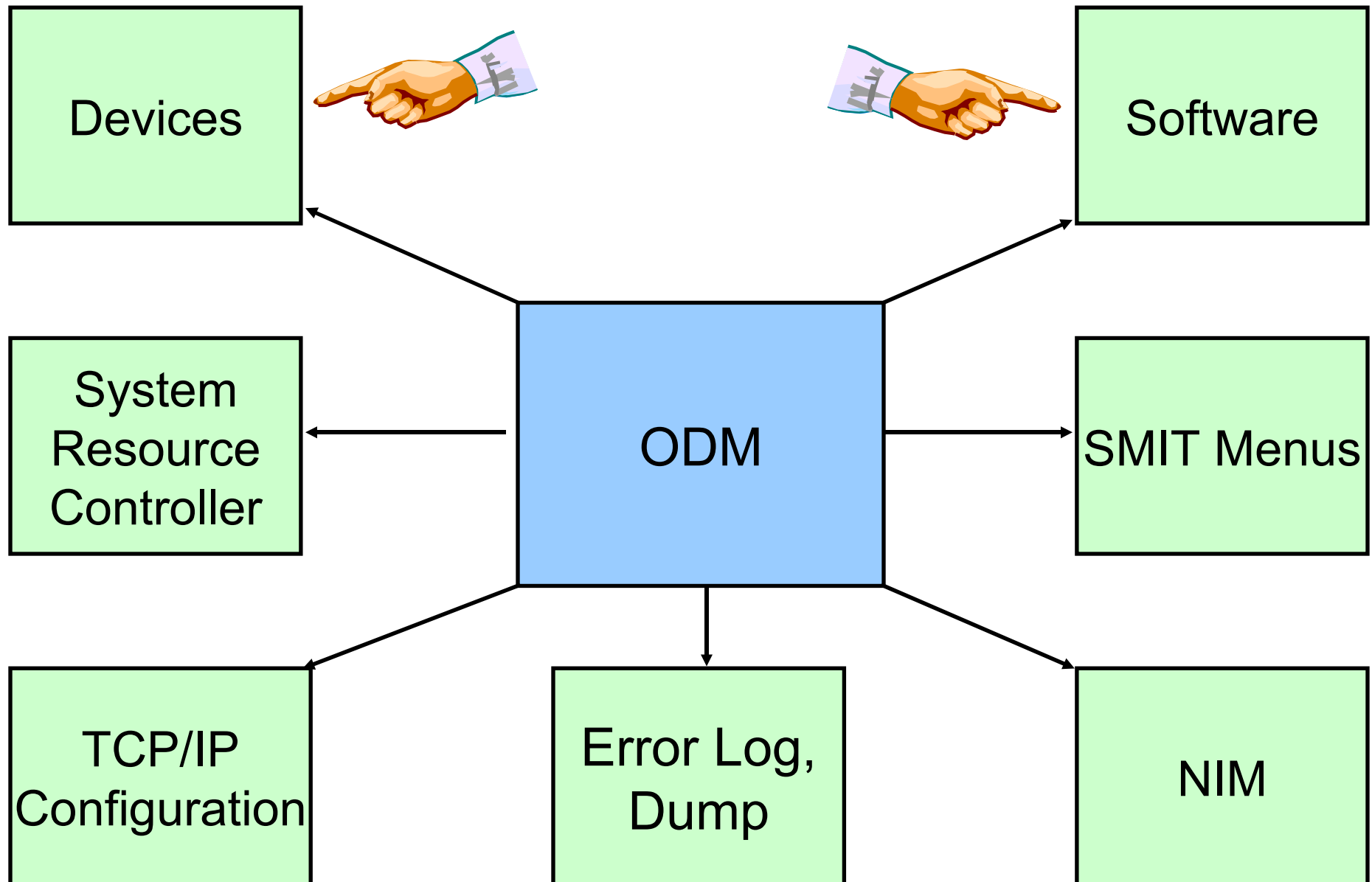# The Object Data Manager (ODM)

5.0

Unit Objectives

After completing this unit, you should be able to:

- Describe the structure of the ODM

- Use the ODM command line interface

- Explain the role of the ODM in device configuration

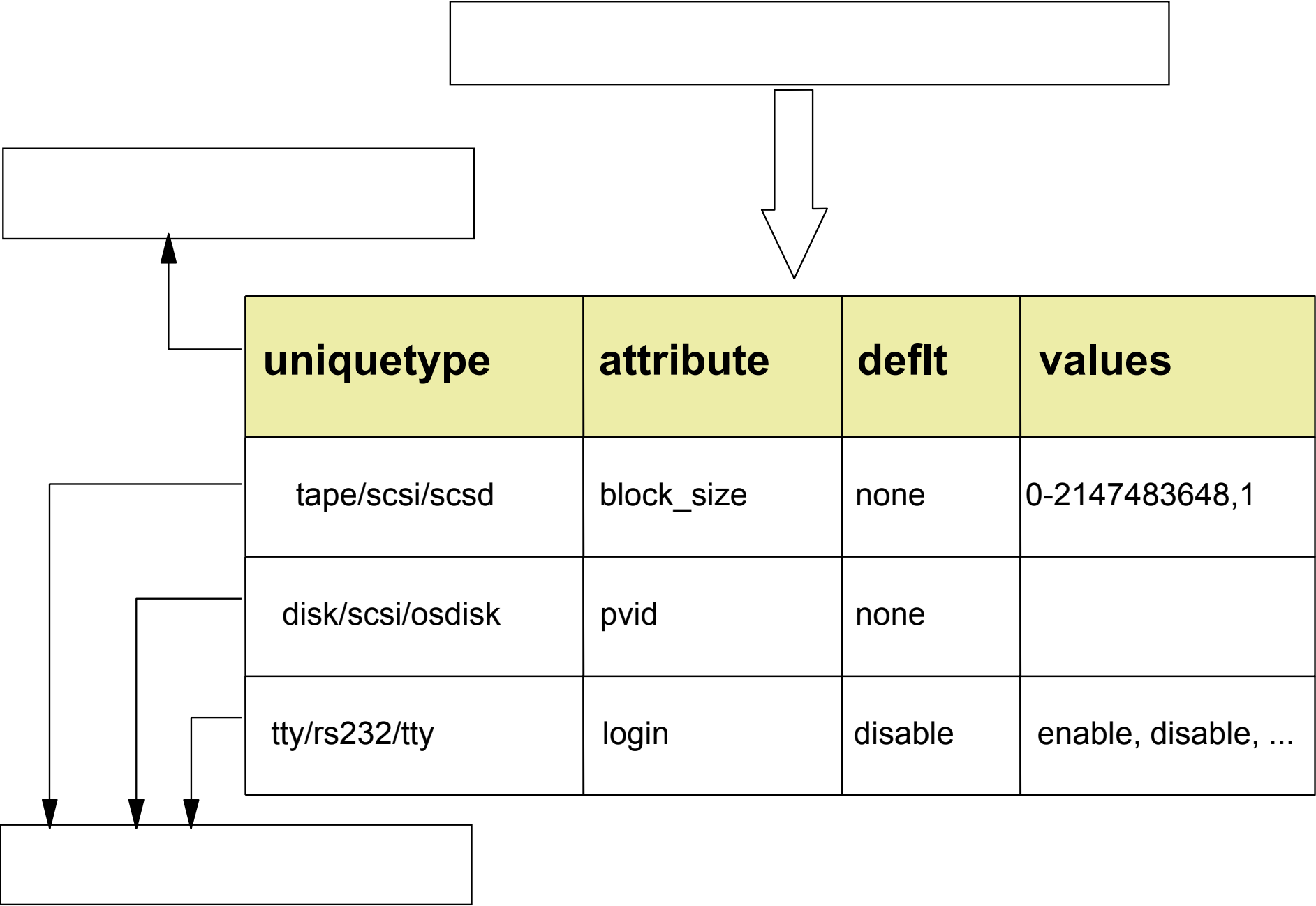- Describe the function of the most important ODM files

What Is the ODM?

- The Object Data Manager (ODM) is a database intended for storing system information.

