

Implementing Customizations in the Trading Community Architecture using Workflow Business Events

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Introduction

Previous to release 11.5.7 and TCA mini-pack 11i.HZ.G, customizations for the processing of Customer information in the Trading Community Architecture were implemented by User Hooks. These hooks were procedure calls from the seeded TCA PL/SQL package code to program stubs that could be enhanced by users with custom code. These hooks have been removed and replaced by Business Event Callouts that are handled by the Workflow Business Event System. The use of this powerful new feature will be discussed in detail.

No More User Hooks

Oracle once provided a facility known as User Hooks within the TCA APIs. Below is a block of code from the old HZ_LOCATION_PUB PL/SQL package which contained the APIs for manipulating Location information in the TCA. It shows that the User Hook call was commented out.

```
/****** Comment out CRMHK*****
  IF ((fnd_profile.value('HZ_EXECUTE_API_CALLOUTS') = 'Y') AND
      (l_location_rec.content_source_type =
       HZ_PARTY_PUB.G_MISS_CONTENT_SOURCE_TYPE)) THEN
    hz_location_crmhk.create_location_pre(
      l_location_rec,
      x_return_status,
      x_msg_count,
      x_msg_data);
.
.
.
*****/
```

As you can see above, the API once made a direct call to the 'CREATE_LOCATION_PRE' procedure. Since the inception of Business Event Callouts, however, these direct calls have been removed and are now handled by the raising of a Business Event. Below is a block of code from the newer HZ_LOCATION_V2PUB:

```
IF x_return_status = FND_API.G_RET_STS_SUCCESS
THEN
  HZ_BUSINESS_EVENT_V2PVT.create_location_event (
    l_location_rec);
END IF;
```

which in turn invokes this block:

```
IF G_EXECUTE_API_CALLOUT = 'Y' THEN
.
.
.
```

```

-- Raise Event
HZ_EVENT_PKG.raise_event(
    p_event_name      => l_event_name,
    p_event_key       => l_key,
    p_parameters      => l_list );
.
.
.

```

As is evident in the code above, a profile option can be set to enable or disable these callouts on a global basis.

An Event for Virtually Everything

The following is a list of all the procedure headers defined in the PL/SQL package HZ_BUSINESS_EVENT_V2PVT showing all events in the TCA that are raised by the APIs. The parameters passed to these procedures are records whose elements will be made available to your custom processing code by subscribing it to the event. Notice that for UPDATE events, two records are passed where one contains the pre-update version of the data and the other contains the post-update version. This allows custom logic to be performed based on the exact changes that occurred to the Location.

Invoked from HZ_PARTY_V2PUB:

```

PROCEDURE create_person_event (
    p_person_rec      IN  hz_party_v2pub.person_rec_type
);

PROCEDURE update_person_event (
    p_person_rec      IN  hz_party_v2pub.person_rec_type,
    p_old_person_rec  IN  hz_party_v2pub.person_rec_type
);

PROCEDURE create_group_event (
    p_group_rec       IN  hz_party_v2pub.group_rec_type
);

PROCEDURE update_group_event (
    p_group_rec       IN  hz_party_v2pub.group_rec_type,
    p_old_group_rec   IN  hz_party_v2pub.group_rec_type
);

PROCEDURE create_organization_event (
    p_organization_rec IN  hz_party_v2pub.organization_rec_type
);

PROCEDURE update_organization_event (
    p_organization_rec IN  hz_party_v2pub.organization_rec_type,
    p_old_organization_rec IN hz_party_v2pub.organization_rec_type
);

```

Invoked from HZ_RELATIONSHIP_V2PUB:

```
PROCEDURE create_relationship_event (  
  p_relationship_rec IN hz_relationship_v2pub.relationship_rec_type,  
  p_party_created   IN VARCHAR2  
);
```

```
PROCEDURE update_relationship_event (  
  p_relationship_rec IN hz_relationship_v2pub.relationship_rec_type,  
  p_old_relationship_rec IN hz_relationship_v2pub.relationship_rec_type  
);
```

