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# Database Design with VisualDCT

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# What is VDCT?

- VDCT is Visual Database Configuration Tool
- Beta version released summer of 2002, funded by SLS
- Developed by *Cosylab Ltd.*
- Replacement for text editor, DCT, JDCT, GDCT or Capfast
- VDCT developed to provide missing features in Capfast(?) and GDCT.
- Supports hierarchical design
- Written in Java
  - Therefore supported in various systems
  - Java Runtime Environment 2
- Importing existing DB and DBD files

# What is VDCT?

- VDCT features
  - GUI features
    - *Clipboard, undo, redo, object inspector, visual linking*
    - *Data flow arrows, not process flow*
  - Supports hierarchal design
    - *Based on the pvname separator*
    - *Grouping "grp1:grp2:test1AO"*
    - *VDCT templates can be used.*
      - Separate VDB file as a template with ports and macros defined.

# What is VDCT?

- VDCT features
  - Powerful DB parser
    - *Supports existing DB's*
    - *Preserves DB comments, record/field order*
      - # normal comments
      - #! VDCT layout comments
    - *DB's can be edited manually*
  - Single file which contains both DB and display data
    - *GDCT created two separate files*

# What is VDCT?

- VDCT features
  - Rapid database development
  - Simple mouse-clicks
  - Visualization of record instances
    - *Easier to understand*
      - Yet no field description as with DCT, JDCT & GDCT
    - *Detect errors faster*
      - e.g. broken links shown with a cross
  - Database can be split into logical blocks (grouping)
    - *e.g. hierarchical design*
  - Printing ?

