

End-to-End: IBM WebSphere Host Access Transformation Services (HATS) demonstration on the IBM eServer iSeries platform

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Abstract

This online lab provides a demonstration of using IBM® WebSphere® Host Access Transformation Services (HATS) to deliver a better user experience for green-screen applications that run on the IBM eServer[™] iSeries[™] platform. This demonstration uses the IBM FLGHT400 sample application, which has been written as a typical example of the RPG III monolithic, server-controlled application model that existed early in the life of the iSeries predecessor family of servers (IBM AS/400® servers). This lab is for RPG programmers who are beginners in the world of graphical and Web-based programming techniques.

Introduction

Traditionally, the FLGHT400 application has only been accessible through a greenscreen interface. This leads to the perception that it is not a modern application and that the user either needs to be directly attached to the server via a terminal or running emulation software on a client. These two problems are addressed by the IBM WebSphere Host Access Transformation Services (HATS) product. This enables the FLGHT400 application interface to be displayed in a browser, giving it a better user interface (UI) and eliminating the need to have any code that must be loaded and maintained on the client except a Web browser. In addition to a simple presentation of FLGHT400 in a browser, HATS allows a great deal of customization to the look, feel, and function of the application.

This lab follows the same general steps as in the <u>FLGHT400 Overview</u> article to demonstrate how HATS enhances the user experience of the FLGHT400 application. Throughout this lab, embedded URLs (in blue) link to external Web sites. These links are also available in the "Additional information" section of this document.

Understanding the HATS features

• HATS can facilitate FLGHT400 in many ways to become more user friendly and functional.

The following are some of the HATS features that can be used to extend the FLGHT400 application:

Extend host applications to the Web quickly

 The HATS rules-based transformation engine makes it possible to extend host applications to the Web within hours of installing the software. HATS is a zero-footprint, zero-download, Web-to-host solution. As mentioned, the only software needed on the client is a Web browser.

Transform host screen components in real time

• The power of HATS lies in its ability to accurately recognize and transform the components of host screens in real time to a Web interface according to a set of predefined rules. It is easy to modify the rules to accommodate the specific needs of the application. With HATS, a variety of elements can be added to host screens, such as: drop-down lists, hot links, tables, buttons, valid value lists, tabbed folders, and graphs. HTML elements can also be added, such as: logos, graphics, backgrounds, and Web links.

Provide programmed navigation through multiple legacy screens

 HATS macro support allows programmed navigation through multiple legacy screens to improve the productivity and ease-of-use of host applications. HATS enables programmed access to a single host application. It also integrates screens from multiple host applications into a single Web interface. Macros created in IBM WebSphere Host On-Demand can also be used.

Integrate with WebSphere software

The HATS Toolkit is fully integrated with the Eclipse-based IBM Rational software development platform. It offers an intuitive interface for customizing the rules for transformation of host screens. The HATS applications can be deployed to both WebSphere Application Server and WebSphere Portal, and can take advantage of the extensive security and reliability features found in both platforms.

Prerequisites

To complete the steps detailed in this paper, load and configure a development environment for HATS using one of the following methods:

- It is recommended that solution providers use the IBM Software Access Catalog to download and install WebSphere Development Studio Client Advanced Edition for iSeries V6.0 and Host Access Transformation Services V6.
- Alternatively, it is possible to download a no-cost trial development environment version of IBM Rational® Web Developer for WebSphere Software V6.0 and a trial version of WebSphere Host Access Transformation Services Toolkit.

Details on prerequisites and installation of HATS can be found in the IBM WebSphere Host Access Transformation Services (HATS) V6 Information Center.

Creating and reviewing a default HATS project

There are several, easy-to-follow processes to create and then review graphical user interfaces for traditional RPG III programs. The defaults make it even easier, though the defaults can be changed as needed.

Creating a HATS project

To create a default HATS project, follow these steps:

- 1. Launch HATS Studio 6.
- 2. Click on launch the Create HATS Project wizard.
- 3. Enter a name for the project. Then click Next.
- 4. Enter the host name of the iSeries server and the port (if it is not port 23).
- 5. Select **5250** from the **Type:** drop-down window.
- 6. Review the other default values and adjust as needed.
- 7. Click Finish.

After these steps are complete, a default HATS project will be created.

