



TECHNICAL OVERVIEW

A Data Access and Security Approach

Dr John Salerno
Broadsword Program Office
Air Force Research Laboratory / IFED
315-330-4429

Outline



- **Introduction**
- **Architecture**
 - **The “Gatekeeper”**
 - **The “Keymaster”**
 - **Client Services**
- **Towards the Future**
- **Summary**

Introduction



Goal: To provide a single, secure interface enabling access to information that can exist anywhere.

- Take advantage of internet technologies
 - Platform Independence
 - Access to any type/format
- Today - Stovepipe systems

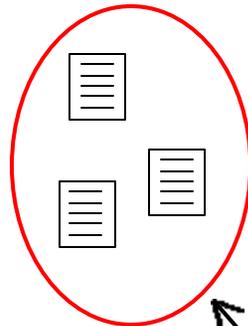
Today's Environment



Internet Today

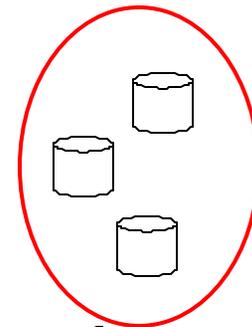
Published Documents

- Freely available
- Non-secured
- Standard interfaces



Database Systems

- Require Login/Password
- Secure
- Single user interface



Broadsword

- Single login/password
- Maintains security

Architecture



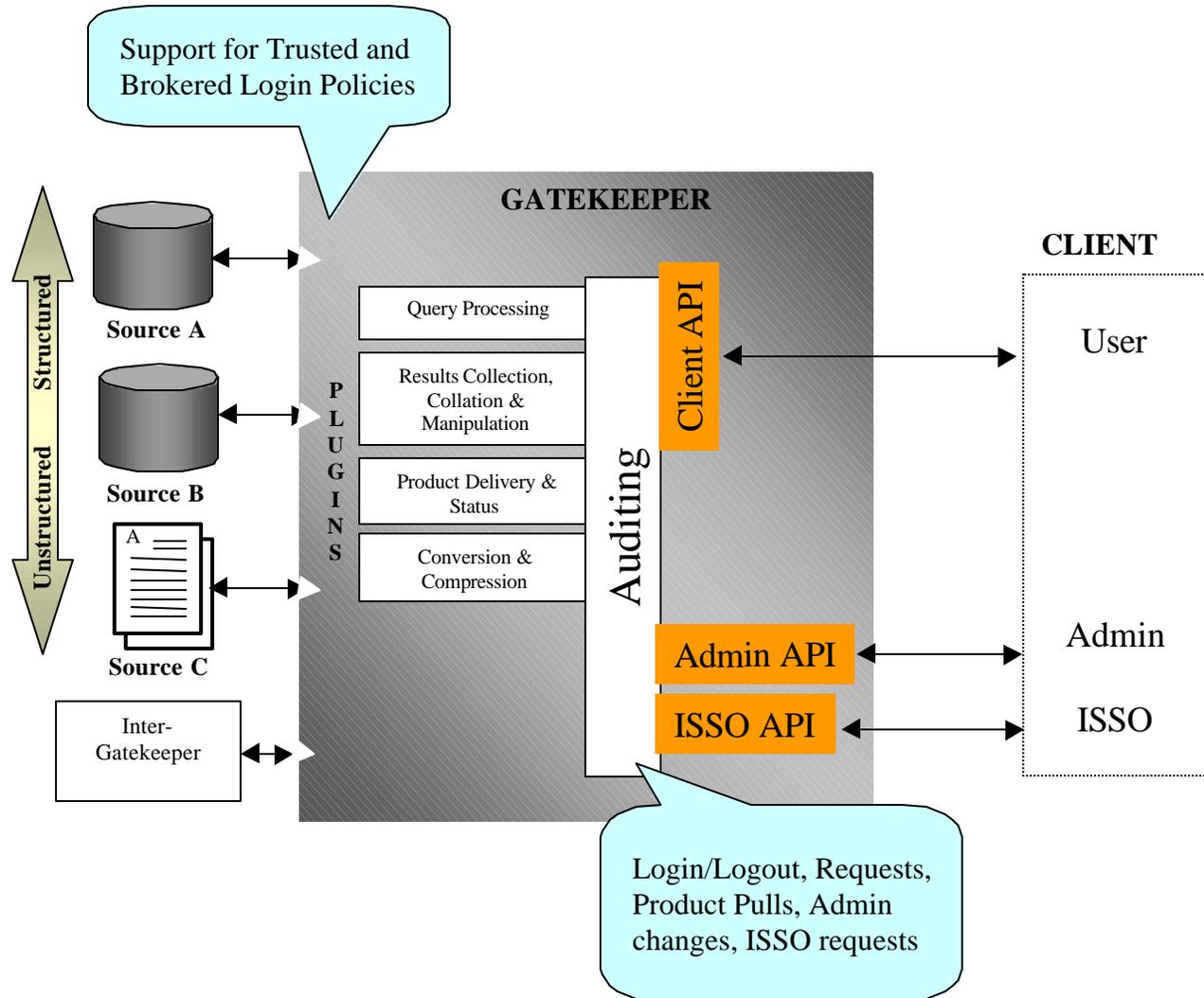
Broadsword - 3 Products

- Gatekeeper
- Keymaster
- Client

Architecture



Gatekeeper



The “Gatekeeper”



- Single API to access multiple sources of information
 - Both structured and **unstructured**
 - Retrieve elements, reports and products
 - Access to Imagery, Video, Audio and Text Products
- Thin Layer of Code
 - Audit all user requests and accesses
 - Route request to appropriate sources
 - Join all responses
- Interface to specific sources performed by plug-ins

The “Gatekeeper”



Plug-ins

- Identifies to the Gatekeeper what services are provided by the source, e.g., keyword, geographic and query
- Converts the API request format (BNF) to the specific interface requirements to include translations and transformations
- Blocks unsupported query elements

**ENFORCES POLICY
PROTECTS SOURCE**

The “Gatekeeper”



Available
Plug-ins

Source	Products/Reports Available
AMHS	Messages
AODB	Mission Simple Mission Deviation Tanker Escort Aircraft AETACS Electronic Combat ABP/ATO History ABP/ATO Apportionment
CSIL	LandSat, Spot Commercial Imagery (Thumbnails)
5D	Imagery (Thumbnails)
IESS	History of Coverage Imagery Interpretation Reports Standing Requirements Target Details Imagery if collocated with an IDEX
Intelink Hydra	HTML Products
Intelink MetaSearch	HTML Products
IPL & IPA	Imagery (Thumbnails), Video, Documents, Multi-File Support
MEPED	Overview Using Country Aliases POC Producing Country Associated Systems

