
Tmax

(Administration)



Course Number TS - TA01
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: 2002 8 2
: 2002 8 2

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가 ,

가

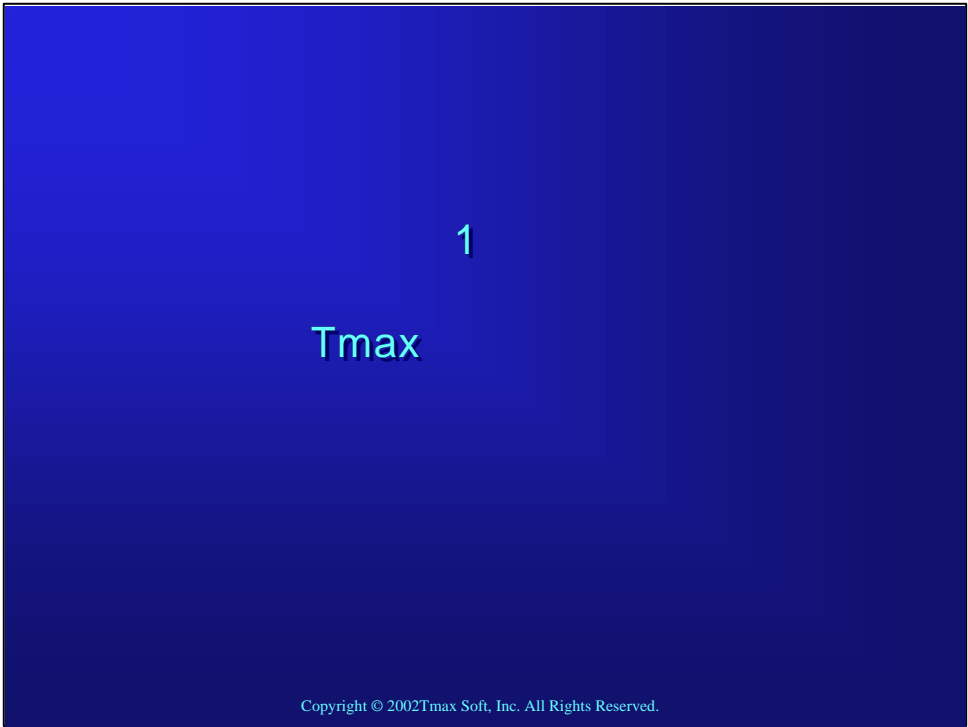
Tmax, WebtoB, WebT, JEUS



• Unix (vi / Tmax

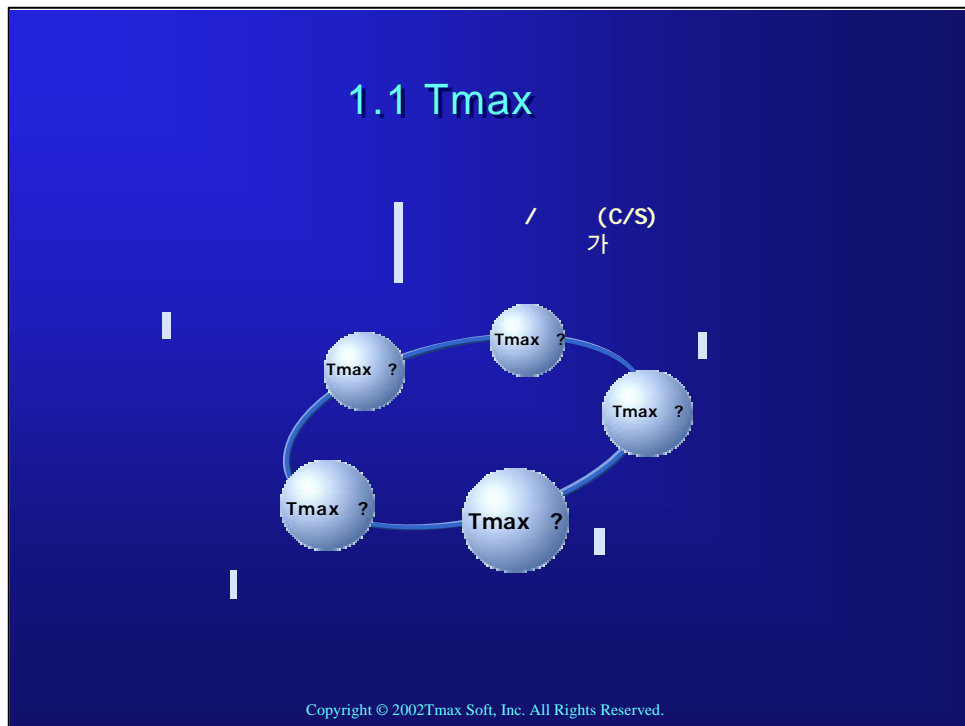
{ }	
[]	
()	
Numeric	
String	abc
Literal	“abc”

1 . Tmax	
1.1 Tmax	6
1.2 Tmax	8
1.3 Tmax	13
1.4 Tmax	16
1.5 Tmax	18
2 . Tmax	
2.1 Tmax	23
2.2 Tmax	24
2.3 Tmax	25
2.4 Tmax	27
3 .	
3.1	80
3.2	82
3.3	84
3.4	87
3.5	89
3.6	92
3.7	95
4 . Tmax	
4.1 Tmax	100
4.2	101
4.3 Tmax	102
4.4 Tmax	106
5 . Tmax	
5.1 Tmax	113
5.2 Tmax	119



Tmax

1.1	Tmax	.....	6
1.2	Tmax	.....	8
1.3	Tmax	.....	13
1.4	Tmax	.....	16
1.5	Tmax	.....	18



Tmax

Tmax / (C/S) 가 .

- ,
-
- 가

Tmax .

-
- idle
-
-
- TCS, UCS, POD

Tmax .

-

TMAX

Tmax

ADID

Atomicity()

:

Commit

Rollback

Consistency()

:

Isolation()

:

Dulability ()

:

Commit

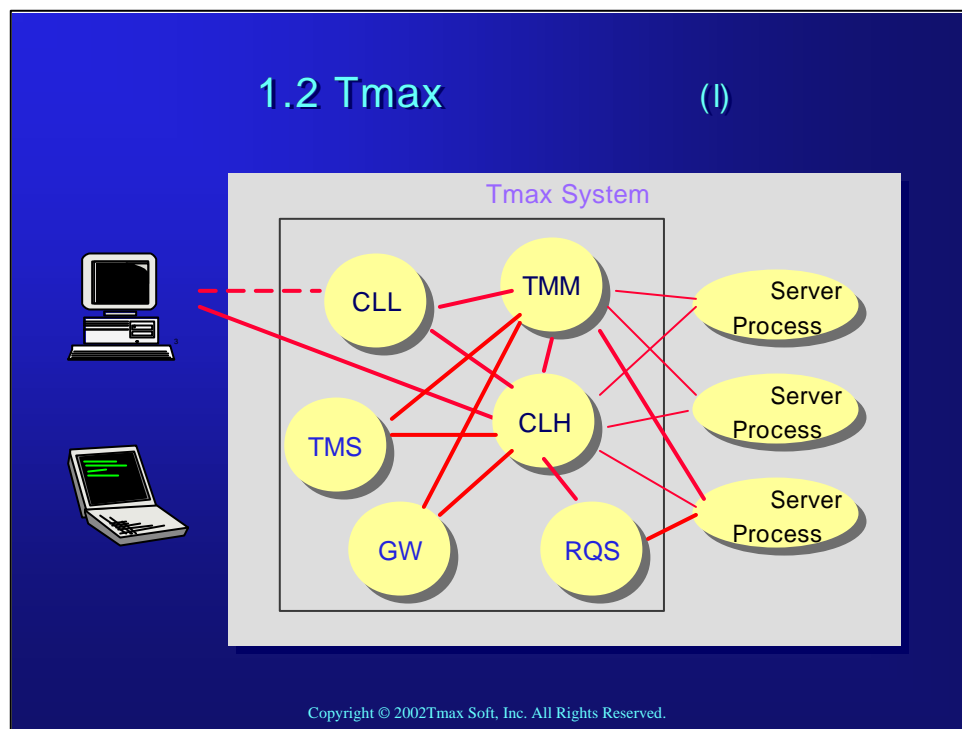
Tmax

,

DBMS

•

2PC



Tmax (I)

TMM (Tmax Manager)

- Tmax
-
- CLL, CLH, TMS, RQS, GW
- , .

CLL (Client Listener)

- Listener
- 가 Tmax CLL CLH
- , .

CLH (Client Handler)

-
-
- .

TMAX

TMS (Transaction Management Server)

-

Tmax

RQS (Reliable Queue Server)

- Tmax

-

가

Tmax

RQS

-

Tmax

GW (GateWay)

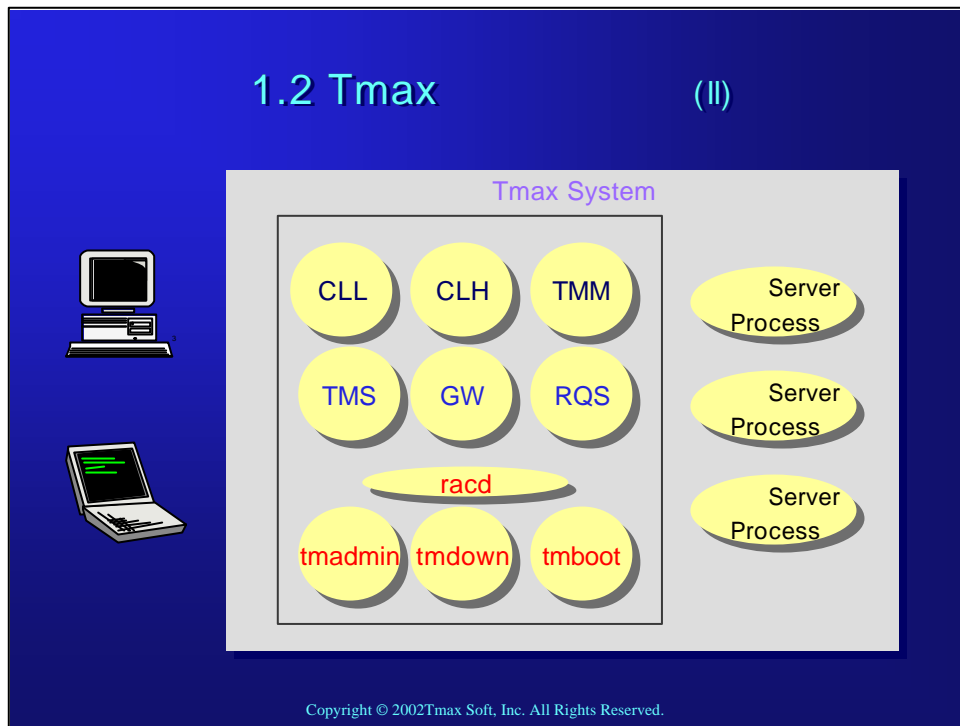
-

Tmax

CAS (Client Authentication Server)

-

Tmax



Tmax (II)

tmadmin (Tmax Administration)

- Tmax , , .

racd (Remote Access Control Daemon)

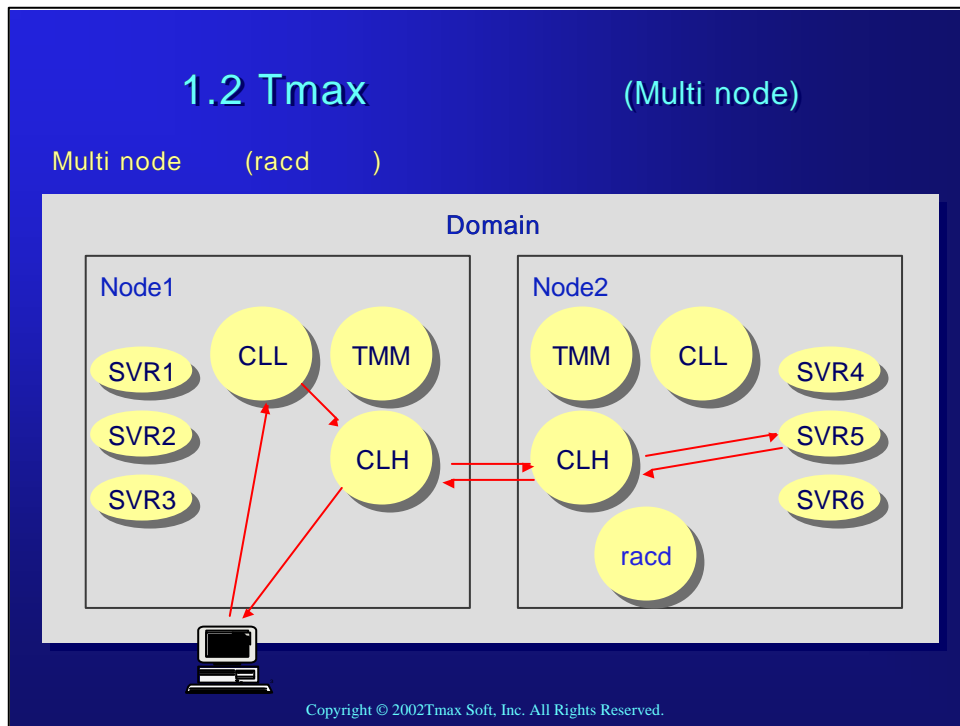
- Tmax Tmax Daemon .
- tmadmin 가 , .

tmboot (Tmax System Boot)

- Tmax .
- Tmax (TMM, CLL, CLH, TMS, and RQS) , .

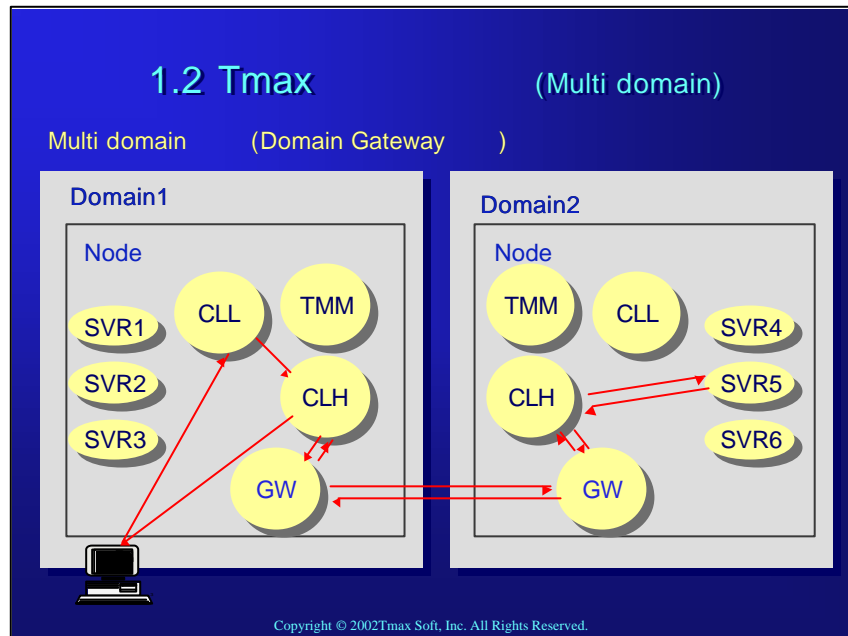
tmdown (Tmax System Down)

- tmboot .
- tmboot , Tmax .



