

InterSession

Concepts & Facilities

Version 8.1

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About this manual

This manual is an introduction to InterSession and its facilities.

For how to use InterSession, see the *User's Guide for 3270 Users* and the *User's Guide for Web Users*. For information about how to install and customize InterSession, see the manuals *Quick Start Guide* and *Installation & Customization Reference*. For information on the InterSession messages, see the *Messages* manual.

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Enhancements and new features in 8.1

A number of enhancements and new features have been added in this version. The most significant are:

Improved support of MFA systems

Messages from MFA are now analyzed in closer detail and where appropriate shown to the user. Problems with changing passwords have been corrected.

Models, previously named Application Access Profiles, is now separated from the User Profiles and are maintained separately. This change will improve the performance significantly of the sign on process.

Number of Models on a user have been increased from 10 to 200. This is especially important when converting from certain competitive systems.

Scripting enhancements

The scripting functionality has been greatly enhanced. The most important changes are:

- Maximum number of statements in a script is increased from 50 to 400
- Scripts can reside in a PDS instead of in the INTSFLE VSAM file
- Dynamic variables
- Installation-defined, system-wide variables populated with data from external security
- Many commands that mimic competitive systems, like SET, DISPLAY, ACLPGM etc.
- Support for ISPF Panels, invoked in a script with the DISPLAY command.

The ISPF Panels are kept in a PDS. This means that InterSession can fetch both scripts and panels from a competitive system without any conversion.

Entrances

The Entrance feature means that a single InterSession system can act as a multiple of separate Instances with separate Screen Layouts but with the same applications. Active applications belongs to the instance, so if the user disconnects a terminal session and later reconnects to the same instance, the application sessions on that instance will reappear.

This feature will also be useful when a user has a need to have several instances of an application running simultaneously.

RACF IDentity Tokens

InterSession support RACF IDentity Tokens (IDT) to increase security.

IDTs are created and used by InterSession when a user changes his password or passphrase. IDT requires z/OS 2.4 or higher. For detailed technical information see the IBM publication "Security Server RACROUTE Macro Reference", Appendix G.

Introduction

Why Use a Session Manager?

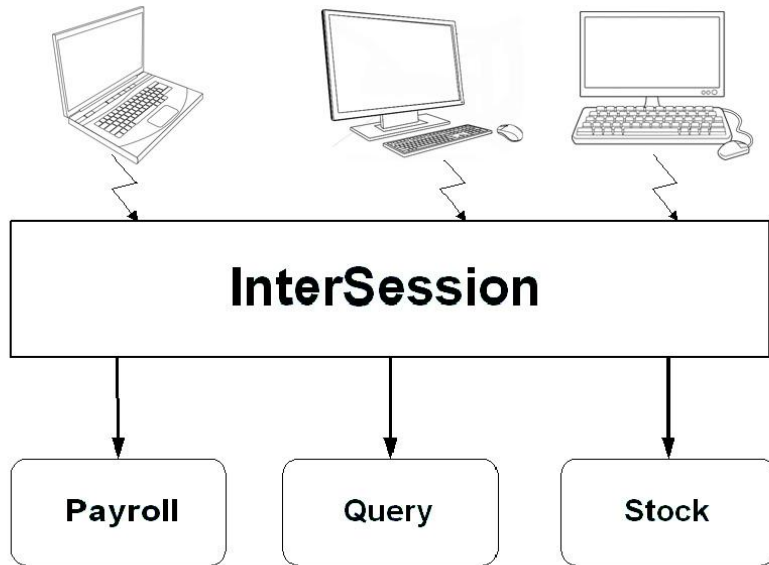
Today's mainframe environment is becoming increasingly complex and installations are faced with growing problems:

- Which applications does the user need to perform his or her work?
- Where are these applications located?
- How can the user access these applications easily?
- If an application is not active, when will it be available again?
- How can the user easily switch back and forth between different applications, without losing his or her position in each application?

To use an application, without a session manager installed, a user must first log on from VTAM to an application host system (like CICS), perform the required sign-on and logon scripts, and then enter the application. This introduces a number of problems:

- There is no security built into VTAM.
- The VTAM USS (VTAM screen layout) table is not user-oriented.
- The user may have different IDs and passwords in different applications.
- It takes time and effort to switch between applications, especially if they're on different application host systems.
- The user must be aware of which applications are on which application host systems.
- The data processing department may have no convenient way of informing the user when there is a problem with an application system (for example, when a CICS system is down, why it is down, and when it will be back).

The InterSession Session Manager solves all these problems in a way that makes it easy for end users, programmers, and system administrators to use. InterSession is an umbrella system—a simple user interface to all applications. From the user's point of view, InterSession controls access to all applications hierarchically, like this:



The VTAM application network and the VTAM application host systems (such as CICS, TSO, IMS, and CMS) are invisible to the users, who see only the applications themselves.

Major Features and Facilities

The Web Gateway

Besides the traditional VTAM 3270 terminal interface, InterSession has a built-in and self contained web server that enables a user to access InterSession using a web browser instead of a traditional 3270 client software. The InterSession web server runs completely within the mainframe and there is no middleware involved.

The TN3270 Server

For TN3270 users, the built-in TN3270 server saves VTAM sessions and CPU cycles and makes TCP configuration easier. The TN3270 connection is made directly from the client workstation to InterSession, bypassing the stack's TN3270 server and VTAM sessions. Support for basic TN3270E and multiple TCP/IP stacks are included. All major TCP/IP stacks for the mainframe are supported.

The TN3270 Client

The built-in TN3270 client allows users to start application sessions to a TN3270 server anywhere in the network, without the need of any VTAM services.

Sysplex Support

Two or more (up to eight) InterSession systems can work together in a z/OS sysplex environment.

The InterSession sysplex functions allows you to:

- Share your User Profiles, Application Profiles, Session Scripts, Screen Layouts and Printer Options between the InterSession instances, using VSAM Record Level Sharing
- Load balance and backup for your VTAM terminal sessions, using VTAM Generic Resources.

Entrances

The Entrances feature allows a single InterSession system to act as a multiple of separate Instances.

This may be useful for users that need to have several instances of an application running simultaneously. This can be done without Entrances, but there is a risk that the different applications will be mixed up after a client disconnect and reconnect.

An Entrance can be a VTAM APPLid, where the default VTAM interface is one entrance. To define more VTAM entrances you need to start a tiny InterSession program for every other instance, that runs in parallel with the InterSession system. They are only active during user connections. See below.

Other types of Entrances are TN3270 Services and HTTP Services.
You can define as many of each type as you need.

Flexible Screen Layouts

The appearance of the InterSession screens can be freely customized. All screen elements, like plain text, variables, input fields, information and error messages can be placed anywhere on the screen and can be assigned any type of attribute.

This means also that InterSession can resemble the appearance of other session managers, which significantly reduces the efforts required for a conversion to InterSession from a competitive product.

Easy Sign-On

InterSession provides a simple sign-on for users. Users only have to enter their ID and password to gain access to their applications. Sign-on screens can be customized for each user or group of users. The user sign-on screen can interface to all major security systems. Optional features of sign-on include:

- Auto-start of application on successful sign-on
- Administrator-controlled screen display on successful sign-on

Customizable User Menu System

If a user is not specified as using auto-start, a successful sign-on will result in a display of that user's menu of applications. Sequence, format, and text of menu displays can be customized for the installation and for each user or group of users.

The user's menu lists only those applications that the user is authorized for. Applications can be listed individually, or grouped and displayed in second-level menus.

Menus can display information explaining why inactive applications are unavailable.

Users can select menu items by name or using "point-and-shoot"—simply placing the cursor on the item and pressing ENTER. Users can pass parameters to the application by typing them following the application name.

Authorized users can start application sessions "ad hoc", that is the applications need not to be predefined. Instead, the user types the Start command followed by a VTAM application id or an ip address.

The standard sequence of the applications on the menu screen are defined for all users. An administrator can then change this sequence for users who wish to have their applications ordered in a specific way on the menu screen.

Automated application logon and logoff

When the user selects an application from a menu, InterSession can automatically handle the entire logon sequence, and proceed past the initial application screen into a deeper level of the application itself before returning control to the user. On exit from the application, InterSession automatically handles logoff as well, returning the user to the menu screen from where the application was selected.

Scripts can be created automatically by recording relevant portions of an actual terminal session.

Single-Session and Multiple-Session Modes

Users can be defined as using single-session mode or multiple-session mode. In single-session mode, the user can only have one application active at a time, and cannot switch among different applications. In multiple-session mode, the user can have several applications active at the same time, and can switch among them. Single-session users gain many important benefits of InterSession (simplified and secure logon, E-mail, etc.) without incurring unnecessary overhead.

Relay and Pass Modes

Normally, all communication between your terminal and the application is relayed through InterSession. All the InterSession features and facilities described here are normally available. This is called relay mode.

To minimize overhead, InterSession offers single-session user support in pass mode. After processing the logon, InterSession gets out of the way entirely, so session manager overhead is entirely eliminated. Nonetheless, on application exit, the user is returned to InterSession control. In multiple-session mode, pass mode is optional on an individual application basis.

Security Functions

General

InterSession supports all major security managers (RACF, ACF2, TopSecret, etc.), as well as installation-written ones.

InterSession supports long passwords and passphrases, both when using the built in security or when using an external security manager like RACF. Passwords and passphrases may be up to 100 characters in length.

When a terminal is idle for a specified period of time, the InterSession signon screen or a special standby screen can be displayed. To resume a session when the standby screen is on display, the user must reenter his or her password. If the standby screen is on display for a specified period of time, the standby status is cancelled and the signon screen is redisplayed.

After too many unsuccessful signon attempts (using different user id's), the terminal can be locked. A security officer can then unlock selected terminals at will.