The “Gatekeeper”



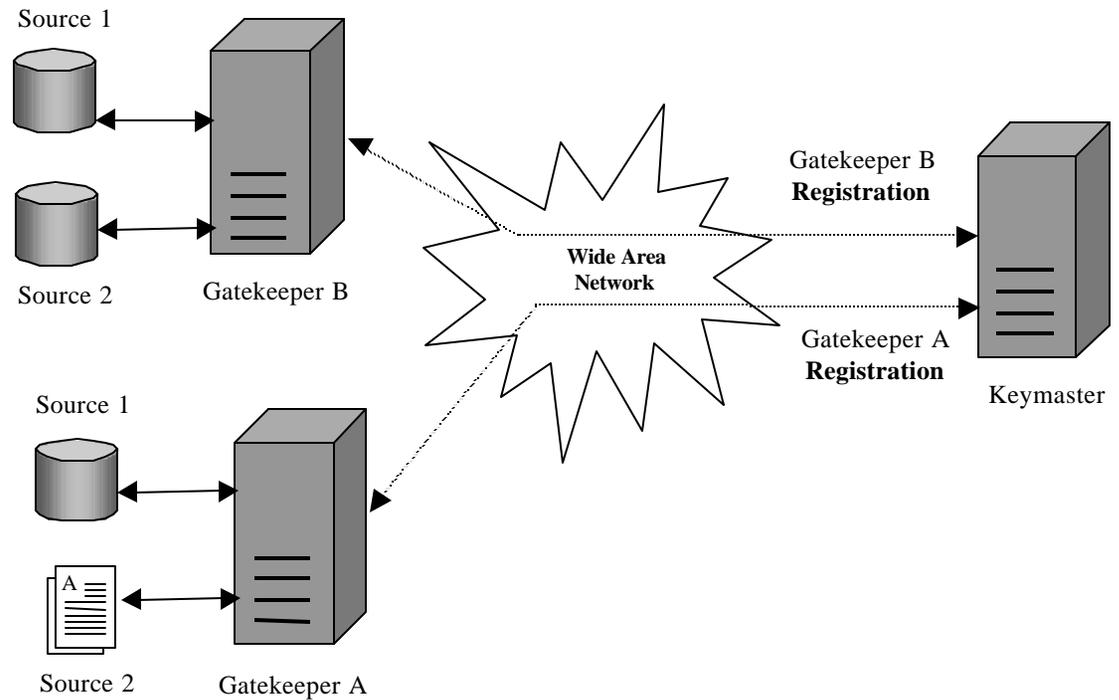
Available
Plug-ins

Source	Products/Reports Available
MIDB	Facility Location List by Country and Category with Remarks Facilities with Associated Units on Equipment, Facility Equipment, and Facility Remarks Facility Listing BE Number/Category Sort, Facilities with Associated Units, Equipment, and Remarks Facility Location List by Country and Category Equipment On-Hand Quantities by Facility and Unit Name Equipment List by Force and Primary Function Active GOB Related Facilities by Category Facility Location List with Vulnerabilities and Remarks Defensive Missile Order of Battle Target Materials Planning Document Target Nomination List Combined Target List
NDS	Order IDEX Imagery Only
Space DB	DIS Order of Battle & Support Space-Log Space Launch System Launch Mission Space Order Of Battle
Weather	Satellite Images

Architecture



Inter-Gatekeeper

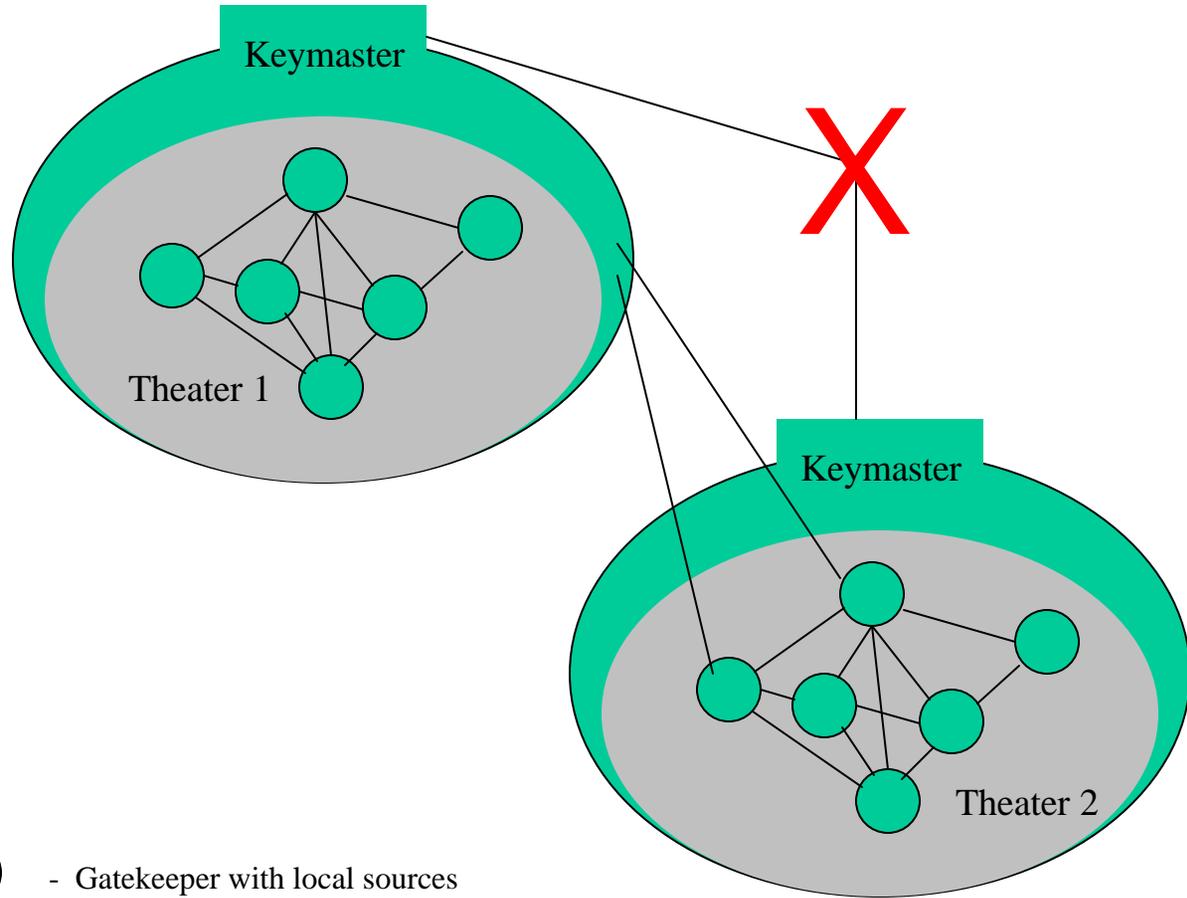


- Each Gatekeeper registers with the **Keymaster** for remote connectivity
- **Keymaster** distributes global maps and updates
- Based on Digital Certificate Technology (X.509)