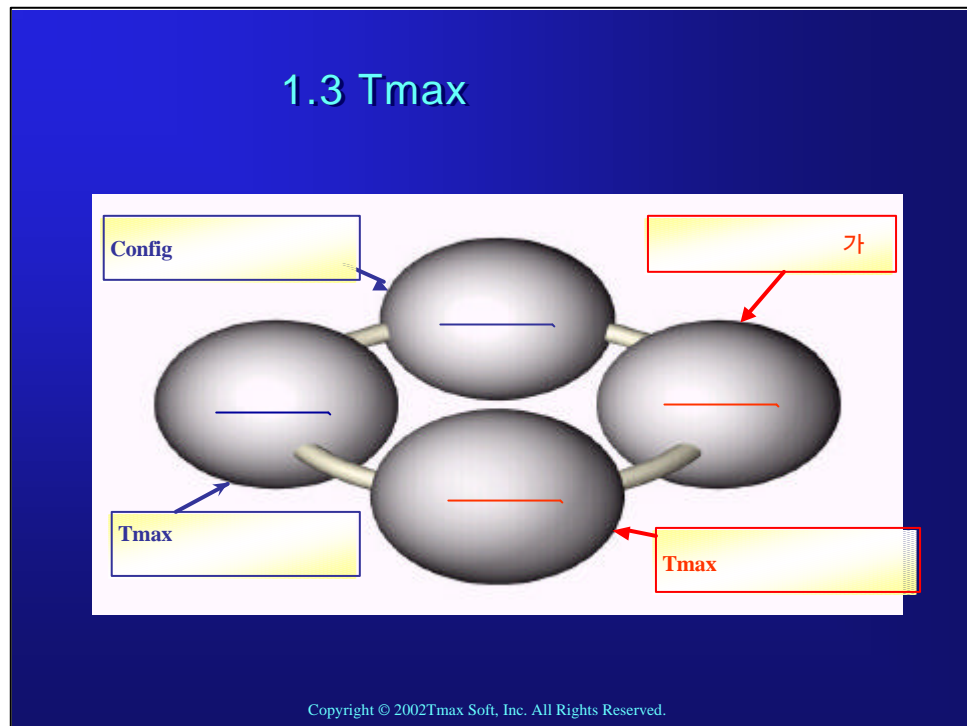
Tmax (Multi node)

- Multi node
racd 가 가 .
- node1 node2 Tmax , node1
node2 racd , node1
tmadmin node2 ,
node2 가 .
- CLH
.()



Tmax (Multi domain)

- Multi domain .
- CLH . (Domain Gateway)



Tmax

-
-
- (configuration)
-
- Tmax / (tmboot/ tmdown), (Tmax administration)

1.3 Tmax ()

- Tmax
- Tmax
-

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Tmax ()

Tmax

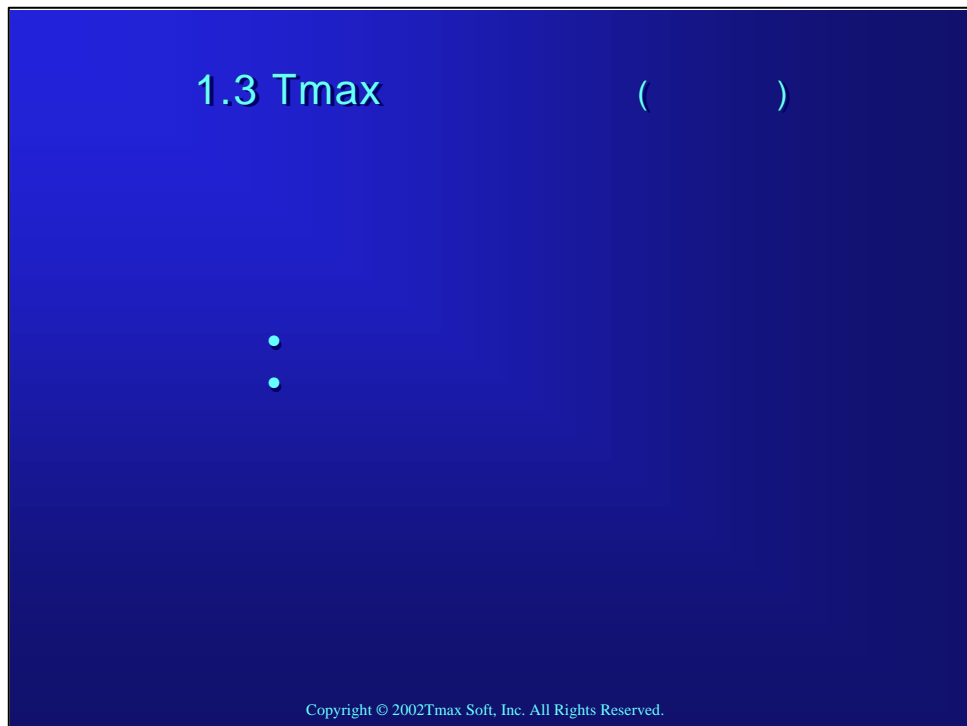
- Tmax Tmax
- Tmax 가 가

Tmax

- Tmax
- Tmax

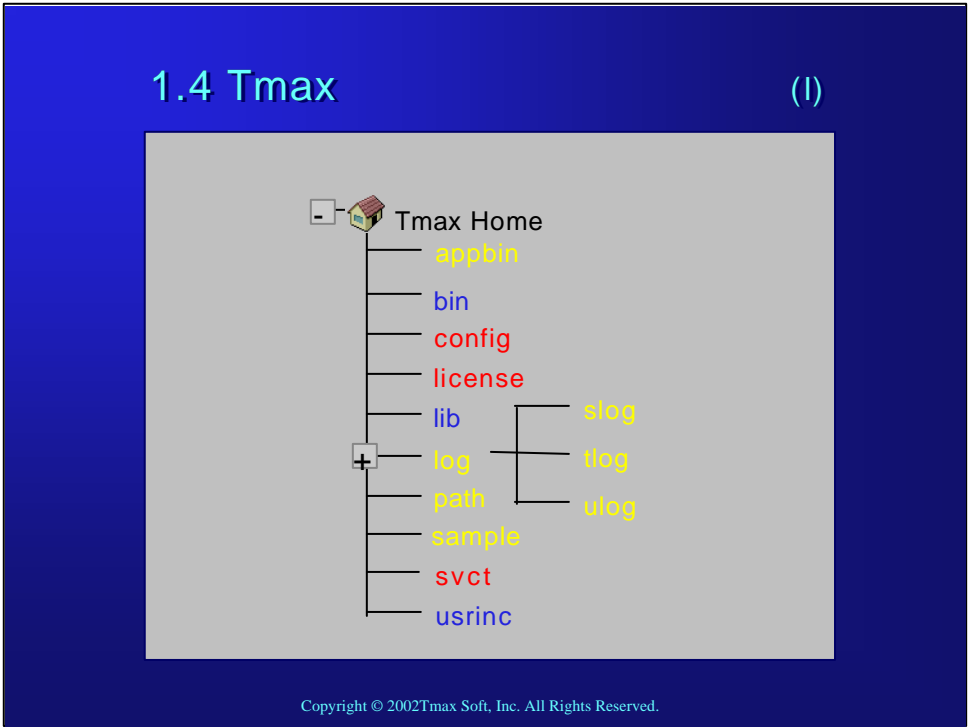
-
-
- _svctab.c

(mksvr , Tmax
 . 가 cc
 .)



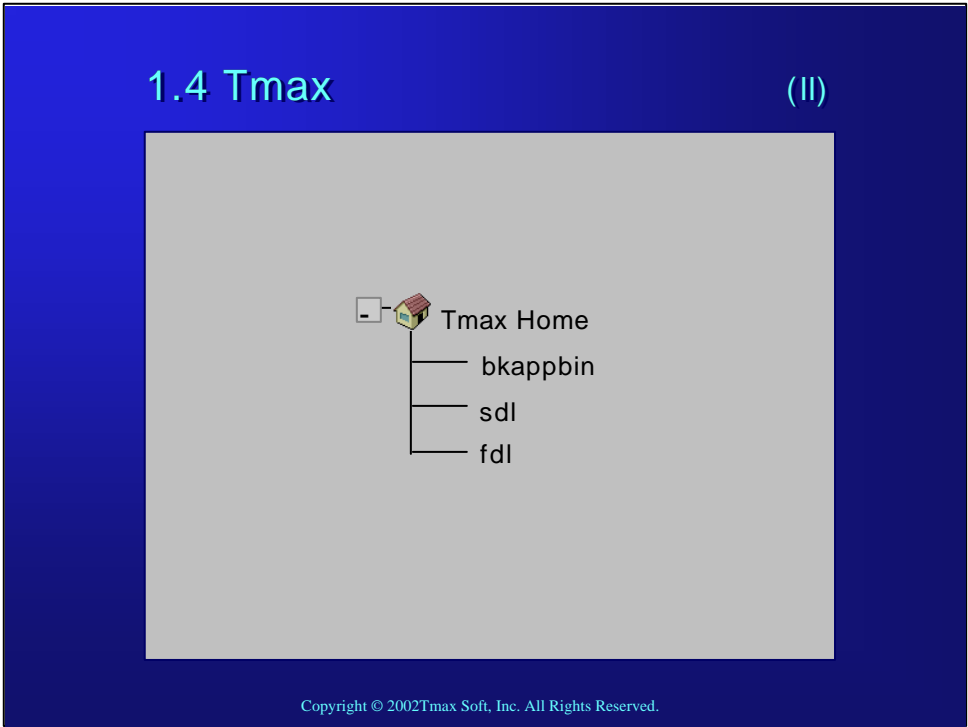
Tmax ()

- Tmax
- Tmax Tmax Tmax 가 .
- Tmax , 가
- tmax console
- Tmax
- Tmax , Tmax
- Tmax



Tmax (I)

	()	
bin	Tmax	/
lib	Tmax Library	
usrinc	Tmax Header	
	()	
config		
license	License	
svct		
Tmax		가 ()
appbin	가	(: APPDIR)
path	named pipe가	(: PATHDIR)
slog	Log	(: SLOGDIR)
ulog	Log	(: ULOGDIR)
tlog	가	(: TLOGDIR)
Tmax sample	()	
sample		,
		,



Tmax	(II)	
	가	
bkappbin	가	(:TMAX_BKAPPDIR)
sdl		(:SDLFILE)
fdl		(:FDLFILE)

1.5 T_{max}

- Tmax
- Tmax
- Tmax
- Tmax client가
Tmax client가 Tmax
Tmax ip_address(TMAX_HOST_ADDR),
portno(TMAX_HOST_PORT)
TMAX_HOST_ADDR, TMAX_HOST_PORT, ULOG
SDLFILE, FDLFILE, TMAX_CONNECT_TIMEOUT
TMAX_BACKUP_ADDR, TMAX_BACKUP_PORT

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Tmax

Tmax

TMAXDIR
TMAX_BKAPPDIR
TMAX_RAC_PORT
TMAX_ERR_MSG

Tmax

가
racd

(Y/N)

Tmax Client가

TMAX_HOST_ADDR
TMAX_HOST_PORT
TMAX_CONNECT_TIMEOUT
TMAX_BACKUP_ADDR
TMAX_BACKUP_PORT
SDLFILE
FDLFILE
ULOG(ULOGPFX)

Tmax

Tmax

Tmax

BACKUP T_{max}

BACKUP T_{max}

가

가

userlog()

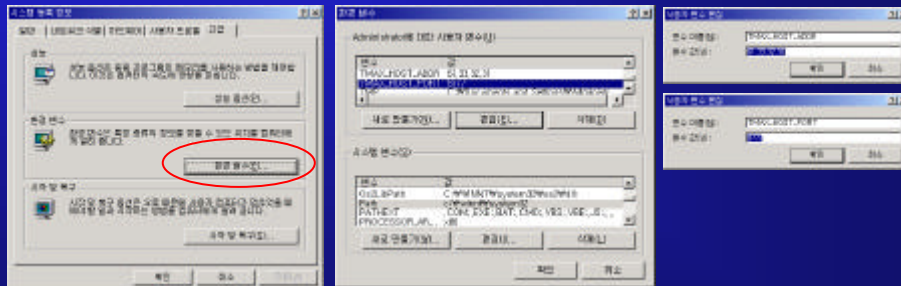
IP

IP

```
(
ULOGDIR      )
```

1.6 Tmax client

- Unix
- Windows autoexec.bat
- Windows NT(2000)



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Tmax Client

Unix

```
TMAX_HOST_ADDR=61.33.189.162; export TMAX_HOST_ADDR
TMAX_HOST_PORT=8888; export TMAX_HOST_PORT
TMAX_BACKUP_ADDR=61.33.189.170; export TMAX_BACKUP_ADDR
TMAX_BACKUP_PORT=8888; export TMAX_BACKUP_PORT
TMAX_CONNECT_TIMEOUT=3; export TMAX_CONNECT_TIMEOUT
SDLFILE=/home/tmax/sample/sdl/tmax.sdl; export SDLFILE
FDLFILE=/home/tmax/sample/fdl/tmax.fdl; export FDLFILE
ULOG=/home/tmax/log/aaa; export ULOG
```

DOS, Windows autoexec.bat

```
set TMAX_HOST_ADDR=61.33.189.162
set TMAX_HOST_PORT=8888
set TMAX_BACKUP_ADDR=61.33.189.170
set TMAX_BACKUP_PORT=8888
set TMAX_CONNECT_TIMEOUT=3
set SDLFILE=C:\tmax\sample\sdl\tmax.sdl
set FDLFILE=C:\tmax\sample\fdl\tmax.fdl
set ULOG=C:\tmax\log\aaa
```

- tmaxreadenv()
- =
- TEST label 가

[TEST]

TMAX_HOST_ADDR=61.33.189.162

TMAX_HOST_PORT=8888

TMAX_BACKUP_ADDR=61.33.189.170

TMAX_BACKUP_PORT=8888

TMAX_CONNECT_TIMEOUT=10

SDLFILE=C:\tmax\sample\sdl\tmax.sdl

FDLFILE=C:\tmax\sample\fdl\tmax.fdl

< 1-1 >

1. Tmax

<<Tmax >>

```
Tmaxdir=/home/edu01/tmax; export TMAXDIR
TMAX_HOST_ADDR=61.33.189.162; export TMAX_HOST_ADDR
TMAX_HOST_PORT=8888; export TMAX_HOST_PORT
TMAX_CONNECT_TIMEOUT=3; export TMAX_CONNECT_TIMEOUT
TMAX_RACPORT=3333; export TMAX_RAC_PORT
TMAXBKAPPPDIR=$TMAXDIR/bkappbin; export TMAX_BKAPPPDIR
TMAX_BACKUP_ADDR=61.33.189.170; export TMAX_BACKUP_ADDR
TMAX_BACKUP_PORT=8888; export TMAX_BACKUP_PORT
TMAX_ERR_MSG=n; export TMAX_ERR_MSG
SDLFILE=$TMAXDIR/sample/sdl/tmax.sdl; export SDLFILE
FDLFILE=$TMAXDIR/sample/fdl/tmax.fdl; export FDLFILE
ULOG=$TMAXDIR/sample/client/ulog/aaa; export ULOG
```

1) TMAXDIR, TMAX_RAC_PORT, TMAX_BKAPPPDIR, TMAX_ERR_MSG, ULOG
Tmax 가 ?

2) Tmax

racd ?

3) Tmax

2. Tmax Client

1) Tmax Client가 Tmax
가 ?

2) Tmax Client가 Windows NT

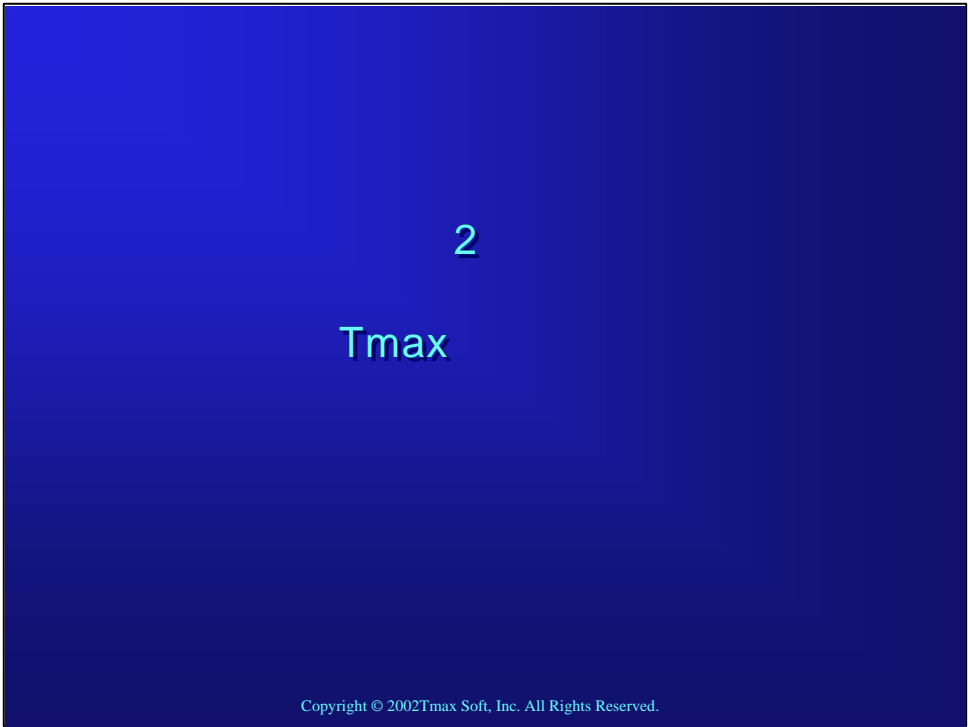
SDLFILE
?