Built in security functions

Users can change their own passwords.

Passwords can be required to be reset after a specified period of time.

Password content rules can be specified.

InterSession keep a history of prior passwords and require that users specify genuinely new ones.

Users can be revoked after a specified date or after a specified period of inactivity. Users can also be revoked after too many unsuccessful signon attempts and at will by a security administrator.

Using an external security manager

User id's that are defined to an external security manager like RACF will be controlled by the functions of the security manager.

User id's that are defined to InterSession but not to the security manager will be controlled by the security functions of InterSession.

Electronic Mail and Messaging

InterSession provides a complete, full-featured E-mail system. Messages can be sent to one user or to a group of users. Messages can be sent to a mailbox, or can be displayed immediately. Messages can be posted for display when a user signs on to InterSession or selects a particular application. Messages can be sent to InterSession users in different VTAM domains. If users have messages awaiting them, they will see an indicator when they sign on.

Information Systems

An installation can create one or more *information systems*—items that can be listed on a user's menu that, when selected, display one or two screens of information. These screens can be in any format desired by the installation.

In addition, the installation can create an information system to be associated with each application or group.

3270 Data Stream Compression

InterSession can automatically compress the 3270 data stream from an application before it is sent to the terminal. This feature can be controlled on an individual application basis, and can improve response time and decrease terminal network load. The compression achieved by this facility is shown on the System Status Screen and in the accounting records of InterSession.

National Character Support / 3270 Data Translation

InterSession can automatically translate the 3270 data stream each time it is sent to or received from a terminal, either via a translation facility based on the codepages for the terminal and the application, or via a user exit. This facility can be used if there is a need to translate special characters (such as, for example, for certain national character sets for some terminals).

VTAM Printer Support

Mailbox messages and 3270 screen hardcopies can be printed on any 3270-type printer attached to the VTAM network. In print-outs of screens, highlighted areas are printed in bold. Each print request can be prefixed by an identifying header.

Network Printer Support

InterSession can relay VTAM print to network printers. Supported protocols include LPD, RAW and PJI (JetDirect™). Internally generated print-outs can be directed to a network printer via the network printer's luname.

Statistics, Accounting, and Logging

InterSession records, maintains and displays information that can be used to monitor and administer the system, including number of users defined, number of terminals connected, number of application sessions, etc. The system administrator can request session status information by user ID, terminal ID, application id, or pool application ID, and can request printer status information by user ID or printer ID.

If specified in the system options, InterSession writes accounting records to a VSAM ESDS file or, under z/OS, directly to SMF.

InterSession provides three types of log files, where all major events are logged. The contents is the same regardless of type.. These are the wrap-around log file, the spin-off log file and the JES2LOG file. The wrap-around log file reuses the disk space when it becomes full and is viewable from within InterSession. The spin-off log file produces a complete daily log that can be backed up by the installation for later reference. The JES2LOG file writes data to a normal JES2 file connected to the InterSession job/stc.

For HTTP services, a special log file is available. Log records are written in the Combined Log Format. The file can either be a sequential file or a wrap-around VSAM file, in which case it is viewable from within InterSession.

Help System

Up to three screens of customizable help text support every InterSession screen. Every menu option is provided with complete help text. All help screens can be modified online by the system administrator.

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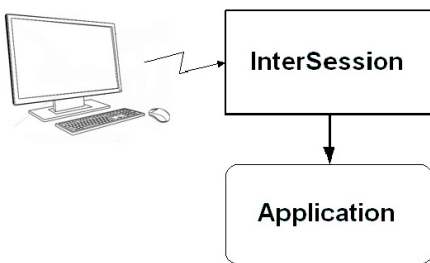
Modes of Use

Relay Mode and Pass Mode

Communication with an application may be initiated in one of two ways, *relay mode* or *pass mode*.

Relay Mode

In relay mode, all terminal traffic is relayed through InterSession, as depicted in this diagram:

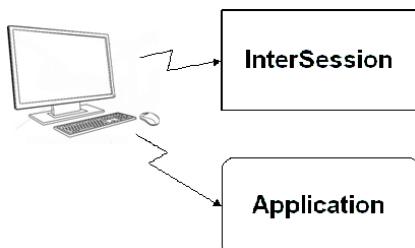


In relay mode, when the user selects an application from the main menu, InterSession establishes a session with the VTAM application host and continues to monitor all communication between the application and the terminal throughout the session.

In relay mode, InterSession can perform start and end session scripts of unlimited length and complexity. Session scripts simulate manual terminal input to automate application initiation and termination. (Session scripts are discussed in more detail later in this manual.)

Pass Mode

In pass mode, terminal traffic is not relayed through InterSession, as depicted in this diagram:



In pass mode, when a user selects an application from the main menu, InterSession performs the appropriate security checks and then passes the terminal from InterSession to the application host system in which the application resides.

For CICS, InterSession performs an automatic sign-on and then transfers control to the specified CICS transaction, with simulated input to the application program. For other VTAM applications (such as TSO or CMS), InterSession can send logon data in the transfer process to eliminate manual logon.

When the user terminates an application in pass mode, VTAM switches the terminal back to InterSession and the main menu is redisplayed.

Pass mode reduces system overhead, but some of InterSession's powerful and sophisticated features are not available. For example, pass mode can only handle one interaction with the application. If a more complex interaction beyond logon is needed, relay mode must be used.

Single-Session Mode and Multiple-Session Mode

A *session* is a logical connection between a user and an application, from logon to logoff. An InterSession user can be defined as a single-session or multiple-session user.

Single-Session Mode

In single-session mode, the user can only access one application at a time. No application switching support is provided.

In single-session mode, to get from one application to another, the user must terminate the active application before selecting a new application from the main menu.

Multiple-Session Mode

In multiple-session mode, a user can access more than one application at a time. InterSession supports switching from application to application at the touch of a key.

In multiple-session mode, a user can leave an application session, go to another, and then go back to the first session.

If the user has left the application before the application has sent its last screen, the updated screen will be saved by InterSession, and displayed when the session is resumed.

Multiple-Session Users and Pass Mode

An application accessed by a multiple-session user can be defined to use pass mode.

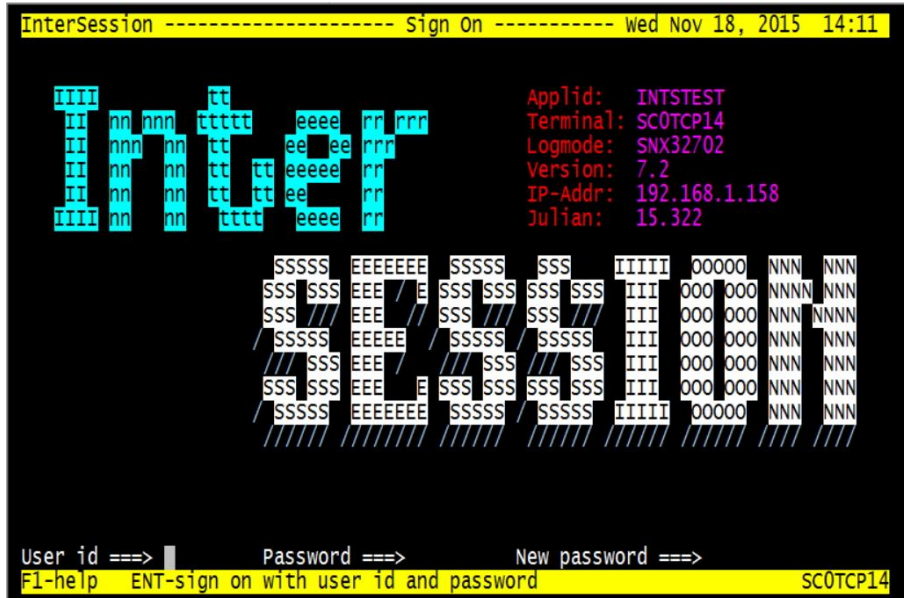
When the multiple-session user accesses such an application, he or she temporarily leaves the control of InterSession.

If the user has any other application sessions active at the time, they are left as they are. When the user terminates the application in pass mode, the user returns to the main menu, and the other application sessions will again be available.

This feature may be used to save system resources, since pass mode reduces system overhead.

The Sign-On Screen

When the user has started a 3270 session, the InterSession sign-on screen appears. In this example, the InterSession default Screen Layout is used.



In the default layout, the password fields are only eight characters long. This is easily changed in the Screen Layout if there is a need for longer passwords or phrases. There are also other predefined layouts that can be used directly.

When a user has successfully signed on to InterSession, the user can be automatically logged on to a particular application (that is, a start script can be automatically initiated for that user), just as if he or she selected the application from the main menu. (Should the application not be available at sign-on time, the normal main menu is displayed.) Otherwise, the user's main menu is displayed after sign-on.

The Application Menu

InterSession offers users a choice between a one-level and a two-level menu. The one-level menu allows all applications the user is authorized for to be displayed on one screen, while the two-level menu allows the applications to be organized into groups. In this example, the InterSession default screen layout is used.

The One-Level Application Menu

A one-level menu of a multiple session user looks like this:

The screenshot shows the InterSession menu interface. At the top, a header bar displays 'InterSession ----- M E N U ----- Thu Nov 19, 2015 15:56'. Below this, the menu is organized into columns: 'APPLICATION', 'INFO', and 'COM'. The menu is divided into sections: 'Internal applications', 'Information screens', and 'External applications'. Red arrows point to specific elements: one to the application names, one to the 'PF24' key assignment, one to the 'Session status' section, and one to the user ID 'CAL'. A yellow bar at the bottom contains navigation keys: 'F1-help', 'F3-sign off', 'F7/8-bwd/fwd', 'ENT-system select', and 'CAL SC0TCPL7'. Annotations explain the functionality of these elements.