- Physical and logical device information is stored and maintained through use of objects with associated characteristics.
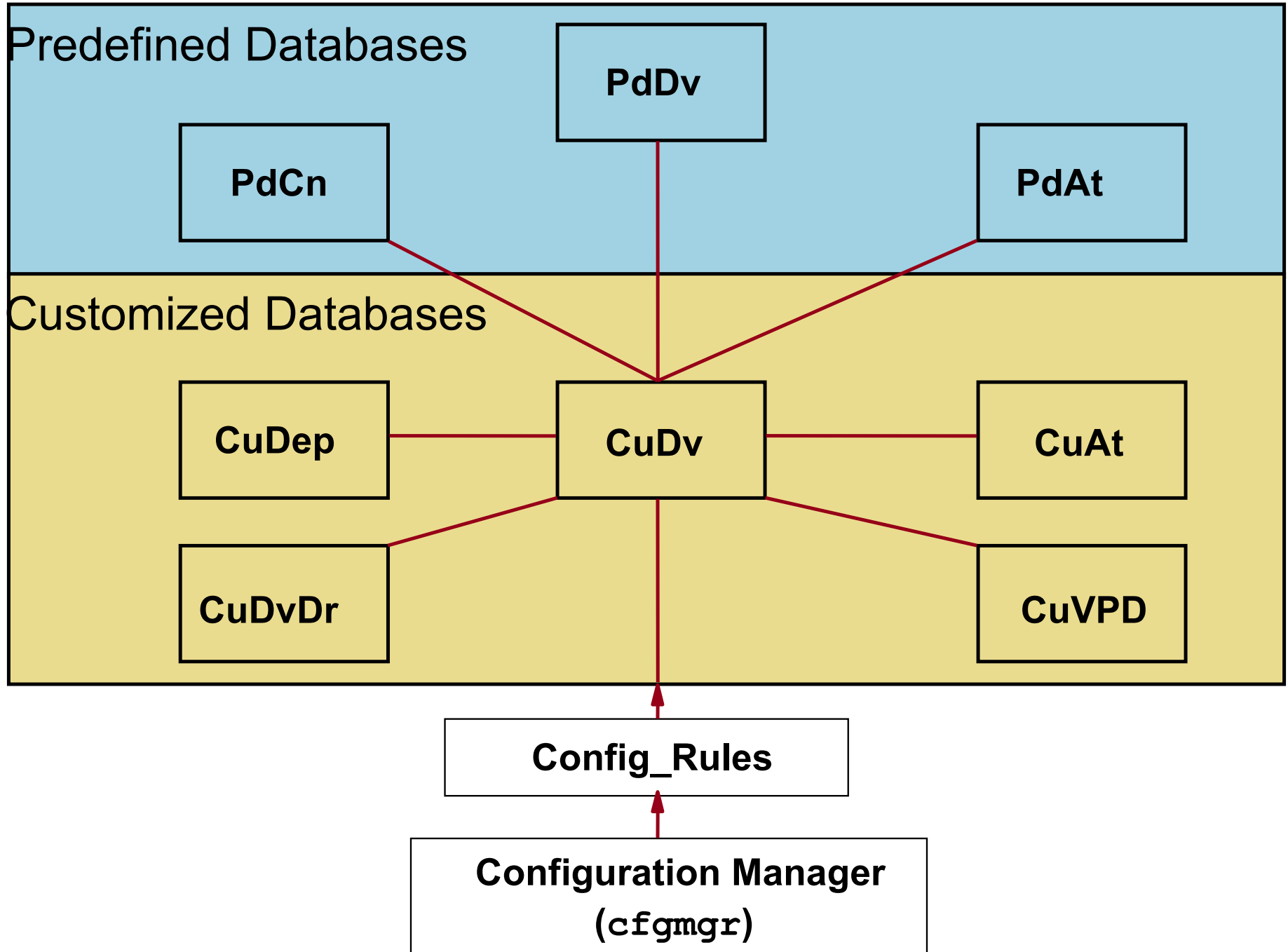
Data Managed by the ODM