(tmax.sdl C tmax sample sdl)

3) Windows Tmax Client가 Tmax
tmax.env

[TMAX]

```
TMAX_HOST_ADDR = 61.33.189.162
TMAX_HOST_PORT = 8888
TMAX_BACK_ADDR = 61.33.189.170
TMAX_BACK_PORT = 8888
FDLFILE = c:\tmax\sample\fdl\tmax.fdl
SDLFILE = c:\tmax\sample\sdl\tmax.sdl
TMAX_CONNECT_TIMEOUT = 2
```

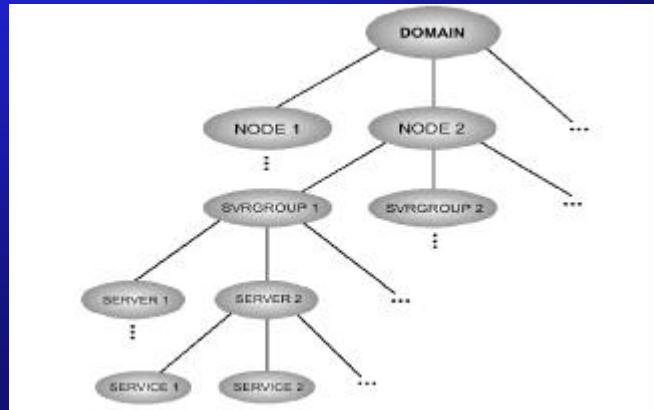


Tmax

2.1	Tmax	23
2.2	Tmax	24
2.3	Tmax	25
2.4	Tmax	27

2.1 Tmax

- Tmax 가 (Tree) 가
-



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Tmax

- - 8
- : DOMAIN, NODE, SVRGROUP, SERVER, SERVICE
- : GATEWAY, ROUTING, RQ
- *DOMAIN
 - *NODE
 - *SVRGROUP
 - *SERVER
 - *SERVICE
 - *ROUTING
 - *RQ
 - *GATEWAY

2.2 Tmax

-
-
-
-
-
-

가

가

<

=

>

numeric, string, literal, Y/N

numeric

:

SHMKEY = 77990

string

:

DBNAME = ORACLE

literal

:

APPDIR = "/home/tmax/appbin"

Y/N

:

CMTRET = Y

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Tmax

,

*

1= ..., 2=..., n=

가

- * DOMAIN

.....
- * NODE

.....
- * SVRGROUP

.....
- * SERVER

.....
- * SERVICE

.....
- * SVRGROUP

.....
- * SERVER

.....
- * SERVER

.....
- * SERVICE

.....

2.3 Tmax

- (*)
-
-
- (,)
- (,)가 가
- 가
- Tmax

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Tmax

*DOMAIN

res1 SHMKEY=77990, MINCLH=1, MAXCLH=3,
MAXUSER=100, TPORTNO=8888, BLOCKTIME=100

*NODE

tmax1 TMAXDIR = "/home/tmax",
APPDIR = "/home/tmax/appbin",
PATHDIR = "/home/tmax/path",
SLOGDIR = "/home/tmax/log/slog",
TLOGDIR = "/home/tmax/log/tlog",
ULOGDIR = "/home/tmax/log/ulog"

*SVRGROUP

svg1 NODENAME = tmax1

*SERVER

svr1 SVGNAME = svg1, MIN = 1, MAX = 3

*SERVICE

SVC1 SVRNAME = svr1

SVC2 SVRNAME = svr1

< 2-1>

1. Tmax , .
(sample .)

*NODE

testnode TmaxDIR = "/user/tmax",
APPDIR = "/user/tmax/appbin",
PATHDIR = "/user/tmax/path",
TLOGDIR = "/user/tmax/log/tlog",
ULOGDIR = "/user/tmax/log/ulog",
SLOGDIR = "/user/tmax/log/slog",
TPORTNO = 1872,
CLHQTIMEOUT = 100

*domain

test SHMKEY = 98000,
TPORTNO = 1872,
BLOCKTIME = 30,
NCLHCHKTIME = 180,
MAXCACALL = 1000,
MAXCPC = 64

*SVRGROUP

svg1_nxa NODENAME = testnode,

#SERVER

svrfw1 SVGNAME = svg1_nxa,
MIN = 2,
MAX = 100,
MAXRSTART = 1,
CLOPT = "-e \$(SVR).out -o \$(SVR).out"

*SERVICE

svc1 SVRNAME = svrfw1
svc2 SVRNAME = svrfw2

*SERVER

svrfw2 SVGNAME = svg1_nxa,
MIN = 2

2.4 Tmax (DOMAIN)

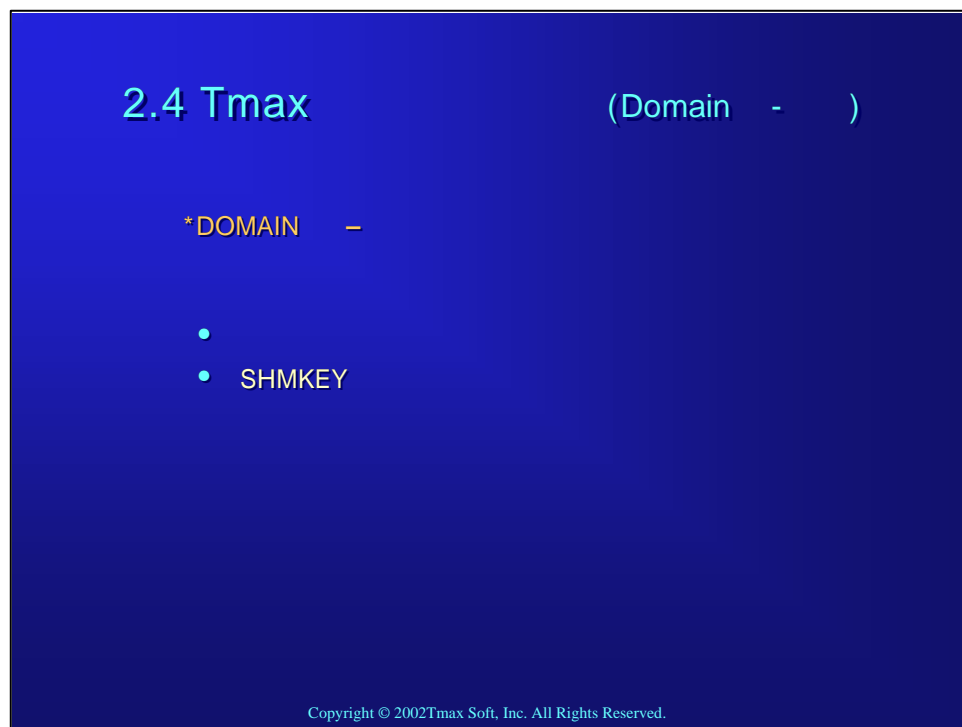
- Tmax
- Tmax

```
*DOMAIN
domain1  SHMKEY = 77990,  CMTRET = Y,
          MAXSVR = 100,    MAXSPR = 100,
          MAXCPC = 50,     MAXUSER = 300,
          TPORTNO = 8889,  RACPORT = 3334,
          MINCLH = 2,      MAXCLH = 3,
          CLICKINT = 5,     IDLETIME = 30,
          TXTIME = 10,      NLIVEINQ = 60,
          BLOCKTIME = 60,  CPC = 4,
          SECURITY = "DOMAIN_SEC",  OWNER = tmax
```

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Tmax (DOMAIN)

```
*DOMAIN
• Tmax
• DOMAIN
• DOMAIN Tmax
• DOMAIN 4
•
• Node1 TPORTNO = 8888 , Node2 TPORTNO = 7788
( )
*DOMAIN
Dom1 SHMKEY=88990, MAXUSER=300,
      TPORTNO=7788
*NODE
Node1 TPORTNO=8888,
      APPDIR="/home/tmax/appbin"
Node2 APPDIR="/home/tmax/appbin"
```



???

?

- 15 string
-

SHMKEY

- 32768 ~ 262143 numeric
- Tmax shared memory segment key
- key Tmax 4
- key
- key tmbboot 가 .

TMBOOT: TMM is starting: Wed Apr 17 09:58:30 2002

(F) TMM0090 can't attach shared memory segment: shmkey = 79990, shmsize = 135456, type = 1: Permission denied

2.4 Tmax

(Domain -)

*DOMAIN -

- MAXUSER
- MINCLH
- MAXCLH
- TPORTNO

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MAXUSER

- 1 ~ MAX_INT numeric
-

MINCLH (1)

- 1~10 numeric.
- CLH

MAXCLH (1)

- 1~10 numeric.
- CLH

TPORTNO (8888)

- 가 Tmax
- (TPORTNO 가
- ,)
- (
- 가 : netstat -an | grep <TPORTNO>
- client Tmax TMAX_HOST_PORT
- 1024 가
- .

2.4 Tmax

(Domain -)

*DOMAIN -

- RACPORT
- BLOCKTIME
- CPC

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RACPORT (3333)

- numeric
- Tmax racd가
- TMAX_RAC_PORT
- .

BLOCKTIME (integer)

- 가 (second) numeric
- .
- 가
- tpset_timeout()
- timeout .

CPC (2)

- numeric
- CLH
- 가
- 가
- .

2.4 Tmax

(Domain -)

*DOMAIN -

- CLICHKINT
- IDLETIME
- NLIVEINQ

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CLICHKINT

- 가 (second) numeric
- IDLETIME
- ,

IDLETIME

- 가 (second) numeric
- 가
-) CLICHKINT=5, IDLETIME=30 , 5 Tmax

NLIVEINQ (30)

- 가 (second) numeric
- Tmax ,
- Tmax peer-to-peer 가
- NLIVEINQ 가
- NLIVEINQ ,

2.4 Tmax

(Domain -)

*DOMAIN -

- MAXSPR
- MAXSVR
- MAXCPC

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MAXSPR (64)

- numeric
- 가
- MAX .

MAXSVR (64)

- numeric
- 가

) 가 MAXSVR svr1, svr2 2
 MAXSPR 100(50+50) . (MAXSPR 64
 MAXSPR 100)

*SERVER

svr1 MIN = 3, MAX = 50

svr2 MIN = 3, MAX = 50

MAXCPC (32)

- numeric
- CPC (CLH)
- CPC UCS, Gateway CPC

2.4 Tmax

(Domain -)

*DOMAIN -

- CMTRET
- TXTIME

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CMTRET (Y)

- Two Phase Commit(2PC)
- 2PC , (prepare) (commit/rollback) 2
 , Tmax 2PC , Y .
- CMTRET complete return
2 complete return N
commit/rollback
Y .

TXTIME

- 가 (second) numeric
- (timeout) , tx_begin()
tx_commit() tx_rollback()
, TXTIME*27 tx_commit() tx_rollback()
rollback .
- tx_set_transaction_timeout()
timeout .

2.4 Tmax

(Domain -)

*DOMAIN -

- SECURITY
- OWNER

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SECURITY (NO_SECURITY)

NO_SECURITY :

DOMAIN_SEC : 1

USER_AUTH : 2

- DOMAIN SECURITY “DOMAIN_SEC” . mkpw utility
Tmax
- 2 DOMAIN SECURITY “USER_AUTH”
Tmax . mkpw utility
TPSTART_T
username , usrpwd Tmax 가
(2 1 dompwd)

OWNER

- 15 string
- Tmax TPSTART_T dompwd
가
Tmax .
- OWNER mkpw utility .

< 2-2>

1. Tmax , .
(sample . .)

*domain
test123456789abcd SHMKEY = 32000,
TPORTNO = 1000,
MINCLH = 1, MAXCLH = 12,
BLOCKTIME = 30,
MAXSPR = 100,
MAXSVR = 1,
MAXCPC = 32,
SECURITY = "DOMAIN_SEC",
SECURITY = "USER_AUTH",
OWNER = tmax

*NODE
testnode TMAXDIR = "/user/tmax",
APPDIR = "/user/tmax/appbin",
PATHDIR = "/user/tmax/path",

*SVRGROUP
svg1_nxa NODENAME = testnode,

*SERVER
svr fw1 SVGNAME = svg1_nxa,
MIN = 2,
MAX = 100,
MAXRSTART = 1

svr fw2 SVGNAME = svg1_nxa,
MIN = 2

*SERVICE
SVC1 SVRNAME = svr fw1
SVC2 SVRNAME = svr fw2

2. DOMAIN .
SHARED MEMORY SEGMENT KEY = 79000,
TMAX 9999, CLH 2,
60

2.4 Tmax

(NODE)

- Tmax
 - *NODE
 - edu01
 - TMAXDIR ="/home/tmax",
 - APPDIR = "/home/tmax/appbin",
 - PATHDIR = "/home/tmax/path",
 - ULOGDIR = "/home/tmax/log/ulog",
 - SLOGDIR = "/home/tmax/log/slog",
 - TLOGDIR = "/home/tmax/log/tlog",
 - CLHQTIMEOUT = 60,
 - ENVFILE = "/home/tmax/config/env",
 - TPORTNO2 = 8899

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Tmax

(NODE)

*NODE

- DOMAIN Tmax , .
- NODE .
 - * Tmax
 - *
 - * Tmax
 - * 가
 - * 가
 - * 가
 - *

2.4 Tmax

(NODE -)

*NODE -

-
- TMAXDIR
- APPDIR

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- 15 string
- , UNIX “uname -n”
.(hostname)
“/etc/hosts” .
- (DOMAIN) , NODE

TMAXDIR

- 255 literal
- Tmax (install) .
- TMAXDIR
- Tmax TMAXDIR .

APPDIR

- 255 literal
- Tmax

2.4 Tmax

(NODE -)

*NODE -

- SLOGDIR
- TLOGDIR
- ULOGDIR

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SLOGDIR

- 255 literal
- (TMM, TMS, CLL, CLH)가 (logging)
- SLOGDIR “slog.” ,
- 가
- \$TMAXDIR/log/slog .

TLOGDIR

- XA , TXLOG .
- TXLOG
- Binary 가 , Tmax Engine
- \$TMAXDIR/log/tlog .

ULODIR

- 가 (logging)
- , Tmax userlog()
- , userlog()
- ULOGDIR “ulog.” ,
- \$TMAXDIR/log/ulog .

2.4 Tmax

(NODE -)

*NODE -

- PATHDIR
- ENVFILE

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PATHDIR

- 255 literal
- Tmax named stream pipe .
- (pipe), (message queue), (shared memory) , Tmax (stream pipe) pathname .
- Tmax pathname .
- \$(TMAXDIR)/path .

ENVFILE

- 255 literal
- UNIX
- ENVFILE .

2.4 Tmax

(NODE -)

*NODE -

- TPORTNO[2-5]
- REALSVR
- REALCPC

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TPORTNO[2-5]

- numeric
- 가
- TPORTNO
- TPORTNO2
- TPORTNO5

Tmax

Tmax

(TPORTNO+1)

Tmax

Tmax

REALSVR

- 255
- RDP
- RDP
- 가
- CLH
- RDP
- (, MIN = MAX)
- RDP

literal

RSCPC

2

REALCPC

- numeric
- RDP

2.4 Tmax

(NODE -)

*NODE - DOMAIN 가

- MAXSVR RACPORT
- MAXSPR MINCLH
- MAXCPC MAXCLH
- MAXUSER CLICKINT
- TPORTNO IDLETIME

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NODE DOMAIN

- DOMAIN

- NODE , DOMAIN

NODE , DOMAIN

- * key (SHMKEY)
- * CLH (MINCLH)
- * CLH (MAXCLH)
- * (TPORTNO, RACPORT)
- * (MAXUSER)
- * (CLICKINT, IDLETIME)

< 2-3>

1. Tmax , .
(sample .)

*DOMAIN

test SHMKEY = 262100,
TPORTNO = 8844,
MINCLH = 1
BLOCKTIME = 30,
MAXSPR = 102,
MAXSVR = 2,
MAXCPC = 32,

*node

testnode TMAXDIR = "/user/tmax",
BKAPPDIR = "/user/tmax/appbin",
PATHDIR = "/user/tmax/path",
TLOGDIR = "/user/tmax/log/tlog",
ULOGDIR = "/user/tmax/log/ulog",
SLOGDIR = "/user/tmax/log/slog",
MAXCLH = 12,
RACPORT = 3333,
SECURITY = USER_AUTH,
OWNER = tmax

*SVRGROUP

svg1_nxa NODENAME = testnode,

*SERVER

svrfw1 SVGNAME = svg1_nxa,
MIN = 2, MAX = 100, MAXRSTART = 1

svrfw2 SVGNAME = svg1_nxa,
MIN = 2

*SERVICE

SVC1 SVRNAME = svrfw1
SVC2 SVRNAME = svrfw2

2. Tmax /user/ tmax/log , user
/user/tmax/log/userlog . DOMAIN port
9999 .

2.4 Tmax

(SVRGROUP)

- ```

*SVRGROUP
svg1 NODENAME = "edu01",
 COUSIN = "svg1_1", LOAD = 3
svg2 NODENAME = "edu01", DBNAME = ORACLE,
 OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60",
 TMSNAME = tms_ora, BACKUP = "svg2_bak",
 MINTMS = 1, MAXTMS = 3
svg1_1 NODENAME = "edu02", LOAD = 2
svg2_bak NODENAME = "edu02", SVGTYPE = TMAX
svg_rq NODENAME = "edu01", SVGTYPE = RQMGR,
 CPC = 4

```

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Tmax

(SVRGROUP )

\*SVRGROUP

- Tmax

- , , .