InterSession ----- M E N U ----- Thu Nov 19, 2015 15:56

APPLICATION	INFO	COM
-----Internal applications-----		
MAINT InterSession maint		
STAT. InterSession status		
TLOCK Terminal lock list		
PROF. Your user profile		
MMS.. Message/mailbox syste		
STBY. Standby screen		
OFF.. Logoff InterSession		
-----Information screens-----		
OPEN. Open hours		
-----External applications-----		
CICS. A CICS system	??	
IMS.. An IMS system		
CMS.. VM/CMS		
TSO.. TSO/ISPF	PF24	

Session status

Attention key Attn Jump key PA1 Command key ENT Prefix ..

Application ==> **F1-help F3-sign off F7/8-bwd/fwd ENT-system select CAL SC0TCPL7**

Annotations:

- Names of applications you are authorized to use. Select an application by placing the cursor on the name and pressing Enter. You can view information about the application by pressing PF1 instead of Enter.
- If an application is inactive, you will see either two question marks here or an estimated time set by the operator.
- Your user id and terminal id.
- If you have assigned a PF key to an application you will see it here.
- You can also select an application by typing the name here and pressing Enter.

When you have active sessions they will also be listed under the Session Status header:

```

InterSession ----- M E N U ----- Thu Nov 19, 2015 16:14

APPLICATION          INFO COM  APPLICATION          INFO COM
-----Internal applications----- !
MAINT InterSession maint      ! CMS.. VM/CMS
STAT. InterSession status     ! TSO.. TSO/ISPF      PF24
TLOCK Terminal lock list      ! NVIEW Network control ??
PROF. Your user profile        ! T3270 Mainframe TN3270 serv
MMS.. Message/mailbox syste    ! START window to start multi
STBY. Standby screen           !
OFF.. Logoff InterSession      !
-----Information screens----- !
OPEN. Open hours               !
-----External applications----- !
CICS. A CICS system           ??
IMS.. An IMS system            !

===== Session status =====
CMS.. VM/CMS                  A001    TSO.. TSO/ISPF                  A001
T3270 Mainframe TN3270 serv127.0.0.1
Attention key Attn Jump key PA1 Command key ENT Prefix ..

Application ==> |
F1-help F3-sign off F7/8-bwd/fwd ENT-system select SC0TCPL7

```

In this example, the user has three sessions, each a separate application. A user could also have several sessions of the same application (but with different application names).

The Two-Level Application Menu

A two-level menu allows an installation to organize applications in a hierarchical format. Applications can be organized into groups, and these groups can be listed on the first level. (Frequently used applications can also be specified directly on the first level of a two-level menu.)

A first-level menu might look like this:

```
InterSession ----- M E N U ----- wed Nov 18, 2015 15:07
APPLICATION          INFO  COM
INTAP Internal applications
INFO. Information screens
EXTAP External applications
```

As on one-level main menu, the bottom of a two-level main menu of a multiple-session user will show the names of all active sessions.

On a second-level menu, only the applications belonging to the group selected are shown. For example, if the user selected APPL on the first level, the second level might look like this:

```
InterSession ----- External applications ---- wed Nov 18, 2015 15:09
APPLICATION          INFO  COM
CICS. A CICS system  ??
IMS.. An IMS system  ??
CMS.. VM/CMS         ??
TSO.. TSO/ISPF       ??
NVIEW Network control ??
T3270 Mainframe TN3270 serv ??
START Window to start multi

Application ==>
F1-help  F3-level 1  F7/8-bwd/fwd  ENT-system select  CAL  SC0TCP14
```

Screen Layouts

With InterSession, you can define a number of *screen layouts*. The screen layouts can be freely customized. Besides using the InterSession default layout as shown above in the sign on and menu screen examples,

InterSession can at the same time use other screen layouts that can resemble the appearance of other session managers.

So for example, while one group of users will see the InterSession default screens, another group will see screens resembling session manager X, and still another group will see screens resembling session manager Y.

InterSession comes with a number of predefined screen layouts with different appearance and in different languages. As an example, this is the sign on and menu screens of the predefined screen layout LIKEPRD1.

Another predefined screen layout is LIKEPRD2:

```

      ****          **
    *****
*****
IIIII nn nnn tttt eeee rr rrr
II nn nn tt ee ee rrr
II nn nn tt eeeee rrr
II nn nn tt ee rrr
IIIII nn nn tttt eeee rrr
SSSSS EEEEEEE SSSSS SSS IIII OOOO NNN NNN
SSS SSS EEE / E SSS SSS SSS SSS IIII OOO OOO NNN NNN
SSS /// EEE // SSS /// SSS /// IIII OOO OOO NNN NNN
/ SSSSS EEEEE SSSSS SSSSS IIII OOO OOO NNN NNN
/// SSS EEE // SSS /// SSS IIII OOO OOO NNN NNN
SSS SSS EEE E SSS SSS SSS SSS IIII OOO OOO NNN NNN
/ SSSSS EEEEEEE SSSSS / SSSSS IIIII OOOOO NNN NNN

```

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USERID =====> | 15:19.43
PASSWORD =====> | 11/18/15
NEW PASSWORD ==> | SC0TCP14
VERIFY NEW PW ==> | IBM3278-2E

InterSession - the smart alternative

F1-help ENT-sign on with user id and password

InterSession Main Menu for CAL Terminal SC0TCP14

InterSession Main Menu

Model : IBM3278-2E System : INTSTEST Userid: CAL
Luname: SC0TCP14 Logmode: SNX32702 Escape: Attn

Command =====> |

Sesnum	SYSTEM	TAG	Application Status	Remarks / Descriptions
1	MAINT		Available	InterSession maint
2	STAT		Available	InterSession status
3	TLOCK		Available	Terminal lock list
4	PROF		Available	Your user profile
5	MMS		Available	Message/mailbox system
6	STBY		Available	Standby screen
7	OFF		Available	Logoff InterSession
8	OPEN		Available	Open hours
9	CICS		Unavailable	A CICS system
10	IMS		Unavailable	An IMS system
11	CMS		Unavailable	VM/CMS
12	TSO		Unavailable	TSO/ISPF

Press PA2 to see more

PA3-help CLR-sign off PA1-bwd PA2-fwd ENT-system select

Session Scripts

As explained earlier, a *session script* is a script that can be defined for any application that requires a sign-on, sign-off, logon, or logoff sequence to be performed by a user.

Session scripts fall into three categories:

Start scripts	A <i>start script</i> is executed when a user selects the application on the main menu. A start script can eliminate a manual sign-on and take the user into a desired point within the application.
Monitoring scripts	A <i>monitoring</i> or <i>background update script</i> is executed when a background application sends screen updates. Such a script can be used for example with a mail application to detect incoming mails and to send a message to the user's terminal.
End scripts	An <i>end</i> or <i>logoff script</i> is executed when a user issues an InterSession command on a screen to terminate the session (log off the application). An end script can eliminate a manual sign-off. An end script is also executed if a session is cancelled by the user from the main menu, or by InterSession itself when a session time-out occurs.

A session script can perform functions such as:

- Create a terminal data stream to reply to a screen sent by the application.
- Send the created data stream, simulating any send key.
- Test the screen sent by the application for the presence of a character string.
- Test a variable (provided in the script language) against a character string or against another variable.
- Create logic within the script in order to take different paths, to create loops, etc.
- Use variables to supply user IDs, passwords, etc.
- Create a message box and send it to the user's screen.

A system administrator can create a script either by typing the simulated terminal interactions in InterSession's scripting language, or by using the script recording facility, which records the script automatically during a normal terminal interaction.

During installation, a number of predefined session scripts for various application systems are created. These can be modified as required by the installation. One such script is TSOON, used to automate the sign on to TSO:

TYPE %UI	Type user id
ENTER	Press ENTER key
IFSTR IKJ56420	User not defined ?
TERM 'You are not defined in TSO'	Yes, terminate
TYPE %PW	Type password
ENTER	Press ENTER key
IFSTR IKJ56421	Invalid password ?
TERM 'Invalid TSO password'	Yes, terminate
IFSTR IKJ56425	Reconnect ?
TYPE 'LOGON %UI'	Yes, repeat logon
ENTER	Press ENTER
TYPE %PW	Type password
TABL	Tab to last
TABB 1	Tab backward
TYPE S	S for reconnect
ENTER	Press ENTER
ENDIF	End reconnect
IFSTR 'NO BROADCAST MESSAGES'	Any bc messages ?
CLEAR	No, clear screen
TYPE ISPF	
ENTER	Get to ISPF panel
ENDIF	End broadcast
END	Successful logon

Using scripts from other session managers

Beside the native script language, InterSession mimics the vast majority of TPX ACL commands, meaning that existing ACL scripts can be used without any conversion efforts. The ACLs can be read directly from the existing PDS.

Panels

A subset of the ISPFpanel language is implemented in InterSession. This means that the TPX ACL DISPLAY command also can be used, for the most part without making any changes.

The Top Line Menu

InterSession provides a pop-up top line menu that can be used to perform a number of important functions from within any application. The top line menu is displayed when the user presses the attention key on any screen.