Devices

Software

System Resource Controller

SMIT Menus

ODM

TCP/IP Configuration

Error Log, Dump

NIM

ODM Components

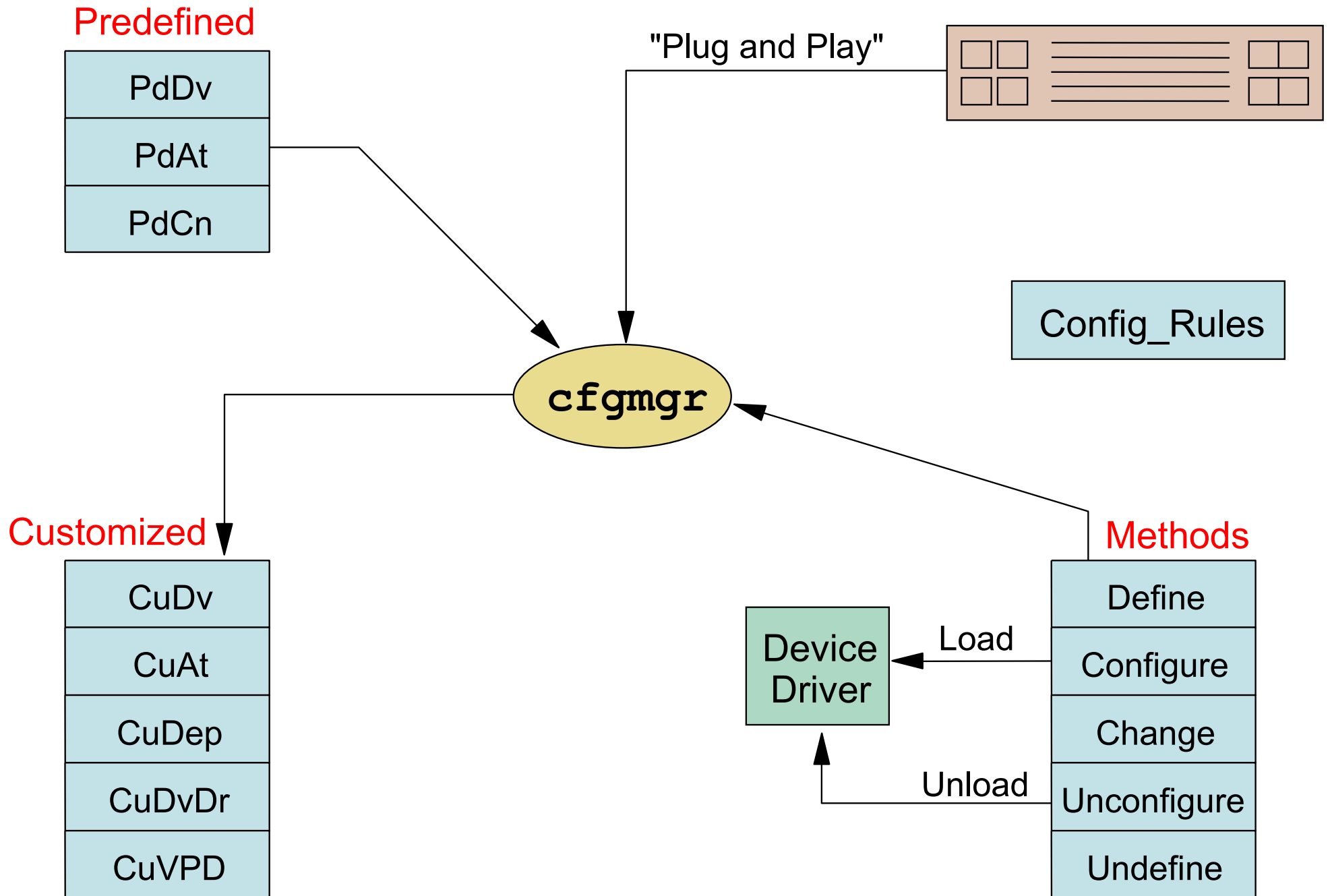| uniquetype	attribute	deflt	values
tape/scsi/scsd	block_size	none	0-2147483648,1
disk/scsi/osdisk	pvid	none	
tty/rs232/tty	login	disable	enable, disable, ...