Invoked from HZ_PARTY_SITE_V2PUB:

```
PROCEDURE create_party_site_event (  
  p_party_site_rec   IN hz_party_site_v2pub.party_site_rec_type  
);
```

```
PROCEDURE update_party_site_event (  
  p_party_site_rec   IN hz_party_site_v2pub.party_site_rec_type,  
  p_old_party_site_rec IN hz_party_site_v2pub.party_site_rec_type  
);
```

```
PROCEDURE create_party_site_use_event (  
  p_party_site_use_rec IN hz_party_site_v2pub.party_site_use_rec_type  
);
```

```
PROCEDURE update_party_site_use_event (  
  p_party_site_use_rec IN hz_party_site_v2pub.party_site_use_rec_type,  
  p_old_party_site_use_rec IN hz_party_site_v2pub.party_site_use_rec_type  
);
```

Invoked from HZ_PARTY_CONTACT_V2PUB:

```
PROCEDURE create_org_contact_event (  
  p_org_contact_rec   IN hz_party_contact_v2pub.org_contact_rec_type  
);
```

```
PROCEDURE update_org_contact_event (  
  p_org_contact_rec   IN hz_party_contact_v2pub.org_contact_rec_type,  
  p_old_org_contact_rec IN hz_party_contact_v2pub.org_contact_rec_type  
);
```

```
PROCEDURE create_org_contact_role_event (  
  p_org_contact_role_rec IN hz_party_contact_v2pub.org_contact_role_rec_type  
);
```

```
PROCEDURE update_org_contact_role_event (  
  p_org_contact_role_rec IN hz_party_contact_v2pub.org_contact_role_rec_type,  
  p_old_org_contact_role_rec IN hz_party_contact_v2pub.org_contact_role_rec_type  
);
```

Invoked from HZ_LOCATION_V2PUB:

```
PROCEDURE create_location_event (  
  p_location_rec   IN hz_location_v2pub.location_rec_type
```

);

```
PROCEDURE update_location_event (  
  p_location_rec      IN  hz_location_v2pub.location_rec_type,  
  p_old_location_rec  IN  hz_location_v2pub.location_rec_type  
);
```

Invoked from HZ_CONTACT_POINT_V2PUB:

```
PROCEDURE create_contact_point_event (  
  p_contact_point_rec  IN  hz_contact_point_v2pub.contact_point_rec_type,  
  p_edt_rec            IN  hz_contact_point_v2pub.edt_rec_type,  
  p_eft_rec           IN  hz_contact_point_v2pub.eft_rec_type,  
  p_email_rec         IN  hz_contact_point_v2pub.email_rec_type,  
  p_phone_rec        IN  hz_contact_point_v2pub.phone_rec_type,  
  p_telex_rec        IN  hz_contact_point_v2pub.telex_rec_type,  
  p_web_rec          IN  hz_contact_point_v2pub.web_rec_type  
);
```

```
PROCEDURE update_contact_point_event (  
  p_contact_point_rec  IN  hz_contact_point_v2pub.contact_point_rec_type,  
  p_old_contact_point_rec IN  hz_contact_point_v2pub.contact_point_rec_type,  
  p_edt_rec            IN  hz_contact_point_v2pub.edt_rec_type,  
  p_old_edt_rec       IN  hz_contact_point_v2pub.edt_rec_type,  
  p_eft_rec           IN  hz_contact_point_v2pub.eft_rec_type,  
  p_old_eft_rec       IN  hz_contact_point_v2pub.eft_rec_type,  
  p_email_rec         IN  hz_contact_point_v2pub.email_rec_type,  
  p_old_email_rec     IN  hz_contact_point_v2pub.email_rec_type,  
  p_phone_rec        IN  hz_contact_point_v2pub.phone_rec_type,  
  p_old_phone_rec     IN  hz_contact_point_v2pub.phone_rec_type,  
  p_telex_rec        IN  hz_contact_point_v2pub.telex_rec_type,  
  p_old_telex_rec     IN  hz_contact_point_v2pub.telex_rec_type,  
  p_web_rec          IN  hz_contact_point_v2pub.web_rec_type,  
  p_old_web_rec       IN  hz_contact_point_v2pub.web_rec_type  
);
```