Architecture



Inter-Gatekeeper



- Gatekeeper with local sources connected
- Sources can be published or not

The “Gatekeeper”



Security Features

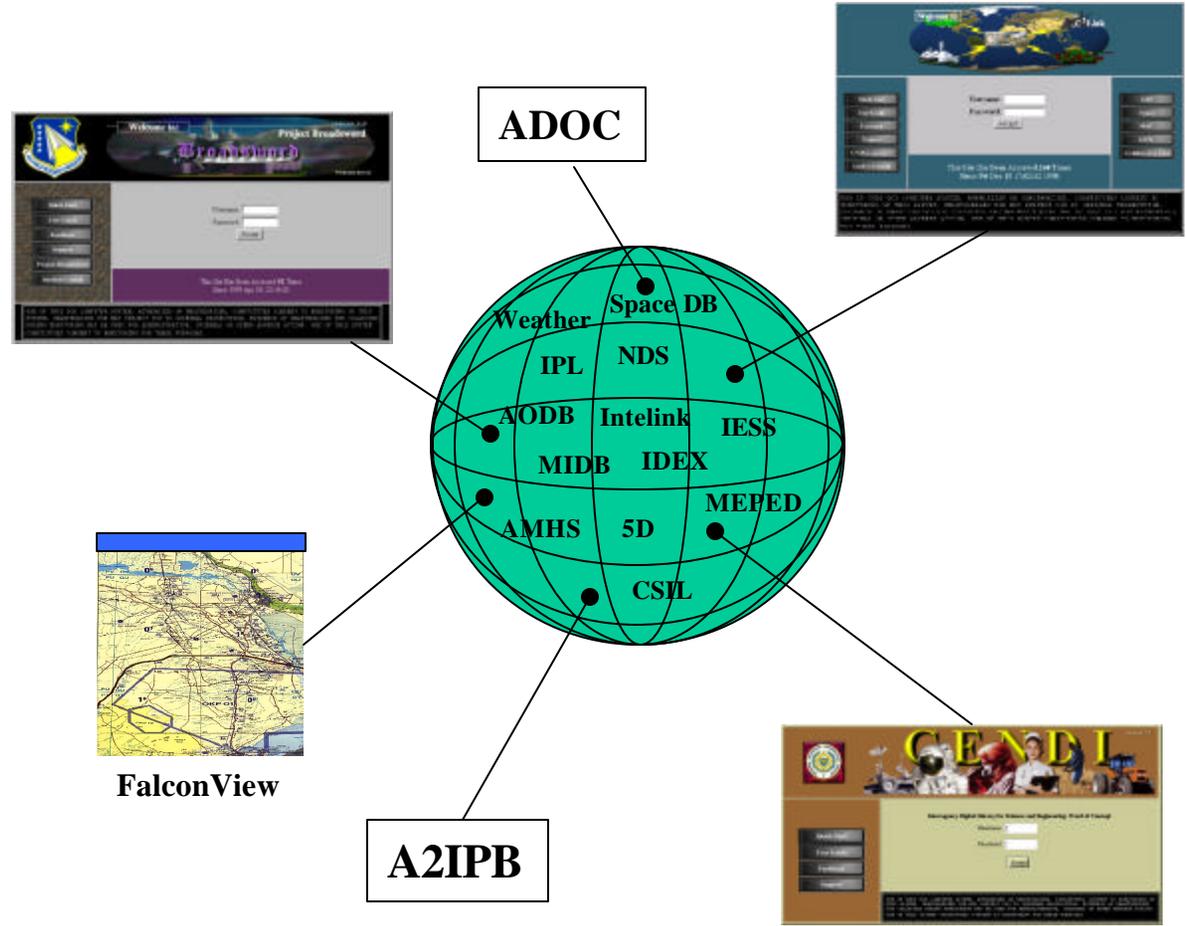
- Upon Successful Connection, the Gatekeeper provides:
 - What sources are available to the user
 - What privileges the user has
- For each source:
 - What elements are available from the source
 - Whether the elements are queriable or only returnable