# Using VisualDCT

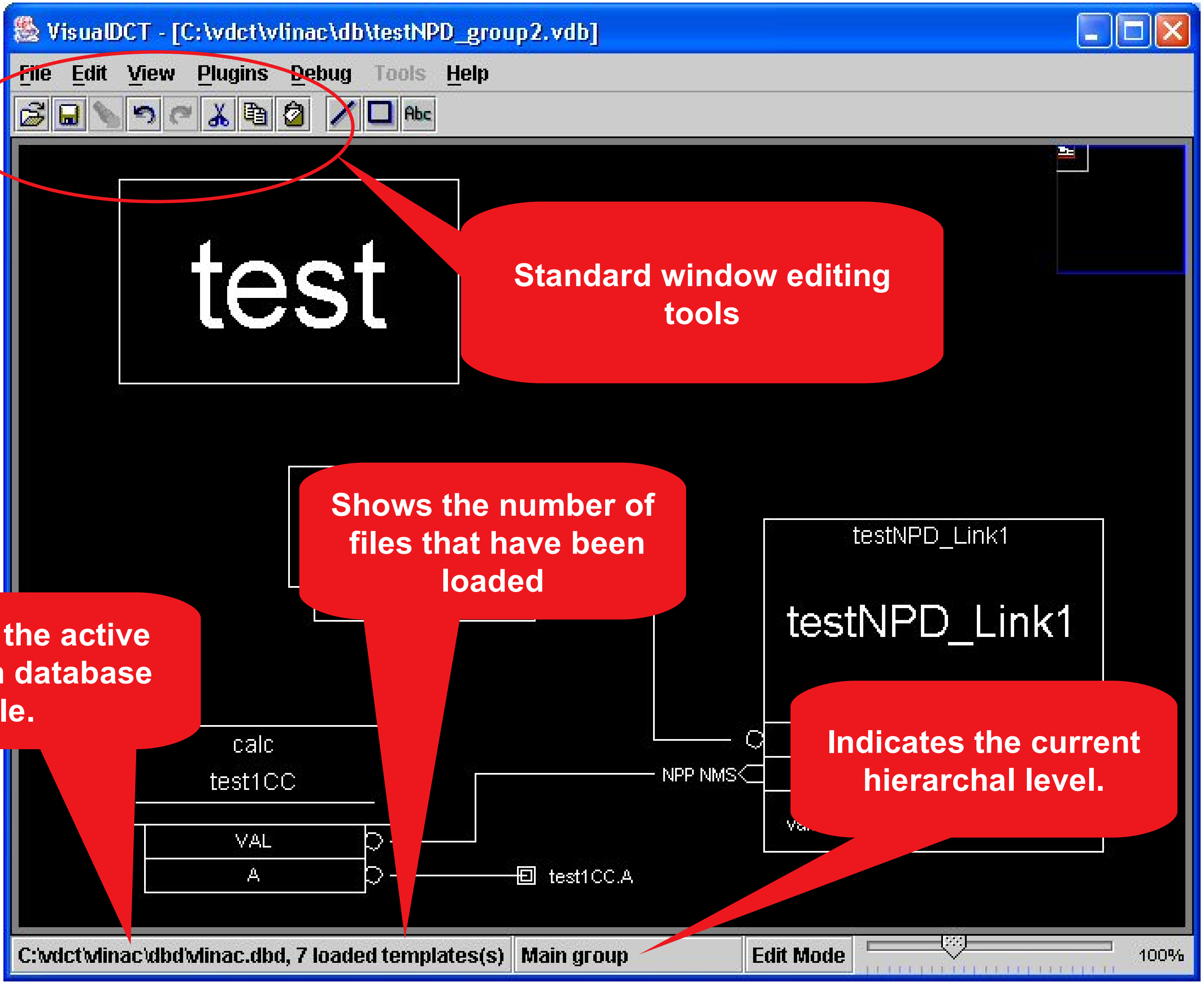
# Using VisualDCT

- Launch VisualDCT by executing jar file
- On most machines just type vdct
  - This script defines the Class Path and then runs the latest version.
- To start VisualDCT in Windows
  - Execute (double click) “VisualDCT2.4.1253.jar”
  - Or, use command line options
    - *VisualDCT2.4.1253.jar [<DBDs>] [<DB>]*

# Using VisualDCT

- Load DBD file(s)
  - Recommend selecting <u>save</u> option in “DBD Manager”
- Load DB or VDB file.
- Save work with a VDB extension. (recommended)
- Once a VDB file is created and <u>saved</u>, no need to specify DBD files, DBD files will be included at the beginning of a VDB file.
  - #! DBDSTART
  - #! DBD(“../../dbd/vlinac.dbd”)
  - ……
  - #! DBD(“other DBD file”)
  - #! DBDEND

# Using VisualDCT



VisualDCT - [C:\vdct\vlinac\db\testNPD_group2.vdb]
File Edit View Plugins Debug Tools Help
Abc
test
testNPD_Link1
testNPD_Link1
calc
test1CC
VAL
A
NPP NMS
test1CC.A
Edit Mode
100%

C:\vdct\vlinac\dbd\vlinac.dbd, 7 loaded templates(s)