- , , , .

- SVRGROUP

- \*

- \*

- \*

## 2.4 Tmax

(SVRGROUP - )

\*SVRGROUP -

- 
- NODENAME

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- 15 string

- SVRGROUP

- SVRGROUP SERVER SVGNAME

NODENAME

- 15 string

- NODENAME NODE

## 2.4 Tmax

(SVRGROUP - )

\*SVRGROUP -

- SVGTYPE
- COUSIN
- BACKUP

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## SVGTYPE

- string
- TMAX RQMGR
- RQMGR \*RQ RQ

## COUSIN

- 2000 literal
- 가 , ROUTING
- 가

## BACKUP

- 2000 literal
- ,

## 2.4 Tmax

(SVRGROUP - )

\*SVRGROUP -

- LOAD
- DBNAME
- OPENINFO

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## LOAD

- numeric.
- 

COUSIN

|   |                         |   |        |
|---|-------------------------|---|--------|
| { | - 1 : Static routing    | , |        |
|   | 0 : Dynamic routing     | . | Tmax 가 |
|   | 1~n: Rule based routing | , |        |

## DBNAME

- 63 string
- TMS ,
- ( ORACLE, INFOMIX )

## OPENINFO

- 255 literal
- TMS가
-

## 2.4 Tmax

(SVRGROUP - )

\*SVRGROUP -

- CLOSEINFO
- TMSNAME
- MINTMS
- MAXTMS

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## CLOSEINFO

- 255 literal
- , TMS가 .
- . ( DBMS ,
- INFORMIX )

## TMSNAME

- 15 string
- , TMS가 ,
- TMS .

## MINTMS (2)

- 1~10 numeric
- , TMS가 ,
- TMS .

## MAXTMS

- 1~10 numeric
- , TMS가 ,
- TMS .

## 2.4 Tmax

(SVRGROUP - )

\*SVRGROUP -

- ENVFILE
- CPC

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### ENVFILE

- 255 literal
- 

UNIX

### CPC

- 1~128 numeric
- SVGTYP RQMGR
- RQS CLH



## 2.4 Tmax

(SVRGROUP - )

\*SVRGROUP - NODE 가

- APPDIR
- ULOGDIR

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APPDIR

- 255 literal
- .
- APPDIR ,

ULOGDIR

- 255 literal 가 (logging)
- .
- .

&lt; 2-4&gt;

```
1. Tmax
 (
 sample
 .
 .
 .)

*DOMAIN
test SHMKEY = 262100,
 TPORTNO = 8844,
 MINCLH = 1,
 BLOCKTIME = 30,
 MAXSPR = 102,
 MAXSVR = 2

*NODE
testnode TMAXDIR = "/user/tmax",
 APPDIR = "/user/tmax/appbin",
 PATHDIR = "/user/tmax/path",
 TLOGDIR = "/user/tmax/log/tlog",
 ULOGDIR = "/user/tmax/log/ulog",
 SLOGDIR = "/user/tmax/log/slog",
 RACPORT = 3333

*svrgroup
svg1_nxa NODENAME = node,
 APPDIR = "/user/tmax/appbin/nxa",
 SECURITY = "USER_AUTH", OWNER = tmax

svg1_xa DBNAME = ORA, MAXTMS = 20,
 OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60"

*SERVER
svrfgw1 SVGNAME = svg1_nxa,
 MIN = 2, MAX = 100, MAXRSTART = 1
svrfgw2 SVGNAME = svg1_nxa,
 MIN = 2

*SERVICE
SVC1 SVRNAME = svrfgw1
SVC2 SVRNAME = svrfgw2

2. INFORMIX DB server group
 (
)
```

## 2.4 Tmax

(SERVER )

•

\*SERVER

```

svr1 SVGNAME = svg1,
 CLOPT = "-o $(SVR).out -e $(SVR).err - - -u tmax1",
 MIN = 2, MAX = 10,
 CONV = Y, ASQCOUNT = 50,
 MAXQCOUNT = 200,
 RESTART = Y, MAXRSTART = 10,
 GPERIOD = 3600, SVRTYPE = STD
svr2 SVGNAME = svg1, SVRTYPE = UCS,
 CPC = 6

```

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Tmax

(SERVER )

\*SERVER

- DOMAIN, NODE, SVRGROUP Tmax
- ,
- ,
- Tmax , SERVER SERVICE
- 가 가 Tmax
- 가
- SERVER Tmax가 가
- Tmax ,
- Tmax가
- SERVER
- \* 가
- \* 가
- \*
- \*
- \*
- \* 가 가

## 2.4 Tmax

(SERVER - )

\*SERVER -

- 
- SVGNAME

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- 15 string
- 
- SERVER (unique)

SVGNAME

- 15 string
- 가
- SVRGROUP
- SVRGROUP 가
- XA commit Tmax가 DB transaction two phase  
XA SVRGROUP OPENINFO  
가 XA Tmax DB  
SVRGROUP XA 가 , OPENINFO DB

## 2.4 Tmax

(SERVER - )

\*SERVER -

- CLOPT
- CONV

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## CLOPT

- 255 literal
- 가
- ' \_ '
- 가
- e :-e : standard error fprintf(stderr, ....)
- o :-o : standard output printf() 가 fprintf(stdout, ...)
- \$(SVR), \$(DATE)
- ) CLOPT=" -o \$(SVR).\$(DATE).out -e \$(SVR).\$(DATE).err"

## CONV (N)

- 
- Tmax CONV Y

## 2.4 Tmax

(SERVER - )

\*SERVER -

- MIN
- MAX

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## MIN (1)

- 1~MAX\_INT numeric
- 
- Client/Server
- , Tmax
- MIN
- 
- 가
- idle

## MAX (1)

- 1~MAX\_INT numeric
- MIN 가
- 
- , MAX
- MIN
- 가 , MAX 가

## 2.4 Tmax

(SERVER - )

\*SERVER -

- ASQCOUNT
- MAXQCOUNT
- CPC

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## ASQCOUNT (0)

- 1~MAX\_INT numeric
- 가 가
- 가 ASQCOUNT MAX
- ,
- MAX , tmboot

## MAXQCOUNT (0)

- 1~MAX\_INT numeric
- 가
- 가 (tperrno = 26 : MAXQFULL)
- 가

## CPC (1)

- 1~128 numeric
- UCS CLH

## 2.4 Tmax

(SERVER - )

\*SERVER -

- SVRTYPE

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## SVRTYPE

- string
- UCS, UCS\_LOAD, REALSVR, CUSTOM\_GATEWAY
- 가
- , UCS
- Client Main()
- UCS\_LOAD 2 UCS 가 , CLH가 idle SVRGROUP LOAD
- REALSVR UCS RDP
- 가 ( 10 ) UCS RDP
- CUSTOM\_GATEWAY Host-Link TCP/IP SVRTYPE



## 2.4 Tmax

(SERVER - )

\*SERVER -

- RESTART
- MAXRSTART
- GPERIOD

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## RESTART (Y)

- Y ,

## MAXRSTART (5)

- 1 ~ MAX\_INT numeric
- 가
- GPERIOD , RESTART가 Y
- GPERIOD MAXRSTART
- 'N'

## GPERIOD (86400)

- 1 ~ MAX\_INT numeric
- MAXRSTART 가
- GPERIOD MAXRSTART 가
- GPERIOD MAXRSTART
- 86400 , 24

2.4 Tmax (SERVER - )

\*SERVER - NODE 가

- ULOGDIR

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ULOGDIR

- 255 literal
- 가 (logging)
- .
- .

&lt; 2-5&gt;

```
1. Tmax
 (
 sample
 .
 .)

*DOMAIN
test SHMKEY = 262100, TPORTNO = 8844,
 MINCLH = 1, MAXCLH = 10,
 MAXSPR = 102, MAXSVR = 2,
 BLOCKTIME = 30,

*NODE
testnode TMAXDIR = "/user/tmax",
 APPDIR = "/user/tmax/appbin",
 PATHDIR = "/user/tmax/path"

*SVRGROUP
svg1_nxa NODENAME = testnode,
 APPDIR = "/user/tmax/appbin/nxa"

svg1_xa NODENAME = testnode,
 DBNAME = ORACLE, MAXTMS = 10,
 OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60",
 TMSNAME = tms_ora

*server
svrfw1 SVGNAME = svg1_nxa,
 MIN = 2, MAX = 100, MAXRSTART = 100
svrfw2 SVGNAME = svg2_nxa,
 MIN = 2
svrfw3 CLOPT = "-e $(SVR).err -o $(SVR).out - - -p scott/tiger",
 ULOGDIR = "/user/tmax/log/nulog"
Svrfw4 SVGNAME = svg1_xa,
 ASQCOUNT = 5

*SERVICE
SVC1 SVRNAME = svrfw1
SVC2 SVRNAME = svrfw2

2.
*SERVER
Svr1 MIN = 1, MAX = 10, ASQCOUNT = 5
Svr2 MIN = 1, MAX = 10
```

(SERVICE )

- $T_{max}$

\*SERVICE

# FDLTOUTPPER

```
SVRNAME = gw2,
EXPORT = Y
```

# TOUPPER

```
SVRNAME = svr2,
SVCTIME = 60,
ROUTING = rout1
```

PRIO = 100,

TOLOWER

```
SVRNAME = svr2,
```

Prio = 50

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Tmax

(SERVICE )

\*SERVICE

- T<sub>max</sub>

- 

가

가

- 

SERVICE

- 

\* 가

\*

\*

\*

## 2.4 Tmax

(SERVICE - )

\*SERVICE -

- 
- SVRNAME

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- 15 string
- ( ) . SERVICE
- .

SVRNAME

- 15 string
- . ,
- 가 .
- SERVER .
- 가 “ ”
- SERVICE . ,

## 2.4 Tmax

(SERVICE - )

\*SERVICE -

- PRIO
- SVCTIME

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## PRIO (50)

- 1~100 numeric
- .
- ,
- .
- 가 , 100 가 .

## SVCTIME

- 1~MAX\_INT numeric
- , 가
- SVCTIME ,
- DOMAIN BLOCKTIME 가  
( tpcall tpacall ) , SVCTIME 가  
CLH
- SVCTIME 0 ,

2.4 Tmax

(SERVICE - )

\*SERVICE -

- ROUTING
- EXPORT

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## ROUTING

- 15 string
- 
- SERVICE
- DDR

ROUTING

ROUTING

## EXPORT (Y)

- 
- EXPORT=N  
TPESECURITY

&lt; 2-6&gt;

1. Tmax , .  
( sample .)

**\*DOMAIN**

test SHMKEY = 262100,  
TPORTNO = 8844,  
MINCLH = 1, MAXCLH = 10,  
MAXSPR = 104,  
MAXSVR = 4

**\*NODE**

testnode TMAXDIR = "/user/tmax",  
APPDIR = "/user/tmax/appbin",  
PATHDIR = "/user/tmax/path"

**\*SVRGROUP**

svg1\_nxa NODENAME = testnode,  
APPDIR = "/user/tmax/appbin/nxa"  
svg1\_xa NODENAME = testnode,  
DBNAME = ORACLE, MAXTMS = 10,  
OPENINFO = "Oracle\_XA+Acc=P/scott/tiger+SesTm=60",  
TMSNAME = tms\_ora

**\*SERVER**

svrfw1 SVGNAME = svg1\_nxa,  
MIN = 2, MAX = 100,  
MAXRSTART = 100  
svrfw2 SVGNAME = svg1\_nxa,  
MIN = 2  
svrfw3 SVGNAME = svg1\_nxa,  
CLOPT = "-e \$(SVR).err -o \$(SVR).out - - -p scott/tiger",  
ULOGDIR = "/user/tmax/log/nulog"  
Svrfw4 SVGNAME = svg1\_xa,  
ASQCOUNT = 5

**\*SERVICE**

SVC1 SVRNAME = svrfw1, PRIO = 1, SVCTIME = 10  
SVC2 SVRNAME = svrfw2, PRIO = 150, ROUTING = rout1



## 2.4 Tmax

(GATEWAY )

•

\*GATEWAY

```

gw1 NODENAME = "edu01",
 PORTNO = 5000,
 RGWADDR = edu17,
 RGWPORTNO = 5001,
 GWTYPE = TMAX,
 CPC = 10,
 MAXINRGW = 30

```

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Tmax

(GATEWAY )

\*GATEWAY

•

, 가 ,

•

,

•

GATEWAY

• GATEWAY

가 .

• GATEWAY

• GATEWAY

\*

가

\*

TCP/IP

\*

## 2.4 Tmax

(GATEWAY - )

\*GATEWAY -

- 
- NODENAME
- PORTNO

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- 15 string
- 

GATEWAY

NODENAME

- 255 literal
- 가
- NODENAME NODE

PORTNO

- numeric
- 가 listen
- 가

RGWPORTNO

- 1024

## 2.4 T<sub>max</sub>

(GATEWAY - )

\*GATEWAY —

- RGWADDR
- RGWPORTNO
- GWTYPE

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## RGWADDR

- 255 literal
- 가 IP
- /etc/hosts
- RGWADDR IP RGWPORTNO

## RGWPORTNO

- numeric
- 가
- listen

## GWTYPE

- string
  - , TMAX TMAXNONTX .
  - TMAX Tmax , TMAXNONTX
- 가 , multit-flexing CPC

## 2.4 Tmax

(GATEWAY - )

\*GATEWAY -

- CPC
- TIMEOUT
- BACKUP

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## CPC (1)

- 1~128 numeric CLH
- ,
- 가
- TMAXNONTX 2~3 가 CPC

## TIMEOUT

- 1~MAX\_INT numeric
- tpcall / tpacall timeout

## BACKUP

- 7999 literal
- GATEWAY

## 2.4 Tmax

(GATEWAY - )

\*GATEWAY -

- BACKUP\_RGWADDR
- BACKUP\_RGWPORT

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### BACKUP\_RGWADDR

- 255 literal
- IP Address .
- IP address /etc/hosts

### BACKUP\_RGWPORTNO

- numeric
- .
- listening .
- 1024

< 2-7>

1. Tmax , .  
( sample . .)

**\*DOMAIN**

test SHMKEY = 262100,  
TPORTNO = 8844

**\*NODE**

testnode TMAXDIR = "/user/tmax",  
APPDIR = "/user/tmax/appbin",  
PATHDIR = "/user/tmax/path"

**\*SVRGROUP**

svg1\_nxa NODENAME = testnode

**\*SERVER**

svrfw1 SVGNAME = svg1\_nxa

**\*SERVICE**

SVC1 SVRNAME = gw1

**\*GATEWAY**

gw1 NODENAME = node,  
PORTNO = 5000,  
RGWADDR = 61.33.189.162,  
RGW\_PORTNO = 5000,  
GWTYPE = TMAX, CPC = 1

## 2.4 Tmax

(RQ )

•

\*RQ

rq1

SVGNAME = svg\_rq,

QSIZE = 16,

FILEPATH = "/home/edu02/tmax/rq/rq1",

BOOT = WARM

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Tmax

(RQ )

\*RQ

•

가

,

가

RQ

• RQ (DOMAIN, NODE, SVRGROUP, SERVER, SERVICE ) RQ

• RQ , 가 RQ

## 2.4 Tmax

(RQ - )

\*RQ -

- RQ
- SVGNAME

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RQ

- 15 string
- RQ .
- RQ RQ 가 가 , RQ .

SVGNAME

- 15 string
- RQ .
- SVGNAME SVRGROUP RQ .



## 2.4 Tmax

(RQ - )

\*RQ -

- BOOT
- QSIZE
- FILEPATH

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## BOOT (COLD)

- BOOT Tmax , RQ .
- BOOT WARM , COLD , Tmax .