When the attention key is pressed, the top lines of the user's terminal screen are replaced with the top line menu:

```

Sessions hardCopy Edit Give shaRe Attn PAL Help exit
Opt PF1 Menu
    PF2 CMS
    PF3 MAINT
    PF4 TSO*
    F12-end
0
1
2
3
4
5 Batch Submit job for language processing
6 Command Enter TSO or Workstation commands
7 Dialog Test Perform dialog testing
9 IBM Products IBM program development products
10 SCLM SW Configuration Library Manager

ISPF Primary Option Menu

al and user parameters
y source data or listings
or change source data
m utility functions
ctive language processing
Submit job for language processing
Enter TSO or Workstation commands
Perform dialog testing
IBM program development products
SW Configuration Library Manager

User ID . : ADCDMST
Time. . . : 16:12
Terminal. : 3278
Screen. . : 1
Language. : ENGLISH
Appl ID . : ISR
TSO logon : ISPFPROC
TSO prefix: ADCDMST
System ID : ADCD
MVS acct. : ACCTA
Release . : ISPF 5.9

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F10=Actions F12=Cancel
ard F8=Forward F9=Swap
  
```

The user can select any of these commands by typing the capitalized letter of the command and pressing ENTER or simply by moving the cursor onto the command and pressing ENTER.

These are the facilities available from the top line menu:

Sessions	Move from one session to another, or start new sessions.
HardCopy	Generate a screen print of any InterSession or application session screen.
Edit	To cut and paste data between sessions.
Give	Transfer a session to another InterSession user.
ShaRe	Share a session with another InterSession user.

GiveBack	Return a session received from another user (via Give or shaRe) to the original owner.
(Attn key)	Pass the attention key to the application.
(Jump key)	Pass the jump key to the application.
Help	Request help on using the top line menu.
Exit	Exit from the top line menu and return to the application session.

Function Keys

With InterSession installed, a number of keys have special functions.

The Attention Key

As mentioned earlier, the *attention key* is used to display the top line menu. The top line menu gives the user access to a number of InterSession functions.

On SNA terminals, the attention key is by default the 3270 ATTN key. The user can define any PA or PF key as the attention key.

If desired, the user can enter a command to temporarily disable the attention key, so it will be handled by the application rather than by InterSession. Following this, InterSession will not intercept this key until a command enabling it again is given.

A user working inside an application using pass mode cannot use the attention key, since InterSession has no control over the terminal interactions.

Breaking Out of an Application

When the user is waiting for a response from a long-running application, he or she can break out of the application using the attention key. (On non-SNA terminals, the user must first unlock the keyboard by pressing the RESET key.)

After pressing the attention key, the InterSession top line menu is displayed, and the user can select any item from the top line menu, or jump directly to another application.

The Jump Key

The *jump key* is used to scroll through all of the user's active sessions. The user simply presses the jump key, once for each session. After the last session has been displayed, the jump key takes the user back to the main menu. (By setting an option on the menu, the main menu can be bypassed when scrolling through the sessions and the first session will appear directly after the last.)

If the user presses the jump key on the main menu, the screen of the first session is displayed.

InterSession lets the user specify which key to use for the jump key.

If desired, the user can enter a command to temporarily disable the jump key, so it will be handled by the application rather than by InterSession. Following this, InterSession will not intercept this key until a command enabling it again is given.

A user working inside an application using pass mode cannot use the jump key, since InterSession has no control over the terminal interactions.

The Command Key

On any application screen, the user can enter an InterSession command in the first field of the screen and press the *command key*.

For example, to go directly to the TSO application, the user enters `..TSO` and presses the command key. InterSession commands let the user switch to the standby screen, disable and enable the jump and command keys (so that those keys can be used in an application), switch to the main menu, switch to the next session (as if the jump key were pressed), switch to the previous session, switch directly to a particular session, and terminate the current session (returning to the main menu or the session from which the current session was initiated).

The command key will be passed along to the application, as long as the first field does not begin with the InterSession command string—in this example, two periods (`..`).

InterSession lets the user specify which key to use for the command key, and which one- to five-character sequence to use for a session command.

Hot Keys

To simplify the process of starting sessions and jumping back and forth between the different sessions, the user can define *hot keys* to be associated with particular applications. These keys are displayed on the main menu, to the right of the application name and text (in the INFO field).

When the user presses a hot key (whether from the main menu or from within an application), the associated session is started. If the session is already started, the user jumps directly to the associated session, just as if a session command was entered. If a session is started with a hot key from inside another application, when the user ends the application, the user can have InterSession return to the original application rather than returning to the main menu.

A user working inside an application using pass mode cannot use any hot keys, since InterSession has no control over the terminal interactions.

The Help Key

InterSession provides an online help system that can be accessed by pressing the *help key* (normally PF1) when any InterSession screen is displayed.

InterSession provides up to three screens of help text for each InterSession screen. A typical help screen looks like this:

```

InterSession ----- Your user profile 1/2 ---- Wed Nov 18, 2015 16:15
Help - User Profile Screen 1/2
All fields shown except the user id and user group may be altered.

Autostart Application: One or more systems can be automatically started
after a successful sign on, which means that the user will go directly from
the sign on screen to the application(s) coded here.
If you have started more than one application, or if it is unavailable,
or if you are not authorized for the system, the Menu Screen will appear.
Screen Layout: There may be more than one screen layout available, in
different style or language etc. Ask your System Administrator for the names.
Two level Menu: The Menu Screen may be shown in one or two levels.
Attn key function: How the Attention Key is used:
    TLM = Top Line Menu.
    TV  = Televue behaviour.
    SS  = Supersession behaviour.
    BRK = Menu screen.
    NO  = Attention key sent to application.
    DEF = system default.
Initial command: Here you may code a character representing a Top Line Menu
command (one of the capitalized characters). This will be executed directly.
F3-return  F7/8-bwd/fwd

```

To browse through the help screens, the user uses PF7 and PF8. To return to the original screen, the user uses PF3.

Built-In Applications

As you may have noticed in the sample main menu on page 16, an InterSession menu may list one or more "InterSession routines." These are *built-in* applications to maintain and monitor the operation of the system.

The following InterSession routines can appear on a user's main menu:

MAINT	Online maintenance facility
STAT	System status/statistics routines
TLOCK	Terminal lock maintenance routine
PROF	User's own profile routine
MMS	Message/mailbox system
STBY	Standby routine
OFF	Sign off InterSession

These applications are automatically authorized for system administrators, but can also be authorized for any other user.

The internal applications (except for STBY and OFF) are treated the same as other application sessions, which means that the jump key and session commands can be used to switch between them. They also appear under "Active Sessions" on the main menu.

The same internal application can be defined to InterSession more than once. This means, for example, that a system administrator can work in two different areas of the online maintenance facility (MAINT) concurrently.

The internal routines are discussed in more detail below.

Internal Maintenance Facility (MAINT)

Maintenance is performed by one or more users defined to InterSession as *system administrators*. A user is designated a system administrator in his or her user profile.

All maintenance is done via MAINT. (See also the IntsAdm GUI later in this manual on how to maintain the system with a Windows application).

MAINT is used to maintain the following:

- System Options

System Options control InterSession. These include security options, profile defaults, user exits specifications, VTAM APPL pools and more.

- User Profiles

Every user of InterSession must be described in a *user profile*. The user profile contains all user-specific data, such as name, group code, authorized applications, user IDs and passwords for particular applications.

- Application Profiles

Every VTAM application and/or CICS transaction to be accessed directly from InterSession must be described in a *application profile*.

The application profile contains all the necessary data about the application, such as VTAM APPLid, logon data, CICS transaction ID, Session Script IDs, etc.

During installation, a number of predefined application profiles for various application hosts are automatically created. These can be modified as required to simplify implementation of InterSession.

- Session Scripts

As explained earlier, a *session script* is an automated sequence of interactions with an application at its initiation (a *start script*), its termination (an *end script*) or monitoring a background session (a *monitoring script*). Session scripts can be defined for each Application Profile.

- Screen Layouts

A *screen layout* contains the text and format for the InterSession screens.

A default screen layout is generated during installation. This layout can be modified to fit an installation's needs. The default layout can be copied to create different versions for particular user profiles.

It should be noted that all InterSession screens can be set up with a full set of extended attributes, such as color, reverse video etc in order to enhance the visibility of the screens.

- Interfaces

There are five types of interfaces that can be defined to InterSession. These are:

1. VTAM. When active, controls VTAM 3270 sessions from terminals and to applications. Must be active unless TCPIP protocol (TN3270) is solely used for terminal and application sessions. Requires that VTAM is running.
2. TCPIP. Must be defined if any of the InterSession TCPIP features is to be used (TN3270, TCPIP printing, the Windows GUI etc.). Requires an active TCPIP stack in the mainframe.
3. Batch. Is used to connect to InterSession batch utility program to perform maintenance tasks from a batch job.
4. Operator. Should always be active. Controls the console operator communication.
5. Online. If more than one InterSession system is used, this interface is required to be able to send MMS messages across the systems.

- Services

There are two types of services, both requiring an active TCPIP interface:

1. TN3270. Necessary if the built-in TN3270 server feature is used.
2. HTTP. Necessary if the built-in web server feature is used.

- Printers

There are six type of printer profiles:

1. HARDCOPY. These are VTAM printers. They also include options how hardcopy printing is to be handled, whether form feed is supported, the length of the form, the margins, and the like.
2. TN3270E. These are the printers used by the TN3270E feature found in many TN3270 emulators.
3. LPD, RAW or PJP. These are network printers using the LPD protocol, or using a direct client connection to a LAN hardware printer with a raw protocol or the HP PJP protocol.
4. SPOOL. These are printers that print directly to the mainframe spool system.

- Help Screen Text

All InterSession's own online help text is accessible for online maintenance and customization.

MAINT can only be accessed by users defined to InterSession as system administrators.

System Status/Statistics Routines (STAT)

The system status/statistics routines are available to all master operators. A *master operator* is an InterSession user who controls the operational aspects of InterSession, such as closing and opening InterSession files, providing information on application availability, etc. Several users can be designated as master operators. A user is designated a master operator in his or her user profile.

The STAT application allows the master operator to monitor the use of InterSession, to view application sessions and printers and to view the wrap-around log file.