Running the HATS project in the test environment

When the HATS project is created, it can be previewed live at any time by using the **Run on Server** command. This section describes that process and walks through the FLGHT400 application as it would appear when running with HATS using the following steps:

- 1. Right-click the **HATS Project** and select **Run on Server**. This will launch the test environment (Figure 1).
- 2. To see the host view while running the test environment, click **Yes**; otherwise click **No**.
- 3. Select the text environment and check the **Set server as the project default** option. This allows the HATS project to run in the future on the same test server without being prompted again.
- 4. Click Finish.

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Figure 1: Test environment

Reviewing FLGHT400 in HATS

Now that a default HATS project has been created and can run in the test environment using **Run on Server**, it is time to review FLGHT400 using HATS. The same steps will be followed as in the FLGHT400 Overview article. Notice on some of the field prompts that HATS has trouble rendering a few of the subfiles. This will be corrected in the **Customize FLGHT400** section later in this paper.

Starting the application

Follow these steps to start the FLGHT400 application:

- Log on to the iSeries system in the HATS Web browser just launched. The FLGHT400 application is started by running the following command: Go frsmain
- 2. When the **Flight Reservation System** application starts, it will display the green-screen version of the Flight Reservation System application as shown in Figure 2.

👙 HodC	onn:localhost:lo	calhost:server1:HATS_EAR5	1#4	
FRSMAIN	14:18:14	Flight Reservation System	7/20/05	3E520A2
Select o	ne of the followi	ng:		
1.	Create a New Rese	rvation		
2.	Update an existin	g Reservation		
3.	Inquire on an exi	sting Reservation		
4.	Delete an existin	g Reservation		
5.	Fax Reservation I	nformation		
10. 20.	Flight Reservatio Reservation Syste	n System Maintenance m Reports		
90.	Signoff			
Selectio	n or command			
===>				
F3=Exit	F4=Prompt F9=	Retrieve F12=Cancel		
F13=Info	rmation Assistant	: F15=A3/400 main menu		
MA* ho	•	calhost:serverl:hats_ear51#4		21/007

Figure 2: Flight Reservation System application

3. Figure 3 is the default HATS rendering of the **Flight Reservation System** application screen using the **Swirl** template. Notice how the menu and function keys have been transformed into clickable links even though the command line access is still available. The basic look can easily be altered by changing the template used and modifying the default rendering options for the project.

EndToEndHATS - Mozilla Fir	refox		
	http://localhost:9080/EndToEndHATS/entry		
My Company			
FRSMAIN 13	:22:12 Flight Reservation System	m 7/20/05	SE520A2
Select one of t	the following:		
1. Create a 2. Update a 3. Inquire on 4. Delete an 5. Fax Rese 10. Flight Re 20. Reserva	New Reservation n existing Reservation an existing Reservation existing Reservation existing Reservation evation Information eservation System Maintenance tion System Reports		Ξ
90. Signoff Selection or co ===> F3=Exit F4=P F13=Information	nmmand rompt <u>F9=Retrieve F12=Cancel</u> <u>Assistant F16=AS/400 main menu</u>	21/0	07
R	Reset Default Refresh Disconnect	Turn Keyboard Off	

Figure 3: Default HATS rendering of the Flight Reservation System application

- 4. To change the default template, expand the HATS project folder.
- 5. Expand the **Web Content** folder and the **Templates** folder.
- 6. Right-click any template and select **Set as Default Template**.



Figure 4 is an example of the **CorporateMonoTan** template.

Figure 4: Example of the CorporateMonoTan template

Creating a new reservation

One menu item explained in this scenario is **Create a New Reservation** (refer to Figure 4):

- 1. Select the **1.Create a New Reservation** option from the main menu. This calls the RPG program FRS001. This program uses FRS001DF for display files and reads and writes its data to the database files: FRCITY, TOCITY, CUSTNAME, CUSTOMER, FLIGHTSZ, and ORDERS.
- 2. From the **FRS001DF** display screen, press the **F4** function key. This calls the RPG program FRS402. (**Note**: When the **F5** function key is pressed, it calls FRS403, and so on. These programs, in turn, use the display files and database tables.)

3. The application will now prompt for the **Agent Name** and **Password** (as shown in figures 5 and 6). Use any of the agent names and passwords listed in the **Agents** table in the *FLGHT400 Library* and press **F10** to log on.