Invoked from HZ_CONTACT_PREFERENCE_V2PUB:

```
PROCEDURE create_contact_prefer_event (  
  p_contact_preference_rec IN hz_contact_preference_v2pub.contact_preference_rec_type  
);
```

```
PROCEDURE update_contact_prefer_event (  
  p_contact_preference_rec  IN hz_contact_preference_v2pub.contact_preference_rec_type,  
  p_old_contact_preference_rec IN hz_contact_preference_v2pub.contact_preference_rec_type  
);
```

Invoked from HZ_CUST_ACCOUNT_V2PUB:

```
PROCEDURE create_cust_account_event (  
  p_cust_account_rec  IN  hz_cust_account_v2pub.cust_account_rec_type,  
  p_person_rec        IN  hz_party_v2pub.person_rec_type,  
  p_customer_profile_rec IN hz_customer_profile_v2pub.customer_profile_rec_type,  
  p_create_profile_amt IN VARCHAR2
```

);

```
PROCEDURE create_cust_account_event (  
  p_cust_account_rec    IN hz_cust_account_v2pub.cust_account_rec_type,  
  p_organization_rec    IN hz_party_v2pub.organization_rec_type,  
  p_customer_profile_rec IN hz_customer_profile_v2pub.customer_profile_rec_type,  
  p_create_profile_amt  IN VARCHAR2  
);
```

```
PROCEDURE update_cust_account_event (  
  p_cust_account_rec    IN hz_cust_account_v2pub.cust_account_rec_type,  
  p_old_cust_account_rec IN hz_cust_account_v2pub.cust_account_rec_type  
);
```

```
PROCEDURE create_cust_acct_relate_event (  
  p_cust_acct_relate_rec IN hz_cust_account_v2pub.cust_acct_relate_rec_type  
);
```

```
PROCEDURE update_cust_acct_relate_event (  
  p_cust_acct_relate_rec IN hz_cust_account_v2pub.cust_acct_relate_rec_type,  
  p_old_cust_acct_relate_rec IN hz_cust_account_v2pub.cust_acct_relate_rec_type  
);
```

Invoked from HZ_CUSTOMER_PROFILE_V2PUB:

```
PROCEDURE create_customer_profile_event (  
  p_customer_profile_rec IN hz_customer_profile_v2pub.customer_profile_rec_type,  
  p_create_profile_amt  IN VARCHAR2  
);
```

```
PROCEDURE update_customer_profile_event (  
  p_customer_profile_rec    IN hz_customer_profile_v2pub.customer_profile_rec_type,  
  p_old_customer_profile_rec IN hz_customer_profile_v2pub.customer_profile_rec_type  
);
```

```
PROCEDURE create_cust_profile_amt_event (  
  p_cust_profile_amt_rec IN hz_customer_profile_v2pub.cust_profile_amt_rec_type  
);
```

```
PROCEDURE update_cust_profile_amt_event (  
  p_cust_profile_amt_rec    IN hz_customer_profile_v2pub.cust_profile_amt_rec_type,  
  p_old_cust_profile_amt_rec IN hz_customer_profile_v2pub.cust_profile_amt_rec_type  
);
```

Invoked from HZ_CUST_ACCOUNT_SITE_V2PUB:

```
PROCEDURE create_cust_acct_site_event (  
  p_cust_acct_site_rec IN hz_cust_account_site_v2pub.cust_acct_site_rec_type  
);
```

```
PROCEDURE update_cust_acct_site_event (  
  p_cust_acct_site_rec    IN hz_cust_account_site_v2pub.cust_acct_site_rec_type,  
  p_old_cust_acct_site_rec IN hz_cust_account_site_v2pub.cust_acct_site_rec_type  
);
```

```
PROCEDURE create_cust_site_use_event (  
  p_cust_site_use_rec IN hz_cust_account_site_v2pub.cust_site_use_rec_type  
);
```

```
p_cust_site_use_rec IN hz_cust_account_site_v2pub.cust_site_use_rec_type,  
p_customer_profile_rec IN hz_customer_profile_v2pub.customer_profile_rec_type,  
p_create_profile IN VARCHAR2,  
p_create_profile_amt IN VARCHAR2  
);
```

```
PROCEDURE update_cust_site_use_event (  
p_cust_site_use_rec IN hz_cust_account_site_v2pub.cust_site_use_rec_type,  
p_old_cust_site_use_rec IN hz_cust_account_site_v2pub.cust_site_use_rec_type  
);
```