Terminal Lock Maintenance Routine (TLOCK)

When a user violates the sign-on rules (that is, exceeds the number of allowed sign-on attempts within the specified period), the user's terminal is locked.

To unlock the terminal, a master operator uses the terminal lock maintenance routine. A screen is displayed on which all locked terminals are listed. A master operator can unlock any of the terminals listed.

The terminal lock maintenance routine can also be made available to users on a selective basis.

User's Own Profile Routine (PROF)

InterSession provides PROF to allow users to maintain their own user profiles online. When PROF is selected, the first of two screens appear:

```

InterSession ----- Your user profile ----- Wed Nov 18, 2015 16:22

    User id ==> MASJ
    User group code ==>
    User name ==> Matteus Sjögren
    Screen layout ==>
Autostart application ==>      ==>      ==>      ==>
    ==>      ==>      ==>      ==>
    Two level Menu ==> DEF
    Attn key function ==> DEF
    Initial command ==> S
    Printer id ==>
    Print header ==> DEF
Newpage after header ==> DEF
    Data field 1 ==>
    Data field 2 ==>
    Data field 3 ==>
    Data field 4 ==>
    Data field 5 ==>
    Data field 6 ==>
    Data field 7 ==>
    Data field 8 ==>
                                Mailbox open ==> YES
                                Standby at timeout ==> DEF
                                Background update action ==> ALARM

F1-help  F3-return  F7/8-bwd/fwd

```

The user can specify whether to have a one- or two-level menu, whether an application is to be autostarted, and other aspects of InterSession processing. All fields shown except the user ID and user group code may be altered. However, some or all of the user data fields can be protected from update by a system administrator. PF8 is used to display the second of the user profile screens:

```

InterSession ----- Your user profile ----- Wed Nov 18, 2015 16:24

    Attention key ==> ttn
    Jump key ==> PA1
    Command key ==> ENT
    Command prefix ==> ..
Hot keys: Enter application code (+ an "R" for return to calling session)

PF1 ==>      >    PF9 ==>      >    PF17 ==>      >
PF2 ==>      >    PF10 ==>     >    PF18 ==>      >
PF3 ==>      >    PF11 ==>     >    PF19 ==>      >
PF4 ==>      >    PF12 ==>     >    PF20 ==>      >
PF5 ==>      >    PF13 ==>     >    PF21 ==>      >
PF6 ==>      >    PF14 ==>     >    PF22 ==>      >
PF7 ==>      >    PF15 ==>     >    PF23 ==>      >
PF8 ==>      >    PF16 ==>     >    PF24 ==>      >

    Hot keys in Top Line Menu ==> DEF
    Hot keys with Cmd Prefix ==> DEF
    New password ==>
    Verify new password ==>

F1-help  F3-return  F7/8-bwd/fwd

```

Here, the user can define hot keys for one or more applications, and can specify whether pressing the hot key returns the user to the calling session.

PROF can be authorized for all users, or restricted to certain users, just like any other application.

Message/Mailbox System (MMS)

With the message/mailbox system (MMS), an authorized user can create and send mail or immediate messages to one or more users.

Both mail and immediate messages are created in the same way; an existing immediate message can be sent as mail and vice versa.

Messages created by end users are private; only the creator has access to the original message. A master operator can create *public messages*, which are accessible by all master operators. Public messages can be displayed repeatedly to users at sign-on or when an application is selected.

Messages can be sent to users defined in other InterSession systems running in a different host.

MMS can be authorized for all users, or restricted to certain users, just like any other application.

Mail Messages

Messages can be sent as mail to one or more users based on the recipient's user ID or user group ID. InterSession notifies each recipient on his or her main menu that there is a new message in the mailbox. If a recipient is working inside an application session, the terminal alarm sounds.

Immediate Messages

Messages can be sent immediately to one or more users based upon the recipient's user ID, user group ID, or terminal ID.

A master operator can also send immediate messages based upon application ID or VTAM applid for the application host. Master operators can also create immediate messages to be shown to all users at sign-on or when a user selects a certain application. Immediate messages are shown to the recipient when the recipient presses any PF, PA or ENTER key on the terminal. A recipient of an immediate message can choose to save the message in their mailbox or simply return to the application at the point it was interrupted.

CICS users always receive immediate messages. Users in non-CICS pass mode application sessions do not receive immediate messages until they terminate the application and return to InterSession, since the terminal interactions are not going through InterSession.

MMS Screens

Messages are created, sent, received and viewed using two screens, the message status screen and the message text/send screen.

When a user selects MMS from the main menu, a screen like the following appears:

```

InterSession ----- Message status ----- Wed Nov 18, 2015 16:34

New message title ==>

Commands: S-select, D<n>-delete, C-copy, P-print
Cmd_Title      Created/sent by      Status      Date/time
┌ Monday meeting      CAL      111815 1634      Received
│ TCPIP question      MASJ      111815 1631      Created
└

F1-help  F3-return  F4-distr.lists  F7/8-bwd/fwd

```

This screen contains a list of all messages in the user's mailbox, including both the ones the user has created and the ones received as mail from other users.

The "Created/sent by" field informs the user of the user ID of the creator/sender and the date/time when it was created/sent.

The "Status" field informs the user of the message type and status.

The "Date/time" field reflects when the status of the message last was changed.

With the commands S, D, C and P, the user can select for viewing, delete, copy and print messages.

Messages will be printed to the VTAM printer defined in the user profile. The user can change the name of the printer using the user profile application (PROF).

To view an existing message, the user enters a select command to the left of the message and presses ENTER. The text/send screen appears.

To create a new message, the user types a message title in the "Message title" field. If the new message is to be a copy of an existing message, the user can use the copy command to the left of the existing message before pressing ENTER. The text/send screen appears:

```
InterSession ----- Message text/send ----- wed Nov 18, 2015 16:35
```

```
Message title: Monday meeting                      Received/read  
Created/sent by: CAL / New Admin  
M(ail) / I(mm) / B(reak) ==> █ At date ==> Today   At time ==> Now  
To user id(s) ==>
```

```
----- Page 1
```

```
>>> Hi Matteus,  
>  
> We have scheduled a meeting for Monday Nov 24 at 1300 hours.  
> Please bring the necessary development plans with you.  
> (Be prepared for a normal presentation).  
>  
> See you then  
> Cal  
>  
>  
>  
>  
>  
>  
>  
>  
>
```

```
F1-help F2-send F3-return F4-receivers F7/8-bwd/fwd
```

systems

The message text is typed in the lower part of the screen. Each line consists of two fields: the text and the line attribute. The attribute is located to the right of the text and may be a - (minus) or + (plus) to indicate normal or high intensity.

In the line attribute field, the user can also type a line edit command to insert, delete or repeat lines.

PF7 and PF8 are used to scroll back and forth in the text.

To send the message, the user enters the send code (mail/immediate), the recipient ID (in one of the "To" fields) and presses PF2.

Other MMS features

MMS also includes routines for:

- Maintaining receiver lists (global and local mailing lists)
- To view a message's status for all receivers of the message
- To print the contents of a message to any 3270 printer
- To send messages directly to a printer instead of a user's message box.

Standby Routine (STBY)

The standby routine can be used to leave a terminal temporarily in a secure mode, without ending the current applications.

To select the standby routine, the user can either type the STBY application code on the main menu or use the session command `..B` from any application session.

The standby routine can be automatically entered when a terminal idle time-out occurs.

When the STBY routine is selected, a screen like the following appears:

```

InterSession ----- Standby screen ----- Wed Nov 18, 2015 16:38

      SSSSSS  TTTTTTTT   AA   NN   NN  DDDDD  BBBB BB  YY   YY
      SSS      TT      AAAA  NNN  NN  DD  DD  BB  BB  YY  YY
      SSSS     TT      AA  AA  NN  NN  NN  DD  DD  BBBB  YYYY
      SSS      TT      AAAAAA  NN  NNNN  DD  DD  BB  BB  YY
      SSSSS     TT      AA      AA  NN   NN  DDDDD  BBBB BB  YY

User MASJ      has set this terminal in standby status at 16:38

Type your password ==> █

Enter your password to resume, F3-sign on screen

```

All of the user's current application sessions are retained and the standby screen remains displayed until one of the following occurs:

- The user returns to the terminal and terminates the standby by entering his or her password on the standby screen. If the user entered standby from an application session, InterSession returns the user to that session; otherwise the main menu is displayed.
- If the user does not return to the terminal before the installation-specified standby time limit expires, InterSession automatically cancels the standby screen and the sign-on screen is displayed.

After the sign-on screen is displayed, if the user does not return to the terminal before the installation-specified terminal-idle time limit expires, the user's current sessions are automatically canceled.

Sign off InterSession (LOGOFF)

LOGOFF is selected when the user wants to exit InterSession entirely. Following this, the sign-on screen or a VTAM screen is displayed at the terminal, depending on the setting in the LOGOFF profile.

Information Applications

An installation can create sets of one or two screens of information to be listed on users' main menus. These are called *information applications*. Information applications are listed on the main menu just like ordinary application applications.

Information applications can be used to communicate news, operational hours, standards and scripts, or any other sort of information.

The contents and the format of an information application is wholly determined by the installation. (Systems administrators and master operators are authorized to create information applications.)

If the information application consists of two screens, the user can use PF7 and PF8 to move between the two screens. PF3 is used to return to the main menu.

Security And Authorization

InterSession provides a number of features that enhance the security of an installation, including password protection, user access revocation, terminal locking, application authorization, and terminal and session-idle time out.

These features are controlled primarily via the application profile and the individual user profiles. Application and user profiles are maintained by one or more system administrators. InterSession also allows particular users to be authorized to maintain the user profiles of all users or groups of users.

InterSession provides interfaces to the major external security packages, as well as support for an installation-written security exit.

