



# Modern 2E Web Services

## Conference Exercise

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### Overview

Today we are going to build an application to manage Persons and using 2E web services. We will create web service programs in 2E. Next, we will deploy the services as RESTful services with Matchpoint. Finally, we will consume the web services in Plex and build a screen to perform edit and display functionality.

```

INAODFR   DISPLAY                               9/27/21 20:19:10
                                     Work with Person Entries

*

Type options, press Enter.
1=Select 2=Edit 4=Delete  A=Address

? Last      First      Tax      Birth
  Name      Name      ID      Date
-- Good     Samuel    123456789 2/02/2011
-- Jones     Jasmin    312546897 12/09/1951
-- Cabbot    Howard    214357698 5/10/1945

F3=Exit  F9=Add

```

## Create the CA 2E functions.

1. Name functions
2. Set Parameters
  - a. HTTP return status
  - b. Additional parameters
3. Create business logic
4. Create Service program
5. Link business logic and service program.

### Create Function: Get Persons

1. Get\_All\_People\_MS
2. Set Parameters
  - a. \*FIELD                    httpStatus    O
  - b. Person Table            Retrieval index O
3. Set Function to compile as a Module
  - a. Z into function.
  - b. T-ILE Compilation Type (\*PGM/\*MODULE)
4. Create Business Logic

```

> Get_All_People_MS
.--
.RTV All People - Person Table *
.-CASE
.|-PGM.*Return code is *Normal
.| PAR.httpStatus = CND.OK
.|-*OTHERWISE
.| PAR.httpStatus = CND.NotFound
.'-ENDCASE
.Exit program - return code PGM.*Return code

```

5. Create Service Program

a. Get\_All\_People\_SRV\_MS

b. Attach Module

1) **M** SPG INDQSPS BND Get\_All\_People\_SRV\_MS Service program

2) **F6**=Add module

3) Select your module

```

SERVICE PROGRAM MODULES CMINSMDL2
Function name . . : Get_All_People_SRV_MS Type : Service program
Received by file. : Web Services

? Module Library Text
_ INDOXFR CMINSGEN2 Get_All_People_MS

```

Create Function: Add Person

1. Add\_Person\_MS

2. Set Parameters

a. \*FIELD httpStatus O

b. Person Table Retrieval index I

3. Set Function to compile as a Module

a. Z into function.

b. T-ILE Compilation Type (\*PGM/\*MODULE)

4. Create Business Logic

```

Create Person Table - Person Table *
.-CASE
|-PGM.*Return code is *Normal
| PAR.httpStatus = CND.Created
|-*OTHERWISE
| PAR.httpStatus = CND.NotContent
.'-ENDCASE
.Exit program - return code PGM.*Return code

```

5. Create Service Program

a. Add\_Person\_SRV\_MS

b. Attach Module

1) **M** SPG INDSSPS BND Add\_Person\_SRV\_MS Service program

2) **F6**=Add module

3) Select your module

```

SELECT MODULE                                CMINSMDL2

? File                                     Function                                     GEN name
-----
X Web Services                             Add_Person_MS                               INDRXFR

```

```

SERVICE PROGRAM MODULES                    CMINSMDL2
Function name . . : Get_All_People_SRV_MS   Type : Service program
Received by file. : Web Services

? Module   Library   Text
_ INDOXFR   CHINSGEN2  Get_All_People_MS

```

### Create Function: Change Person

1. Change\_Person\_MS
2. Set Parameters
  - a. \*FIELD                                    httpStatus        O
  - b. Person Table                            Retrieval index   I
3. Set Function to compile as a Module
  - a. Z into function.
  - b. T-ILE Compilation Type (\*PGM/\*MODULE)
4. Create Business Logic
 

```

Change Person Table - Person Table *
.-CASE
|-PGM.*Return code is *Normal
| PAR.httpStatus = CND.OK
|-*OTHERWISE
| PAR.httpStatus = CND.Expectation Failed
'-ENDCASE
Exit program - return code PGM.*Return code

```
5. Create Service Program
  - a. Change\_Person\_SRV\_MS
  - b. Attach Module
    - i. **M** SPG INDUSPS    BND    Change\_Person\_SRV\_MS    Service program
    - ii. **F6**=Add module
    - iii. Select your module

```

SELECT MODULE                                CMINSMDL2

? File                                     Function                                     GEN name
-----
Web Services                             Add_Person_MS                               INDRXFR
X Web Services                             Change_Person_MS                            INDTXFR
Web Services                             Get_All_People_MS                           INDOXFR
_