ODM Database Files

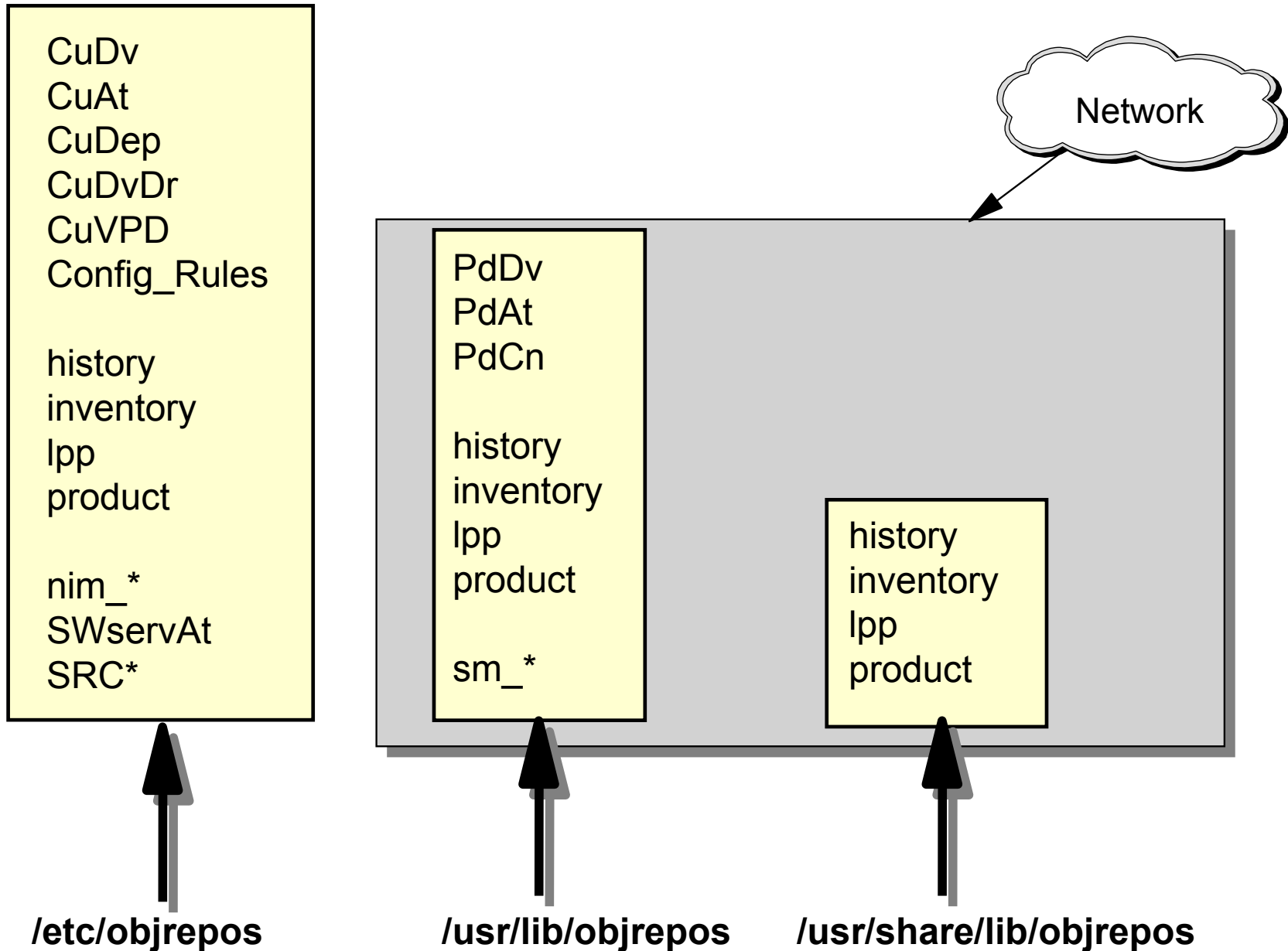|	
Predefined device information	*PdDv, PdAt, PdCn*
Customized device information	*CuDv, CuAt, CuDep, CuDvDr, CuVPD, Config_Rules*
Software vital product data	history, inventory, lpp, product
SMIT menus	sm_menu_opt, sm_name_hdr, sm_cmd_hdr, sm_cmd_opt
Error log, alog, and dump information	SWservAt
System Resource Controller	SRCsubsys, SRCsubsvr, ...
Network Installation Manager (NIM)	nim_attr, nim_object, nim_pdattr

Device Configuration Summary

Predefined Databases

PdDv

PdCn

PdAt

Customized Databases

CuDep

CuDv

CuAt

CuDvDr

CuVPD

Config_Rules

Configuration Manager
(`cfgmgr`)

Configuration Manager

Location and Contents of ODM Repositories

CuDv
CuAt
CuDep
CuDvDr
CuVPD
Config_Rules

history
inventory
lpp
product

nim_*
SWservAt
SRC*

Network

PdDv
PdAt
PdCn

history
inventory
lpp
product

sm_*

history
inventory
lpp
product

/etc/objrepos

/usr/lib/objrepos

/usr/share/lib/objrepos

How ODM Classes Act Together

```
PdDv:
 type = "14106902"
 class = "adapter"
 subclass = "pci"
 prefix = "ent"

 DvDr = "pci/goentdd"
 Define = /usr/lib/methods/define_rspc"
 Configure = "/usr/lib/methods/cfggoent"

 uniquetype = "adapter/pci/14106902"
```