👙 HodConn:localhost:localhost:serv	er1:HATS_EAR51#4	_ 🗆 🔀
Flights LOGON display		System: SE520A2
Type choices, press F10 to continue		
Agent Name	Mark Name	
Password	mercury Name	
Para for the Para state	F10-1000W	
12-Kerresh 13-Lait 14-Agent Prompt	110-20601	
MA* ho ocalhost:serv	erl:hats_ear51#4	08/047

Figure 5: Agent Name and Password green-screen rendering



Figure 6: Agent Name and Password Web browser rendering

4. Input the required data in each entry field of the **Create Order** display as shown in Figure 7.

👙 HodConn:localhost:localhost:server1:HATS_EAR51#5 🛛 📃 🗖 🔀				
Flights Reservation System - Creat	Flights Reservation System - Create Order 14:21:24 7/20/05 SE520&2			
Type choices, press F10 to Make Re	servation			
FLIGHT INFORMATION	TICKET ORDER INFORMATION			
Airline: Flight: 0000000	Order Number: PENDING			
From City.:	Class of Service - First			
Depart Time:	Economy: <u>X</u> Number of Tickets			
To City:	Price \$ Tax \$ Total Due w/ Tax \$			
F2=Refresh F4=FROM Cities F5=T0 Buffer length longer than record f	Cities F6=Flights F7=Customers for member ORDER3.			
MA* ho ocalhost:s	erverl:hats_ear51#5 09/0			

Figure 7: Create Order display

To create a new reservation, enter data into all the required fields. Either manually input each field, or press the function key, which shows a window containing a list of selections. (Refer to Figures 7 and 8.)

- 1. In the first field, enter the **Date of Flight**. (**Note**: The entry must be later than the current date.) Enter the date in the following format: MM DD YYYY (where MM=month, DD=day, and YYYY=year).
- 2. To enter the **From City**, which is the city for departure, type in the name or press **F4** (**FROM Cities**) to show a list of available city names.
 - Type the first few letters of the city in the **Position To** field to set the cursor position or scroll through the item with the page up/page down key.
 - Type **1** for selecting a city from the list.
 - Press Enter to input the selection into the From City field.
 - Press F3 (Exit) to return to the initial screen without making a selection.
 - The City Selection window uses a different display file FRS402DF, which is invoked by the RPG program FRS402 to get information from the FRCITY file.
- Enter information in the To City field, which is the arrival city for the new reservation. Enter the name of the city directly or press F5 (TO Cities) to show the list of available city names.
 - Type 1 to select a city from the list. Press Enter to input the selection into the To City field.

- Press F3 (Exit) to return to the initial screen without making a selection for the *To City* field.
- This is also a different display file, *FRS403DF*. It calls the RPG program *FRS403* to get information from the *TOCITY* file.

Note: When using the **Position To** search in the prompted window, it is important to enter the first letter in uppercase because the search is case-sensitive. This case sensitivity applies to the other prompt screens used in this *Flight Reservation System* application as well.

- 4. After specifying the **Departure City** and **Arrival City**, press **F6** (**Flights**) to retrieve a list of available flights.
 - Type 1 to select the flight from the list.
 - Press Enter to reflect the selection into the initial screen.
 - Selecting the flight will make entries for *Airline*, *Flight*, *Depart Time*, *Arrival Time*, and the *Price* fields.
- 5. After entering the flight information, the cursor will move to the right panel. Input the customer name manually or press **F7** (**Customers**) to show the list of available customer names.
 - Type 1 to select a customer name from the list.
 - Press Enter to enter the selection into the Customer field.
 - Press F3 (Exit) to return to the initial screen without making entries for the Customer field.
 - The **Customer Selection Window** uses another display file, *FRS405DF*, which calls the RPG program *FRS405* to retrieve customer information from the *CUSTOMER* file.
- 6. Select the **Class of Service (First, Business**, or **Economy**) and enter the **Number of Tickets**. After completing all the fields, the display will look similar to Figure 8.



Figure 8: Create Order display

7. Submit the new reservation.

8. Check the entries (Figure 9) and press **F10** to make the reservation.

🕹 EndToEndHATS - Mozilla Firefox		
<u>File Edit View Go Bookmarks T</u> ools	Help	
🔶 🖒 🍏 🎋 🐴 💊 ht	tp://localhost:9080/EndToEndHATS/entry	☑ 🤌 C,
My Company		
	Your company slogan go	oes here
	First Link Second Link	k Third Link Fourth Link
My Company Links	Flights Reservation System - Creat	te Order 14:23:18 7/20/05 SE520A2
My Company Home Page My Company Map My Company Employees Jobs at My Company	Type choices, press F10 to Make R FLIGHT INFORMATION	Reservation TICKET ORDER INFORMATION
My Company Articles	Airline: NWA Flight: 6958839	Order Number PENDING
My Products	Date of Flight: 11 19 2005	Customer: Haack, Raphael
Main Product Additional Products Downloads Support	From City.: Rochester, MN	Class of Service - First: Business: k Economy:
	Depart Time: 06:43 PM	Number of Tickets
Reset	To City: Los Angeles	Price \$
Refresh	Arrival Time: 08:43 PM	Total Due w/ Tax \$ 206.96
Disconnect		
Turn Keyboard Off	<u>F2=Refresh</u> <u>F4=FROM</u> <u>F5=T0</u> <u>Cities</u>	<u>O Cities F6=Flights F7=Customers</u>
	6	. 12/076