```

## Completed list of Functions

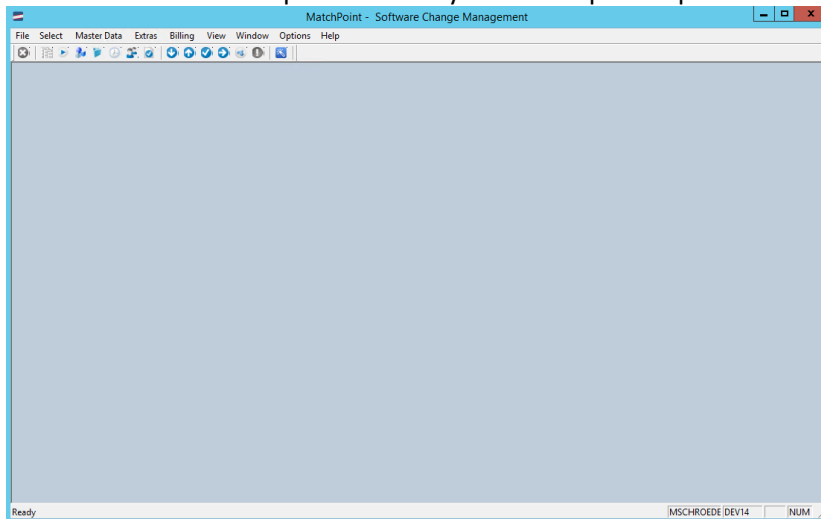
```
File name. . . : Web Services                ** 1ST LEVEL **
```

? Function	Function type	Access path
_ Add_Person_MS	Execute external function	*NONE
_ Add_Person_SRV_MS	Service program	*NONE
_ Change_Person_MS	Execute external function	*NONE
_ Change_Person_SRV_MS	Service program	*NONE
_ Get_All_People_MS	Execute external function	*NONE
_ Get_All_People_SRV_MS	Service program	*NONE

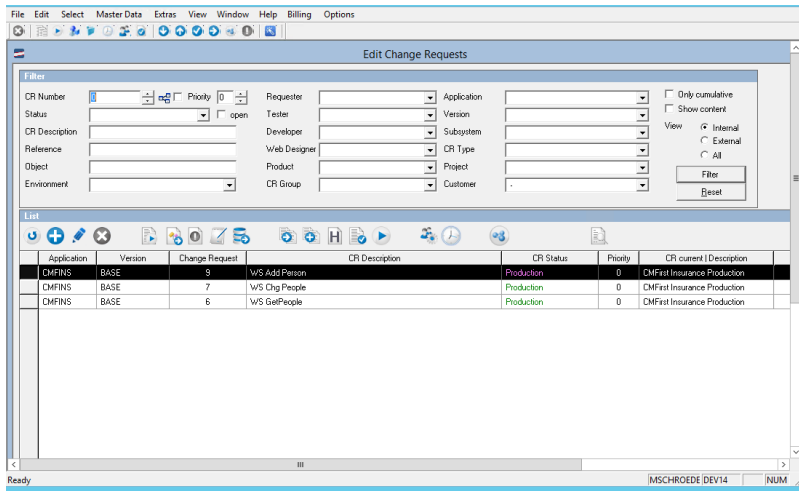
## Compile functions

## Check out and Deploy your Web Service with Matchpoint

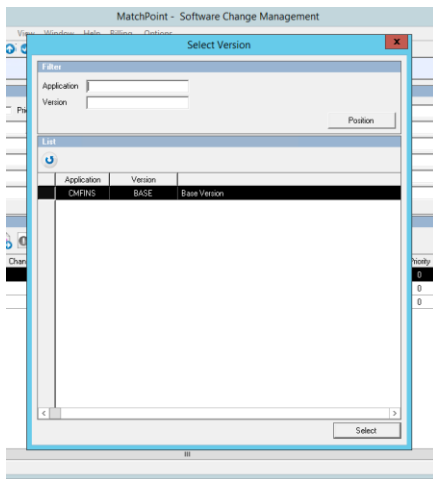
1. Find the Matchpoint Icon on your desktop and open it.



2. This is the main screen for Matchpoint.
3. Now click on the paper icon which is Edit Change Request.



4. Create a new Change request for your web services by clicking on the blue circle with the + in it.
5. Click the select button on the Select version screen.



6. Create the change request on this screen by entering the CR Description and set the CR Status to Development. Then Click Apply. Be sure to use your initials to be able to select your request.

### Edit Change Request

CR Details

Change Request	6	Priority	0	Creation Date	10/14/2021
Application	CMFirst Insurance Application				<input type="checkbox"/> Cumulative
Version	Base Version				<input type="checkbox"/> Promote through Cumulative
CR Description	WS GetPeople				
CR Status	Development	Update CR Status	10/18/2021		
CR Type		Reference			
Subsystem		CR Group			
Project					

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Request Date	0/0/0000	Time Estimated	0.0	Hours Int.	0.0	Hours Ext.	0.0	Non-Personnel Costs	0.00
Planned End Date	0/0/0000	Time Actual	0.0		0.0		0.00		0.00
Planned Start Date	0/0/0000	Percentage Complete	0.00						
Desired End Date	0/0/0000	Offer	<input type="checkbox"/>	Offer Amount	0.00				

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Requester	MSCHROEDER MARK SCHROEDER							
Tester								
Developer								
Web Designer								
Belongs to								
Customer	-							
Product								
Current Status								
Current Environment	CMFirst Insurance Development				Active Status	Active		

Apply   Source   Note

- Once back to the main screen you will see the change requests that exist. You can filter the list by your user id to as the Requestor to display less information.