→ cfgmgr →

```
CuDv:
 name = "ent1"
 status = 1
 chgstatus = 2
 ddins = "pci/goentdd"
 location = "02-08"
 parent = "pci2"
 connwhere = "8"

 PdDvLn = "adapter/pci/14106902"
```
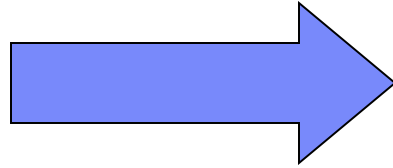
```
PdAt:
 uniquetype =
"adapter/pci/14106902"
 attribute = "jumbo_frames"
 deflt = "no"
 values = "yes,no"
```

→ chdev -l ent1 \
      -a jumbo_frames=yes →

```
CuAt:
 name = "ent1"
 attribute = "jumbo_frames"
 value = "yes"
 type = "R"
```
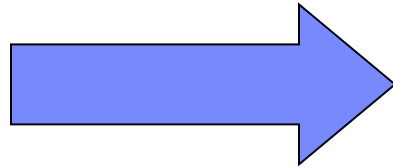
Data Not Managed by the ODM
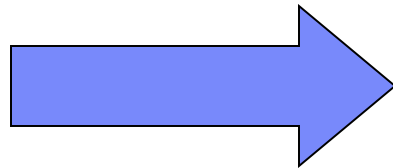
Filesystem
information   ➡️   **?** _____

User/Security
information   ➡️   **?** _____
_____

Queues and
Queue devices   ➡️   **?** _____

Let's Review:
Device Configuration and the ODM

1.
_____

Undefined

Defined

Available

2.
_____

3.
_____

AIX Kernel

Applications

D_____ D_____ 4.

