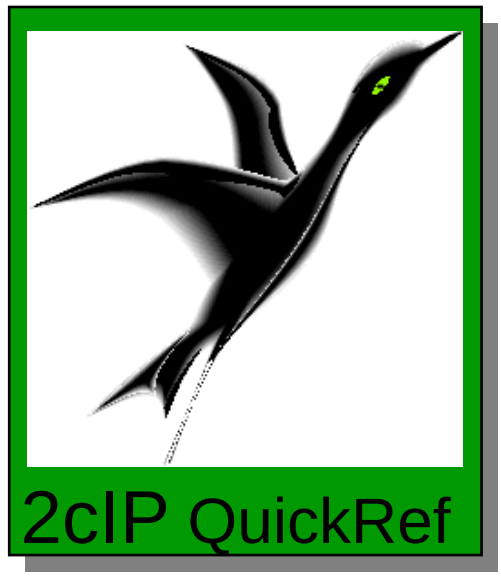

From ISPF
(Start Command:
Installation dependant)

Welcome Panel
(This panel can be suppressed
See Options Panel):

Primary Panel
(This panel can be suppressed
See Options Panel):

Contents:
Trace Management Panel
Trace Analysis Panel
Trace Display Options (TDO)
Trace Columns (COLS)
Options Panel
Filter/Find Definitions
Batch-Import JCL Parms

NETSTAT Panel

NET

MIB Browser

MIB

TCP Port Scanner

SCAN

PERF Panel

PERF

EMCS Console

CON

Trace Management Panel

Utility Panels:
Trace Start/Stop
Import
Export
Library Selection
Trace Description

OPT

Options Panel

Version/Build Lvl
Prod Password
Print Settings
Start Options
Port Map/Name
Others

Trace Analysis Panel

OPT

TDO

COLS

TDO Panel

Customize
detailed trace
record display

COLS Panel

Customize
columns of traffic
display

Trace Management Panel (1)

PFK Keys

PFK1	Invoke the Help Function. Note that positioning the cursor on an **input field** and pressing PFK1 will invoke the **context sensitive** help function
PFK3	End/Terminate/Leave Panel with save of entered information
PFK4	Execute
PFK5	Find/Repeat Find

Primary Commands

BROWSE	<name>	Browse trace data using ISPF Browse facility
EDIT	<name>	Edit trace data using ISPF Edit facility
VIEW	<name>	View trace data using ISPF View facility
DELETE	<name>	Delete a trace from the list
FIND	<searchstring>	Find a trace
LOCATE	<approximate name>	Position/Scroll the list to a trace
REFRESH		Rebuild the list of traces
RENAME	<fromname toname>	Rename the trace
RESET		Undo and Reset all pending line commands
SELECT	<name>	**Select a trace for Analysis**
CONSOLE		Invoke the integrated EMCS Console
MIBDESC		Invoke the MIB Browser
NETSTAT	<optional command>	Invoke the NETSTAT Utility
PERF		Invoke the PERFORMANCE Panel
PORTSCAN		Invoke the PORTSCAN Utility
TRON		**Start a trace**
TROFF		**Stop a trace**
TRSTAT		**Check trace status** (only avail. for CTRACEs)
IMPORT	<optional name>	Import a new trace from original file
EXPORT	<optional name>	Export a trace to CTRACE or SNIFFER format
LIC		Display 2cIP License Information
OPTIONS		Specify options/configuration for the 2cIP product: **Product Password / Printing / Startup Options Port Mapping and Naming / GMT Offset**
TRACES		Specify and/or Select a new Trace Library
DESC	<name>	Add or change description lines for a trace
DNS	<ON|OFF>	Change the Reverse-DNS Settings

Trace Management Panel (2)

Line Commands

B	**BROWSE**	Browse trace data using ISPF Browse facility
C	**DESC**	Add or change description lines for a trace
D	**DELETE**	Delete a trace from the list
E	**EDIT**	Edit trace data using ISPF Edit facility
I	**IMPORT**	Import a new trace from original file
P		View the trace by invoking IPCS
R	**RENAME**	Rename the trace
S	**SELECT**	**Select a trace for Analysis**
V	**VIEW**	View trace data using ISPF View facility
X	**EXPORT**	Export a trace to CTRACE / GTF / SNIFFER format