Main group

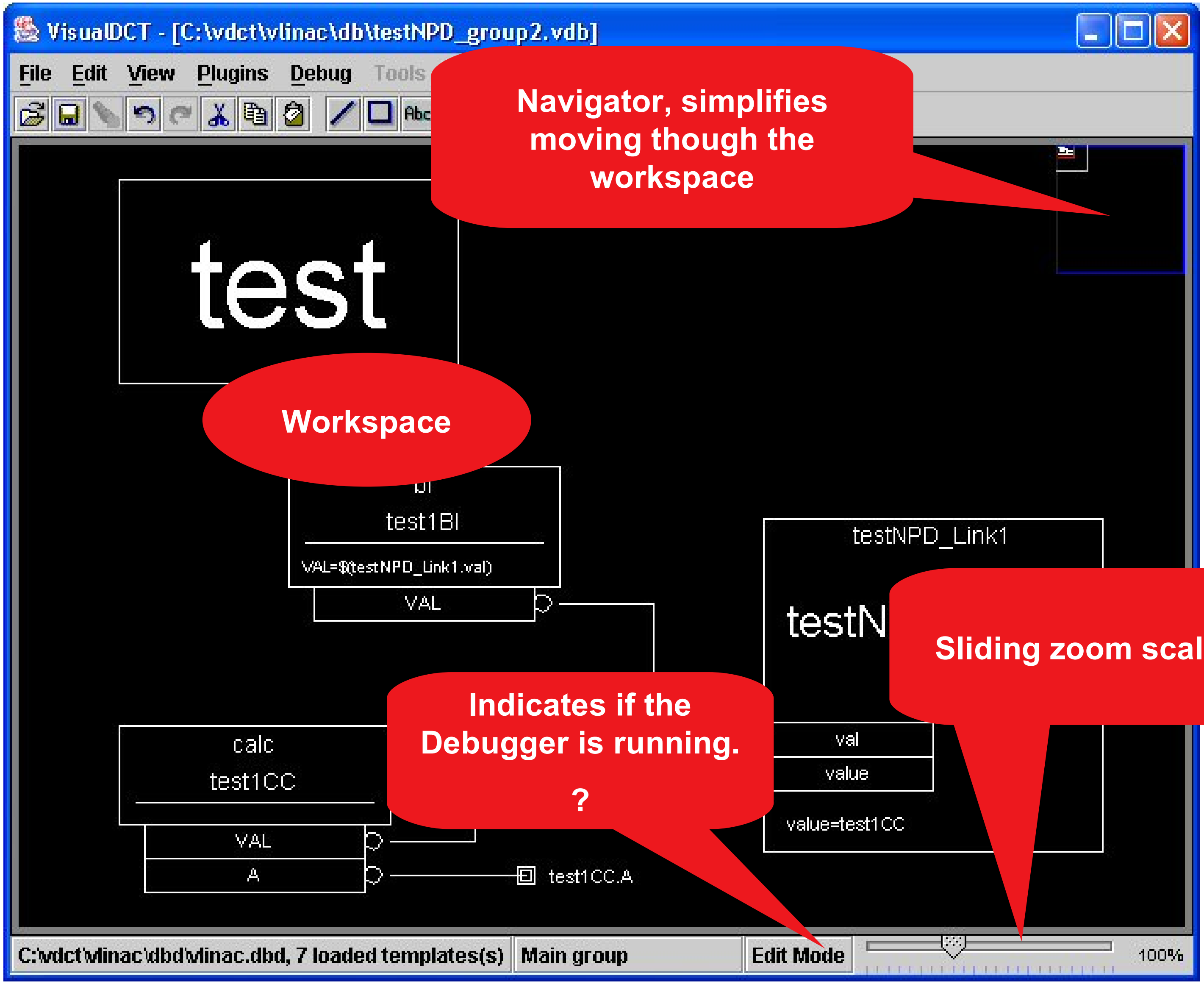
Standard window editing tools

Shows the number of files that have been loaded

Displays the active definition database file.

Indicates the current hierarchal level.

# Using VisualDCT



VisualDCT - [C:\vdct\vlinac\db\testNPD_group2.vdb]
File Edit View Plugins Debug Tools
test
bi
test1BI
VAL=$(testNPD_Link1.val)
VAL
testNPD_Link1
testN
val
value
value=test1CC
calc
test1CC
VAL
A
test1CC.A
C:\vdct\vlinac\dbd\vlinac.dbd, 7 loaded templates(s)
Main group
Edit Mode
100%