Figure 9: Create Order information verification

9. After the completion of a new reservation, a **Ticket Confirmation Window** is shown (see figures 10 and 11).



Figure 10: Green-screen Ticket Confirmation Window

EndToEndHATS - Mozilla Firefox	19	
File Edit View Go Bookmarks Loois He	//ocalhost:9080/EndToEndHATS/entry	u 🧳 🖸
My Company		
	Your company slogan g	ioes here
	First Link Second Lini	k Third Link Fourth Link
My Company Links	Flights Reservation System - Crea	ate Order 14:23:18 7/20/05 SE520A2
My Company Home Page My Company Map My Company Employees	Type choices, press F10 to Make FLIGHT INFORMATION	Reservation TICKET ORDER INFORMATION
Jobs at My Company My Company Articles	TICKET CONFIRMATION WINDOW	Order Number PENDING
My Products	Ticket Number 25264513M has been added to the	Customer: Haack, Raphael
Main Product Additional Products Downloads Support	order file. To make additional flight reservations press ENTER Otherwise, press F3 to	Class of Service - First: Business: X Economy:
	exit from Ticket Order Entry.	Number of Tickets
Default	F3=Exit	Total Due w/ Tax \$: 206.96
Refresh Disconnect	F2=Refresh F4=FROM F5= Cities	TO Cities F6=Flights F7=Customers
Turn Keyboard Off	6	06/004
Done		

Figure 11: GUI Ticket Confirmation Window

10. Press **Enter** to create another reservation or press **F3** (**Exit**) to return to the main menu.

Here, the **Ticket Confirmation Window** uses the different display file, *FRS406DF*, which calls the RPG program *FRS406* to handle the request.

Note: If flights are not available when pressing **F6** (**Flights**), input different cities for the **From City** or **To City** fields. Also, if the **Departure City** or **Arrival City** field is missing, it will not be possible to prompt for the **Flight Selection** window.

Customizing the HATS project

After HATS creates a default rendering of the GUI interfaces, the interfaces can be customized to meet more specific needs. The following instructions demonstrate how to customize HATS interfaces for a specific business application.

Customizing FLGHT400

There are a number of different ways to use HATS to enhance the FLGHT400 application. Here are just a few examples of what can be done:

Modifying default renderings

As seen in the green-screen and browser images below (Figure 12 and Figure 13), HATS default settings do not render all FLGHT400 settings correctly. This can easily be solved by modifying the default rendering settings of the HATS project.

👙 HodConn:localhost:localhost:server1:HATS_EAR51#2 🛛 🖃 🖾 🔀			
Flights Reservation System - Crea	te Order 11:15:12 7/22/05 SE520A2		
Type choices, press F10 to Make R FLIGHT INFORMATION	TICKET ORDER INFORMATION		
Airline: Flight: 0000000 Date of Flight: <u>09</u> 0 <u>92005</u>	CITY SELECTION WINDOW Position To:		
From City.: Depart Time: To City:	1 City Name Initials Albany ABY Albuquerque ALB Anchorage ANC Atlanta ATL More		
Arrival Time: F2=Refresh F4=FROM Cities F5=T0	F3=Exit Cities F6=Flights F7=Customers		
Buffer length longer than record MÅ* ho ocalhost:	for member ORDERS. serverl:hats_ear51#2 08/055		

Figure 12: Green-screen images incorrectly displayed

As seen in Figure 13, the default HATS rendering does not correctly display the various subfile windows.