/_____/_____ 5.
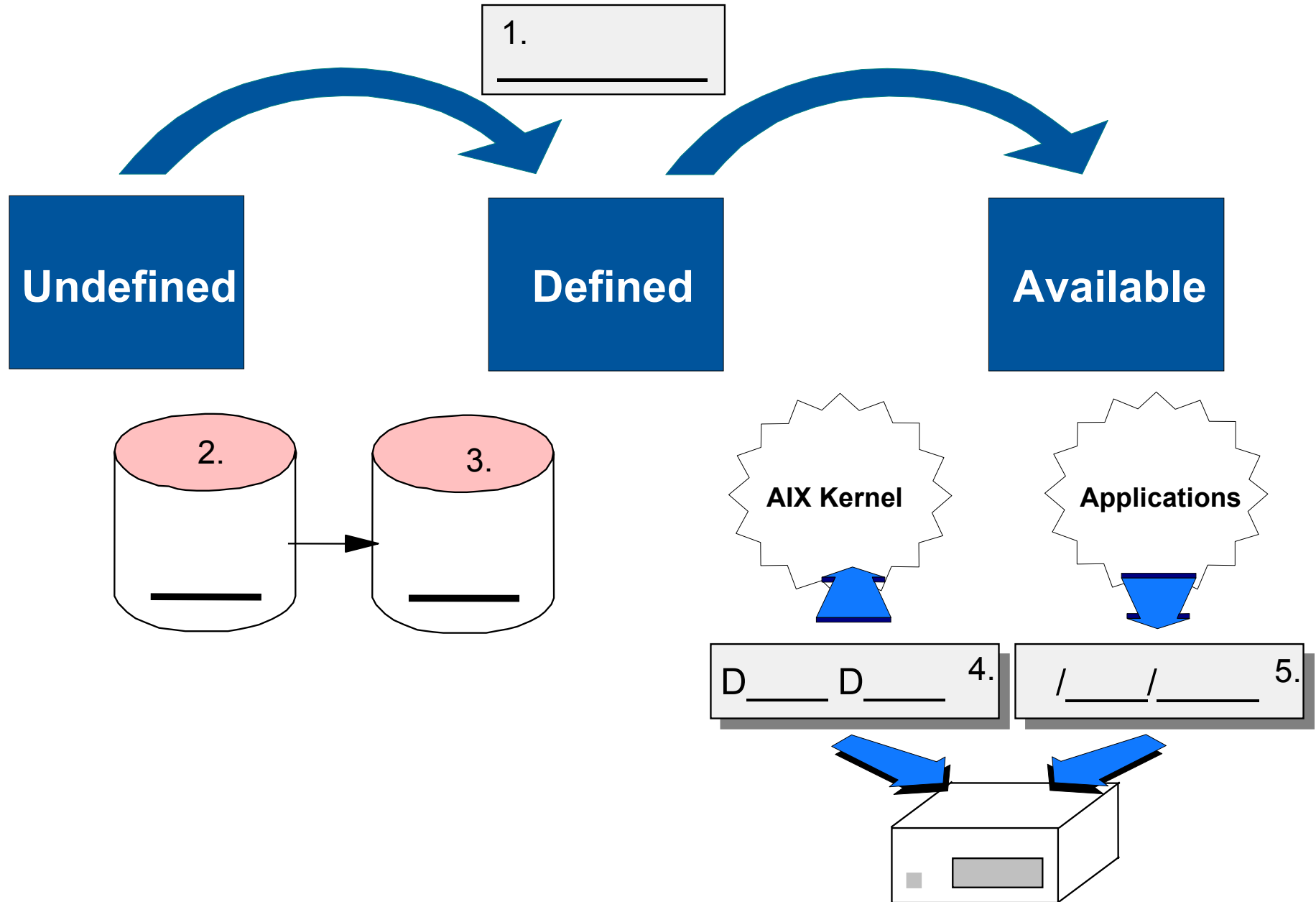
ODM Commands

Object class: `odmcreate`, `odmdrop`

Descriptors: `odmshow`

uniquetype	attribute	deflt	values
tape/scsi/scsd	block_size	none	0-2147483648,1
disk/scsi/osdisk	pvid	none	
tty/rs232/tty	login	disable	enable, disable, ...

Objects: `odmadd`, `odmchange`, `odmdelete`, `odmget`

Changing Attribute Values

```
# odmget -q"uniquetype=tape/scsi/scsd and attribute=block_size" PdAt > file

# vi file
```

```
PdAt:
    uniquetype = "tape/scsi/scsd"
    attribute = "block_size"
    deflt = "512"
    values = "0-2147483648,1"
    width = ""
    type = "R"
    generic = "DU"
    rep = "nr"
    nls_index = 6
```

Modify `deflt` to 512

```
# odmdelete -o PdAt -q"uniquetype=tape/scsi/scsd and attribute=block_size"

# odmadd file
```

Using `odmchange` to Change Attribute Values

```
# odmget -q"uniquetype=tape/scsi/scsd and attribute=block_size" PdAt > file

# vi file
```

```
PdAt:
    uniquetype = "tape/scsi/scsd"
    attribute = "block_size"
    deflt = "512"
    values = "0-2147483648,1"
    width = ""
    type = "R"
    generic = "DU"
    rep = "nr"
    nls_index = 6
```

Modify `deflt` to 512

```
# odmchange -o PdAt -q"uniquetype=tape/scsi/scsd and attribute=block_size" file
```

Software Vital Product Data

```
lpp:
 name = "bos.rte.printers"
 size = 0
 state = 5
 ver = 6
 rel = 1
 mod =0
 fix = 0
 description = "Front End Printer
  Support"
 lpp_id = 38
```

```
product:
 lpp_name = "bos.rte.printers"
 comp_id = "5765-C3403"
 state = 5
 ver = 6
 rel = 1
 mod =0
 fix = 0
 ptf = ""
 prereq = "*coreq bos.rte 5.1.0.0"
 description = ""
 supersedes = ""
```

```
inventory:
 lpp_id = 38
 private = 0
 file_type = 0
 format = 1
 loc0 = "/etc/qconfig"
 loc1 = ""
 loc2 = ""
 size = 0
 checksum = 0
```

```
history:
 lpp_id = 38
 ver = 6
 rel = 1
 mod = 0
 fix = 0
 ptf = ""
 state = 1
 time = 1187714064
 comment = ""
```