Navigator, simplifies moving though the workspace

Workspace

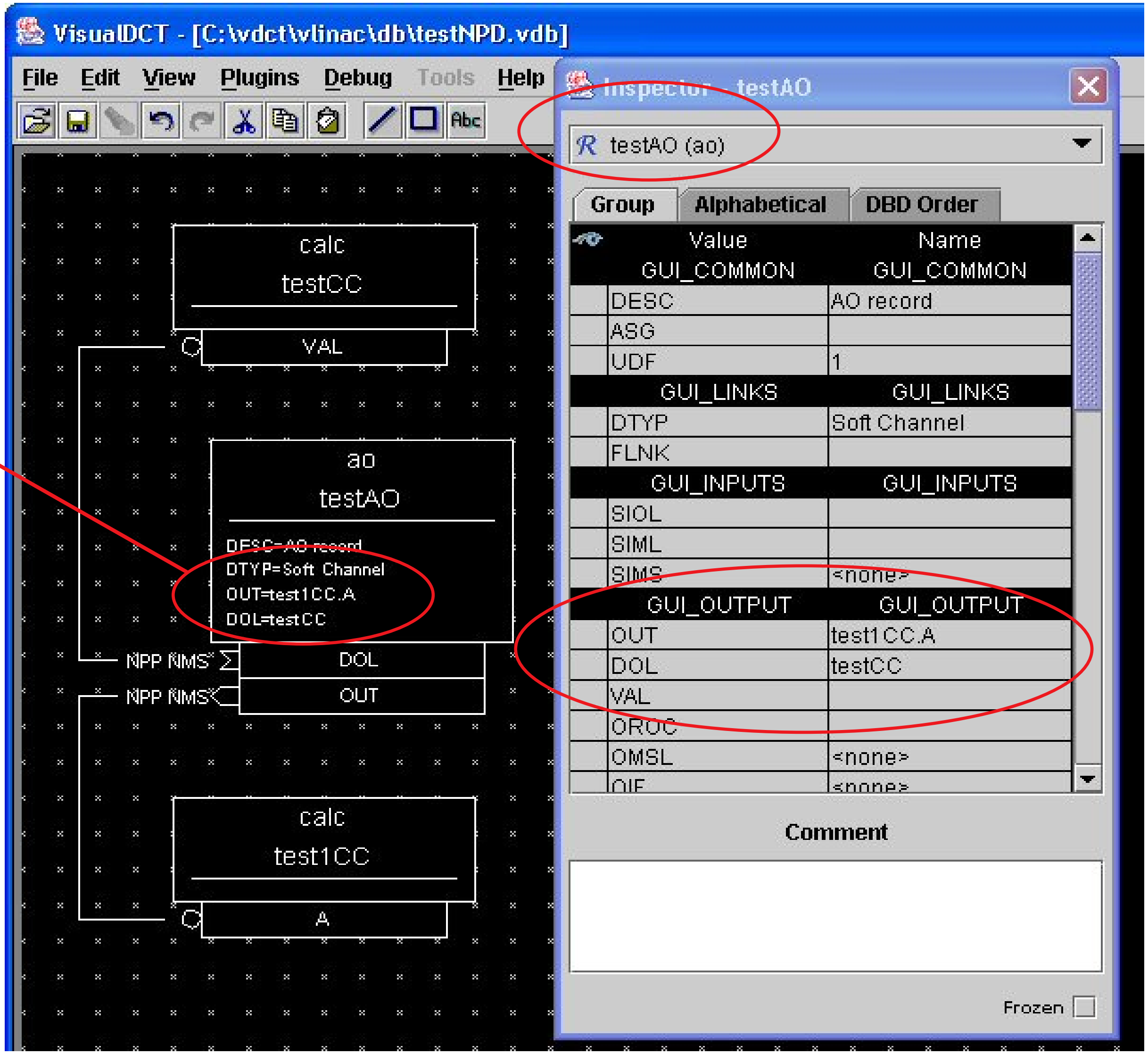
Indicates if the Debugger is running.

?

Sliding zoom scale.