EndToEndHATSDefault - Mo	ozilla Firefox		Z		
<u>Eile E</u> dit <u>V</u> iew <u>G</u> o <u>B</u> ookmarks	<u>T</u> ools <u>H</u> elp		m		
🔶 👌 🖉 🐔	N http://localhost:9080/EndToEndHATSDefault/entry	0	↓ G.		
My Company					
	Your company slogan goe	es here			
	First Link Second Link	Third Link	Fourth Link		
My Company Links	Flights Reservation System - Create Orde	r 11:15:12	7/22/05 SE520A2		
My Company Home Page My Company Map My Company Employees	Type choices, press F10 to Make Re FLIGHT INFORMATION	servation TICKET ORDER INFORMATION	£ 1070.444		
Jobs at My Company My Company Articles	Airline: Flight: 0000000	CITY SELECTION Position To:	WINDOW		
my Floducts	Date of Flight: 09 09 2005 From City.:	1 City Name	Initials		
Main Product		Y Albany	ABY		
Downloads	Depart Time:	Albuquerque	ALB		
Support		🖌 Anchorage	ANC		
		🖌 Atlanta	ATL		
Reset	To City:		More		
Default	Arrival Time	F3-Fwit			
Refresh					
Disconnect					
Turn Keyboard Off	F2=Refresh F4=FROM Cities F5=T0 Buffer length longer than record for mem	<u>) Cities</u> <u>F6=Flights</u> <u>F7=</u> ber ORDERS.	<u>=Customers</u>		
	6	.	08/055		
Done					

Figure 13: Incorrectly displayed subfile windows

To modify the default rendering settings to correctly display FLGHT400 information, follow these steps:

- 1. Expand the HATS project and double-click **Project Settings**.
- 2. In the **Settings** window that opens, click the **Rendering** tab (Figure 14). This is a list of the default project renderings.

🐮 HATS Pr 🛛 🛛 Navigator 🖵 🗖	*EndToEndHATS Settings	×		
EndToEndHATS Project Settings Connections GS Screen Customizations GM Across	Rendering Configure default rendering Rendering Sets Global Rules), global rules, text replacement, and default compone Select the rendering set you wish to configure. You change which set will be used for default transform	ent and widget settings. u may also create new, edit or delete exis nations.	ting rendering sets, or
- Web Content	- Text Replacement	Name Description		Add
+ C Transformations	Components	main (default)		_
+ 👎 Templates	Widgets			Edit
Macro Event Handlers	Application Keypad			Removie
🕀 🆓 Common	Host Keypad			Ke <u>m</u> ove
🗄 😭 Source				
_		Configure the currently selected rendering set:		
		Description	Component Widget	Add
		Transform dialogs	Dialog Dialog	- 10
		✓ Transform subfiles	🗰 Subfile 🗰 Subfile	Edit
		 Transform selection lists 	t∃ Selection list 💋 Link	Remove
		Transform function keys	🖬 Function key 💋 Link	<u>re</u> cinove
		Transform field tables	🖽 Field table 🔠 Table	
		Transform visual tables	🖽 Visual table 🔠 Table	Цр
		Transform URLs	He DRL 💋 Link	
		 Transform remaining text and input fields 	Field Field	Do <u>w</u> n
	Overview Connections Ten	palate Rendering Events Other Source		
	overview connections ren	ipiate Kendening events Other Source		

Figure 14: Rendering tab

- 3. Check the Transform dialogs option to enable the rendering.
- 4. Select **Transform remaining text and input fields** (as shown in Figure 15) and click **Edit**.

📴 HATS Pr 🛛 🛛 Navigator 🗖 🗖	🔃 EndToEndHATS Settings 🛛	3			
	Rendering Configure default rendering, Rendering Sets Global Rules Text Replacement Components Widgets Application Keynard	global rules, text replacement, and default compon Select the rendering set you wish to configure. Yo change which set will be used for default transform Name Description main (default)	ent and widget settin u may also create nev nations.	gs. v, edit or delete exis	ing r
 ⊕ ⊕ ⊕	Host Keypad	Configure the currently selected rendering set: Description Transform dialogs	Component Dialog	Widget	RI
		Transform subfiles	III Subfile	E Subfile	
		Transform selection lists	§∃ Selection list	D Link	R
		Transform field tables	Eield table	Table	
		Transform visual tables	Visual table	Table	
		Transform URLs	H URL	💋 Link	Ξ.
		Transform remaining text and input fields	Field	🧮 Field	L'v
	<				>
	Overview Connections Tem	plate Rendering Events Other Source			

Figure 15: Transform dialogs

- 5. A **No Screen Captures** pop-up window will display saying that a screen capture is needed to add or edit a host component (as shown in Figure 16).
- 6. Click Yes.