Software States You Should Know About

Applied	• Only possible for PTFs or Updates • Previous version stored in **/usr/lpp/Package_Name** • *Rejecting* update recovers to saved version • *Committing* update deletes previous version
Committed	• Removing committed software is possible • No return to previous version
Applying, Committing, Rejecting, Deinstalling	If installation was not successful: • `installp -C` • `smit maintain_software`
Broken	• Cleanup failed • Remove software and reinstall

Predefined Devices (PdDv)

```
PdDv:
    type = "scsd"
    class = "tape"
    subclass = "scsi"
    prefix = "rmt"
    ...
    base = 0
    ...
    detectable = 1
    ...
    led = 2418

    setno = 54
    msgno = 0
    catalog = "devices.cat"

    DvDr = "tape"

    Define = "/etc/methods/define"
    Configure = "/etc/methods/cfgsctape"
    Change = "/etc/methods/chggen"
    Unconfigure = "/etc/methods/ucfgdevice"
    Undefine = "etc/methods/undefine"
    Start = ""
    Stop = ""
    ...
    uniquetype = "tape/scsi/scsd"
```

Predefined Attributes (PdAt)

```
PdAt:
    uniquetype = "tape/scsi/scsd"
    attribute = "block_size"
    deflt = ""
    values = "0-2147483648,1"
    ...

PdAt:
    uniquetype = "disk/scsi/osdisk"
    attribute = "pvid"
    deflt = "none"
    values = ""
    ...

PdAt:
    uniquetype = "tty/rs232/tty"
    attribute = "term"
    deflt = "dumb"
    values = ""
    ...
```

Customized Devices (CuDv)

```
CuDv:
    name = "ent1"
    status = 1
    chgstatus = 2
    ddins = "pci/goentdd"
    location = "02-08"
    parent = "pci2"
    connwhere = "8"
    PdDvLn = "adapter/pci/14106902"

CuDv:
    name = "hdisk2"
    status = 1
    chgstatus = 2
    ddins = "scdisk"
    location = "01-08-01-8,0"
    parent = "scsi1"
    connwhere = "8,0"
    PdDvLn = "disk/scsi/scsd"
```

Customized Attributes (CuAt)

```
CuAt:
   name = "ent1"
   attribute = "jumbo_frames"
   value = "yes"
    ...

CuAt:
   name = "hdisk2"
   attribute = "pvid"
   value = "00c35ba0816eafe500000000000000000"
    ...
```

Additional Device Object Classes

```
PdCn:
 uniquetype =
"adapter/pci/sym875"
 connkey = "scsi"
 connwhere = "1,0"

PdCn:
 uniquetype =
"adapter/pci/sym875"
 connkey = "scsi"
 connwhere = "2,0"
```

```
CuDvDr:
 resource = "devno"
 value1 = "36"
 value2 = "0"
 value3 = "hdisk3"

CuDvDr:
 resource = "devno"
 value1 = "36"
 value2 = "1"
 value3 = "hdisk2"
```

```
CuDep:
 name = "rootvg"
 dependency = "hd6"

CuDep:
 name = "datavg"
 dependency = "lv01"
```

```
CuVPD:
 name = "hdisk2"
 vpd_type = 0
 vpd = "*MFIBM      *TM\n\
    HUS151473VL3800 *F03N5280

*RL53343341*SN009DAFDF*ECH17
923D    *P26K5531        *Z0\n\
000004029F00013A*ZVMPSS43A
 *Z20068*Z307220"
```

Checkpoint

1. In which ODM class do you find the physical volume IDs of your disks?

   _____

2. What is the difference between state defined and available?

   _____

   _____

   _____

   _____

   _____

Checkpoint Solutions

1. In which ODM class do you find the physical volume IDs of your disks?

    CuAt

2. What is the difference between state defined and available?

    When a device is defined, there is an entry in ODM class **CuDv**. When a device is available, the device driver has been loaded. The device driver can be accessed by the entries in the **/dev** directory.

Exercise 2: The Object Data Manager (ODM)

- Review of device configuration ODM classes

- Role of ODM during device configuration

- Creating self-defined ODM classes (Optional)

Unit Summary
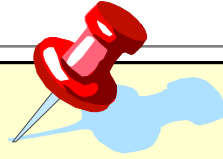
- The ODM is made from object **classes**, which are broken into individual **objects** and **descriptors**

- AIX offers a **command line interface** to work with the ODM files

- The **device information** is held in the **customized** and the **predefined** databases (Cu*, Pd*)