Federated Schema
vs
Information Navigational Keys

Architecture



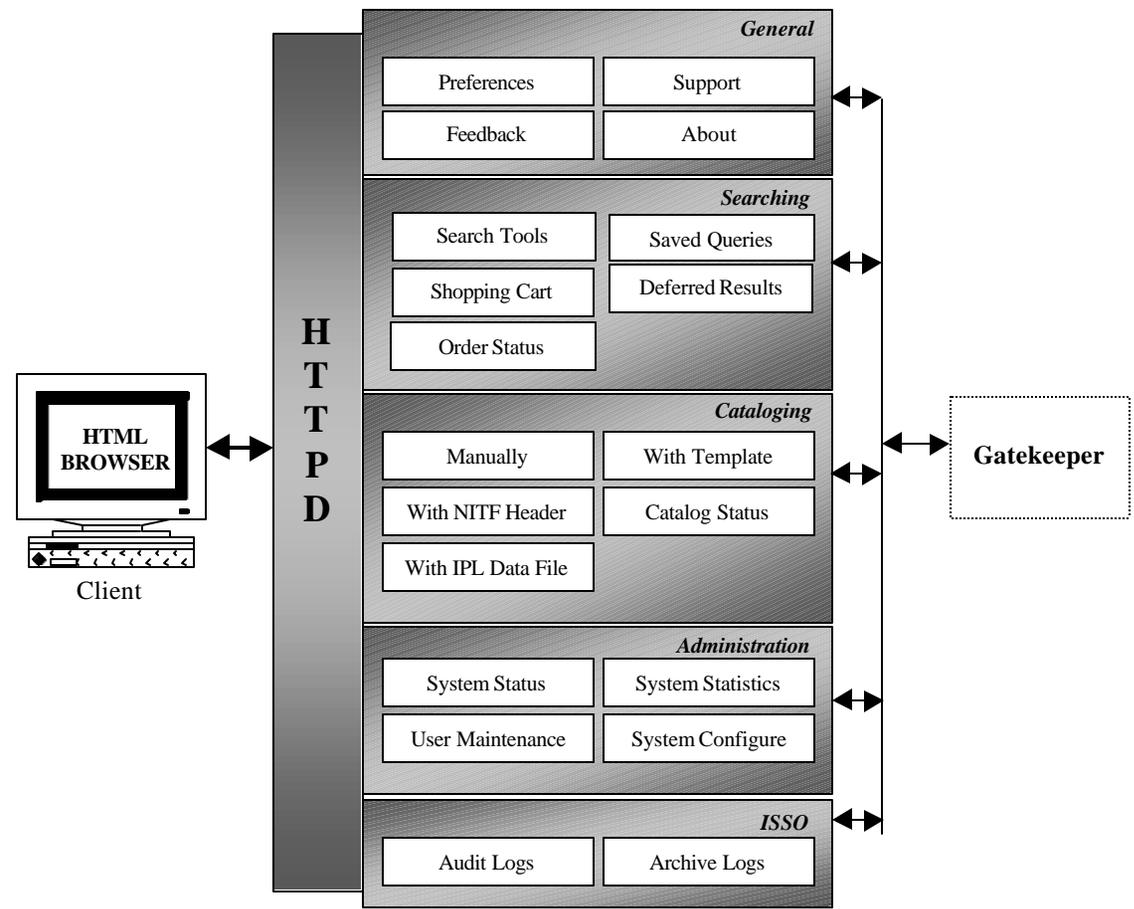
Data Access & Security



Architecture



User Interface



Client Services



Preferences

PREFERENCES

General | Info Support | Delivery Options | Search Tools | Results Page | Remote User Data

Sources Requiring a Separate Username & Password

General

IPL20@sun.bswd Username: Password: Required for: querying, products

Number of hits displayed (in List) each time:

Maximum number of hits returned from each selected source:

Display Thumbnails: Yes No

Display Results as: List TimeLine Map

Attributes Selection		Sort Returned Hits by
		LAYER: 1 2
<input type="radio"/>	As Is	<input checked="" type="radio"/> <input type="radio"/>
<input checked="" type="checkbox"/>	Source	<input type="radio"/> <input checked="" type="radio"/>

Equipment

Query Fields

Short	Adv	HitList	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Airfield Load Class <input type="radio"/> <input type="radio"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Airfield Pavement Type <input type="radio"/> <input type="radio"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allegiance <input type="radio"/> <input type="radio"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Azimuth <input type="radio"/> <input type="radio"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Capacity <input type="radio"/> <input type="radio"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Country Designed <input type="radio"/> <input type="radio"/>

PREFERENCES

Delivery Options | Search Tools | Results Page | Remote User Data

Where and What to Search

Locations to Search	Order to Search	Types of Information Available
Neptune Via Neptune Baseline	<input type="text" value="1"/>	Imagery, Video, Audio, Documents
SD at Neptune via Neptune2.0	<input type="text" value="1"/>	Imagery Only (Native Format NITF2.0)
IPL 1.0 at Sun via Neptune	<input type="text" value="1"/>	Imagery, Video, Audio, Documents

Query Method: Simultaneous Sequential

Define Search Page

Choose which combination of features that should define your personal Search page.

Find

Query

Geographic Search

Geographic Search/Find

Geographic Search/Query

Query Form Style: Short Advanced

Geographic Form Style: Text Map

Default Date Range in days:

User has control over where, what and how to search
Ability to store brokered logins

Searching



Utilities Supported



Source	Find	Geographic Search			Query
		Point	Circle	Polygon	
IPL v2.0	N/A	✓	✓	✓	✓
IPL v1.0	✓	✓	✓	✓	✓
IPA 1.2.3	✓	✓	✓	✓	✓
5D v4.0.4	N/A	✓	✓	✓	✓
MIDB v2.0.1	N/A	TGT Only	TGT Only	TGT Only	✓
		✓	✓	✓	
AMHS v2.3.1	✓	TGT Only	N/A	N/A	✓
		✓	✓	✓	
IESS 3.0	N/A	✓	✓	✓	✓
NDS	N/A	✓	✓	✓	✓
		IMG Only	IMG Only	IMG Only	
CSIL	N/A	✓	N/A	✓	✓
		IMG Only	IMG Only Rectangle		
MEPED	✓*	N/A	N/A	N/A	✓*
Space DB	✓	N/A	N/A	✓	✓
				TGT Only	
Intelink Hydra	✓	N/A	N/A	N/A	✓
Intelink MetaSearch	✓	N/A	N/A	N/A	✓
AODB	N/A	N/A	N/A	N/A	✓
Weather	✓	N/A	N/A	N/A	✓

N/A - Utility Not Available * - Equipment Nomenclature

Searching



3 Basic Formats

- List
- Time Line
- Map

SEARCH TOOLS

QUERY: PRD.PRODFMT = "TIFF6.0"

Source	Query Status
TOTAL HITS	10
IPL 1.0 at Sun via	10 Hits

IPLtest2
[IPL 1.0 at Sun via Neptune]

Product Details

Document ID: IPA_sun_30163658ZMay97_725033
 Security Classification: Unclassified
 Agency: rosl
 Publication Date: 19970530123554
 Format: Image TIFF 6.0 (tif)
 Product Size: 263,004 Bytes
 Product Short Name: ANIMG
 Title: IPLtest2
 Post Date: 19970530163659
 Number Of Thumbnails: 1

Image Details

Compression Generation: 0
 Image Compression: Not Compressed
 Image Number: 1

SEARCH TOOLS

QUERY: PRD.PRODFMT = "TIFF6.0"

Source	Query Status
TOTAL HITS	10
IPL 1.0 at Sun via	10 Hits

1997	1998	1999
<input type="checkbox"/> (U)IPLtest [IPL 1.0 at Sun via Neptune]  Display Details		<input type="checkbox"/> (U)cattest_3311 [IPL 1.0 at Sun via Neptune]  Display Details
<input type="checkbox"/> (U)IPLtest2 [IPL 1.0 at Sun via Neptune] 		<input type="checkbox"/> (U)cattest_3316 [IPL 1.0 at Sun via Neptune] 

19970530123400 - 19990331194859

Enter Desired Time Window

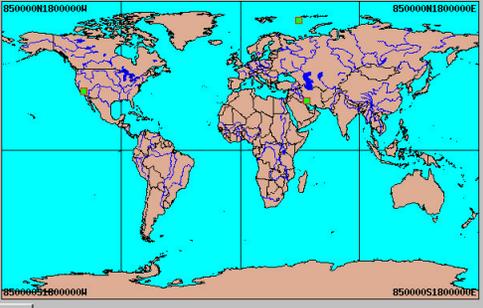
Begin: YYYYMMDDhhmmss End: YYYYMMDDhhmmss