Password Protection

Each InterSession user need a password. InterSession will require that this password be entered on the InterSession sign-on screen each time the user enters InterSession. The password can be up to 100 characters in length and may contain blanks (passphrase).

InterSession provides several options for maintaining passwords:

- Users can be given the capability to change their own passwords anytime they want.
- Users can be required to change their passwords after a specified time period has elapsed. InterSession will prompt the user for a new password if it has not been changed within the specified period of time. Each user can have a unique expiration period specified in the user profile.
- All or selected users can be prevented from changing their own password. This can be useful in an installation where group profiles are being used—that is, a user ID is used by more than one individual. Editing formats can be specified to determine if the passwords conform to an installation-defined format.
- New passwords can be checked against old passwords, to make sure that they are not repeated. The number of old passwords to check is controlled by the installation.
- If an external security manager like RACF is used, a user id defined to the security manager will be controlled by it.

InterSession requires a new password to be entered twice. This is to prevent a new password from being entered by mistake or incorrectly.

User Access Revocation

There are several circumstances that can cause a user's access to be revoked:

- An expiration date can be specified for each user profile. This prevents a user from signing on to InterSession after the specified date. This can be valuable if personnel are working on a temporary basis.

- A user's access can be revoked after a specified number of days of user inactivity.
- User access can be revoked after too many unsuccessful sign-on attempts.
- An external security manager may have revoked the user id.

A system administrator can reactivate any user profile that has been revoked for any of these reasons, except the last.

Terminal Locking

InterSession will lock a terminal's keyboard after a specified number of sign-on attempts within a specified time interval.

When this condition occurs, a message is displayed on the system log and an installation-defined screen is displayed on the terminal being locked. This screen may contain any text desired (for example, whom to call to get the terminal unlocked).

A system administrator or master operator can display a list of all terminals currently locked, and unlock selected terminals. The list includes the user ID and password that were being used for the attempted sign-on.

Application Authorization

The main menu of a user displays only those applications that the user has been authorized to use. The user profile specifies which applications the user is authorized to use. (Applications can also be authorized by an external security manager. This is discussed later.)

To authorize a user for a particular application, a system administrator updates the user profile.

In a large organization with many users, authorizing each user could be a large and time consuming task. InterSession allows user security profiles to be defined. These are maintained in the same way as user profiles; the name of the security profile is specified in the individual user profile. In this way, all users with the same needs can share the same security profile.

If an external security manager is used, it may also control the access to the applications.

Terminal Idle Time-Out

InterSession displays the main menu or standby screen (as the installation chooses) whenever a terminal has not been used for a specified amount of time. The default amount of time and which screen to display is specified on a system-wide basis, but can be overridden in the user profile.

Note: A terminal being used in pass mode is not affected by this feature, since InterSession does not have control over the terminal.

Session Idle Time-Out

InterSession automatically cancels an active session whenever the sign-on screen has been displayed for a specified amount of time. The default amount of time is specified on a system-wide basis, but can be overridden in the user profile.

If the active application sessions are defined to have end scripts, these scripts are executed before the sessions are canceled.

External Security Interfaces

InterSession provides standard interfaces to the following external security packages:

- RACF
- TopSecret
- ACF2

All external security interface calls are made in one or more subtasks of InterSession, in order to not slow down overall system throughput.

External Security Interface Functions

The InterSession external security interface is used at sign-on time for three purposes:

- Password control and alteration. RACF/TopSecret passphrases and ACF2 long passwords are supported.
- Authorization control of InterSession application profiles
- Optional update of InterSessions user profile with data from the external security system.

The internal security system of InterSession is only used for users and InterSession application profiles which are not defined as using external security. For users defined as using external security, InterSession will call the security system at sign-on to obtain authorization information.

The InterSession profiles defined in InterSession as being checked by external security must also be defined to the external security system as resources.

InterSession performs the following steps at user sign-on:

1. InterSession calls external security to check the user and password. Any error messages from external security is shown to the user.
2. If the user is not defined to the external security system, InterSession uses its own user definitions.
3. If the user is defined to the external security system, but not defined to InterSession, InterSession creates a user profile for that user.
4. If the user is defined to the external security system, the user profile is updated with information from external security user data if requested.
5. For all applications specified to InterSession as requiring it, InterSession calls external security to obtain authorization information for the user. InterSession updates its internal security table with this information.
6. InterSession calls external security to release the security control blocks within the InterSession region.

The external security system will not be called again for this user until the user signs on to InterSession again.

Passticket Support

Passtickets are used as part of a Secured Sign On solution and can be used in an z/OS environment with all external security systems (RACF, ACF2, Topsecret).

As any other external security based application, InterSession accepts an external security passticket instead of a password during user signon, for example if the signon to InterSession is made by another application.

InterSession can also create and use external security passtickets instead of the user's password when signing on to other applications.

Multi-Factor Authentication Support

Multi-Factor Authentication (MFA) is a technique to enhance the security for User Sign On. It is based on multiple authentication factors that is to be presented during logon in order to verify a user's identity. An MFA product interfaces with the security manager (RACF, ACF2 or TopSecret).

One or more MFA passcodes (pin code, one-time password etc.) should be entered by the user on the sign on screen, using the password/pass phrase fields.

This works out-of-the-box with InterSession. But to enhance the MFA functionality, InterSession has some extra features:

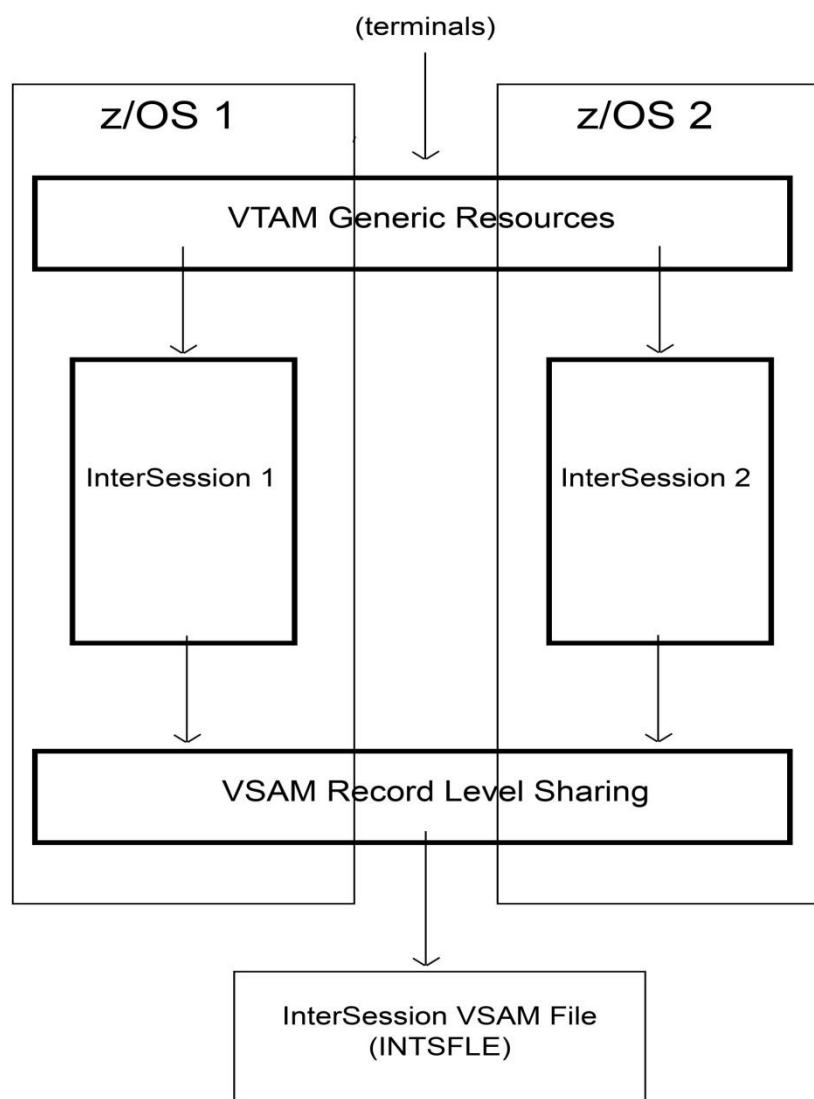
- PassTickets instead of passwords should be used in the application sign on scripts to avoid confusion with passwords and passcodes..
 - Subtasks. InterSession uses one or more subtasks to interface with the security manager, in order to not delay the processing for other users not currently signing on. This can be especially important with MFA products.
 - Message to the user. If the MFA delay sometimes is longer than one or two seconds, InterSession can send a message to the user while waiting for the sign on to complete.
-

- Sign On Screen Appearance. If you want separate fields for MFA passcodes, you can define one or more separate field(s) for this purpose in the Screen Layout.
- InterSession attempts a second time to sign on to the external security package, with the old InterSession password specified as current, and the current InterSession password as a new password.

Sysplex Functions

Up to eight InterSession systems can work together in a z/OS sysplex environment. The InterSession sysplex functions allows you to:

- Share your User Profiles, System Profiles, Session Scripts, Screen Layouts and Printer Options between the InterSession instances, using VSAM Record Level Sharing
- Load balance and backup for your VTAM terminal sessions, using VTAM Generic Resources.



In the example above, we have two z/OS systems running in a sysplex (the coupling facilities are not shown).

Two InterSession systems are working together, using a common VTAM name (a VTAM generic resource name) and sharing a single copy of the InterSession VSAM file, using VSAM Record Level Sharing (RLS).

When an update to the file is made in either of the systems, a signal is sent to all other InterSession instances in the sysplex. These will then read the updated record(s) and refresh their internal copy of it.