Trace Types for Analysis

CTRCDAxx*	**start/stop/imp/exp/ana**	Component Trace for TCP/IP SYSTCPDA
CTRCIPxx*	**start/stop/imp/exp/ana**	Component Trace for TCP/IP SYSTCPIP
GTFVTAM	**start/stop/imp/exp/ana**	GTF Trace (Buffer Trace, I/O Trace, VIT)
SNIFFER	**imp/exp/ana**	SNIFFER Trace (diverse Types allowed)
IBMCSWIN	**imp/ana**	IBM CommServer Trace (text form)
SNASW	**imp/ana**	CISCO SNASW Trace (text form)
IBMCSAIX	**imp/ana**	IBM CS AIX, IBM CS Linux (binary) IPS1/IPS2

***xx** =	„28“	OS/390 V2R8	„29“	OS/390 V2R9
	„2A“	OS/390 V2R10	„2B“	z/OS V1R1
	„2C“	z/OS V1R2	„2D“	z/OS V1R3
	„2E“	z/OS V1R4	„2F“	z/OS V1R5 and up

Dataset Allocation

Trace Library(ies):	
For best **performance**:	**lrecl=4096 blksize=4096 recfm=vb dsorg=po**
For best debugging convenience:	**lrecl=80 blksize=3120 recfm=fb dsorg=po**
2cIP Options Export File:	
For saving settings of 2cIP	**lrecl=500 blksize=5000 recfm=fb dsorg=ps**
2cIP Print Output File:	
A suggested allocation would be:	**lrecl=256 blksize=2560 recfm=vb dsorg=ps mod**

Options Panel (1)

PFK Keys

PFK1 Invoke the Help Function. Note that positioning the cursor on an **input field** and pressing PFK1 will invoke the **context sensitive** help function

PFK3 End/Terminate/Leave Panel with save of entered information

PFK4 Execute

Primary Commands

IMPORT <name> Import 2cIP settings from a file
EXPORT <name> Export 2cIP settings to a file – must be preallocated LRECL>400

Options for:

PRODUCT PASSWORD You can enter the product password supplied by AnSyNova in order to authorize the product. You can alternatively specify a file name of a dataset that contains such a password or even a file that contains 2cIP settings to import on each start.

PRINT ALLOCATIONS You can specify „template“ allocation strings that 2cIP will use in all cases where printing functions are invoked.
example 1: ALLOC F(TRACPRNT) DA(dsname) LRECL(256) MOD
example 2: LPR (P LPT1 AT ipaddress NOHEADER LANDSCAPE

QUICK START Settings to disable AnSyNova splash screen and/or initial primary menu. Possible values: One or two characters, “Y” or “N”. Meaning of first char: Disable splash screen. Second char: Disable primary panel, default is “N”.

TRACE QUICK START Settings to disable sanity checks and/or trace-in-use-checking. Possible values: One or two characters, “Y” or “N”. Meaning of first char: Disable sanity checks on trace start, for a quick trace start set this to “Y”. Second char: Disable trace-in-use-checking. For the quickest trace start specify “YY”.

PORT-MAPPER Specify one or more port translations to use prior to analysis
example: 1023:23 2023:23 (maps 1023 to 23 and 2023 to 23)

PORT-NAMER Similar to PORT-MAPPER: only names an otherwise UNKNOWN port but does not do any port changing or mapping.
example: 1414:MQSERIES (MQSERIES otherwise UNKNOWN)

GMT OFFSET Set the GMT Offset so that the local time can be reported from traces, which are normally GMT timestamped. Only works at import time. Later adjustments will not be possible.

CONS-NAME Use the specified name as a console name for all trace start and stop functions. You should be familiar with RACF and EMCs Console Security to use this parameter. Normally you should leave it empty, it will default to your TSO userid.