Zoom: [Current: Years]

SEARCH TOOLS

Results of Request

QUERY: PRD.PRODFMT = "TIFF6.0"

Source	Query Status
	

Some sources don't provide times and/or location data
 Products versus reports

Searching



- Shopping Cart Bin
- Edit Individual Attributes
- Edit Group Attributes



SHOPPING CART

Imagery Product Library(IPL) & 5D Products Help
Demo

Edit Group Attributes

Delete	Access ID	Date	Format	Compression
<input type="checkbox"/>	IPA_sun_30163659ZMay97_725033	19970530123554	TIFF 6.0	No
<input type="checkbox"/>	IPA_sun_30130804ZJul97_258061	19970730090638	TIFF 6.0	No

Order Items
Delete Marked Items
Clear Cart



Classification: Unclassified
 Product Size: 29,635 Bytes
 Source: IPA at Moon via Sun
 Format: Image: NITF 2.0 (.nrf)
 Image Representation: YCbCr601
 Actual Bits-Per-Pixel: 8
 Post Date: 19970314000000
 Geo-Coordinates: Upper Left: 340500N0345500E
 Upper Right: 340500N0350500E
 Lower Right: 335500N0350500E
 Lower Left: 335500N0345500E

Destination List:

Enable	Login Name	Password	Host Name or IP Address	Path
<input type="checkbox"/>	:	:	:	:
<input type="checkbox"/>	:	:	:	:
<input type="checkbox"/>	:	:	:	:
<input type="checkbox"/>	:	:	:	:
<input type="checkbox"/>	:	:	:	:

Destination Filename:

Product File Type to Pull: Product Only
 Product & Data Files

Select format and compression for image products:

As Is
 NITF 1.1
 NITF 2.0
 TIFF 6.0
 SUN Raster

For NITF 2.0 Requests Only:
 NITF Compliance Level of Viewer:

Apply Changes
Cancel

Group Order Characteristics Help
Demo

Password	Host Name or IP Address	Path
*****	sun	/tmp
*****	sun	/home/sun/tester
*****	sun	/home/sun/regarm/Pull

Product File Type to Pull: Product Only
 Product & Data Files

Select format and compression for image products:

As Is
 NITF 1.1
 NITF 2.0
 TIFF 6.0
 SUN Raster

For NITF 2.0 Requests Only:
 NITF Compliance Level of Viewer:

Apply Changes
Cancel

Support for product delivery varies. Support for product delivery and information required for delivery highly source dependent

Searching



Order Status



ORDER STATUS

Order Status Reports

Category	Success	Failed	Pending	Total
Totals	0	0	2	2
IPL	0	0	2	2
Archived				0

(1) **REQUEST ID:** 29155658ZMar99.00000021215219905516900700001000000094
Filename: testab.IPA_sun_30163659ZMay97_725033.TIFF6.0
Source: IPL 1.0 at Sun via Neptune (IPL)
Request Date: 19990329155658

Status	Pending
Message	Request accepted
Report Date	19990329162108
Destination Account	testab
Destination Address	neptune
Destination Path	pulls

(2) **REQUEST ID:** 29155707ZMar99.00000021215219905516900700002000000094
Filename: testab.IPA_sun_30130804ZJul97_258061.TIFF6.0
Source: IPL 1.0 at Sun via Neptune (IPL)
Request Date: 19990329155707

Status	Pending
Message	Request accepted
Report Date	19990329162108
Destination Account	testab
Destination Address	neptune
Destination Path	pulls

Saved Queries



Management

- Main Page
- Edit E-Mail
- Edit Batch

SAVED QUERIES

Help

Saved Queries

Select	Name	E-Mail Profile	Batch Profile	Actions
<input type="checkbox"/>	tank query	Active	1623 Apr 02 1999	Execute Load Remove Bat

Edit E-Mail Profile Edit Batch Profile Delete Marked Items

SAVED QUERIES

Edit Batch Profile

Query Name: tank query
Query: KEY.KEYWORD = "tank"

Schedule Time/Date: 16 Hr 17 Min Mar 29 1999

E-Mail Address: []

E-Mail Suppression: No

Query Method: Simultaneous Sequential

Sources to Search	Order to Search
<input type="checkbox"/> IPA 1.2.3 at Moon Via Neptune Baseline	[]
<input type="checkbox"/> 5D at Neptune via Neptune2.0	[]
<input type="checkbox"/> IPL 1.0 at Sun via Neptune	[]

Save Save & Schedule Cancel

SAVED QUERIES

Edit E-mail Profile

Help Demo

Query Name: tank query
Query: KEY.KEYWORD = "tank"

E-Mail Address: []

Update Frequency:
 Every: 30 minutes All Day
 Every: 30 minutes between 0000 and 0000
 Daily At: 00 Hr 00 Min

Duration: Indefinite

E-Mail Suppression: On Zero Hits

Status: Active

Save Cancel

Push vs Pull
Security
Bandwidth

Catalog



Overview



- Support for IPL Products Only
- Catalog Support
 - Manual Input
 - Parse NITF Products
 - Using IPL Data Files
 - Creating/Storing Templates
- Use of “INPUT” Tag to get file (Browse)
- Status of Product Ingestion

Administration



Overview



- System Status
 - Daemon Management
 - Setting Debug Flags
 - Queue Maintenance
 - Log Maintenance
- User Maintenance
- System Statistics
 - Batch Jobs
 - Gatekeeper
 - Web Server
- System Configuration
 - Data Element Configuration
 - Reset System Parameters
 - Gatekeeper Configuration
 - Backside Sources (Local Plug-ins)
 - Connected Sites (Remote Gatekeepers)
 - Register Gatekeeper
 - Add Map Data

Administration



System Status

- Daemon Status
- Set Debug Flags
- Queue Maintenance
- Sys/Log Info



SYSTEM STATUS

Daemon Status | Set Debug Flags | Queue Maintenance | Sys/Log Info

Set Debug Flags Help

Debug Flag Name

- Auto-Log
- BNF
- Comm
- Config
- Connect
- CleanUp
- Catalog
- Cart
- EMN
- HitLast
- IsoMant
- Login
- Full
- Qry
- Registered
- Scrn
- Server
- SetMgr
- UserAdmin

[View Conan Log File](#)

Apply Changes | Toggle All On | Toggle All Off

SYSTEM STATUS

Daemon Status | Set Debug Flags | Queue Maintenance | Sys/Log Info

Queue Maintenance Help

Queue ID	Access Modes	Owner	Current Bytes	Current # of Messages	Max Bytes	Last Pid to Send	Last Pid to Receive
1	rw-rw-rw-	root	0	0	4096	2022	2161