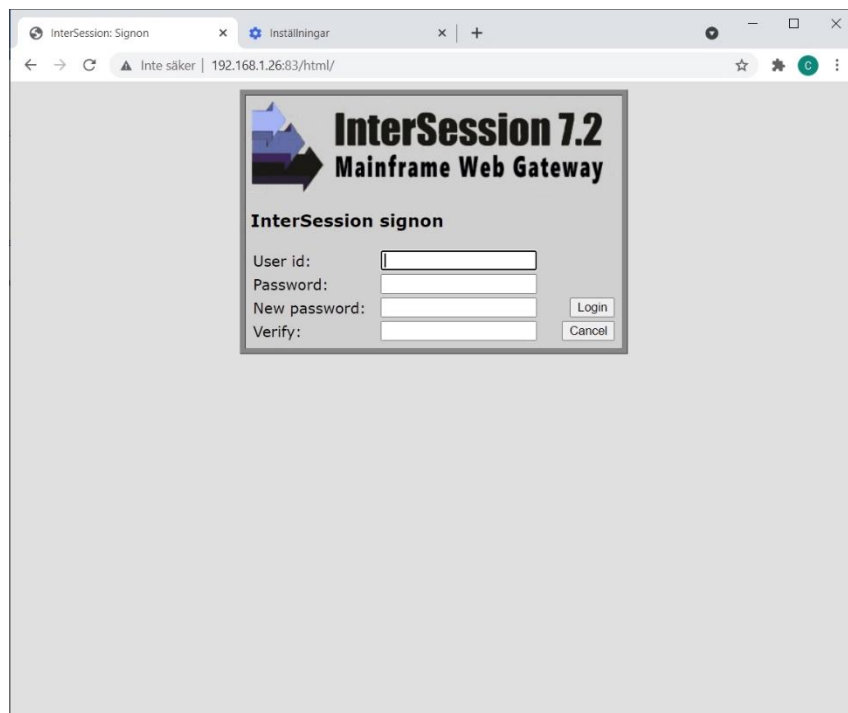
The Built-in Web Server

InterSession comes with a built-in web server. This makes it possible to access InterSession mainframe applications using a web browser, without any 3270 emulator installed in the workstation. For example, this can be used by lightweight 3270 users that needs occasional access to just one or a few applications. The feature runs completely within the mainframe and there is no middleware involved.

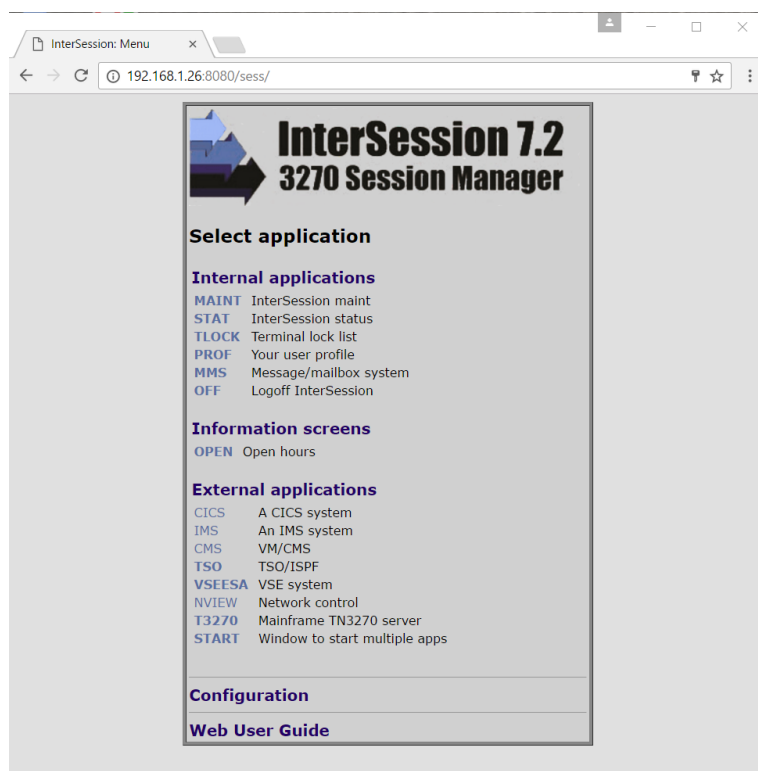
The feature is designed to be compatible with all leading modern browsers and uses cutting edge technology, such as Ajax and XHTML, when available.

The feature has its own web server. It handles all static objects needed, such as css files, JavaScript files and images. It is highly configurable; messages and texts are standard InterSession texts, and the layout can be modified using standard css (Cascading Style Sheet) files.

This is the default version of the web sign on screen:

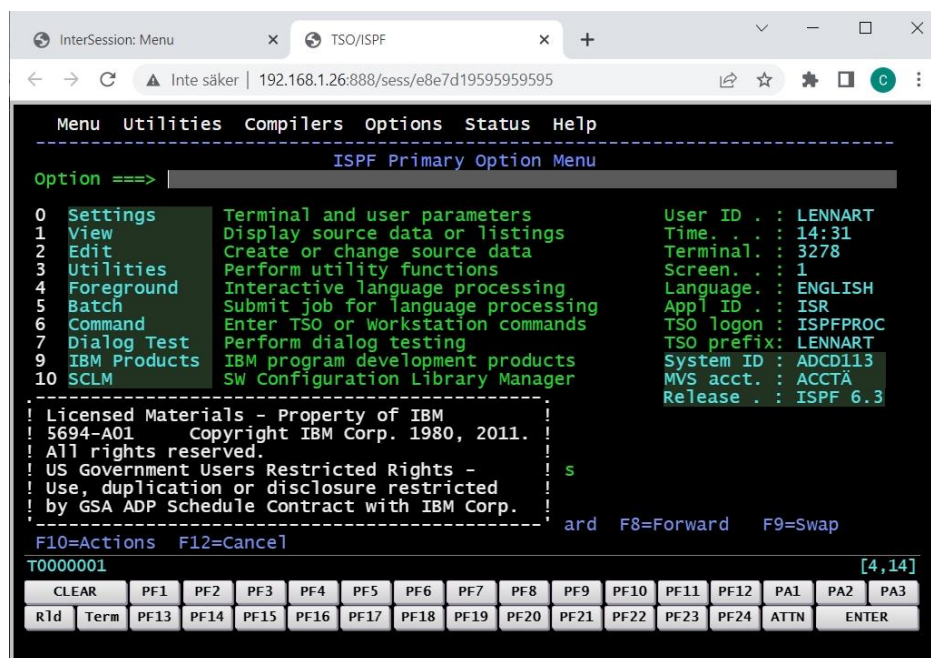


This is the default version of the web application menu:



The user has a number of configuration options, among them a possibility to set different 3270 terminal styles.

When a mainframe application is selected, the application session window looks like the following:

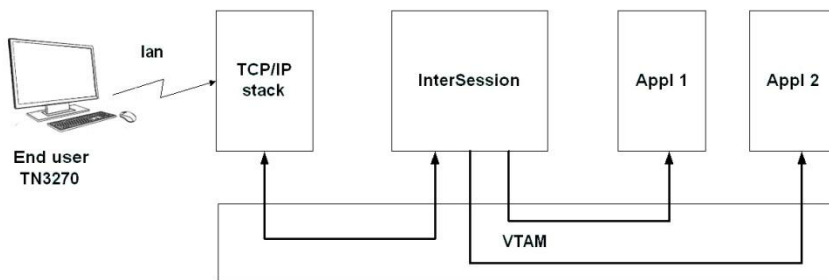


You can use the Enter and F1-F12 keys on your keyboard as the 3270 Enter and PF1-PF12 keys, or you can use the keys of the button bar. A double click with the mouse will work as the Enter key. To position the 3270 cursor, you can use the Tab, Backtab or arrow keys on your keyboard, or you can point and click with the mouse.

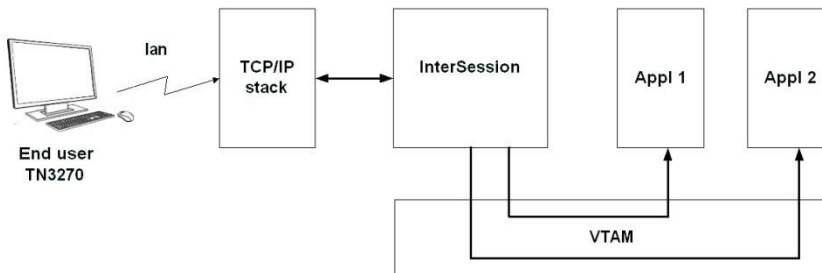
There are two buttons that are not 3270-related; **Rld** (reload), is used in odd cases to get the display synchronized (normally, the synchronization is done automatically) and **Term** to terminate the session.

The Built-in TN3270 Server

InterSession comes with a built-in TN3270/TN3270E server. This server allows users to logon directly to InterSession without having an additional VTAM session between the TCP/IP stack and InterSession.



The above figure shows traditional access to InterSession via the TCP/IP stack's TN3270 server.



The above figure shows direct access to InterSession via the built-in TN3270 server.

Features

The TN3270 server gives the user full terminal access to the VTAM applications. The terminals becomes non-SNA terminals with Attn key (limitation due to the TN3270 spec). All terminal models supported by the VTAM interface of InterSession are supported by the TN3270 server. The TN3270 server can use multiple stacks concurrently. The TN3270E implementation implements "Basic TN3270E" as described in RFC 1647.