🕑 No S	Screen Captures		
?	To add or edit a host component, you mus Would you like to open the host terminal to can capture a screen?	t have a screen capt o your default conne	ure file. ction so you
		Yes	No

Figure 16: Capture a screen

- 7. When the **HATS Host Terminal** window opens, click the *icon*, accept the default settings, and click **Finish**.
- 8. Click the $\frac{4}{50}$ icon and then close the window.
- 9. Select Transform remaining text and input fields and click Edit.

10. The **Edit a Default Rendering Item** window (as shown in Figure 17) will display. Click **Next**.

🄄 Edit a Default Rendering Item				
Edit a Default Rendering Item Press F1 for help on any field in the wizard.				4
Description: Transform remaining text and input field	ds			
	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 17: Edit a Default Rendering Item window

11. Click **Next** again. This brings up the **Rendering Options** window (as shown in Figure 18).

components		Component Preview	
Field Field table Field table Function key Input field Finput field with hints Field with with hints Field with with hints Field with with with with with hints Field with with with with with with with with		Sign On System : SE520A2 Subsystem : QINTER Display : QPADEV0000 User Password Program/procedure Menu	5
Vidgets		Widget Preview	
Field		Sign On System : Subsystem : Display :	SE52 QINT QPAD
Click here to see what the de will look like with the associat	efault transformat ted template.	ion (with the current component) Full pa	ige <u>p</u> review

Figure 18: Rendering Options window

- 12. Click on the **Widget Settings** icon (
- 13. In the **Settings** window, check the **Enable extended attributes** field widget setting and also clear out the **Reverse video style** field.
- 14. Click **Ok.**

- 15. Click **Finish**. With these simple changes HATS will now correctly render all of the screens in the FLGHT400 application.
- 16. Success (is shown in figures 19 and 20.

2

👙 HodConn:localhost:localhost:	server1:HATS_EAR51#3 📃 🗖 🔀
Flights Reservation System - Crea	te Order 12:03:27 7/22/05 SE520A2
Flights Reservation System - Creating Type choices, press F10 to Make R FLIGHT INFORMATION Airline: Flight: 0000000 Date of Flight: 08 31 2005 From City.:	Atlanta ALB
Arrival Time: F2=Refresh F4=FROM Cities F5=T0 Buffer length longer than record	F3=Exit Cities F6=Flights F7=Customers for member ORDER3.
MA* ho ocalhost:	serverl:hats_ear51#3 08/055

Figure 19: Green-screen successful rendering

, 🗇 🔌 🖄 👫 💊 http:	//localhost:9080/EndToEndHATS/entry				↓ C.
y Company					
	Your con	npany slogan goes h	ere		
	First Link	Second Link		Third Link	Fourth Link
y Company Links	Flights Reservation S	iystem - Create Order	12	:03:27 7/22/0	5 SE520A2
Company Home Page Company Map	Type choices, press H FLIGHT INFORMAT	10 to Make Reservation	TICKET OF	DER INFORMATION	
bs at My Company Company Articles	Airline: Fligh	tt: 0000000 Po	CITY S	ELECTION WINDOW	
y Floudets	Date of Flight:	08 31 2005			
ain Product				City Name Albany	Initials
wnloads	From City.:		~	Albuquerque	ALB
pport			~	Anchorage	ANC
	Depart Time	:	~	Atlanta	ATL
Reset					More
Default	To City:				
Refresh					
Disconnect	Arrival Time	: E3	=Exit		
Turn Keyboard Off					
distantice of the second se					

Figure 20: GUI successful rendering

Adding a calendar pop-up

On the **Flights Reservation System – Create Order** screen of the FLGHT400 application, a date must be added across three input fields. This is easily done with the following functions that are built into HATS:

- 1. Create a new screen capture of the screen to be modified.
- 2. Click on the **Open Host Terminal** icon ([♥]). Log in to the iSeries system and navigate to the **Flights Reservation System Create Order** screen (Figure 21).

Flig	hts Reser	vation Sy	ystem - 10 to №	· Creat Take Re	e Order	on	11:36:52	7/22/0)5 s	3E520A2
	FLIGHT	INFORMAT	ION			TICK	ET ORDER	INFORM	ATION	
А	irline:	Flight	t: 0000	000	Order	Number	r		.: PEI	NDING
D	ate of Fl	ight: (<u>00 00 2</u>	005	Custo	mer				
F	rom City.	:			Class	of Sei	rvice -	First Business Economy.	5	·: – ·: –
					Numbe	r of Ti	ickets			: <u>01</u>
Т	o City	:			Price Tax \$	\$	(m C			
F2=R	efresh F	4=FROM C: longer t	ities than re	F5=TO cord f	Cities or memb	F6=F1: er ORDI	ights F	7=Custor	ners	

Figure 21: Flights Reservation System — Create Order screen

- 3. Click on the Create Screen Capture icon (P).
- 4. Enter FlightsReservationSystemCreateOrder as the name and click Finish.
- 5. Click on the ⁶/₂ icon and close the window. The screen that must be modified is now captured.
- 6. Click the **Create HATS Transformation** icon (^{D)}).
- 7. Enter CalendarTransformation for the name.
- 8. Click Finish. The Create a Screen Customization window will open.
- 9. On the Create a Screen Customization window, click Next.