Update Display Pop Message

SYSTEM STATUS

Daemon Status | Set Debug Flags | Queue Maintenance | Sys/Log Info

Daemon Status Help

Daemon Name	Process ID	Status
conan	4625	running
gatekeeper	1613	running
gatekeeperftp	1618	running
gatekeepermrs	1623	running
gatekeepermsl	1631	running
jivacron	1637	running
jpl_plugin	1644	running
5d_plugin	1651	running
dic_plugin	n/a	not running
doe_plugin	n/a	not running
de_plugin	n/a	not running
doerd_plugin	n/a	not running

Update Display

SYSTEM STATUS

Daemon Status | Set Debug Flags | Queue Maintenance | Sys/Log Info

System and Log Info Help

more log files, select the log files to be purged and press the "Purge Log Files" button located in the table immediately above the button bar for information on disk usage for the file system on which

Select	Log File	Size in Bytes
<input type="checkbox"/>	access_P.log	37,583
<input type="checkbox"/>	error_P.log	568
<input type="checkbox"/>	conan.log	4,227
<input type="checkbox"/>	jivacronlog	13,034

File System	Total Kilobytes	Used	Available	Capacity
/opt/bswd2.0/client	3,946,496	339,968	3,606,528	8.6%

Purge Log Files

ISSO



Services



- Audit Logs

- Create Audit Report based on:
 - User Name
 - Event Type
 - Date Range
- Archive Audit Logs
- Remove Audit Reports

- Archived Logs

- Query Archived Logs based on:
 - User Name
 - Event Type
 - Date Range

ISSO



Management

- Audit Logs
- Archived Logs

Audit Logs

Audit Log Maintenance Help

User :

Start Date : YYYYMMDDhhmmss

End Date : YYYYMMDDhhmmss

Event :

Archive File Name :

Archived Logs

SELECT	ARCHIVE FILE	DATE ARCHIVED
<input type="checkbox"/>	brians	19990527150310

Audit Archive Queries Help

User :

Start Date : YYYYMMDDhhmmss

End Date : YYYYMMDDhhmmss

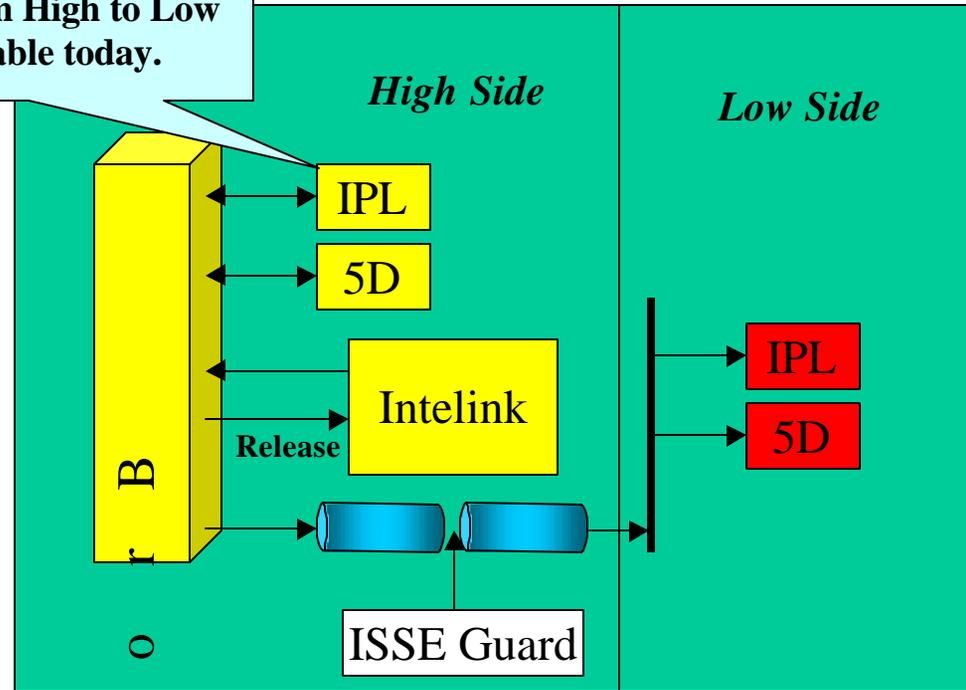
Event :

Future Activities



High - Low Side Production

IPL Catalog from High to Low side is available today.