Invoked from HZ_CUST_ACCOUNT_ROLE_V2PUB:

```
PROCEDURE create_cust_account_role_event (  
p_cust_account_role_rec IN hz_cust_account_role_v2pub.cust_account_role_rec_type  
);
```

```
PROCEDURE update_cust_account_role_event (  
p_cust_account_role_rec IN hz_cust_account_role_v2pub.cust_account_role_rec_type,  
p_old_cust_account_role_rec IN hz_cust_account_role_v2pub.cust_account_role_rec_type  
);
```

```
PROCEDURE create_role_resp_event (  
p_role_responsibility_rec IN hz_cust_account_role_v2pub.role_responsibility_rec_type  
);
```

```
PROCEDURE update_role_resp_event (  
p_role_responsibility_rec IN hz_cust_account_role_v2pub.role_responsibility_rec_type,  
p_old_role_responsibility_rec IN hz_cust_account_role_v2pub.role_responsibility_rec_type  
);
```

Invoked from HZ_CLASSIFICATION_V2PUB:

```
PROCEDURE create_class_category_event (  
p_class_category_rec IN hz_classification_v2pub.class_category_rec_type  
);
```

```
PROCEDURE update_class_category_event (  
p_class_category_rec IN hz_classification_v2pub.class_category_rec_type,  
p_old_class_category_rec IN hz_classification_v2pub.class_category_rec_type  
);
```

```
PROCEDURE create_class_code_rel_event (  
p_class_code_relation_rec IN hz_classification_v2pub.class_code_relation_rec_type  
);
```

```
PROCEDURE update_class_code_rel_event (  
p_class_code_relation_rec IN hz_classification_v2pub.class_code_relation_rec_type,  
p_old_class_code_relation_rec IN hz_classification_v2pub.class_code_relation_rec_type  
);
```

```
PROCEDURE create_code_assignment_event (  
p_code_assignment_rec IN hz_classification_v2pub.code_assignment_rec_type  
);
```

```
PROCEDURE update_code_assignment_event (  
);
```

```
p_code_assignment_rec    IN    hz_classification_v2pub.code_assignment_rec_type,  
p_old_code_assignment_rec IN    hz_classification_v2pub.code_assignment_rec_type  
);
```

```
PROCEDURE create_class_cat_use_event (  
  p_class_category_use_rec    IN    hz_classification_v2pub.class_category_use_rec_type  
);
```

```
PROCEDURE update_class_cat_use_event (  
  p_class_category_use_rec    IN    hz_classification_v2pub.class_category_use_rec_type,  
  p_old_class_category_use_rec IN    hz_classification_v2pub.class_category_use_rec_type  
);
```

Invoked from HZ_PERSON_INFO_V2PUB:

```
PROCEDURE create_person_language_event (  
  p_person_language_rec IN    hz_person_info_v2pub.person_language_rec_type  
);
```

```
PROCEDURE update_person_language_event (  
  p_person_language_rec    IN    hz_person_info_v2pub.person_language_rec_type,  
  p_old_person_language_rec IN    hz_person_info_v2pub.person_language_rec_type  
);
```

```
PROCEDURE create_citizenship_event (  
  p_citizenship_rec    IN    hz_person_info_v2pub.citizenship_rec_type  
);
```

```
PROCEDURE update_citizenship_event (  
  p_citizenship_rec    IN    hz_person_info_v2pub.citizenship_rec_type,  
  p_old_citizenship_rec IN    hz_person_info_v2pub.citizenship_rec_type  
);
```

```
PROCEDURE create_education_event (  
  p_education_rec    IN    hz_person_info_v2pub.education_rec_type  
);
```

```
PROCEDURE update_education_event (  
  p_education_rec    IN    hz_person_info_v2pub.education_rec_type,  
  p_old_education_rec IN    hz_person_info_v2pub.education_rec_type  
);
```

```
PROCEDURE create_emp_history_event (  
  p_emp_history_rec    IN    hz_person_info_v2pub.employment_history_rec_type  
);
```

```
PROCEDURE update_emp_history_event (  
  p_emp_history_rec    IN    hz_person_info_v2pub.employment_history_rec_type,  
  p_old_emp_history_rec IN    hz_person_info_v2pub.employment_history_rec_type  
);
```

```
PROCEDURE create_person_interest_event (  
  p_per_interest_rec    IN    hz_person_info_v2pub.person_interest_rec_type
```