 On the Select Screen Recognition Criteria window (shown in Figure 22), drag the mouse across the screen image to select Date of Flight..: 00 00
 2005 Customer...: (highlighted in yellow box).

elect Screen Recognition Criteria	
You can make the criteria more or less specific in o You can refine the criteria (more strings, AND/OR/	rder to match one or many screens. NOT logic) later in the screen customization editor.
Select a screen:	
O Use the host terminal screen	
Use a previously captured screen	
Flights Reservation System - Crea Type choices, press F10 to Make R	te Order 11:36:52 7/22/05 SE520A2
FLIGHT INFORMATION	TICKET ORDER INFORMATION
Airline: Flight: 0000000	Order Number PENDING
From City.:	Class of Service - First: Business:

Figure 22: Select Screen Recognition Criteria window

- 11. Click Finish.
- 12. **CalendarTransformation.jsp** (Figure 23) will now display in the HATS project.



Figure 23: CalendarTransformation.jsp window

13. Place the cursor in the highlighted **Date of Flight** field as shown in Figure 24.



Figure 24: Date of Flight field

- 14. From the top menu, select **HATS Tools > Insert Host Components**. This will open the **Insert Host Component** window.
- 15. Select the region of the host screen (**Date of Flight**) as shown outlined in yellow in Figure 25. Click **Next**.

elect Screen Regi	ion	
elect a region of th of the region.	e host screen with the mouse	or enter the coordinates
elect a screen:	FlightsReservationSystem	nCreateOrder
Flights Reser	vation System - Creat	te Order 11:36:52 7/21/05 5252282
	press F10 to Nate Pe INFORMATION	TICKET CREER INFORMATION
	Elight: 0000000	Order Sumber PENDING
0444 of 21	0 00 2005	Custower,s
		Class of Service - Tirst Business Economy
		Number of Tickets
To City Arrival Ti		Price 4 Tax 4 Total Due w/ Tax 4
lighlight fields: 🔽	Input 🔽 Protected 🗖 Hid	den
Selection	-	-1
start row: 19	Start column: 5	_
End row: 9	En <u>d</u> column: 32	

Figure 25: Date of Flight selected

 On the Insert Host Component Rendering Options window (shown in Figure 26), select Input field under Components and select Calendar under Widgets.

omponents	Component Preview	
 Field Field table Function key Input field Input field with hints Item selection Selection list Subfile 	Date of Flight: [00] [00] [2005]	
/idgets	Widget Preview	
☐ Text input ☐ Check box ☐ Calendar ☐ Drop-down (data entry) ☐ Popup ● Radio button (data entry)	Date of Flight: 00 III 00 III 2005 III	

Figure 26: Insert Host Component Rendering Options window

17. Click the **Component Settings** icon () and modify the settings as shown in Figure 27.

Settings - Input field	X
Use project defaults	
Extract field caption	
Restrict caption to selected region	
✓ Strip end of caption	
Strip after:	
Replace with:	
Trim spaces on caption	
Clip input field to selected region	
OK Cancel	

Figure 27: Component settings modified

18. Click the **Widget Settings** icon (^{IIII}) and modify the calendar settings as shown in Figure 28. Click **OK**.

Settings - Calendar		\times
Use project defaults		
Pattern <u>:</u>		
MM~DD~YYYY		
	Build	
Pattern:		
Use server locale		
C Use <u>b</u> rowser locale		≡
C Use specifie <u>d</u> locale		
Locale;		I
Restrict <u>e</u> arliest selectable	date	
Date (format: "MM/DD/YY")	ia 📘	
🔲 Restrict <u>l</u> atest selectable da	ate	
Date (format: "MM/DD/YY")	is	
Default <u>v</u> alue:		
Caption source:	From component 💌	I
Custom caption:		
Number of columns per row:	5	
		- `
[OK Cancel	
L		_

Figure 28: Calendar settings modified

- 19. Click Finish.
- 20. Delete the old **Design Date of Flight..:** and the three input fields as shown in Figure 29.