Trace Analysis Panel (1)

PFK Keys

PFK1	Invoke the Help Function. Note that positioning the cursor on an **input field** and pressing PFK1 will invoke the **context sensitive** help function
PFK3	End/Terminate/Leave Panel with save of entered information
PFK4	Execute
PFK5	Find/Repeat Find
PFK19/20	(Shift PF7/8, Up/Down) Scroll **by whole records**, not by lines
PFK22/23	(Shift PF10/11, Left/Right) Cycle **RecMode** thru 1, 2, 3 or 3, 2, 1

Primary Commands

LOCATE	<n>	Scroll to trace record number or line number
COLS		Change layout of trace traffic display. See „**COLS**“
TDOPTIONS		Change settings of trace decoding. See „**TDO**“
RECMODE	<1-3>	Set the current RecMode. See also „**TDO**“. Note: See also „**PFK22/23**“
HEXMODE	<1-4>	Set the current HexMode. See also „**TDO**“
LEVEL	<long|short>	Set level of detail in the traffic display
DNS, STATDNS	<on|off>	Do Reverse-DNS lookups in trace, in STAT
FILE		Switch to File Mode. Prefer „**PFK3**“
RECORD		Switch to Record Mode. See line command „**S**“
HEX		Switch to Hex Mode. See line command „**H**“
STAT		Show trace Statistics (CTRCDAxx only)
CONN		Show trace TCP connections (CTRCDAxx only)
ERRORS		Show trace records that contain „errors“
SENSE	<sense>	Lookup an SNA Sense Code
UVIEW		Display a file in the USS environment
FIND	<findarg>	Do a find operation in the output data
FILTER	<filtarg>	Do a filter operation on the trace data
SAVE	<name>	Save a filtered trace to a new trace with „name“
P, PR, PH	<range>	Print traffic display, hex or decoded records. In HEX or RECORD Mode, use „P“ command
OPTIONS		Specify options/configuration for the 2cIP product: **Product Password / Printing / Startup Options** **Port Mapping and Naming / GMT Offset**
X, XX		Exit quickly from 2cIP („XX“) or analysis panel („X“)

Trace Analysis Panel (2)

Line Commands

S		Select a trace record for analysis
H		Select a trace record for display in HEX Mode
F	**FILTER <string>**	Set a filter for just the traffic of this line
R	**FILTER </string>**	Set a filter to remove the traffic of this line
U	**FILTER <...>**	Modify a filter to show the surroundings of this line
D	**FILTER <...>**	Modify a filter to remove this line
P	**PR <recno>**	Print this trace record in analyzed format

Trace Display Options (TDO) Panel

Use the TDO Panel to set/configure the following display options:

- the display of which structures should be suppressed? (Collapse Options)

- Either use the supplied options for IP / SNA by flagging the option with an X
or
- Set a „collapse“ string, when a match occurs on the structure name, then it will be collapsed. Example for such a string:

MAC* VIT Collapse all structures whose names contain MAC or VIT

- general options for customizing the layout of the presented information

- set the current RecMode and HexMode (see also primary commands)

- set the current DNS and STATDNS mode (see also primary commands)

COLUMNS (COLS) Panel

Use the COLS Panel to customize the order, width and color of the fields in the trace analysis panel when in FILE mode (trace traffic display).

You may customize up to **20** separate configurations for each of the trace types GTFVTAM, CTRCIPxx and CTRCDAxx. You can give the configurations names and select which one is to be currently active. A sample line, taken from your trace, is shown so that you can see if the configuration suits your needs.

A large number of variables exist for you to select as candidates for being shown in the trace analysis panel. These are presented to you for selection on editing a configuration.

Trace Analysis Panel (3)

FILTER Strings

Filter String
A sequence of Filter Words
Filter Word
A combination consisting of a Filter Prefix *and a* Filter Verb*. The Filter Prefix determines the way in which the match/nomatch property is combined with that of previous Filter Words, effectively implementing something similar to „AND“ and „OR“ logic.*
Filter Prefix
The following table lists the available Filter Prefix values:

blank	then the trace record is included if the filter verb matches on the trace record and previous determination has concluded the trace record should be included
/	this is the opposite of 'blank' - a nomatch is needed
+	then the trace record is included if the filter verb matches on the trace records, regardless of previous determination
-	this is the opposite of '+' - a nomatch is needed

Filter Verb
The filter verb is the actual value that is used in order to determine the match/nomatch property for each trace record. The following table lists the available Filter Verbs:

<ip-address>	A valid IP address to match on Example: **192.168.1.254**
<ip-address>(<subnet-mask>)	A valid IP address with subnet mask Example: **192.168.1.0(255.255.255.0)**
<valid protocol name>	The name of a protocol (known to 2cIP) Example: **OSPFIGP**
<port number>	An integer number is assumed to be a port Example: **1414**
<surround indicator> ($)	Use this verb to match on the surroundings of a specific record number. The first integer is the record number around which the surroundings are to be selected, the second integer determines the number of records before and after to select. Example: Show 5 records before and after the Record 20: **20$5**
<range indicator> (-)	Use this verb to match on a simple range of record numbers. Syntax same as surround verb, only use a minus sign instead of the “$” Example: Show records 15 to 30: **15-30**
<free text>	Perform a match on the text (ASCII). If the text needs to contain blanks, enclose it in single quotes. For more control:
x‘...‘ or **‘...‘x**	Hex match
e‘...‘ or **‘...‘e**	Case sensitive EBCDIC match
a‘...‘ or **‘...‘a**	Case sensitive ASCII match
c‘...‘ or **‘...‘c**	Case sensitive EBCDIC **or** ASCII match
t‘...‘ or **‘...‘t**	Case **insensitive** EBCDIC **or** ASCII match
SNASES(...)	Filter on the SNA session partners of this line
NOEE	Remove all Entereprise Extender Trace Records

JCL and Parms for Batch Import

The following is set of sample JCL for a batch import job: (JFLXIMP in CLIB)

```
//insert valid JOBCARD here
//*************************************************************
//PFLXIMP  PROC
//FLXIMP   EXEC PGM=IKJEFT01,DYNAMNBR=75,TIME=100,REGION=0M
//SYSEXEC  DD DSN=2cip_CLIB_datasetname,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSTERM  DD DUMMY
//         PEND
//*
//IMP      EXEC PFLXIMP
//FLXIMP.SYSTSIN DD *,DLM=XX
FLXIMP
XX
//FLXIMP.SYSIN  DD *,DLM=XX
           INDSN(datasetname)
           OUTDSN(2cIP_trace_library_datasetname) MEM(membername)
           ZUSER(hlqname) ANALYSE(NO)
           TYPE(SNIFFER)
XX
```

Here is the complete list of available parameters:

INDSN		Input Dataset name
OUTDSN MEM		Output Dataset name and member. If DSN does not exist, it will be created. See the next set of parms which will determine the attributes of the dataset.
OUTDSNVOL OUTDSNUNI OUTDSNDIR OUTDSNBLOCK OUTDSNLRECL OUTDSNRECFM OUTDSNFACTOR		Note: OUTDSNFACTOR determines by how much larger the dataset will be allocated. Note: RECFM is specified in TSO fashion: Example: **OUTDSNRECFM(F B)**
TYPE	**type**	The trace type (see „Trace Types for Analysis“ above)
ZUSER	**hlq**	HLQ to be used for any temp datasets
OFFSET	**n**	Offset into trace (only for special cases)
GMTOFF	**n**	Time stamp correction GMT → Local Time
ABBREV	**n**	Cut off all trace records at this length
DESC1-DESC9		Description lines for the trace
ANALYSE	**Y|N**	Do trace preanalysis. Speeds up ERROR analysis later
PORTMAP		Set the portmap function. See „Options Panel“
TIME1 TIME2	**tmstp**	Specify a timestamp range to filter on Format: 2000/12/31-23:59:59.999999
IP PROT PORT		Specify an IP address, a protocol number or a port number to filter on
REMOVEEE	**Y|N**	Remove (filter out) all port 12000-12004 trace records

BOOLEAN: <boolean string> :
Perform boolean combination of the following filter criteria
FTIME1(tmstp) **FTIME2(**tmstp**) FIP(**iplist**) FPROT**(protlist) **FPORT**(portlist). Use “&” and “|” to combine these