);

```
PROCEDURE update_person_interest_event (  
  p_per_interest_rec IN hz_person_info_v2pub.person_interest_rec_type,  
  p_old_per_interest_rec IN hz_person_info_v2pub.person_interest_rec_type  
);
```

```
PROCEDURE create_work_class_event (  
  p_work_class_rec IN hz_person_info_v2pub.work_class_rec_type  
);
```

```
PROCEDURE update_work_class_event (  
  p_work_class_rec IN hz_person_info_v2pub.work_class_rec_type,  
  p_old_work_class_rec IN hz_person_info_v2pub.work_class_rec_type  
);
```

Invoked from HZ_CUST_ACCT_INFO_PUB:

```
PROCEDURE create_bill_pref_event  
( p_billing_preferences_rec IN hz_cust_acct_info_pub.billing_preferences_rec_type);
```

```
PROCEDURE update_bill_pref_event  
( p_billing_preferences_rec IN hz_cust_acct_info_pub.billing_preferences_rec_type);
```

```
PROCEDURE create_bank_acct_uses_event  
( p_bank_acct_uses_rec IN hz_cust_acct_info_pub.bank_acct_uses_rec_type );
```

```
PROCEDURE update_bank_acct_uses_event  
( p_bank_acct_uses_rec IN hz_cust_acct_info_pub.bank_acct_uses_rec_type );
```

```
PROCEDURE create_suspension_act_event  
( p_suspension_activity_rec IN hz_cust_acct_info_pub.suspension_activity_rec_type );
```

```
PROCEDURE update_suspension_act_event  
( p_suspension_activity_rec IN hz_cust_acct_info_pub.suspension_activity_rec_type );
```

Invoked from HZ_ORG_INFO_PUB:

```
PROCEDURE create_stock_markets_event  
( p_stock_markets_rec IN hz_org_info_pub.stock_markets_rec_type );
```

```
PROCEDURE update_stock_markets_event  
( p_stock_markets_rec IN hz_org_info_pub.stock_markets_rec_type );
```

```
PROCEDURE create_sec_issued_event  
( p_security_issued_rec IN hz_org_info_pub.security_issued_rec_type );
```

```
PROCEDURE update_sec_issued_event  
( p_security_issued_rec IN hz_org_info_pub.security_issued_rec_type );
```

```
PROCEDURE create_fin_reports_event  
( p_financial_reports_rec IN hz_organization_info_v2pub.financial_report_rec_type );
```

```
PROCEDURE update_fin_reports_event
```



```
( p_financial_reports_rec IN hz_organization_info_v2pub.financial_report_rec_type,  
  p_old_financial_reports_rec IN hz_organization_info_v2pub.financial_report_rec_type );
```

```
PROCEDURE create_fin_numbers_event
```

```
( p_financial_numbers_rec IN hz_organization_info_v2pub.financial_number_rec_type );
```

```
PROCEDURE update_fin_numbers_event
```

```
( p_financial_numbers_rec IN hz_organization_info_v2pub.financial_number_rec_type,  
  p_old_financial_numbers_rec IN hz_organization_info_v2pub.financial_number_rec_type );
```

```
PROCEDURE create_certifications_event
```

```
( p_certifications_rec IN hz_org_info_pub.certifications_rec_type );
```

```
PROCEDURE update_certifications_event
```

```
( p_certifications_rec IN hz_org_info_pub.certifications_rec_type );
```