# Using VisualDCT

- Inspector
- Records
  - Fields
    - *Visible*
- Links
  - Data flow



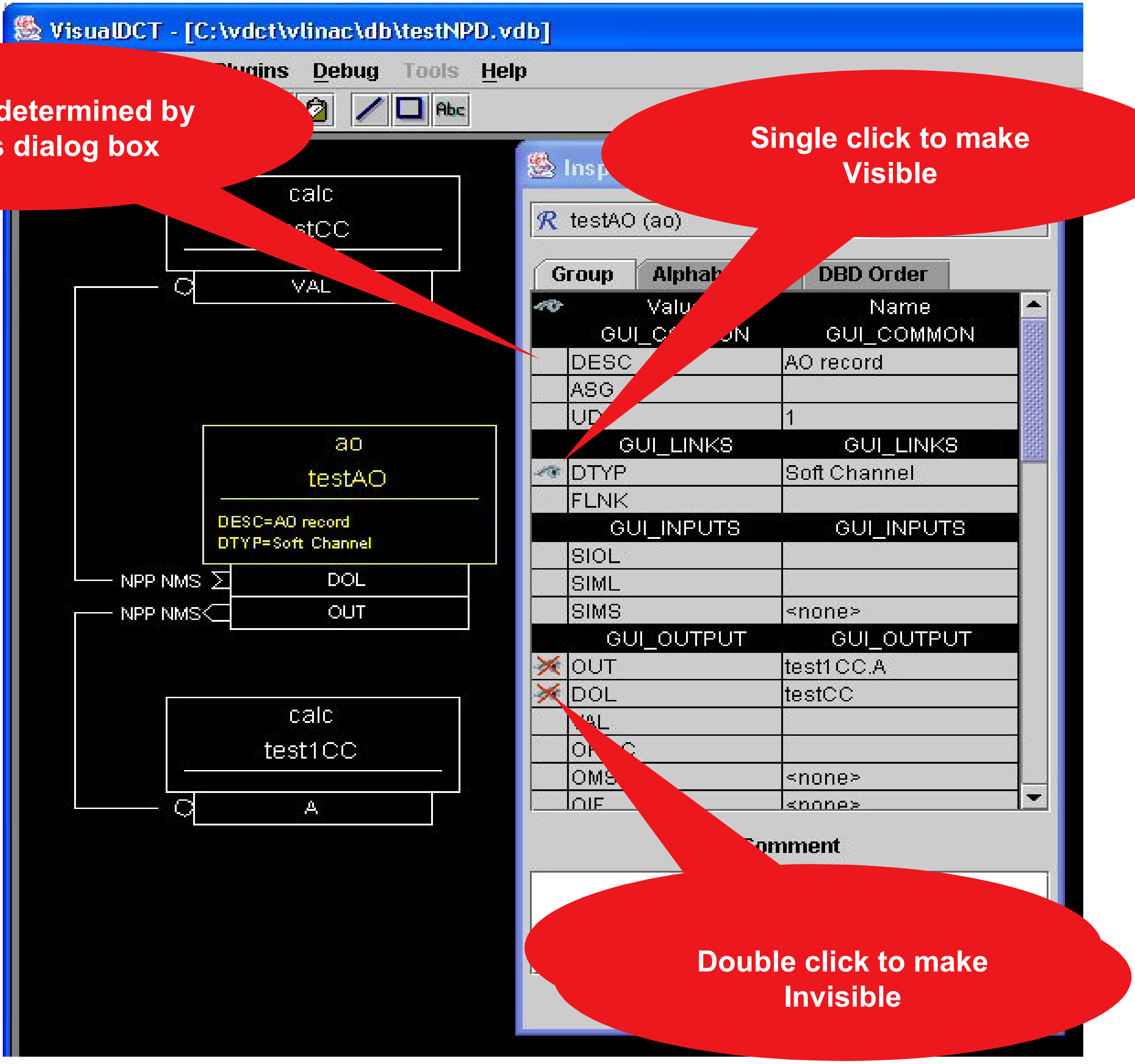
DESC=AO record
DTYP=Soft Channel
OUT=test1CC.A
DOL=testCC

| Value | Name |
|---|---|
| GUI_COMMON | GUI_COMMON |
| DESC | AO record |
| ASG | |
| UDF | 1 |
| GUI_LINKS | GUI_LINKS |
| DTYP | Soft Channel |
| FLNK | |
| GUI_INPUTS | GUI_INPUTS |
| SIOL | |
| SIML | |
| SIMS | <none> |
| GUI_OUTPUT | GUI_OUTPUT |
| OUT | test1CC.A |
| DOL | testCC |
| VAL | |
| OROC | |
| OMSL | <none> |
| OIF | <none> |

