters only, and each with at least 6 positions long.

Line	Display item
1	Voting timer
2	Number of delegates present
3	Number of delegates that voted Yes
4	Number of delegates that voted No
5	Number of delegates that abstained
6	Number of delegates that did not vote

Note: Without using a voting timer a empty first line is sent.

The voting timer is a four-digit number (two for the minutes, two for the seconds) without a separator between the minutes and seconds. Most displays will show a separator such as "**:**" automatically. (The separator has to be a part of the fixed text on the front panel of the display.)

Example:

A voting round is running with 14 minutes and 25 seconds left. There is a total of 1235 delegates present , 945 delegates have voted yes, 30 delegates have voted no, 255 delegates have abstained and 5 delegates did not vote.

The data sent by the DDB looks like (_ = space):

Time:	12:35
Present:	1235
Yes:	945
No:	30
Abstain:	255
Not Voted:	5

```
<esc>[2J1425<CR><LF>
1235<CR><LF>
_945<CR><LF>
__30<CR><LF>
_255<CR><LF>
___5
```

10.2.4 Alphanumeric hall display (addresses: display 1, 249; display 2, 250)

The alphanumeric hall display consists of at least 10 lines of 33 characters and can show parliamentary voting results only, microphone information and message texts. If the display is larger, the additional space will not be used. The texts sent by the DCN depend on the PC software settings (applications which are allowed to send data to the displayed must be enabled in the LD application) and are entirely unformatted.

DCN can handle two numeric hall displays at the same time, each with its own settings. As far as the hall displays are concerned, there is no difference between hall display 1 and 2. Only the DDB is set to a different address.

Example:

A parliamentary voting round is running with 14 minutes and 25 seconds left. There is a total of 1235 delegates present , 945 delegates have voted yes, 30 delegates have voted no, 255 delegates have abstained and 5 delegates did not vote.

The vote subject text is

```
"Text line 1                  Text line 2                  Text line 3
Text line 4                 "
```

The display shows:

	1	33 characters
1	Text line 1	
2	Text line 2	
3	Text line 3	
4	Text line 4	
5	Voting : 1	Time: 14:25
6		Yes: 945
7	Present :1235	No: 30
8	Not voted : 5	Abstain: 255
9	RollCall	
10	Screenline	

The data sent by the DDB looks like:

```
<ESC>[2JText line 1<spaces>[1]<CR><LF>
        Text line 2<spaces>[1]<CR><LF>
        Text line 3<spaces>[1]<CR><LF>
        Text line 4<spaces>[1]<CR><LF>
<ESC>[5;1HVoting : 1<ESC>[5;16H     Time:
<ESC>[6;16H       Yes:
<ESC>[7;1HPresent   <ESC>[7;11H: <ESC>[7;16H       No:
<ESC>[8;1HNot Voted : <ESC>[8;11H: <ESC>[8;16H  Abstain:
<ESC>[9;1HRollCall
<ESC>[10;1H<Screenline>[2]
<ESC>[6;27H 945<ESC>[7;27H  30<ESC>[8;27H
255<ESC>[7;12H1235<ESC>[8;12H   5<ESC>[5;28H14:25
```

[1] Extended 'Till 33 characters
[2] Consist a max. of 32 characters

Note: The range order of data can be different !

10.2.5 Status display (address 251)

The status display is used to show the voting status of delegates in a parliamentary voting. It is usually a geographic-type display.

The status display will receive either:

- An ANSI clear screen code: <esc>[2J.
- A display update command, which is a 752 byte binary dump of status information.

Layout of the update command:

The update command consists of the following:

- A 2-byte startcode: Twice the value 165 (hex A5).
- For the first 1500 units in the system, a nibble containing the following status values:
  - ◊ 0: Delegate at this unit is not present or not allowed to vote.
  - ◊ 1: Delegate voted No.
  - ◊ 2: Delegate voted Abstain.
  - ◊ 4: Delegate voted Yes.
  - ◊ 8: Present, but has not voted.

Two unit nibbles are joined in a byte in the following order:

Unit position in the Installation-file	Position in update command
1	byte 1, high order nibble
2	byte 1, low order nibble
3	byte 2, high order nibble
4	byte 2, low order nibble
5	byte 3, high order nibble
6	byte 3, low order nibble
7	byte 4, high order nibble
8	byte 4, low order nibble

The table above shows an example with 8 contribution units.

Note: The order in which the status values in the output are associated with units is based upon the alphabetically sorted seat number list in the installation file. The first unit in the installation file gets the first nibble in the output.

Note: If there are less than 1500 units, the remaining nibbles are always set to the value 0.

Example:

A system with 6 units attached.

Installation file seat number	Position in update command	Voting status	Status value
0001	byte 1, high nibble	Not present	0
00A1	byte 1, low nibble	Present	8
00A2	byte 2, high nibble	Yes	4
00B1	byte 2, low nibble	No	1
00C3	byte 3, high nibble	Abstain	2
0123	byte 3, low nibble	Present	8

The entire update command will be as follows (values in hex-digits):

```
A5 A5 08 41 28 (and 747 bytes with value 00 to bring the total to 1500 units.)
```

10.3 DDB digital IOs

Each DDB has 16 digital inputs and outputs. The first 15 of these can be used for the remote control of lamps, spotlights, doors, etc. without needing additional cabling.

The 15 outputs will be set to the logical OR of all the corresponding inputs of all active-mode DDBs connected to the DCN system. Thus output number 1 is the logical OR of all inputs with number 1 on all active DDBs. The outputs will be sent to all DDBs (whether active or passive) in the system, except for passive-mode DDBs with address 255.

Note: See [INST_MAN] on how to set active/passive mode.

10.3.1 Interpreter status (address 255)

If the DDB is set to passive-mode and address 255, its outputs are set by the message keys on the interpreter desks rather than by the other DDBs in the system. The logical OR of all desks in booth 1 provides the value for output 1, that of all desks in booth 2 provides the value for output 2, etc.