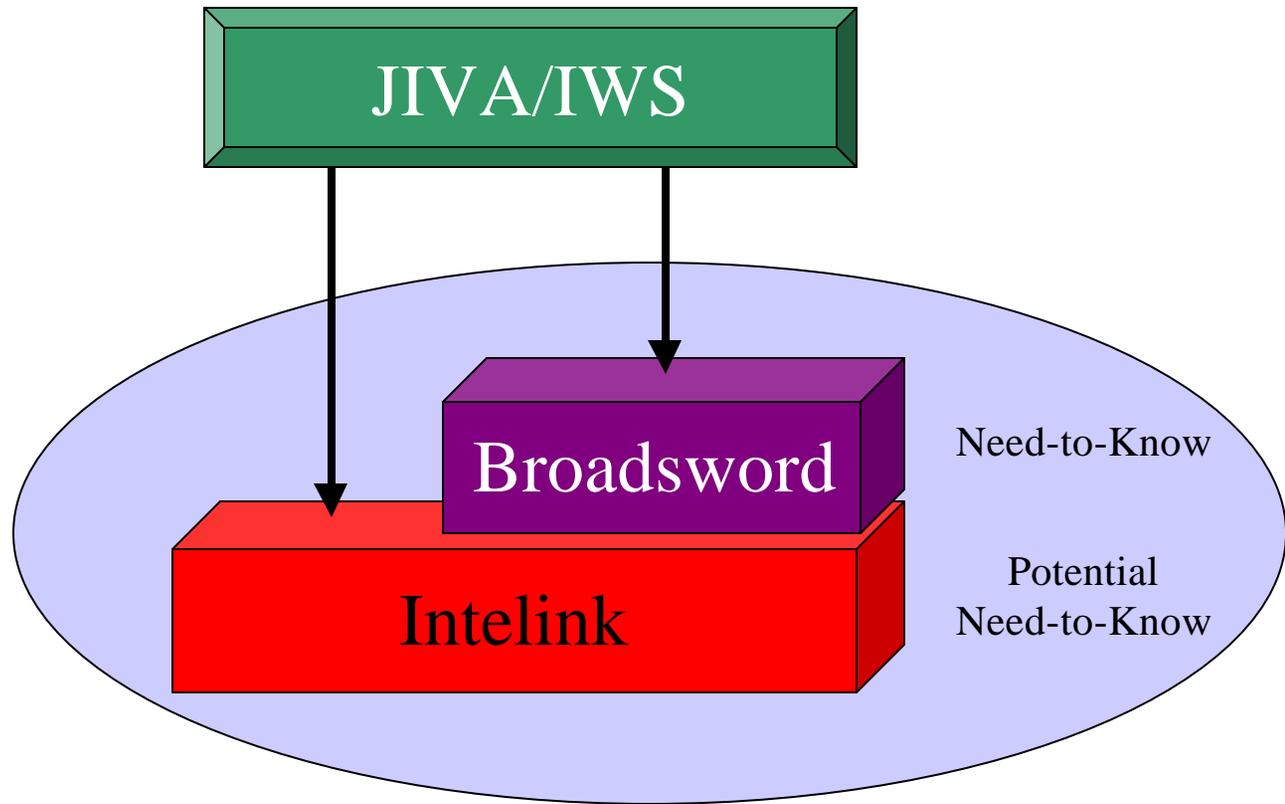
Product Transfer

IPL/5D NITF2.0 Products from High - Low via ISSE Guard
Basis for Trusted Transfer Agent (TTA)

Product Conversion/Publish (NIMA)

Image Products converted to flat HTML/XML pages to post on Intelink

The Problem



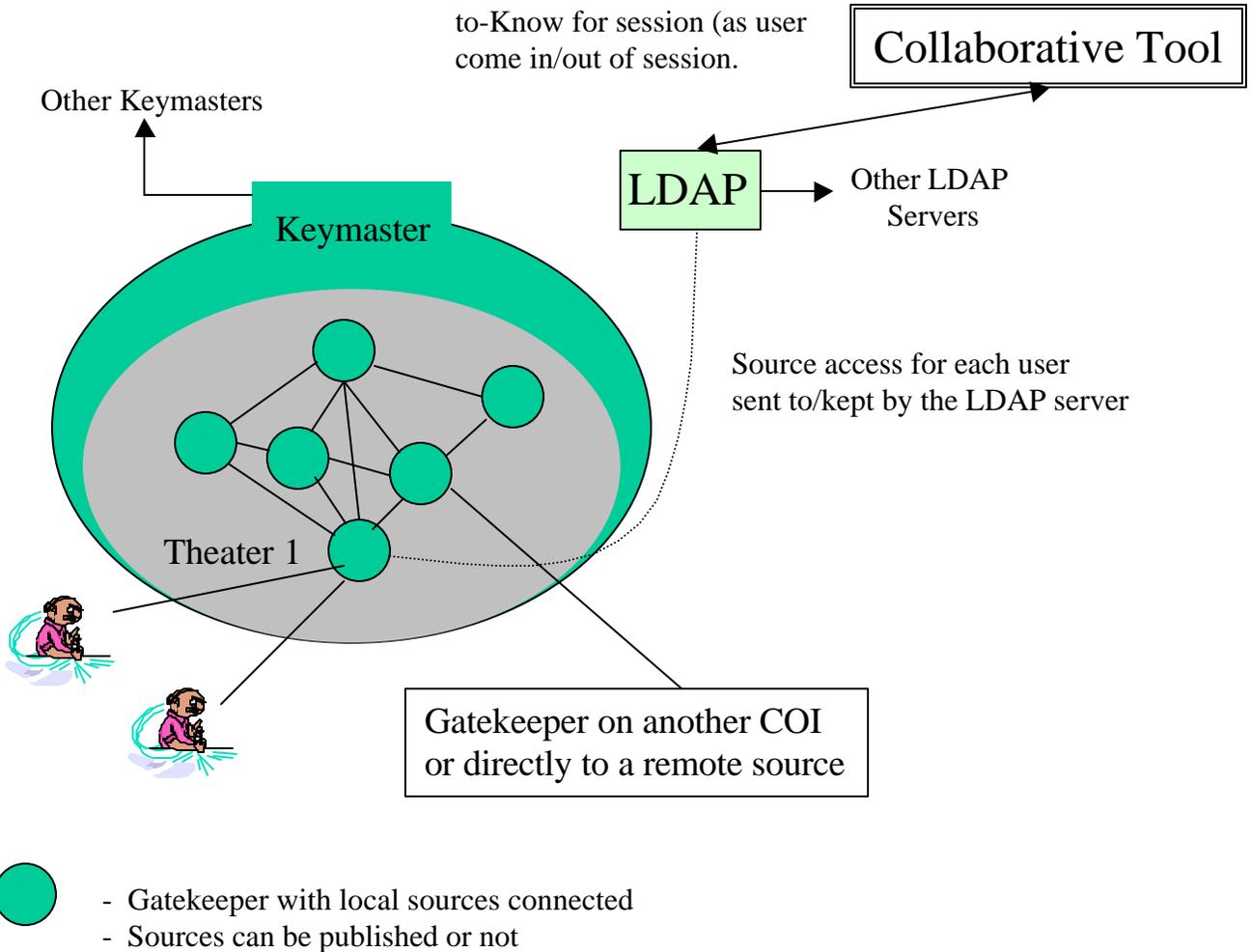
In a collaborative session user must be ensured that all participants have a Need to Know

Future Activities



Protecting the Need-to-Know

Uses userid + access per user to determine common Need-to-Know for session (as user come in/out of session).