Comment

Frozen □

# Using VisualDCT



| Valu | Name |
|---|---|
| GUI_COMMON | GUI_COMMON |
| DESC | AO record |
| ASG | |
| UD | 1 |
| GUI_LINKS | GUI_LINKS |
| DTYP | Soft Channel |
| FLNK | |
| GUI_INPUTS | GUI_INPUTS |
| SIOL | |
| SIML | |
| SIMS | <none> |
| GUI_OUTPUT | GUI_OUTPUT |
| OUT | test1CC.A |
| DOL | testCC |
| VAL | |
| OROC | |
| OMS | <none> |
| OIF | <none> |

Default is determined by Settings dialog box

Single click to make Visible

Double click to make Invisible

**Field Visibility Values**

**-0: NON_DEFAULT_VISIBLE**

-Blank for build 1249

**-0: VISIBILITY_SELECT**

-Blank for build 1250

**-1: ALWAYS_VISIBLE**

-Eye

**-2: NEVER_VISIBLE**

-Eye w/Red X

# *Using VisualDCT*

Visibility text in vdb file

**#! Visibility("testAO.DTYP",1)**

**#! Visibility("testAO.OUT",2)**

**#! Visibility("testAO.DOL",2)**

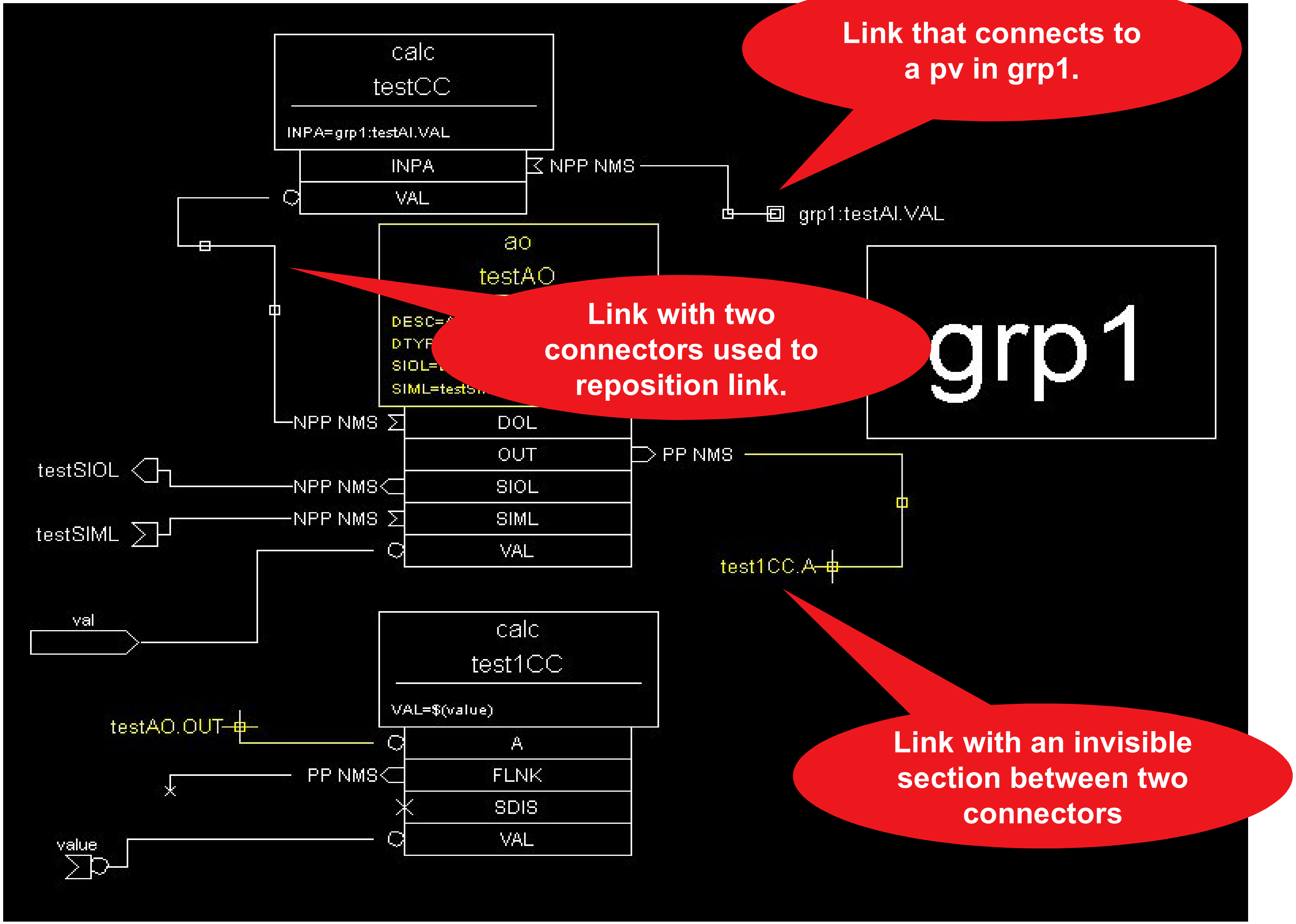
**Visibility Defined:**

**#! Visibility("fieldname", visibility)**

**Where visibility:**

- **0 – NON_DEFAULT_VISIBLE**
  - Build 1249 and earlier.
- **0 – VISIBILITY_SELECT**