Invoked from HZ_PARTY_INFO_V2PUB:

```
PROCEDURE create_credit_ratings_event
```

```
(p_credit_ratings_rec IN hz_party_info_v2pub.credit_rating_rec_type);
```

```
PROCEDURE update_credit_ratings_event
```

```
(p_credit_ratings_rec IN hz_party_info_v2pub.credit_rating_rec_type,  
  p_old_credit_ratings_rec IN hz_party_info_v2pub.credit_rating_rec_type);
```

```
PROCEDURE create_fin_profile_event
```

```
(p_financial_profile_rec IN hz_party_info_pub.financial_profile_rec_type);
```

```
PROCEDURE update_fin_profile_event
```

```
(p_financial_profile_rec IN hz_party_info_pub.financial_profile_rec_type);
```

Invoked from HZ_ORIG_SYSTEM_REFERENCE:

```
PROCEDURE create_orig_system_ref_event (
```

```
  p_orig_sys_reference_rec      IN  
  HZ_ORIG_SYSTEM_REF_PUB.ORIG_SYS_REFERENCE_REC_TYPE  
);
```

```
PROCEDURE update_orig_system_ref_event (
```

```
  p_orig_sys_reference_rec      IN  
  HZ_ORIG_SYSTEM_REF_PUB.ORIG_SYS_REFERENCE_REC_TYPE,  
  p_old_orig_sys_reference_re IN  
  HZ_ORIG_SYSTEM_REF_PUB.ORIG_SYS_REFERENCE_REC_TYPE  
);
```

Event Parameters

When each event is triggered in the TCA API, a group of parameters is written to a database table called HZ_PARAM_TAB. This table is generic in structure so as to accommodate the different parameter signatures of the various events. As an example, below are the contents of the table after the raising of a specific Update Location event. The ITEM_KEY uniquely identifies the event instance. The PARAM_NAME shows the record and column name that is the source of the data. The next three columns contain the actual column values depending on the data type of the column (e.g. PARAM_CHAR is used for character data). Lastly, the PARAM_INDICATOR column identifies whether the data is from the Pre-

(‘OLD’) or Post- (‘NEW’) Update version of the record for Update events. For Create events, the value of this column is always ‘NEW’.

ITEMKEY	PARAM_NAME	PARAM_CHAR	PARAM_NUM	PARAM_DATE	PARAM_INDICATOR
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.COUNTRY	DE			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS1	Rosemeyer Weg 24a			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS2				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS3				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS4				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.CITY	Essen			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.POSTAL_CODE	45328			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.STATE				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.PROVINCE				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.COUNTY				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS_KEY	RSMYRWG24.45328			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS_LINES_PHONETIC				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.LANGUAGE				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.SALES_TAX_GEOCODE				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.SALES_TAX_INSIDE_CITY_LIMITS	1			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.CONTENT_SOURCE_TYPE	USER_ENTERED			NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE_CATEGORY				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE1				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE2				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE3				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE4				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE5				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE6				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE7				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE8				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE9				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE10				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE11				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE12				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE13				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE14				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE15				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE16				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE17				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE18				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE19				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ATTRIBUTE20				NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.LOCATION_ID		1080		NEW
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ORIG_SYSTEM_REFERENCE	1866			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.COUNTRY	DE			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS1	Rosemeyer Weg 24a			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.CITY	Essen			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.POSTAL_CODE	45328			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ADDRESS_KEY	RSMYRWG24.45328			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.SALES_TAX_INSIDE_CITY_LIMITS	1			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.CONTENT_SOURCE_TYPE	USER_ENTERED			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.ACTUAL_CONTENT_SOURCE	USER_ENTERED			OLD
oracle.apps.ar.hz.Location.update39306	P_LOCATION_REC.LOCATION_ID		1080		OLD

Event Subscriptions

To have your custom code invoked when a TCA event is fired, you must create a subscription to the appropriate event. To maintain event subscriptions, you must use a Workflow Administrator responsibility and you must have System Administration access (typically logging in as the SYSADMIN user). Under Administrator Workflow, choose Business Events and then perform a search for the desired event. Once the desired event has been located, click the Subscription icon to show a list of all subscriptions to that

event. Below is a screenshot of the list of subscriptions in a test system for the Update Location event:

ORACLE Administrator Workflow Diagnostics Home Logout Preferences Help

Home Developer Studio **Business Events** Status Monitor Notifications Administration