- f. Now click the Import button.

11. The objects you compiled based on the Create Date will be imported. If there are object you do not want to include on this promotion just click the right arrow and it will move them off of this object list.
- a. You will see in the image below yellow objects. That is because I already defined these as web services earlier. Your objects will not be yellow at this time.

Object Type	Impl. Name	Object Name	Web Service Type	Data
MOD	INDQXFR	Get_All_People_MS		*Blank
MOD	INDRXFR	Add_Person_MS		*Blank
MOD	INDTXFR	Change_Person_MS		*Blank
SVSPGM	INDQSPS	Get_All_People_SRV_M		*Blank
SVSPGM	INDSSPS	Add_Person_SRV_MS S		*Blank
SVSPGM	INDUSPS	Change_Person_SRV_M		*Blank

12. Now select a SVSPGM and click the  icon to define your web service information. In this screen you will define your web service settings. These settings will follow the web service through to production.

**Web Service Settings**

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**Web Services Settings**

Application:  Version:  Change Request:  Promotion:

Object Type:  Name:

Web Service Name:  Web Service Type:  Web Service User ID:

WS PCML Path:

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**List**

Module Program	Module/Resource Name	Request Method	Consumes	Produces	Wrap Input value	Wrap output value	
INDOXFR	getPeople	GET	*ALL	*JSON	*FALSE	*FALSE	/getPeople


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Structure	Parameter Name	Length	Usage	Friendly Name	HTTP Status	Parameter Type
	PORTN	7	output	PORTN		
	WP0001	4	output	httpStatus		
	P2PARM		output	P2PARM		
P2PARM	P2AASG	9	inherit	PersonID		
P2PARM	P2ADCD	25	inherit	FirstName		
P2PARM	P2AECD	25	inherit	MiddleName		
P2PARM	P2AFCD	25	inherit	LastName		
P2PARM	P2AGCD	10	inherit	Suffix		
P2PARM	P2AEST	3	inherit	Language		
P2PARM	P2AHCD	9	inherit	SSN		
P2PARM	P2AIST	1	inherit	Gender		
P2PARM	P2ABDX	9	inherit	DOB		
P2PARM	P2AJST	1	inherit	TobaccoUse		


- a. Top section:
  - i. Enter the Web Service name you want to use. Be sure to include your initials at the end of the name.
  - ii. Enter the Web Service Type as \*REST.
- b. Middle Section:
  - i. Enter the Module Name, something like getPeopleMLS.
  - ii. Enter the Request Method: Get, Post or Delete depending on what your services will need.
  - iii. Enter Produces JSON.
- c. Bottom section:
  - i. Fill in the parameters you defined for your web service.
  - ii. In the Friendly Name column enter the names you want to use for each parameter. If you do not enter anything the Parameter name will be used instead of a friendly name.
  - iii. Enter the Usage, this will be either input or output. It cannot be both. If you see Inherit it means the parameter will inherit from the Parameter parent. In the example above P2PARM is the parent of all the parameters below it.

- d. Once all the information is entered be sure to click on the  icon to save the work you did. This will save the configuration so you do not have to come back and do this anymore for this web service.
  - e. Now exit back to the previous screen.
13. Once you get back to the screen your web service will be highlighted in yellow indicating you have configured your web service.

Objects of Promotion					
Object Type	Impl. Name	Object Name	Web Service Type	Data	
MOD	INDOXFR	Get_All_People_MS		*Blank	
SVSPGM	INDQSPS	Get_All_People_SRV_M		*Blank	

14. You can deploy this web service to your development area. Since there are no objects to move deployment occurs on this screen. Click the  to deploy to your development web server.
15. Now you can deploy your web service to QA and Production from the Edit Change request screen. Close down windows until you get back to that Edit Change Requests screen.

Edit Change Requests						
Filter						
CR Number	0	<input type="checkbox"/> Priority	0	Requester	MSCHROEDER MARK SCH	Application
Status		<input type="checkbox"/> open		Tester		Version
CR Description				Developer		Subsystem
Reference				Web Designer		CR Type
Object				Product		Project
Environment				CR Group		Customer
List						
Application	Version	Change Request	CR Description	CR Status	Priority	
CMFINS	BASE	11	My Change Request MLS	Testing	0	CN
CMFINS	BASE	9	WS Add Person	Production	0	CN
CMFINS	BASE	7	WS Chg People	Production	0	CN
CMFINS	BASE	6	WS GetPeople	Production	0	CN

16. In order to promote your web service program and deploy your web service to the next environments click on the  icon. This task uses all the information your entered in defining your web service as well as environment configuration information to complete both the move and deployment of your web service.

## **Consume Your Web Service in a Plex Application.**