  - Build 1250 and later.
- **1 – ALWAYS_VISIBLE**
- **2 – NEVER_VISIBLE**

# Using VisualDCT (links)



Link that connects to a pv in grp1.

Link with two connectors used to reposition link.

Link with an invisible section between two connectors

Ext Output

Ext Input

Port

For template

Macro

# Using VisualDCT (links)

Link/Connector text in vdb file

```
#! Field("testAO.OUT",255,1,"testAO.OUT")
#! Link("testAO.OUT","testAO/OUT2")
#! Connector("testAO/OUT2","testAO/OUT1",660,340,255,"",0)
#! Connector("testAO/OUT1","testAO/OUT",620,380,255,"",1)
#! Connector("testAO/OUT","test1CC.A",220,480,255,"",0)
```

# *Using VisualDCT (links)*

Link/Connector text in vdb file

**#! Field(“fieldname", color, rotated, “description")**

**Where rotated: (*not documented*)**

- **0 – Left side of field box**
- **1 – Right side of field box**

**#! Link(“fieldname", “inLinkID")**

**#! Connector(" inLinkID "," outLinkID ", x, y, color, “desc", option)**

**Where option: (*not documented*)**

- **0 – Visible**
- **1 – Invisible**
- **2 – External Input**
- **3 – External Output**