## QSIZE (16)

- 1~2047 numeric (Mbyte)
- Enqueue RQ .
- 16Mbyte .
- RQ 가 RQ가 .
- RQ RQ 가 Tmax가 .

## FILEPATH

- 255 literal
- RQ .
- \$(TMAXDIR)/path/rq-name .
- FILEPATH RQ .

&lt; 2-8&gt;

1. Tmax RQ , .  
(RQ sample . .)

**\*DOMAIN**

test SHMKEY = 262100,  
TPORTNO = 8844

**\*NODE**

testnode TMAXDIR = "/user/tmax",  
APPDIR = "/user/tmax/appbin",  
PATHDIR = "/user/tmax/path"

**\*SVRGROUP**

svg1\_nxa NODENAME = testnode  
rqg1 NODENAME = testnode, CPC = 4, SVGTYPE = TMAX

**\*RQ**

rq1 SVGNAME = rqg1, QSIZE = 16, BOOT = COLD,  
FILEPATH = "/user/jaya/tmax/rq/rqfile1"

**\*SERVER**

svrfw1 SVGNAME = svg1\_nxa  
svrrqucs SVGNAME = svg1\_nxa, SVRTYPE = UCS

**\*SERVICE**

SVC1 SVRNAME = gw1  
SVC2 SVRNAME = svrfw1

**\*GATEWAY**

gw1 NODENAME = tmax5,  
PORTNO = 5000,  
RGWADDR = "61.33.189.162",  
RGWPORTNO = 5000,  
GWTYPE = TMAX, CPC = 1,  
BACKUP\_RGWADDR = "61.33.189.170",  
BACKUP\_RGWPORTNO = 5000

## 2.4 Tmax (ROUTING )

- - ROUTING
- ```
*ROUTING
rout1  SUBTYPE = edu_emp,
        FIELD = empno,
        RANGES = "MIN - 7788:svg2, 7789-MAX:gw1"
rout2  SUBTYPE = FIELD,
        FIELD = INPUT,
        RANGES = " 'aaa':svg1, *:svg3"
```

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Tmax (ROUTING)

*ROUTING

- ROUTING , DDR
- Name DDR SERVICE ROUTING ROUTING 가
- ROUTING ROUTING STRUCT
- DDR GATEWAY

2.4 Tmax

(ROUTING -)

*ROUTING -

- ROUTING
- SUBTYPE
- FIELD

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ROUTING

- 15 string
- SERVICE ROUTING
- SERVICE

SUBTYPE

- string
- Data Dependent Routing(DDR) 가
- Tmax 가 SDLFILE 가
- 가 "FIELD" Tmax FDLFILE

FIELD

- 15 string
- SUBTYPE (integer)
- (integer, string)

2.4 Tmax

(ROUTING -)

*ROUTING -

- RANGES

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RANGES

- 2047 literal
- RANGES FIELD

- RANGES

1. (integer) (string)

2. ,

3.

4. (,) 가

5. MIN(), MAX() 가

6. "A - B" A B

7. (*)

(

(*)

MIN MAX

(*)

) ,

8. (:)

9. SVRGROUP COUSIN

()

10. (" ")

11.

12. (' ')

< 2-9>

```
1.      Tmax
      (
          sample
          .
          .)

*DOMAIN
test      SHMKEY = 262100, TPORTNO = 8844

*NODE
testnode      TMAXDIR = "/user/tmax",
              APPDIR  = "/user/tmax/appbin"

*SVRGROUP
svg1_nxa      NODENAME = testnode
rqg1          NODENAME = tmax5, CPC = 4, SVGTYPE = RQMGR

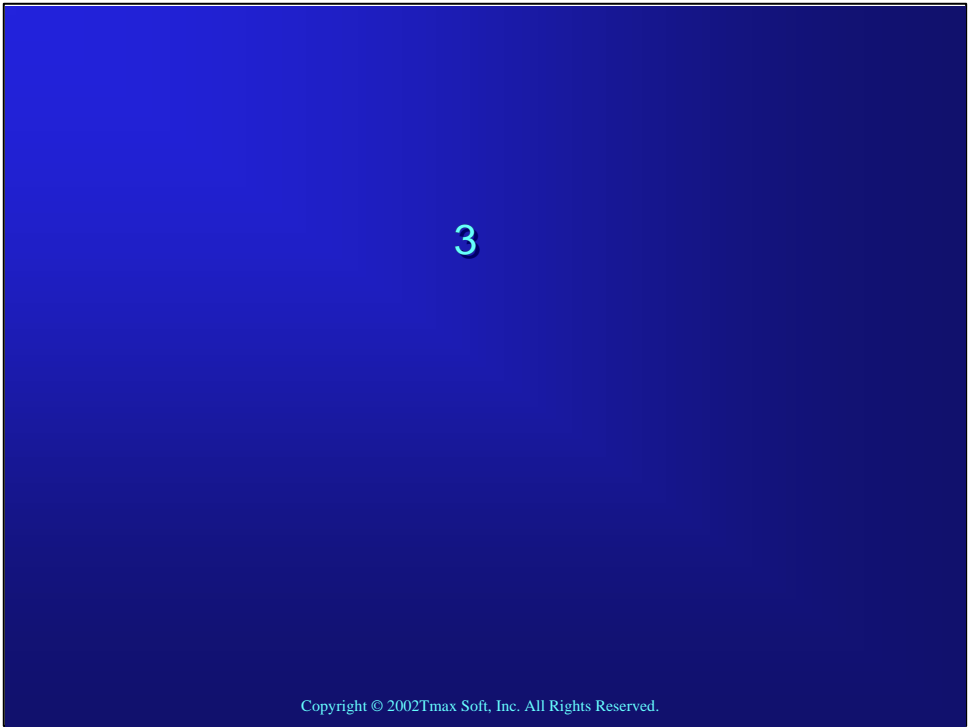
*RQ
rq1          SVGNAME = rqg1, QSIZE = 16, BOOT = COLD,
              FILEPATH = "/user/jaya/tmax/rq/rqfile1"

*SERVER
svrfw1      SVGNAME = svg1_nxa

*SERVICE
SVC1      SVRNAME = svrfw1, ROUTING = rout1
SVC2      SVRNAME = svrfw1

*ROUTING
rout1      SUBTYPE=FIELD, FIELD=INPUT,
              RANGES="aaa:svg1_nxa, bbb:gw1, *:svg1_nxa"

*GATEWAY
gw1      GWTYPE = TMAX, PORTNO = 5000,
          RGWADDR = "61.33.189.162", RGWPORTNO = 5000,
          NODENAME = testnode
```



3.1	.....	80
3.2	.....	82
3.3	.....	84
3.4	.....	87
3.5	.....	89
3.6	92
3.7	95

3.1

* SVRGROUP

- DBNAME
- OPENINFO
- CLOSEINFO
- TMSNAME
- MINTMS
- MAXTMS

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- ,
- ,
- Open/Close , Tmax
- 가
- 가 ,
- (DBMS)
- (DBMS)가 ,
- 가
- TMS(Transaction Management Server)
- Tmax 가
- TMS 가 ,
- SVRGROUP

<

>

***DOMAIN**

tmax1 SHMKEY =79990, MINCLH=1, MAXCLH=3,
 TPORTNO=8888, BLOCKTIME=30

***NODE**

edu01 TMAXDIR = "/home/edu01/tmax386",
 APPDIR = "/home/edu01/tmax386/appbin",
 PATHDIR = "/home/edu01/tmax386/path",
 TLOGDIR = "/home/edu01/tmax386/log/tlog",
 ULOGDIR = "/home/edu01/tmax386/log/ulog",
 SLOGDIR = "/home/edu01/tmax386/log/slog"

***SVRGROUP**

svg1 NODENAME = "edu01"

tms for Oracle

svg2 NODENAME = "edu01", DBNAME = ORACLE,
 OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60",
 TMSNAME = tms_ora

tms for Informix

#svg3 NODENAME = "edu01", DBNAME = INFORMIX,
OPENINFO = "stores7",
CLOSEINFO = "",
TMSNAME = tms_info

***SERVER**

svr_select SVGNAME = svg1, MIN = 2, MAX = 4
svr_insert SVGNAME = svg2

***SERVICE**

INSERT SVRNAME = svr_insert
SELECT SVRNAME = svr_select

3.2

- * DOMAIN
 - CMTRET
 - TXTIME
- * NODE
 - TLOGDIR
- * SVRGROUP
 - DBNAME
 - OPENINFO
 - CLOSEINFO
 - TMSNAME
 - MINTMS
 - MAXTMS

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- TP (Transaction Processing)
- (global transaction)
- DOMAIN, NODE, SVRGROUP
- DOMAIN 2PC(Two Phase Commit) 가
(timeout)
- NODE
(logging)
- OPENINFO
trace flag
) OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60+DbgFl=0x01+
LogDir=../log/xalog"
OPENINFO /home/edu01/tmax386/log/xalog
xa_NULLmddyy.trc
- SVRGROUP

<

>

***DOMAIN**

tmax1 SHMKEY=79990, MINCLH=1, MAXCLH=3,
TPORTNO=8888, CMTRET=Y, TXTIME=60, BLOCKTIME=30

***NODE**

edu01 TMAXDIR = "/home/edu01/tmax386",
APPPDIR = "/home/edu01/tmax386/appbin",
PATHDIR = "/home/edu01/tmax386/path",
TLOGDIR = "/home/edu01/tmax386/log/tlog",
ULOGDIR = "/home/edu01/tmax386/log/ulog",
SLOGDIR = "/home/edu01/tmax386/log/slog"

***SVRGROUP**

svg1 NODENAME = "edu01"

tms for Oracle

svg2 NODENAME = "edu01", DBNAME = ORACLE,
OPENINFO= "Oracle_XA+Acc=P/scott/tiger+SesTm=60",
TMSNAME = tms_ora, MINTMS = 2, MAXTMS = 3

tms for Informix

#svg3 NODENAME = "edu01", DBNAME = INFORMIX,
OPENINFO = "stores7",
CLOSEINFO = "",
TMSNAME = tms_info

***SERVER**

svr_select SVGNAME = svg1, MIN = 2, MAX = 4
svr_insert SVGNAME = svg2, MIN = 2, MAX = 5

***SERVICE**

INSERT SVRNAME = svr_insert
SELECT SVRNAME = svr_select

3.3

*

COUSIN

LOAD

*

COUSIN

*

ROUTING

*

SUBTYPE

FIELD

RANGES

SVRGROUP

SVRGROUP

SVRVICE

ROUTING

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- 가 ,
- 3가
 - (System Load Management : SLM)
 - (Data Dependent Routing : DDR)
 - (Dynamic Load Balancing : DLM)
- 가
- 가
 - COUSIN LOAD
- 가
- 가
 - ROUTING , COUSIN SVRGROUP SERVICE ROUTING ,
- 가

<

>

***DOMAIN**

tmax SHMKEY =79990, MINCLH=1, MAXCLH=3,
TPORTNO=8888, BLOCKTIME=120, RACPORT=3333

***NODE**

tmax5 TMAXDIR = "/user/jaya/tmax",
APPDIR = "/user/jaya/tmax/appbin",
PATHDIR = "/user/jaya/tmax/path",
TLOGDIR = "/user/jaya/tmax/log/tlog",
ULOGDIR = "/user/jaya/tmax/log/ulog",
SLOGDIR = "/user/jaya/tmax/log/slog"

tmax1 TMAXDIR = "/user4/jaya/tmax386",
APPDIR = "/user4/jaya/tmax386/appbin",
PATHDIR = "/user4/jaya/tmax386/path",
TLOGDIR = "/user4/jaya/tmax386/log/tlog",
ULOGDIR = "/user4/jaya/tmax386/log/ulog",
SLOGDIR = "/user4/jaya/tmax386/log/slog"

***SVRGROUP**

svg1 NODENAME = "tmax5", COUSIN = "svg2", LOAD = 3
svg2 NODENAME = "tmax1", LOAD = 2

***SERVER**

svrsenducs SVGNAME = svg1, SVRTYPE = UCS_LOAD, MIN = 1, MAX = 3

***SERVICE**

LOGIN SVRNAME = svrsenducs

<

>

***DOMAIN**

tmax SHMKEY =79990, MINCLH=1, MAXCLH=3,
TPORTNO=8888, BLOCKTIME=120, RACPORT=3333

***NODE**

tmax5 TMAXDIR = "/user/jaya/tmax",
APPDIR = "/user/jaya/tmax/appbin",
PATHDIR = "/user/jaya/tmax/path",
TLOGDIR = "/user/jaya/tmax/log/tlog",
ULOGDIR = "/user/jaya/tmax/log/ulog",
SLOGDIR = "/user/jaya/tmax/log/slog"

tmax1 TMAXDIR = "/user4/jaya/tmax386",
APPDIR = "/user4/jaya/tmax386/appbin",
PATHDIR = "/user4/jaya/tmax386/path",
TLOGDIR = "/user4/jaya/tmax386/log/tlog",
ULOGDIR = "/user4/jaya/tmax386/log/ulog",
SLOGDIR = "/user4/jaya/tmax386/log/slog"

***SVRGROUP**

svg1 NODENAME = "tmax5", COUSIN = "svg2"
svg2 NODENAME = "tmax1"

***SERVER**

svr3 SVGNAME = svg1

***SERVICE**

FDLTOUPPER SVRNAME = svr3, ROUTING = rout1
FDLTOLOWER SVRNAME = svr3

***ROUTING**

rout1 SUBTYPE=FIELD, FIELD=INPUT,
RANGES="'aaa':svg1, 'bbb':svg2, *:svg1"

3.4

*

NODENAME

CPC

SVGTYPE

*

RQ

SVGNAME

QSIZE

FILEPATH

BOOT

SVRGROUP

RQ

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?

.

?

.

RQ

.

RQ

<

>

***DOMAIN**

tmax SHMKEY =79990, MINCLH=1, MAXCLH=3,
TPORTNO=8888, BLOCKTIME=120, CMTRET=Y, TXTIME=30

***NODE**

tmax5 TMAXDIR = "/user/jaya/tmax",
APPDIR = "/user/jaya/tmax/appbin",
PATHDIR = "/user/jaya/tmax/path",
TLOGDIR = "/user/jaya/tmax/log/tlog",
ULOGDIR = "/user/jaya/tmax/log/ulog",
SLOGDIR = "/user/jaya/tmax/log/slog"

***SVRGROUP**

svg1 NODENAME = "tmax5"
svg2 NODENAME = "tmax5", DBNAME = ORACLE,
TMSNAME = tms_ora, MINTMS = 1,
OPENINFO = "Oracle_Xa+ACC=P/scott/tiger+SesTm=60"
rqg1 NODENAME = "tmax5", CPC = 4, SVGTYPE = RQMGR

***RQ**

rq1 SVGNAME = rqg1, QSIZE = 16, BOOT = COLD,
FILEPATH = "/user/jaya/tmax/rq/rqfile1"

***SERVER**

svr2 SVGNAME = svg1
svrrqucs SVGNAME = svg1, SVRTYPE = UCS
svr_insert SVGNAME = svg2

***SERVICE**

TOUPPER SVRNAME = svr2
TOLOWER SVRNAME = svr2
INSERT SVRNAME = svr_insert

3.5

SVRGROUP

- BACKUP

SERVER

- RESTART
- MAXRSTART
- GPERIOD

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- `SVRGROUP` , `BACKUP` 가 가
- (restart) 가
`SERVER` , `RESTART`, `MAXRSTART`, `GPERIOD` 가

<

>

***DOMAIN**

tmax SHMKEY =79990, MINCLH=1, MAXCLH=3,
 TPORTNO=8888, BLOCKTIME=120, RACPORT=3443

***NODE**

edu01 TMAXDIR = "/home/edu01/tmax",
 APPDIR = "/home/edu01/tmax/appbin",
 PATHDIR = "/home/edu01/tmax/path",
 TLOGDIR = "/home/edu01/tmax/log/tlog",
 ULOGDIR = "/home/edu01/tmax/log/ulog",
 SLOGDIR = "/home/edu01/tmax/log/slog"

edu09 TMAXDIR = "/home/edu01/tmax",
 APPDIR = "/home/edu01/tmax/appbin",
 PATHDIR = "/home/edu01/tmax/path",
 TLOGDIR = "/home/edu01/tmax/log/tlog",
 ULOGDIR = "/home/edu01/tmax/log/ulog",
 SLOGDIR = "/home/edu01/tmax/log/slog"