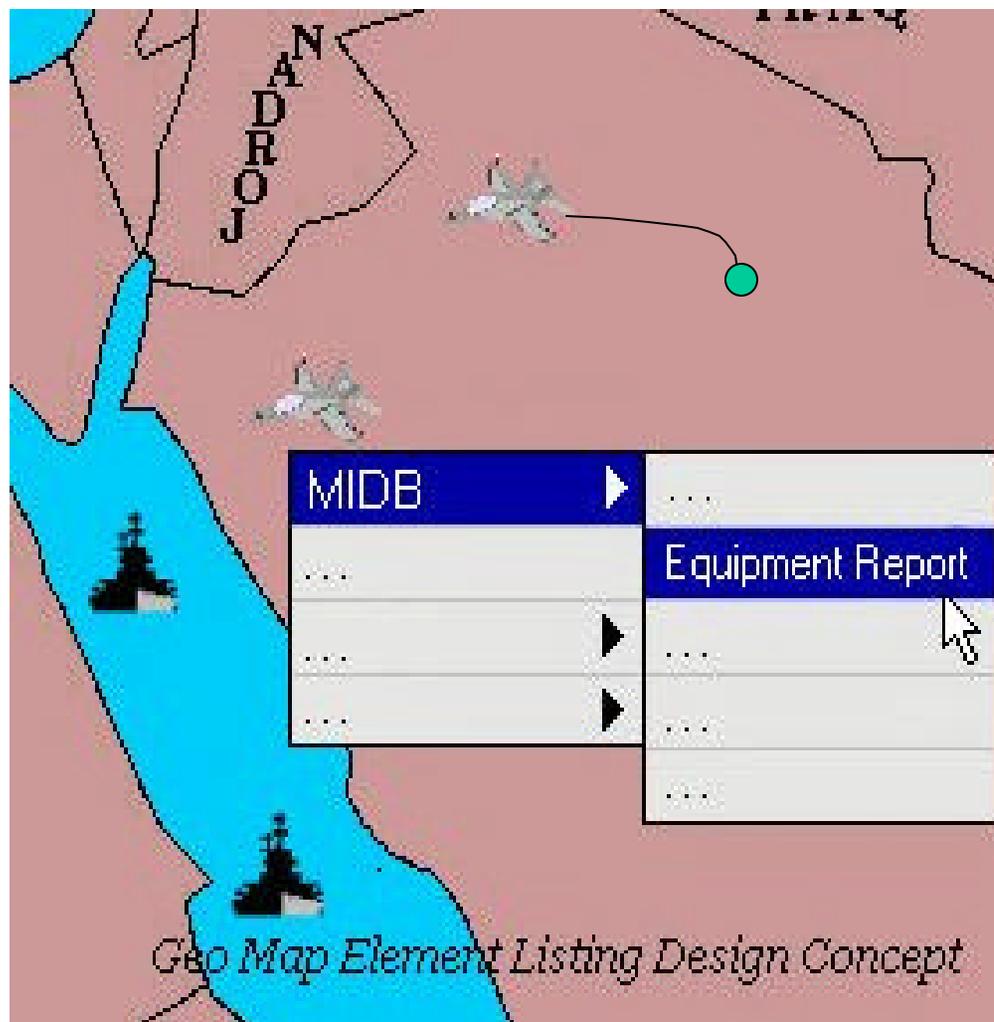


Version 2.1



Quicker Access to Reports and Products

Support for Dynamic Sources



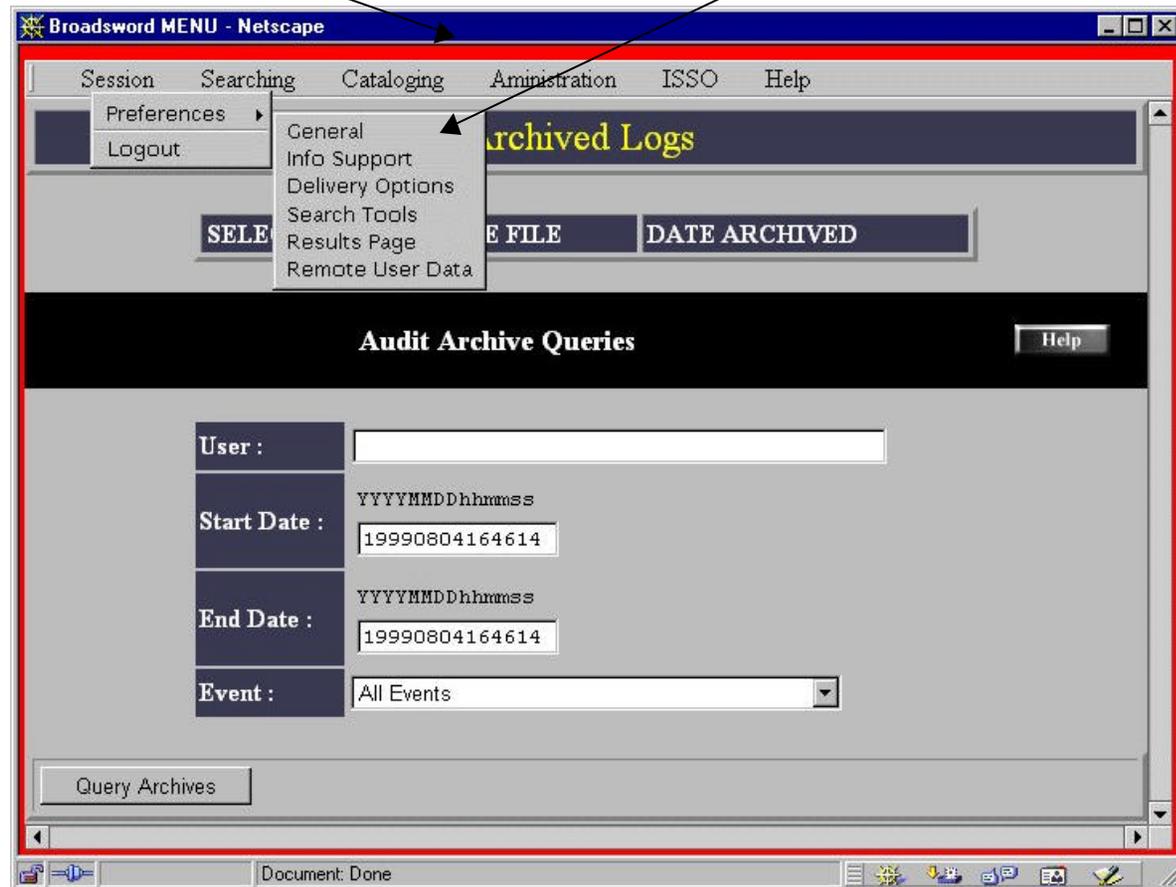
Version 2.1



Screen
Real Estate

Window labels

Popdown, cascading menus



Version 2.1



Easier/Quicker
Access to Alerts

Title Profile Name

v2.1 BroadSword - Inbox - Netscape Folder

File Edit View Go Message Communicator Help

Get Msg New Msg Reply Reply All Forward File Next Print Delete Stop

Inbox Total messages: 3 Unread messages: 0

Subject	Sender	Date	Priority
broadsword version 2.1	default	9:51 AM	
BS 2.1 test	default	9:52 AM	
v2.1 BroadSword	default	9:55 AM	

IPLtest2
[IPL 1.0 at Sun via Neptune]

Product Details

Document ID	IPA_sun_30163659ZMay97_725033
Security Classification	Unclassified
Agency	root
Publication Date	19970530123554
Format	Image: TIFF 6.0 (.tiff)
Product Size	263,004 Bytes
Product Short Name	ANIMG

Email Notification Design Concept

Meta Data

Summary



Broadsword Version 2.0 provides both the users and developers with significant capabilities

Access to Information

Changing the way we work

Implementable within today's environment

It is here NOW!