# *Using VisualDCT*

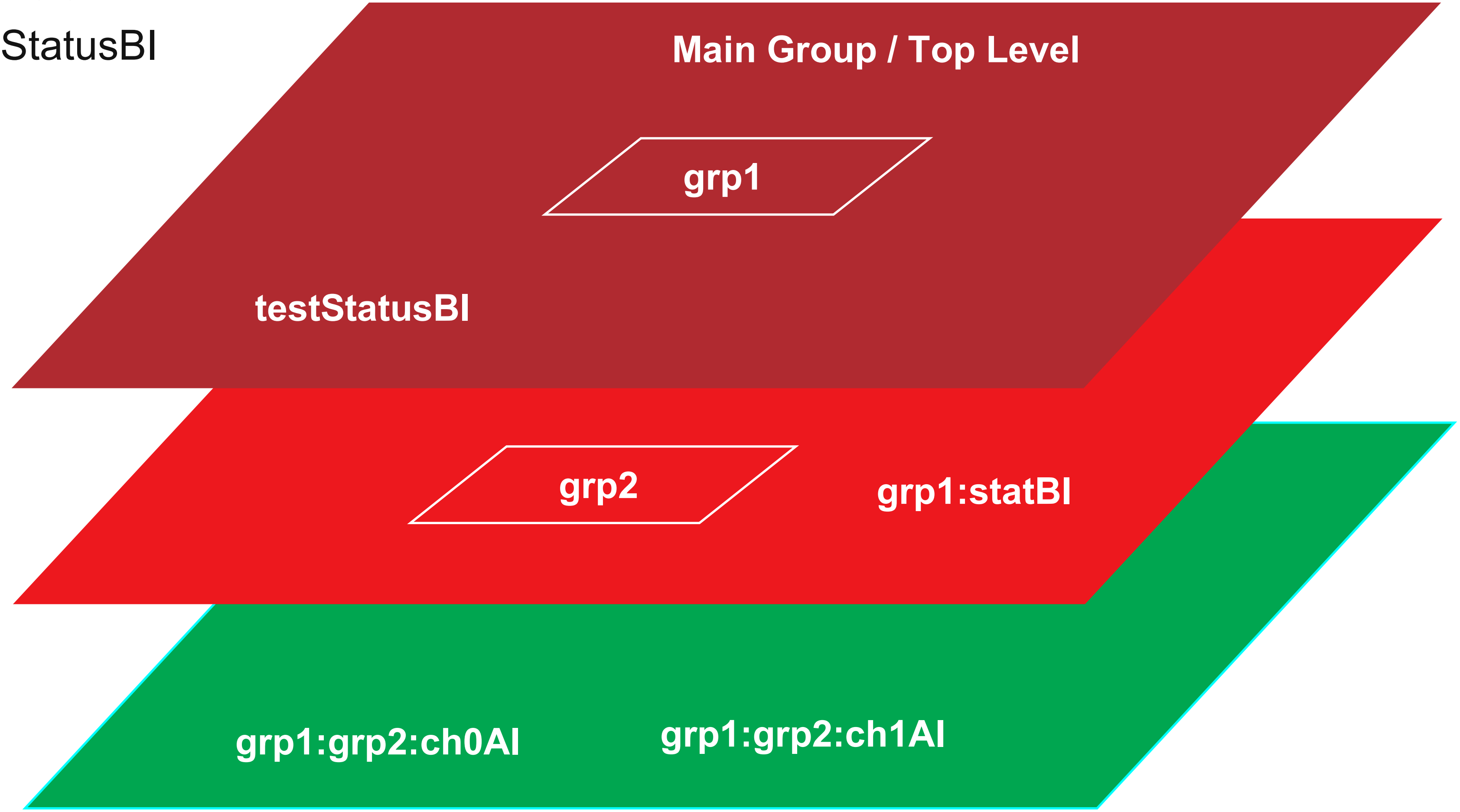
Hierarchy Support

- Based on the pvname separator
- Grouping “grp1:grp2:test1AO”
  - This will create three levels
- Grouping must be enabled before loading DB
  - Separator must also be defined
- Support templates
  - Use Generate… command to flatten vdb with templates
  - *Macros* pass information into a template
  - *Ports* pass information upwards out of a template
  - Use import command to add template

# Using VisualDCT

Hierarchy

- grp1:grp2:ch0AI, grp1:grp2:ch1AI
- grp1:statBI
- testStatusBI



# Converting files

- Converting from GDCT313 to VisualDCT
  - From the File menu, select “Save As VDCT…”
  - Minor touch up maybe needed.
  - All graphic items **must** be in the defined workspace outlined by the white border in GDCT

# Converting files

- Converting a DB text file to VisualDCT
  - In VisualDCT select View menu, then Settings
    - *Then select Visual Tab*
      - Uncheck "Show value of fields when it is not default"
  - Load DB file
  - Rearrange display for clarity
  - Save with a .vdb extension (recommended)
    - *The Generate command will only create a .db file*

# Converting files

Tools not to use on VDB files, JDCT & DCT313

- They remove all display formats

Caution when using “vi” or text editor

# *VisualDCT examples*

- Virtual LINAC
  - Database in original text form
  - DB imported to VDCT
  - DB modified for appearance, logical flow
    - *Color links*
    - *Invisible links*
    - *Text boxes*