***SVRGROUP**

svg1 NODENAME = "edu01", BACKUP = "svg2"
svg2 NODENAME = "edu09"

***SERVER**

svr3 SVGNAME = svg1

***SERVICE**

FDLTOUPPER SVRNAME = svr3
FDLTOLOWER SVRNAME = svr3

tmax.env

[TMAX]

TMAX_HOST_ADDR=61.33.189.162
TMAX_HOST_PORT=8888
TMAX_BACKUP_ADDR=61.33.189.170
TMAX_BACKUP_PORT=8888
SDLFILE=/home/edu01/tmax386/sample/sdl/tmax.sdl
FDLFILE=/home/edu01/tmax386/sample/fdl/tmax.fdl
TMAX_CONNECT_TIMEOUT=2

TMAX

<

>

*DOMAIN

tmax1	SHMKEY =79990,	MINCLH=1,
	MAXCLH=3,	TPORTNO=8888

*NODE

tmax5	TMAXDIR = "/user/jaya/tmax",
	APPDIR = "/user/jaya/tmax/appbin",
	PATHDIR = "/user/jaya/tmax/path",
	TLOGDIR = "/user/jaya/tmax/log/tlog",
	ULOGDIR = "/user/jaya/tmax/log/ulog",
	SLOGDIR = "/user/jaya/tmax/log/slog"

*SVRGROUP

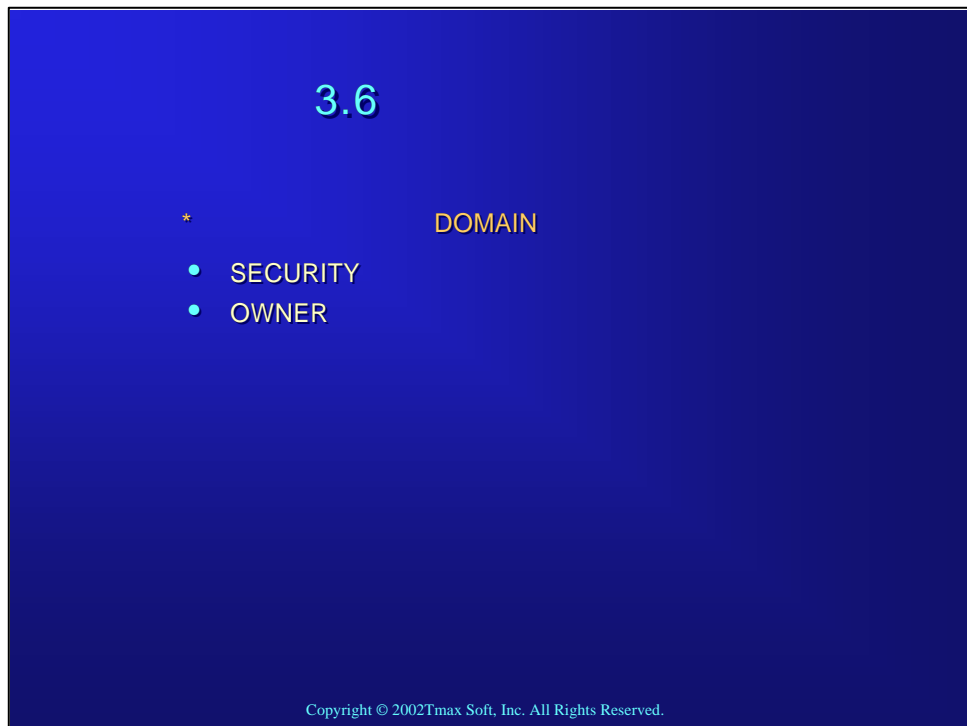
svg1	NODENAME = "tmax5"
------	--------------------

*SERVER

svr2	SVGNAME = svg1,	RESTART = Y,
	MAXRSTART = 100,	GPERIOD = 86400

*SERVICE

TOUPPER	SVRNAME = svr2
TOLOWER	SVRNAME = svr2



- (1) (2)
- 1 Tmax (DOMAIN)
- Tmax Tmax
- Tmax
- mkpw Tmax
- DOMAIN SECURITY

TMAX

<

>

*DOMAIN

tmax SHMKEY =79990, MINCLH=1, MAXCLH=3,
 TPORTNO=8888, BLOCKTIME=120,
 SECURITY = "DOMAIN_SEC", OWNER = tmax

*NODE

tmax5 TMAXDIR = "/user/jaya/tmax",
 APPPDIR = "/user/jaya/tmax/appbin",
 PATHDIR = "/user/jaya/tmax/path",
 TLOGDIR = "/user/jaya/tmax/log/tlog",
 ULOGDIR = "/user/jaya/tmax/log/ulog",
 SLOGDIR = "/user/jaya/tmax/log/slog"

*SVRGROUP

svg1 NODENAME = "tmax5"

*SERVER

svr2 SVGNAME = svg1

*SERVICE

TOUPPER SVRNAME = svr2
TOLOWER SVRNAME = svr2

TMAX

<

>

*DOMAIN

tmax SHMKEY =79990, MINCLH=1, MAXCLH=3,
 TPORTNO=8888, BLOCKTIME=120,
 SECURITY = "USER_AUTH", OWNER = tmax

*NODE

tmax5 TMAXDIR = "/user/jaya/tmax",
 APPDIR = "/user/jaya/tmax/appbin",
 PATHDIR = "/user/jaya/tmax/path",
 TLOGDIR = "/user/jaya/tmax/log/tlog",
 ULOGDIR = "/user/jaya/tmax/log/ulog",
 SLOGDIR = "/user/jaya/tmax/log/slog"

*SVRGROUP

svg1 NODENAME = "tmax5"

*SERVER

svr2 SVGNAME = svg1

*SERVICE

TOUPPER SVRNAME = svr2
TOLOWER SVRNAME = svr2

3.7

*

SERVICE

•

ROUTING

*

ROUTING

•

•

FIELD

•

SUBTYPE

•

RANGES

*

GATEWAY

•

•

GWTYPE

•

PORTNO

•

RGWADDR

•

RGWPORTNO

•

NODENAME

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•

.

•

GATEWAY

ROUTING

.

<

site1

>

*DOMAIN

tmax1 SHMKEY =79990, MINCLH=1, MAXCLH=3,
TPORTNO=8888, BLOCKTIME=120,
CMTRET=Y, TXTIME=30

*NODE

tmax5 TMAXDIR = "/user/jaya/tmax",
APPDIR = "/user/jaya/tmax/appbin",
PATHDIR = "/user/jaya/tmax/path"

*SVRGROUP

svg2 NODENAME = "tmax5",
DBNAME = ORACLE, MINTMS = 1, MAXTMS = 3,
OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60",
TMSNAME = tms_ora

*SERVER

sdltest SVGNAME = svg2

*SERVICE

SDLSEL SVRNAME = sdltest, ROUTING = rout2
SDLINS SVRNAME = sdltest
SDLUPT SVRNAME = sdltest
SDLDEL SVRNAME = sdltest

*ROUTING

rout2 FIELD = empno, SUBTYPE = edu_emp,
RANGES = "MIN -7787:svg2, 7788-MAX:gw1"

*GATEWAY

gw1 GWTYPE = TMAX, PORTNO = 5000, LOAD = 2,
RGWADDR = "168.126.185.129", RGWPORTNO = 5001,
NODENAME = tmax5

<

site2

>

*DOMAIN

tmax1 SHMKEY =79990, MINCLH=1, MAXCLH=3,
TPORTNO=8888, BLOCKTIME=120,
CMTRET=Y, TXTIME=30

*NODE

edu01 TMAXDIR = "/home/edu01/tmax386",
APPDIR = "/home/edu01/tmax386/appbin",
PATHDIR = "/home/edu01/tmax386/path"

*SVRGROUP

svg2 NODENAME = "edu01",
DBNAME = ORACLE, MINTMS = 1, MAXTMS = 3,
OPENINFO = "Oracle_XA+Acc=P/scott/tiger+SesTm=60",
TMSNAME = tms_ora

*SERVER

sdltest SVGNAME = svg2

*SERVICE

SDLSEL SVRNAME = sdltest, ROUTING = rout2
SDLINS SVRNAME = sdltest
SDLUPT SVRNAME = sdltest
SDLDEL SVRNAME = sdltest

*ROUTING

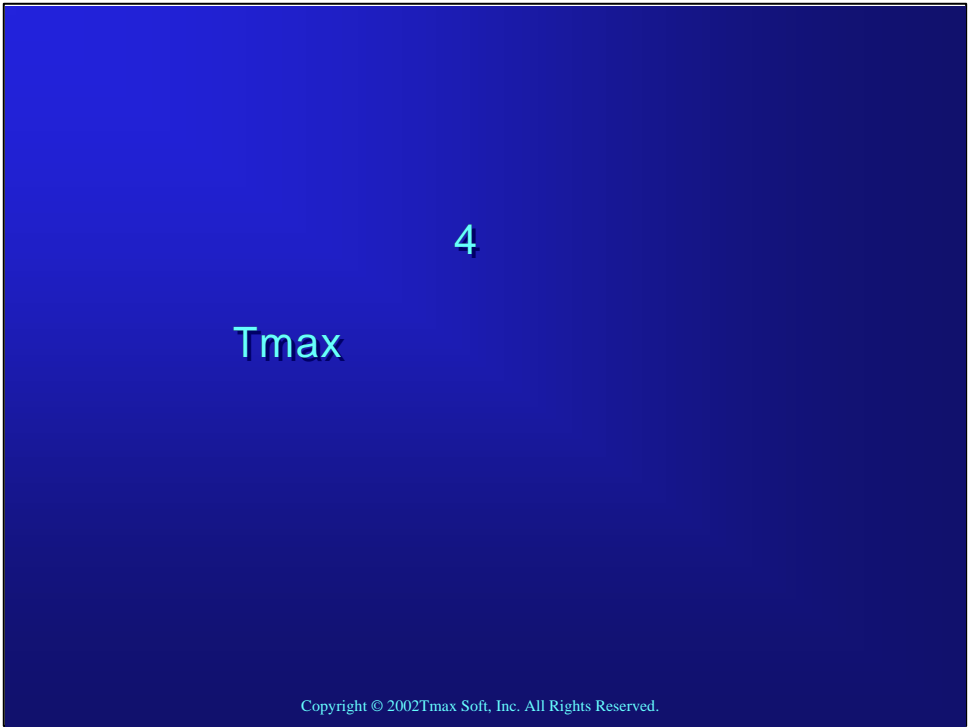
rout2 FIELD = empno, SUBTYPE = edu_emp,
RANGES = "MIN -7787:gw2, 7788-MAX:svg2"

*GATEWAY

gw2 GWTYPE = TMAX, PORTNO = 5001,
RGWADDR = "tmax5", RGWPORTNO = 5000,
NODENAME = edu01

< 3-1>

1. Tmax .
- domain1,
domain2)
- <domain1>
• domain1 .
- (*DOMAIN RACPORT)
• non -XA , COUSIN , LOAD
2 1
- svr_select , CLOPT
- SELECT , ROUTING gw1
• ENAME FIELD FIELD , MIN -
7788, 7789 -MAX gw1
- (gw1, gw2)
- <gw1>
• node1 node1 가 gw2가 BACKUP
- domain2
- <gw2>
• node2
• domain2
- <domain2>
• domain2
- non -XA
- svr_select , CLOPT
- SELECT , ROUTING gw1
• ENAME FIELD FIELD , MIN -
7788, 7789 -MAX gw1
- (gw1, domain1 node1
.)
2. Tmax .
- (racd)



Tmax

4.1	Tmax	.....	100
4.2		.....	101
4.3	Tmax	.....	102
4.4	Tmax	.....	106

4.1 Tmax

- cfl
Usage: cfl [-hno] -i file_name
- Tmax

```
[edu01@edu01 config]$ cfl -i sample.m
CFL is done successfully for node(edu01)
```

```
[edu01@edu01 config]$ ls
./      ../      sample.m*  tmconfig*
```

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Tmax

cfl

```
-h : Online Help
-n :
-i :
-o :
(
tmconfig
)
```

•

• Tmax

. Tmax

Tmax

• Tmax

, Tmax

가

Tmax

가

. Tmax

Tmax

Tmax가

Tmax

.

4.2

- `gst`
Usage: `gst [-h f]`
- `gst`,
• `gst`
- `Tmax` `svct` `_svctab.c`

```
[edu01@edu01 config]$ gst
SVC tables are successfully generated
GST is successfully done
[edu01@edu01 config]$ ls ../svct
./                ../                svr2_svctab.c
```

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gst

```

    -h : Online Help
    -n :                               gst
    -f :                               Tmax

```

• Tmax

• 가

• SERVICE

• 가

• Tmax

• ,

• Tmax

• ,

• ,

• ,

• mksvr , Tmax 3.8.7 , Tmax

가 cc .)

4.3 Tmax

- tmboot
Usage: tmboot [-hbfknow] [-c|g|q|S|s|T|t|A]
- Tmax

```
[edu01@edu01 config]$ tmboot
TMBOOT for node(edu01) is starting:
Welcome to Tmax demo system: it will expire 2002/5/31
Today: 2002/5/14
TMBOOT: TMM is starting: Tue May 14 00:02:24 2002
TMBOOT: CLL is starting: Tue May 14 00:02:24 2002
TMBOOT: CLH is starting: Tue May 14 00:02:25 2002
(I) CLH Current Tmax Configuration:
Number of client handler(MINCLH) = 2
Supported maximum user per node = 1744
Supported maximum user per handler = 872
TMBOOT: CLH is starting: Tue May 14 00:02:25 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:02:25 2002
```

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Tmax

```
tmboot
  -b                :
  -f config_file    :          Tmax
  -k number         : -s, -t
  -n node_name      :
  -w                :
  -c                : CLH   MAXCLH
  -g svg_name       :
  -o clopt_string   : CLOPT string  가
  -q RQ svg_name    : RQS
  -S svr_name       :          MIN
  -s svr_name       :
  -T                : Tmax
  -t tms_name       : tms
  -A                :
```

• Tmax , Tmax (boot)

4.3 Tmax (tmboot -T)

- tmboot -T
Tmax

```
[edu01@edu01 config]$ tmboot -T
TMBOOT for node(edu01) is starting:
Welcome to Tmax demo system: it will expire 2002/5/31
Today: 2002/5/14
    TMBOOT: TMM is starting: Tue May 14 00:11:11 2002
    TMBOOT: CLL is starting: Tue May 14 00:11:11 2002
    TMBOOT: CLH is starting: Tue May 14 00:11:11 2002
(I) CLH Current Tmax Configuration:
    Number of client handler(MINCLH) = 2
    Supported maximum user per node = 1744
    Supported maximum user per handler = 872
    TMBOOT: CLH is starting: Tue May 14 00:11:11 2002
    TMBOOT: TMS(tms_ora) is starting: Tue May 14 00:11:11 2002
    TMBOOT: TMS(tms_ora) is starting: Tue May 14 00:11:11 2002
```

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tmboot -T

- Tmax

-S

-s

-A

4.3 Tmax (tmboot -S)

- `tmboot -S <svr_name>`
`<svr_name>` MIN

```
[edu01@edu01 config]$ tmboot -S svr2
TMBOOT for node(edu01) is starting:
Welcome to Tmax demo system: it will expire 2002/5/31
Today: 2002/5/14
TMBOOT: SVR(svr2) is starting: Tue May 14 00:35:41 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:35:41 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:35:41 2002
```

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`tmboot -S <svr_name>`

- Tmax
가 .
- "tmboot -S svr2" Tmax MIN=3, MAX=10
svr2 -S MIN 3

4.3 Tmax (tmboot -s)

- `tmboot -s <svr_name> -k <number>`
`<svr_name>` `-k`

```
[edu01@edu01 config]$ tmboot -s svr2 -k 5
TMBOOT for node(edu01) is starting:
Welcome to Tmax demo system: It will expire 2002/5/31
Today: 2002/5/14
TMBOOT: SVR(svr2) is starting: Tue May 14 00:41:14 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:41:14 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:41:14 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:41:14 2002
TMBOOT: SVR(svr2) is starting: Tue May 14 00:41:14 2002
```

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`tmboot -s <svr_name> -k <number>`

- `-s` `-S` .
- `-s` `-k` MAX number Tmax
- "tmboot -s svr2 -k 5" Tmax MIN=3, MAX=10
 svr2 ? -s -k 5

4.4 Tmax

- tmdown
Usage: tmdown [-ahfiknw] [-A|g|q|S|s|t|p]
- Tmax

```
[edu01@edu01 config]$ tmdown
Do you really want to down whole Tmax? (y : n): y
TMDOWN for node(edu01) is starting:
TMDOWN: SERVER(svr2:40) downed: Tue May 14 11:38:57 2002
TMDOWN: SERVER(tms_ora:1) downed: Tue May 14 11:38:57 2002
TMDOWN: SERVER(tms_ora:0) downed: Tue May 14 11:38:57 2002
TMDOWN: CLH downed: Tue May 14 11:38:57 2002
TMDOWN: CLH downed: Tue May 14 11:38:57 2002
TMDOWN: CLL downed: Tue May 14 11:38:57 2002
TMDOWN: TMM downed: Tue May 14 11:38:57 2002
TMDOWN: TMAX is down
```

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Tmax

tmdown

```
-h : Online Help
-f config_file : Tmax
-i :
-k number : -s, -t
-n node_name :
-A :
-g svg_name :
-q RQ svg_name : RQS
-S svr_name :
-s svr_name :
-t tms_name : tms
-w wait_sec : Tmax
-p spid : id
```

- Tmax Tmax .
clh, rqs) , Tmax (tmm, tms, cll,

4.4 Tmax (tmdown -S)

- `tmdown -S <svr_name>`
`<svr_name>`

```
[edu01@edu01 config]$ tmdown -S svr2
```

```
TMDOWN for node(edu01) is starting:
```

```
TMDOWN: SERVER(svr2:41) downed: Tue May 14 11:45:38 2002
```

```
TMDOWN: SERVER(svr2:40) downed: Tue May 14 11:45:38 2002
```

```
TMDOWN: SERVER(svr2:42) downed: Tue May 14 11:45:38 2002
```

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`tmdown -S <svr_name>`

- .
- Tmax
가 가 .
- "tmdown -S svr2" svr2 3 .