Benefits compared to traditional access

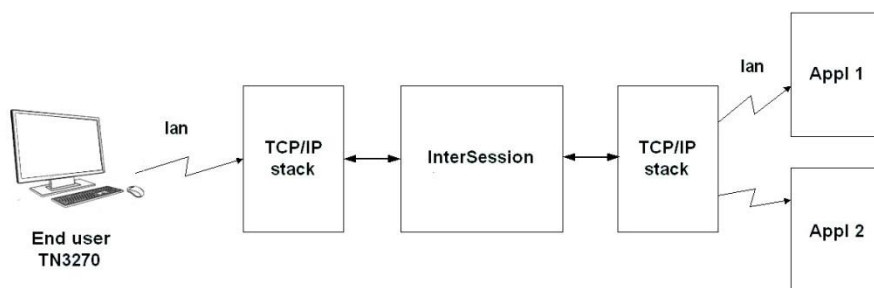
- Reduced overhead (both cpu and storage)
- Improved response time
- More flexibility, dynamic start/stop of services
- Improved security (normal InterSession security + exit)
- Improved usability
- Less administration

The Built-in TN3270 Client

InterSession comes with a built-in TN3270/TN3270E client. This client allows users to start application sessions to a TN3270 server anywhere in the network, without the need of any VTAM services.

With the TN3270 client, you can connect seamlessly to remote hosts via TN3270. The TN3270 client sessions are just another type of InterSession session, i.e. security, scripting, timeout settings, etc. works as for VTAM sessions.

Together with the built-in TN3270 server, InterSession can operate completely without VTAM.



The above figure shows the usage of both the TN3270 Server and the TN3270 Client.

3270 Print Support

InterSession can use 3270 printers for hardcopy screen prints and for printing messages from the mail/message system (MMS).

3270 printer characteristics are defined to InterSession using the online maintenance facility. (Printers are specified using their VTAM network name.) A *default printer* definition can be specified that will be used for any printers not specifically defined. Only those printers that are different from the default definition then need be defined.

A simulated 3270 printer can also be defined to print to an IP attached printer, such as a network IP printer or an LPD printer connected to a Unix system. See later in this manual, section "Network Print Support".

All print requests are queued as part of a spool file contained within the InterSession control file. This ensures that no print requests are lost, even if InterSession is brought down before the actual printing takes place.

Hardcopy Screen Prints

Hardcopy screen prints can be made of any screen by using the hardcopy function of the top line menu.

Print Request Headers

InterSession can generate a heading page prior to each hardcopy screen or mail/message printed, like this:

```
* * * * * INTERSESSION P R I N T R E Q U E S T * * *
```

```
Distribute to: userid/user name
```

```
Terminal: netname
```

```
Type: Hardcopy
```

```
Application: MAINT
```

```
Printer: netname
```

```
Date: yymmdd
```

```
Time: hhmmss
```

Heading data can be printed on a separate page, or on the same page as the data. This feature is controlled on an individual user basis. The contents of the print request header can be changed using the online maintenance facility.

Network Print Support

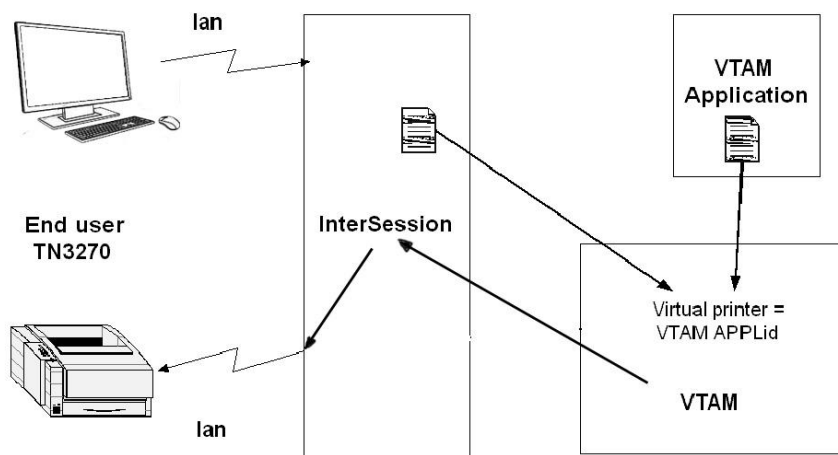
InterSession contains several facilities to capture VTAM terminal print (also called network printing) and transfer the print data to an IP printer, or to the operating system's spool queue.

The 3270 print data produced by InterSession can of course also be printed to IP printers.

TN3270E Printing

With InterSession's virtual VTAM print, TN3270E printers (a feature found in many TN3270 emulators) can be connected via TCPIP.

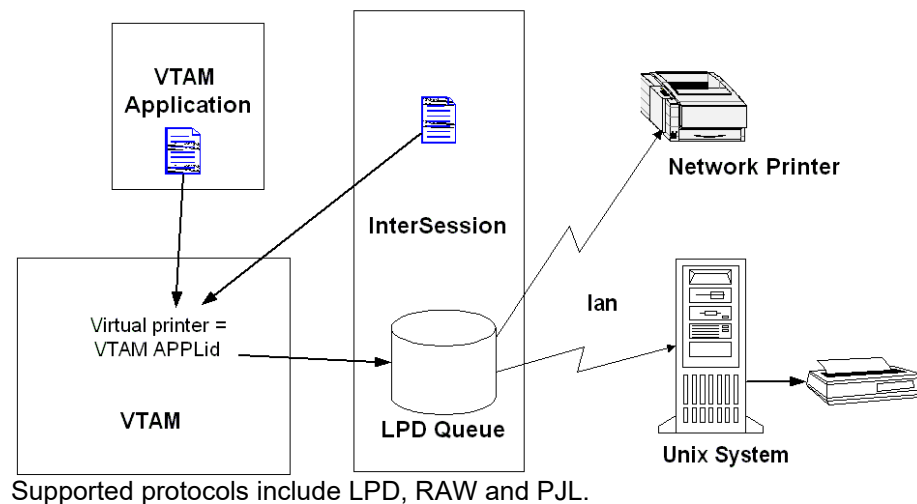
Both internally generated VTAM print and VTAM print from any other application can be passed through InterSession to the TN3270E printer.



VTAM to TCP/IP print gateway (LPD, PJP)

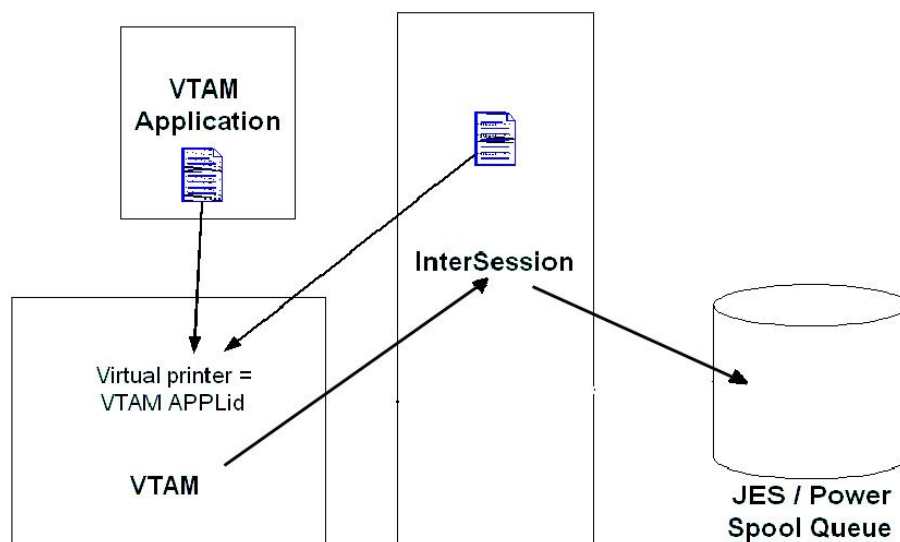
VTAM terminal print from any application, as well as hardcopies and other internally generated print, can be passed through to printers on your TCP/IP network.

InterSession can use the LPD protocol, or a direct client connection to a LAN hardware printer, providing the ability to spool jobs to a UNIX system or to a stand alone IP connected LAN print device. In this case the print data is temporarily stored on the InterSession print queue file.



Print to Spool Queue

Instead of writing to an IP printer, InterSession can write the print data to the operating system's spool queue (JES2/JES3 or POWER).



Other products can then be used to further process the print data from the spool queue, such as transferring the reports to another system via FTP etc.

Multiple VTAM/Host Environments

In addition to the single-domain VTAM environment used by many installations, InterSession can also be used in an environment with multiple VTAM domains or VTAM hosts. In such an environment, it is often desirable to allow users to access an application in either host, from either domain, even if for the most part they access applications in the host that owns their terminal. This assumes, of course, that the different hosts are interconnected, either via a fast (real or virtual) CTC connection, or via a relatively slow 37xx-type communications link.

In many cases, such an environment can be served by a single copy of InterSession running in one of the hosts. Terminals owned by VTAM in that host will then automatically be owned by InterSession, as in a single-domain environment. Terminals in the other hosts can be permanently connected to InterSession via the LOGAPPL parameter in the VTAM definitions.

An environment that is easier to manage can often be provided by running a copy of the InterSession logon component (supplied as part of InterSession) in the other hosts. The logon component is a self-contained front end for InterSession. The logon component allows users to log on to it. The logon component then issues a VTAM LOGON command (equivalent to the VTAM LOGAPPL parameter) to permanently connect the terminal to InterSession before passing the terminal to the single InterSession.

In such an environment, all users can use InterSession to access all applications, no matter what host they exist in. However, in some cases, the additional overhead may somewhat affect terminal response times. This may be true, for example, when users mostly need to access applications in the host that owns their terminals, and the host-to-host connection is via a communications link. In such cases, it may be preferable to run a separate complete InterSession system in each host, which will limit the need for cross-domain communications and thereby improve response times. (Even when an installation has separate InterSession systems in each host, users can still communicate with one another using the InterSession Message/Mail System, which allows messages to be sent between different InterSession systems.)