Preparing a VTAM Internal Trace (VIT) and then Batch Import

The following is set of sample JCL for a batch import job: (JFLXVIMP in CLIB)

```
//insert valid JOBCARD here
//*************************************************************
// SET INVIT='SYS1.VTAM.TRACE'
// SET MIGLIB='SYS1.MIGLIB'
// SET CIP='2cip_trace_library_datasetname'
// SET MEM='membername'
//FILTER   EXEC PGM=ISTRAFT1,REGION=0M
//STEPLIB  DD DISP=SHR,DSN=&MIGLIB.
//SUMMARY  DD SYSOUT=*,DCB=(RECFM=V,LRECL=84)
//DETAILS  DD SYSOUT=*,DCB=(RECFM=V,LRECL=84)
//LOG      DD SYSOUT=*,DCB=(RECFM=V,LRECL=124)
//OUTSTAN  DD SYSOUT=*,DCB=(RECFM=V,LRECL=124)
//VITEXT   DD DISP=(,PASS),DSN=&&TEMPDS
//TRACE    DD DISP=SHR,DSN=&INVIT
//PARM     DD *,DLM=XX
VITEXT PIU2 ! LSNA ! CPRC ! TSNS ! DSCD ! NRSP !
VITEXT NLP2 ! RTPE ! ARB !
VITEXT ODPK ! PKI ! PKO !
VITEXT MPDU & (C‘IRS‘ ! C‘OSD‘)
WRAP
TRACEFORMAT
XX
//IMPORT   EXEC PGM=IRXJCL,DYNAMNBR=75,TIME=1400,REGION=0M,
//  PARM='FLXIMP OUTDSN(&CIP) MEM(&MEM)'
//SYSEXEC  DD DISP=SHR,DSN=2cIP_CLIB_datasetname
//SYSPRINT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//INDD     DD DSN=&&TEMPDS
//OUTCIP   DD DSN=&CIP,
// DISP=(NEW,CATLG),DSORG=PO,RECFM=VB,LRECL=256,SPACE=(CYL,(300,10,5))
//SYSTERM  DD DUMMY
//SYSTERM  DD DUMMY
//*************************************************************
//SYSTSIN  DD *,DLM=XX
XX
//SYSIN    DD *,DLM=XX
ZUSER(hlqname) ANALYSE(NO)
TYPE(GTFVTAM)
XX
```

Please note that you can also choose to NOT allocate the dataset in the JCL, but to let FLXIMP do the allocation itself. You may use the parameters OUTDSN.. to control this allocation. Especially OUTDSNFACTOR will give you some additional space in the output dataset for SAVEs and editing. Otherwise the output dataset will be allocated with exactly the needed amount of space to hold the single trace member.

JCL and Parms for Batch Print

The following is set of sample JCL for a batch print job: (JFLXPRT in CLIB)

```
//insert valid JOBCARD here
//*************************************************************
//PFLXPRT  PROC
//FLXPRT   EXEC PGM=IKJEFT01,DYNAMNBR=75,TIME=100,REGION=0M
//SYSEXEC  DD DSN=2cip-clib-dsn,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSTERM  DD DUMMY
//         PEND
//*
//PRT      EXEC PFLXPRT
//FLXPRT.SYSTSIN DD *,DLM=XX
FLXPRT
XX
//FLXPRT.SYSIN  DD *,DLM=XX
 TRADSN(datasetname)
 TRAMEM(membername)
 RECMODE(3) HEXMODE(3) DNS(OFF)
 CMD(P 1-5)
XX
```

Here is the complete list of available parameters:

TRADSN TRAMEM		Trace Dataset name and member of the trace to analysed in batch.
ATTRIB ALLOC FREE		Just like in the options panel, you can customize the destination to which the print output should go. If you dont specify these, SYSOUT(*) will be assumed.
RECMODE	**n**	Select the desired RecMode
HEXMODE	**n**	Select the desired HexMode
DNS	**ON|OFF**	
LEVEL	**SHORT|LONG**	
GMTOFF	**n**	
TDOPTSTR		see text *
TITLEDA		see text *
TITLEIP		see text *
TITLESNA		see text *

***** To set these parameters, which are for experts only, you must use the export function of the options panel to create a dataset containing the 2cIP setting variables and then you can set TDOPSTR, TITLEDA ... TITLESNA to the desired values. Example:

```
TDOPTSTR(_ _ _ _ X _ X X _ _ _ _ _ _ _ _ _ _ _)
TITLEDA(3:1 8:6 12:20 10:22 11:2 13:22 4:12 5:12 6:26 7:16 19:8 21:8 23:6 20:8)
```