4.4 Tmax (tmdown -s)

- `tmdown -s <svr_name> -k <number>`
`<svr_name>` `-k`

```
[edu01@edu01 config]$ tmdown -s svr2 -k 2
```

```
TMDOWN for node(edu01) is starting:
```

```
TMDOWN: SERVER(svr2:41) downed: Tue May 14 11:54:46 2002
```

```
TMDOWN: SERVER(svr2:42) downed: Tue May 14 11:54:46 2002
```

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`tmdown -s <svr_name> -k <number>`

- .
- .
- "tmdown -s svr2 -k 2" svr2 2

4.4 Tmax (tmdown -i)

- tmdown -i

Tmax

```
[edu01@edu01 config]$ tmdown -i
```

```
TMDOWN for node(edu01) is starting:
```

```
TMDOWN: SERVER(svr2:40) downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: SERVER(svr2:41) downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: SERVER(svr2:42) downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: CLL downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: CLH downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: CLH downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: TMM downed: Tue May 14 11:57:23 2002
```

```
TMDOWN: TMAX is down
```

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tmdown -i

- Tmax

tmdown

- tmdown

i(immediately)

< 4-1>

1. Tmax command . command
- 1) Tmax (sample.m) , ?
"config"
- 2) "config" ?
- 3) Tmax "config" ? Tmax
- 4) Tmax ?
- 5) Tmax ?
- 6) (edu01) Tmax ?
- 7) Tmax가 (svr2) ?
(Tmax)
- 8) , Tmax
가 ?
- 9) (svr2) ?
(MIN 2 가 MAX 10)
- 10) 가 500 ?
- 11) tms ?
(tms MIN 2 가 MAX 3 "tms_ora")
- 12) RQS ?
(RQ "rqsvg")
- 13) 5 Tmax . ?
- 14) Tmax ?

< 4-1 >

1. 4-1 .

1) cfl -i sample.m -o config

2) gst -f config

3) tmboot -f config

4) tmboot -T

5) tmboot -A

6) tmboot -n edu01

7) tmdown -S svr2, tmboot -S svr2

8) tmboot -b

9) tmboot -s svr2 -k 2

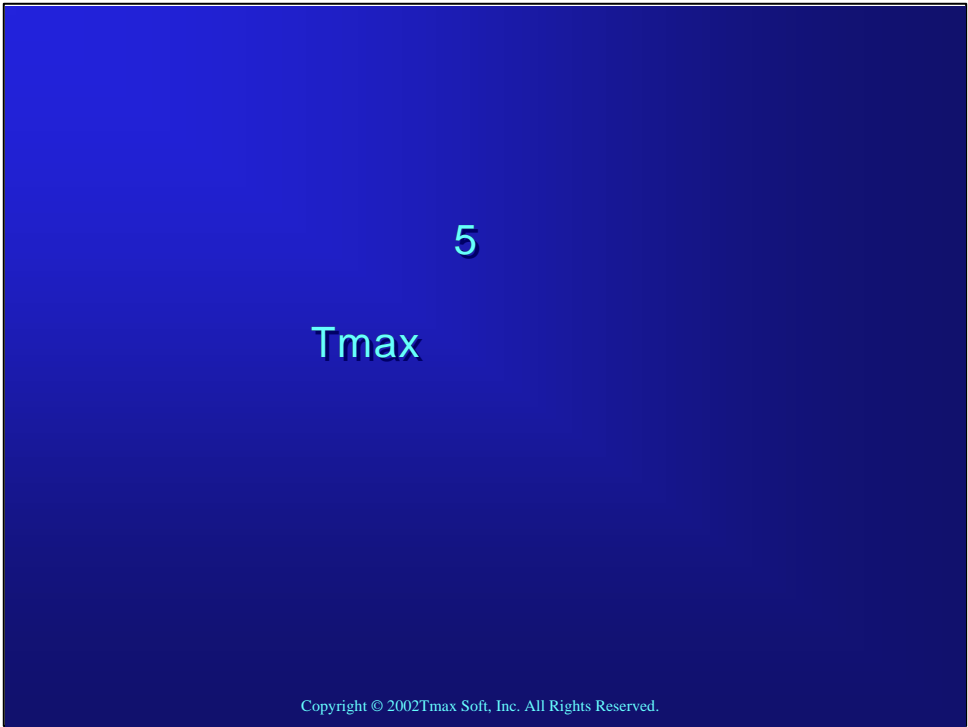
10) tmboot -w

11) tmboot -t tms_ora

12) tmdown -q rqsvg

13) tmdown -w 5?

14) tmdown -i



Tmax

5.1	Tmax	.....	113
5.2	Tmax	.....	119

5.1 Tmax

- tmaxadmin
Usage: tmaxadmin [-hfnlv] [-m | s]
- Tmax

```
[edu01@edu01 config]$ tmaxadmin
--- Welcome to Tmax Admin (Type "quit" to leave) ---

$$1 edu01 (tmaxadm):

[edu01@edu01 config]$ tmaxadmin -s
--- Welcome to Tmax Admin (Type "quit" to leave) ---

$$1 edu01 (tmaxadm):
```

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Tmax

tmaxadmin

```
-h          : Online Help
-f config_file :          Tmax
-n node_name  :
-l           :
-v           : Tmax
-m           :          가
-s           :          가
```

- Tmax , 가
- 가 .
- , ,
- , 가 .
- Tmax tmaxadmin command interpreter

5.1 Tmax

(tmaxadmin -m)

- tmaxadmin -m

master

```
[edu01@edu01 config]$ tmaxadmin
--- Welcome to Tmax Admin (Type "quit" to leave) ---

$$1 edu01 (tmaxadm): set
not allowed command (set) in sub admin

[edu01@edu01 config]$ tmaxadmin -m
--- Welcome to Tmax Admin (Type "quit" to leave) ---

$$1 edu01 (tmaxadm): set
Usage: set - opt sectname fldname value
```

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tmaxadmin -m

•

•

가

가

•

•

“not allowed command (set) in sub admin”

5.1 Tmax

(tmadmin -n)

- `tmadmin -n <node_name>`
- `tmadmin -l`

```
[edu01@edu01 config]$ tmadmin -n edu01
--- Welcome to Tmax Admin (Type "quit" to leave) ---
$$1 edu01 (tmadm):

[edu01@edu01 config]$ tmadmin -l
--- Welcome to Tmax Admin (Type "quit" to leave) ---
$$1 edu01 (tmadm):
```

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`tmadmin -n <node_name>`

- `tmadmin -n` : Tmax Admin을 실행하는 데 사용되는 명령어입니다.
- `tmadmin -n` : Tmax Admin을 실행하는 데 사용되는 명령어입니다.

`tmadmin -l`

- `tmadmin -l` : Tmax Admin을 실행하는 데 사용되는 명령어입니다.
- `tmadmin -l` : Tmax Admin을 실행하는 데 사용되는 명령어입니다.

5.1 Tmax

(tmadmin -f)

- `tmadmin -f <config_name>`

```
[edu01@edu01 config]$ tmadmin -f config
--- Welcome to Tmax Admin (Type "quit" to leave) ---

$$1 edu01 (tmadm):
```

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`tmadmin -f <config_name>`

- (tmconfig)가
tmadmin .
- cfl -o config ,
tmadmin -f
- tmconfig가 ,
Tmax -f

5.1 Tmax

(tmadmin -v)

- tmadmin -v

Tmax

```
[edu01@edu01 config]$ tmadmin -v  
Admin. Tool for Tmax 3.8.6
```

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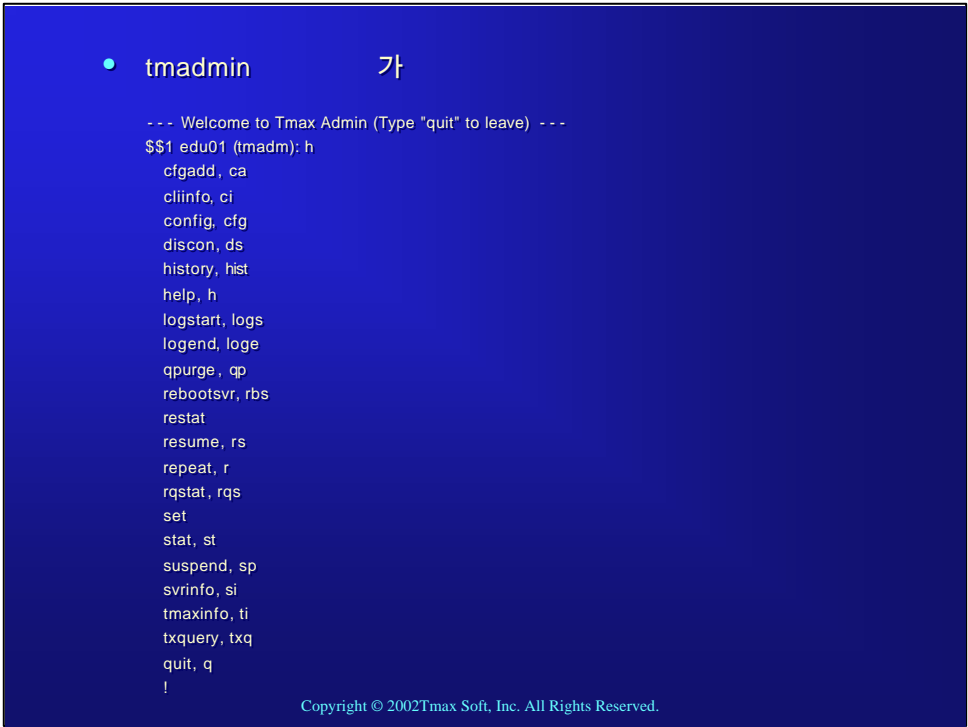
tmadmin -v

- Tmax

. -v
Tmax

Tmax

.



Tmaxadmin 가

\$\$\$1 edu01 (tmadm): h

cfgadd, ca 가

cliinfo, ci

config, cfg

discon, ds

history, hist

help, h 가

logstart, logs

logend, loge

qpurge, qp

rebootsvr, rbs

resume, rs

restat

repeat, r

rqstat, rqs

set

stat, st

suspend, sp

svrinfo, si

tmaxinfo, ti Tmax

txquery, txq

quit, q tmadmin

! history

5.2 Tmax

- tmaxadmin
 1. : ti, ci, si, txq, rqs, history, !, config, stat, repeat
 2. : suspend, resume, rbs (reboot server),
cfgadd (configuration add),
set, rqs
qp (queue purge),
logstart, logend,
restat

*st, si

Wild card

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Tmax

- tmaxadmin

“tmaxadmin(tmaxadmin -s)”

“tmaxadmin -m”

가

tmaxadmin

ti, ci, si, txq, history(hist), !, config(cfg), stat(st), repeat(r), rqs(-l, -s)
logstart(logs), logend(logs)

tmaxadmin -m

suspend(sp), resume(rs), rbs, cfgadd(ca), set, rqs(-c, -f), qp, restat

5.2 Tmax

(ti)

- tmaxinfo (ti)

tmax

\$\$1 edu01 (tmadm): ti

Tmax System Info: DEMO version 3.8.6:

expiration date = 2002/5/31
maxuser = UNLIMITED,
domaincount = 1,
nodecount = 1,
svgrpcount = 2,
svrcount = 2, svccount = 2
rout_groupcount = 0, rout_elemcount = 0
cousin_groupcount = 0, cousin_elemcount = 0
backup_groupcount = 0, backup_elemcount = 0

Tmax All Node Info: nodecount = 1:

no	name	portno	racport	shmkey	shmsize	minclh	maxclh
0	edu01	8888	3333	79990	135456	1	3

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ti

- (version), (maxuser) .

5.2 Tmax

(ci)

- clientinfo (ci)

\$\$1 edu01 (tmadm): ci

CLH 0:

cli_id	status	count	lastin_time	ipaddr	username
1	RDY	1	11	61.33.189.162	
2	RDY	1	5	61.33.189.162	

Total Connected Clients = 2

\$\$2 edu01 (tmadm): ci -s

CLH 0: 2

Total Connected Clients = 2

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ci

- Address, (count) (status), IP
- -s ,

5.2 Tmax (si)

- svrinfo (si)

\$\$5 edu01 (tmadm): si

clh	svrname	(svri)	status	count	qcount	qpcount	emcount
0	svrbroaducs	(0)	NRDY	0	0	0	0
0	svr_select	(1)	RDY	2	0	0	0
0	svr_insert	(2)	RDY	0	0	0	0
0	svr1	(3)	RDY	7	0	0	0
0	svr2	(4)	RDY	2	0	0	0

\$\$10 edu01 (tmadm): si svr_*

clh	svrname	(svri)	status	count	qcount	qpcount	emcount
0	svr_select	(1)	RDY	2	0	0	0
0	svr_insert	(2)	RDY	0	0	0	0

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si

- Tmax
(status), (count), (qcount),
(qpcount), (maxqcount)
(emcount)
- si 가
. Wild card

5.2 Tmax

(txq)

- txquery (txq)

\$\$30 edu01 (tmadm): txq

CLH 0:

cli_id	txstime	txqcount	txrcount	XID	txstate	xastate
c0015	15:29:24	1	0	000:000:00004	TXBEGIN	TX_OK
c0016	15:29:25	1	0	000:000:00005	TXBEGIN	TX_OK

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txq

- (cli_id)

(txstime),

(txqcount),

(txrcount), (XID),

(txstate - TXBEGIN,

TXCOMMIT, TXROLLBACK),

(xastate)

5.2 Tmax (hist)

- history (hist)

```

$$$36 edu01 (tmadm): hist
15: hist
14: txq
13: txq
12: txq
11: txq
10: txq
9: si svr_*
8: si
7: si S*
6: si T*
5: st -s
4: si
3: ti
2: si
1: ti
0: si

```

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hist

- shell

- history

!가

가

,

.

5.2 Tmax (!)

- !

\$\$40 edu01 (tmadm): ci
no client login
\$\$41 edu01 (tmadm): !
ci
no client login
\$\$42 edu01 (tmadm): !5
st -s

CLH 0:

svc_name	count	avg	cq_count	aq_count	q_avg	status
TOLOWER	1	0.00	0	0	0.00	RDY
TOUPPER	1	0.00	0	0	0.00	RDY
SDLTOLOWER	0	0.00	0	0	0.00	RDY
SDLTOUPPER	7	0.00	0	0	0.00	RDY
SELECT	3	0.00	0	0	0.00	RDY
INSERT	5	0.01	0	0	0.00	RDY

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!