FLIGHT	INFORMATION
Airline:	Flight: 0000000
Date of F	light: 00 00 2005
From City	
· · ·	······································

Figure 29: Input fields deleted

21. **CalendarTransformation.jsp** will now update the window with the new calendar design as shown in Figure 30.



Figure 30: New calendar design

22. Success is shown in figures 31 and 32.



Figure 31: Green-screen success

🖲 EndToEndHATS - Mozilla Firefox									
<u>Eile E</u> dit <u>View Go B</u> ookmarks <u>T</u> ools <u>H</u> elp									
🔶 🖒 🌖 🐔 👫 🔖 http://	ocalhost:9080/EndToEndHATS/entry					E.	2	3	G,
My Company									
	Your con	npany slog	an go	es l	here	?			
	<u>First Link</u>	Second	<u>l Link</u>				Thi	rd L	ink
My Company Links	Flights Reservation Sys	tem - Create	Order						12:0
<u>My Company Home Page</u> <u>My Company Map</u>	Type choices, press	<u>F1</u>	<u>0 to</u>	Make	Res(ervat	ion	ORM	ATION
<u>My Company Employees</u> Jobs at My Company My Company Articles	Airline:	Flight:	🙂 http	o://loc	alhos	st:908	[_)[
My Products	Date of Flight: 08 31	2005 🗉	+	į,	Augu	ıst 2(005		+
Main Product			Sun	Mon	Tue	Wed	Thu	Fri	Sat
Additional Products	a particular and the	-	-	1	2	3	4	5	6
Downloads	From City.:		1	8	9	10	11	12	13
Support	Depart Time:		21	22	23	24	25	26	20
			28	29	30	31	23	20	-/
Reset	and the second	1							
Default	To City:								
Refresh	Arrival Time:		Done						//.

Figure 32: GUI success

Summary

This lab shows simple modifications of the FLGHT400 application using Host Access Transformation Services (HATS). It also demonstrates the broad range of enhancements that are available by using HATS. By utilizing HATS, a green-screen terminal application can be automatically transformed into a Web-based, thin-client application that can be accessed through a Web browser on the user's personal computer.

By default, HATS also renders iSeries components as Web widgets. This includes function keys, links, buttons, and menus, each of which becomes a radio button list, link list, or drop-down list option.

These features represent a small portion of the available HATS functions. Documents and other resources are available to learn more about this transformational tool through links provided in the "Additional information" section of this paper.

Additional information

These Web sites provide useful reference materials to supplement the information contained within this document:

- Host Access Transformation Services (HATS) Roadmap www.developer.ibm.com/vic/hardware/myportal/develop/roadmap
- WebSphere Host Access Transformation Services product page ibm.com/software/webservers/hats/index.html
- IBM WebSphere Host Access Transformation Services (HATS) demonstrations
 <u>http://websphere.dfw.ibm.com/atdemo/atdemo_hats.html</u>
- Host Access Transformation Services (HATS) V6 development lab ibm.com/servers/enable/site/education/labs/4202/4202.pdf
- IBM WebSphere Host Access Transformation Services (HATS) V6 Information Center
 - http://publib.boulder.ibm.com/infocenter/hatsv6/index.jsp
- iSeries Application Innovation Program
 <u>ibm.com/servers/enable/application/innovation</u>
- FLGHT400 overview <u>ibm.com/servers/enable/site/ideveloper_j2ee/etoe/pdfs/flght400_overview.pdf</u>
- IBM Software Access Catalog
 www.developer.ibm.com/isv/welcome/softmall.html
- Trial version of Rational Web Developer for WebSphere Software V6.0 ibm.com/developerworks/downloads/r/rwd/?S TACT=105AGX14&S CMP=DWNL
- Trial version of IBM WebSphere Host Access Transformation Services Toolkit <u>http://www14.software.ibm.com/webapp/download/preconfig.jsp?id=2004-08-19+09%3A27%3A47.465987R&S_TACT=104CBW71&S_CMP=&s=</u>

About the author

Michael Sandberg is a technical consultant in the IBM eServer Solutions Enablement team, located in Rochester, Minnesota. For the past four years, he has been involved in supporting iSeries solution providers as they modernize and innovate their applications. As part of this work, he has accumulated technical expertise in WebSphere Application Server, WebSphere Portal Server, WebSphere Development Studio, and other technologies that focus on iSeries application innovation.

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