-

history

5.2 Tmax (st)

- stat (st)

Usage: stat { -p | -s }

\$\$\$61 edu01 (tmadm): st -s S*

CLH 0:

svc_name	count	avg	cq_count	aq_count	q_avg	status
SDLTOLOWER	0	0.00	0	0	0.00	RDY
SDLTOUPPER	7	0.00	0	0	0.00	RDY
SELECT	3	0.00	0	0	0.00	RDY

\$\$\$62 edu01 (tmadm): st -p svr_*

CLH 0:

svr_name	svgname	spr_no	status	count	avg	svc
svr_select	svg1	33	RDY	3	0.00	-1
svr_select	svg1	34	RDY	0	0.00	-1
svr_insert	svg2	37	RDY	5	0.01	-1

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st -p :

- Tmax
- Tmax MIN MAX
- (svgname), id(spr_no), 가 (count), (avg), (status), (svc)
- '-p' 가

st -s :

- Tmax
- CLH (clh), (count), (avg), (cq_count), (aq_count), (q_avg)
- '-s' ,

st -p, st -s Wild card 가

5.2 Tmax

(st Repeat)

- stat (st) Repeat

(-i), (-k)

Usage: stat { -p | -s } -i 1 -k 2

\$\$3 edu01 (tmadm): st -s -i 1 -k 3

(-f), (-i)

Usage: stat { -p | -s } -f 10 -i 2

\$\$64 edu01 (tmadm): st -p -f 10 -i 1

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-i -k st

- \$\$3 edu01 (tmadm): st -s -i 1 -k 3
1 'st -s' 3
- \$\$64 edu01 (tmadm): st -p -f 10 -i 1
1 'st -p' 10
-

5.2 T_{max} (r)

- repeat (r)

Usage: repeat [-i sec] [-k num | -f sec] cmd args

-i sec: repeat interval (default 3 secs)

- k num: repeat count (default 10 times)

- f sec: repeat duration

cmd args: repeated command and arguments

```
$$5 edu01 (tmadm): r ci
```

```
$$$ edu01 (tmadm): r -i 1 -k 5 st -p
```

```
$$$ edu01 (tmadm): r -f 10 -i 2 st -s
```

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r

- `$$$ edu01 (tmadm): r ci`
`repeat ?i ?k`
`10 . ci 3 10`
- `$$$ edu01 (tmadm): r -i 1 -k 5 st -p`
`st -p 1 5`
- `$$$ edu01 (tmadm): r -f 10 -i 2 st -s`
`st -s 2 10`

5.2 Tmax

(logs,loge)

- logstart/logend (logs/loge)

tmadmin

```
[edu01@edu01 log]$ tmadmin
$$1 edu01 (tmadm): logs b
logging start ok
$$2 edu01 (tmadm): st -s
```

CLH 0:

svc_name	count	avg	cq_count	aq_count	q_avg	status
TOLOWER	1	0.00	0	0	0.00	RDY
TOUPPER	1	0.00	0	0	0.00	RDY
SDLTOLOWER	0	0.00	0	0	0.00	RDY

```
$$3 edu01 (tmadm): loge
logging end ok
```

```
[edu01@edu01 log]$ ls
./ ../ b slog/ tlog/ ulog/
```

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logs/loge

- tmadmin 가 .
- tmadmin .
- Logging .
- 가 , , .
- .
 - \$\$1 tmax1 (tmadm): logstart filename
 - \$\$1 tmax1 (tmadm): logend
- logstart log logend .

5.2 Tmax

(rqs -s)

- rqstat (rqs)

가 RQ

Usage: rqs [-l | -s rqname | -c rqname | -f rqname]

-l: list available RQs

-s rqname: show RQ statistics

```

$$1 edu01 (tmadm): rqs -l

```

```

list of available RQs:

```

```

    rq1      rq2

```

```

$$2 edu01 (tmadm): rqs -s rq1

```

```

-----
Number of queue entries of RQ [rq1]
-----

```

```

request      0

```

```

reply        1

```

```

fail          0

```

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rqs

- 가 RQ .
- -l -s tmadmin , -f -c RQ
tmadmin -m .

rqs

```

{
  -l      : 가 RQ
  -s rqname : RQ
  -c rqname : RQ
  -f rqname : RQ
}

```

5.2 Tmax

(rqs -f)

- rqs (rqs)

가 RQ

Usage: rqs [-l | -s rqname | -c rqname | -f rqname]

-c rqname: clear RQ statistics

-f rqname: flush RQ entries

```
[edu01@edu01 client]$ tmaxadmin -m
--- Welcome to Tmax Admin (Type "quit" to leave) ---

$$2 edu01 (tmaxadm): rqs -c rq1
RQ(rq1) statistics cleared

$$4 edu01 (tmaxadm): rqs -f rq1
RQ(rq1) flushed
```

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rqs

- tmaxadmin rqs 가 RQ
가
- rqs -f -c RQ
"tmaxadmin -m"
- 가 RQ 가 failQ
-f failQ flush

\$\$3 edu01 (tmaxadm): rqs -s rq1

Number of queue entries of RQ [rq1]
-----request 0 reply 0 fail 1

\$\$4 edu01 (tmaxadm): rqs -f rq1

RQ(rq1) flushed

\$\$5 edu01 (tmaxadm): rqs -s rq1

Number of queue entries of RQ [rq1]
-----request 0 reply 0 fail 0

5.2 Tmax (sp)

- suspend (sp)

client queue

Usage: suspend { -s svc_name | -v svr_name }

```
$$7 edu01 (tmadm): sp -v svr2
-v svr2 is suspended
```

```
$$8 edu01 (tmadm): si
```

clh	svrname	(svri)	status	count	qcount	qpcount	emcount
0	svr2	(0)	BLK	1	2	0	0

```
$$3 edu01 (tmadm): sp -s TOUPPER
-s TOUPPER is suspended
```

```
$$4 edu01 (tmadm): st -s
CLH 0:
```

svc_name	count	avg	cq_count	aq_count	q_avg	status
TOLOWER	0	0.00	0	0	0.00	RDY
TOUPPER	0	0.00	0	0	0.00	BLK

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sp

- `tmadm` `sp -v svr_name` 가 가
- `tmadm` `si` , 가 , 가 .
- `tmadm` `sp -s svc_name` 가 BLOCK
- `tmadm` `st -s` TPENOREADY 가
- `tmadm` `st -s` 가 BLOCK

sp

```
[ -s svc_name :
  -v svr_name :
```

5.2 Tmax (rs)

- resume (rs)

Usage: resume { -v svr_name | -s svc_name }

```
$$15 edu01 (tmadm): rs -v svr2
-v svr2 is resumed
```

```
$$16 edu01 (tmadm): si
```

clh	svrname	(svri)	status	count	qcount	qpcount	emcount
0	svr2	(0)	RDY	3	0	0	0

```
$$17 edu01 (tmadm): rs -s TOUPPER
-s TOUPPER is resumed
```

```
$$18 edu01 (tmadm): st -s
```

svc_name	count	avg	cq_count	aq_count	q_avg	status
TOLOWER	2	0.00	0	1	1020.32	RDY
TOUPPER	1	0.00	0	1	1053.95	RDY

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rs

- .
- 가 가 .
- .
- 가 (RDY)가 .

```
$$18 edu01 (tmadm): rs -s TOUPPER
```

TOUPPER is resumed

```
$$19 edu01 (tmadm): st -s
```

CLH 0:

svc_name	count	avg	cq_count	aq_count	q_avg	status
TOLOWER	2	0.00	0	1	1020.32	RDY
TOUPPER	1	0.00	0	1	1053.95	RDY

rs

```
[ -s svc_name      :
  -v svr_name      :
```

5.2 Tmax (restat)

- restat

Usage: restat [-a | -v svrname]

-a: clear all AP statistics

-v svrname: clear server statistics

```
$$1 edu01 (tmadm): restat -v svr1
```

```
Server(svr1) statistics cleared: 1
```

```
$$2 edu01 (tmadm): st -p
```

svr_name	svgname	spr_no	status	count	avg	svc
svr_select	svg1	33	RDY	3	0.01	-1
svr1	svg1	38	RDY	0	0.00	-1
svr2	svg1	39	RDY	4	0.00	-1

```
$$3 edu01 (tmadm): restat -a
```

```
Statistics cleared: 3
```

```
$$4 edu01 (tmadm): st -p
```

svr_name	svgname	spr_no	status	count	avg	svc
svr_select	svg1	33	RDY	0	0.00	-1
svr1	svg1	38	RDY	0	0.00	-1
svr2	svg1	39	RDY	0	0.00	-1

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restat

-

- “tmadmin -m” 가 .

restat

[-a	:
	-v svr_name	:

5.2 Tmax (rbs)

- reboot server process (rbs)

Usage: rbs newfile svr

```

$$1 edu01 (tmadm ): rbs svr2 svr2
suspend ok
down ok
cp ok
boot ok
resume ok
svr (svr2) is rebooted
$$2 edu01 (tmadm ):

```

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rbs

-
- TMAX_BKAPPPDIR
"tmadmin -m" rbs

rbs

```

[ newfile :
  svr :

```

rbs

1. TMAX_BKAPPPDIR
(TMAX_BKAPPPDIR=\$(TMAXDIR)/bkappbin; export TMAX_BKAPPPDIR)
2. Shell (. ./bash_profile)
3. \$TMAXDIR bkappbin (\$TMAXDIR/mkdir bkappbin)
4. Tmax cfl
5. \$TMAXDIR/sample/server/svr2.c (compile c svr2)
6. \$TMAXDIR/bkappbin/ appbin svr2
(cp ../appbin/svr2 .)
7. tmadmin (tmadmin -m)
8. rbs (rbs svr2 svr2)
9. 가
(toupper aa)

5.2 Tmax (ca)

- cfgadd (ca)

가

Usage: cfgadd (ca) -i cfgfile

```
$$$ edu01 (tmadm): ca -i tmconfig
config is successfully added
$$$ edu01 (tmadm): st -s
```

CLH 0:

svc_name	count	avg	cq_count	aq_count	q_avg	status
TOLOWER	0	0.00	0	0	0.00	RDY
TOUPPER	3	0.00	0	0	0.00	RDY
SDLTOLOWER	0	0.00	0	0	0.00	RDY
SDLTOUPPER	0	0.00	0	0	0.00	RDY
CFGADD	0	0.00	0	0	0.00	NRDY

CFGADD 가 가 가 가

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ca

- Tmax , 가 가
"tmadmin -m" ca 가

ca

- cfgfile : 가 가

ca

1. Tmax CFGADD 가 (cfl -i sample.m)
2. (gst)
3. tmadmin (tmadmin -m)
4. ca -i tmconfig NRDY CFGADD 가 가
(tmadmin)
5. \$TMAXDIR/sample/client/ CFGADD
(cp toupper.c cfgadd.c cfgadd.c)
6. \$TMAXDIR/sample/server/svr2.c CFGADD 가
(compile c svr2)
7. tmdown -S svr2 svr2 가 (tmboot -S svr2)
8. tmadmin CFGADD 가 RDY
9. 가 가
(cfgadd abc)

5.2 Tmax (set)

- set

Usage: set -opt sectname fldname value

```

$$2 tmax5 (tmadm): cfg -v svr2
svr_name = svr2, svr_no = 1 ,
.....
maxqcount(mq) = -1,
asqcount(aq) = -1,
.....

$$3 tmax5 (tmadm): set -v svr2 aq 10
new value (10) is set for section = SERVER, name = svr2, fld = aq

$$4 tmax5 (tmadm): cfg -v svr2
svr_name = svrfw2, svr_no = 1
.....
maxqcount(mq) = -1,
asqcount(aq) = 10,
.....

```

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set

- - 가 "()" tmadmin cfg 가
- : blocktime(bt), txtime(tt), nliveinq(ni)
 \$\$2 edu01 (tmadm): set -d tmax1 tt 30
 new value (30) is set for section = DOMAIN, name = tmax1, fld = tt
 : clhqttimeout(hqt)
 : load(ld)
 \$\$8 edu01 (tmadm): set -g svg1 ld 2
 new value (2) is set for section = SVRGROUP, name = svg1, fld = ld
 : maxqcount(mq), asqcount(aq), restart(rs),
 maxrstart(mr), gperiod(gp)
 : prio(pr), svctime(st)

set

-opt : -d, -n, -g, -v, -s
 sectname : , , , ,
 fldname :
 value :

5.2 Tmax (qp)

- queue purge (qp)

Usage: qpurge { -v svr_name | -s svc_name }

```

$$7 edu01 (tmadm): si
-----
clh  svrname  (svri)  status  count  qcount  qpcount  emcount
-----
0    svr2     ( 4)    RDY     3      4       2        0

$$8 edu01 (tmadm): qp -v svr2
(l) CLH2094 svr_q (svr2) is purged [CLH0221]
(l) CLH2094 svr_q (svr2) is purged [CLH0221]
(l) CLH2094 svr_q (svr2) is purged [CLH0221]
(l) CLH2094 svr_q (svr2) is purged [CLH0221]
Queue for svr svr2 is purged: purged_count = 4
$$9 edu01 (tmadm): si
-----
clh  svrname  (svri)  status  count  qcount  qpcount  emcount
-----
0    svr2     ( 4)    RDY     3      0       6        0
  
```

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qp

- 가
- ,
- .
- .
- Tmax
- -s
- qp TPEQPURGE(tperrno = 27)

qp

```

[ -v svr_name      :
  -s svc_name      :

```

5.2 Tmax (ds)

- disconnect session (ds)

Usage: ds [-h clhno] [-f] { -a | -n | -i idle_time | -c clid }

```

$$7 edu01 (tmadm): ds -h 1 -f -c 0
client (clh1: 0) is disconnected

$$13 edu01 (tmadm): ds -h 0 -a
client (clh0: ALL) are disconnected

$$24 edu01 (tmadm): ds -h 1 -i 50
client (clh1: > idletime 50) are disconnected

```

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ds

-
- 'ci'

ds

```

(
  -h clhno      :      CLH
  -f            :
  -a            :
  -n            :      가
  -i idle_time :      (      )
  -c clid       :      ID
)

```

ds

- \$\$7 edu01 (tmadm): ds -h 1 -f -c 0
clh가 1 clid가 0
- \$\$13 edu01 (tmadm): ds -h 0 -a
clh가 0
- \$\$24 edu01 (tmadm): ds -h 1 -i 50
clh가 1 idletime 50

< 5-1>

1. Tmax command . command

1) Tmax Tmax ?

2) Tmax tmaxadmin ,
tmaxadmin ?

3) , tmaxadmin ?
(271)

4) tmaxadmin Tmax
?

5) tmaxadmin
?

6) tmaxadmin
'si', 'st -p'가
MIN MAX .

7) tmaxadmin rqfile RQ ?

8) tmaxadmin
?

9) tmaxadmin
,
?

10) tmaxadmin "svr2" 2 5
?

11) tmaxadmin
?
('svr2' Tmax
.)

12) tmaxadmin Tmax 가 ?
('TOUPPER' 가 'svr2' 'TOLOWER' 가
가 'TOLOWER' Tmax
.)

< 5-1 >

13) tmaxadmin 60 'blocktime(bt)'
 200 Tmax () ?
 ("domain1")

14) tmaxadmin 'TOUPPER'
 ?

15) tmaxadmin ?
 (clhno 1 clid가 4 , idle_time 50
)

16) tmaxadmin Tmax tmaxadmin
 ?

17) tmaxadmin tmaxadmin "a.log"
 ?

18) tmaxadmin ?

< 5-1 >

1. 5-1 .

1) tmaxadmin -v

2) tmaxadmin -m

3) tmaxadmin -l, tmaxadmin -n < >

4) cfg

5) ci

6) si st -s

\$\$\$ tmax5 (tmaxadm): st -p

CLH 0:

```
-----
svr_name  svgname  spr_no  status  count  avg  svc
-----
svr_insert  svg2      32     RDY     0   0.00  -1
svr1        svg1      33     RDY     0   0.00  -1
svr2        svg1      34     RDY     0   0.00  -1
svr3        svg1      35     RDY     0   0.00  -1
```

\$\$\$2 tmax5 (tmaxadm): si

```
-----
clh  svrname  (svri)  status  count  qcount  qpcount  emcount
-----
0  svr_insert  ( 0)   RDY     0     0     0     0
0  svr1        ( 1)   RDY     0     0     0     0
0  svr2        ( 2)   RDY     0     0     0     0
0  svr3        ( 3)   RDY     0     0     0     0
0  fdlarray    ( 4)   NRDY    0     0     0     0
```

7) rqs -s <rqfile >

8) cfg -d

9) st -s

10) st -p -i 2 -f 300

< 5-1 >

11) (rbs)

12) (ca)

13) set -d domain1 bt 200

14) qp -s TOUPPER

15) ds -h 1 -c 4 -i 50

16) restat -a

17) logs a.log loge

18) q



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