Events | Subscriptions | Agents | Systems

Business Events: Events > Business Events: Events >

Subscriptions: Event: oracle.apps.ar.hz.Location.update

An event subscription is a registration indicating that a particular event is significant to a particular system. An event subscription specifies the processing to perform when the triggering event occurs. Create Subscription

System	Source Type	Out Agent	To Agent	Function	Workflow	Status
VIS11510.PROTEGE.COM	Local			hz_crmhk_pkg.update_location_pre		Enabled
VIS11510.PROTEGE.COM	Local			hz_event_elt.hz_param_delete		Enabled
VIS11510.PROTEGE.COM	Local			WSH_MAP_LOCATION_REGION_PKG.Rule_Location		Enabled
VIS11510.PROTEGE.COM	Local			csm_party_site_event_pkg.location_upd_wf_event_sub		Enabled
VIS11510.PROTEGE.COM	Local			pv_tap_bes_pkg.location_update_post		Enabled
VIS11510.PROTEGE.COM	Local			Pv_User_Resp_Pvt.manage_resp_on_address_change		Enabled
VIS11510.PROTEGE.COM	Local			WF_RULE.Default_Rule	IGSPE002/ADDR_UPDATE	Enabled

By clicking on the Update icon, we get details for the subscription (in this case, the first one listed above):

Subscriber

System VIS11510.PROTEGE.COM

Triggering Condition

Source Type Local
 Event Filter oracle.apps.ar.hz.Location.update
 Source Agent

Execution Condition

Phase 101
Subscription with a phase 1- 99 are run synchronously , 100 and above are deferred.

* Status

Rule Data Key

Customization Level Limit

Action

Rule Function **hz_crmhk_pkg.update_location_pre**
The Rule Function controls the behavior of the subscript (Format : <Package> . <Function>)

Workflow Type

Workflow Process
Choose a Workflow Type, before choosing the Workflow Process for that Type

Out Agent

To Agent

Priority Normal

Parameters

In addition to your own logic, the rule function code must contain logic to retrieve the parameter values from the HZ_PARAM_TAB table to be able to use the Location data that was Updated when the event was fired. The function listed above was once directly called from the API as a User Hook before these

Business Event Callouts were instituted. Below is some of the code from this procedure used to read the parameter table:

```
.
.
.
hz_param_pkg.GetParameter(p_item_key => l_key,
                          x_param_tab => l_tab);

location_rec_fill
( P_LOCATION_REC      => P_LOCATION_REC,
  l_tab               => l_tab,
  p_ind               => 'NEW' );

location_rec_fill
( P_LOCATION_REC      => P_OLD_LOCATION_REC,
  l_tab               => l_tab,
  p_ind               => 'OLD' );
.
.
.
```

Once local records are populated with the data from the Parameter table, they are available for use in any custom processing that is desired.

To facilitate the order in which subscriptions are processed for each event, a Phase Number is assigned to the subscription. Subscriptions are processed in order of Phase Number from lowest to highest. A Phase Number of 100 or higher means that the subscription processing is done in Deferred mode by the Workflow Agent (i.e. run asynchronously of the transaction that fired the event). If the Phase Number is set to 99 or lower, the subscription is processed synchronously. Care should be taken in using Phase Numbers of 99 or less as the transaction that fired the event will not complete until the subscription is processed.

One of the subscriptions listed in the screenshot above is for a function HZ_EVENT_ELT.HZ_PARAM_DELETE to be invoked. You will see that this subscription is seeded into most of the TCA events. This function is used to remove (clean up) the rows from the parameter table for the event. It is important that this subscription be given a higher Phase Number than any other subscription for the event so as not to delete the parameters for the event before all subscriptions that may use them are processed. The seeded Phase Number for this cleanup function is 500. It is very important that this subscription does exist in every event that writes parameters to the HZ_PARAM_TAB table. If rows are left in this table for events that have been completely processed, they could rapidly build up and cause severe performance problems.

Beware the Loop!

Sometimes it might be necessary to want to update something about an object when any other update is done to that same object. Suppose that every time a Party is created in the TCA, it is desired that a Descriptive Flex Field in the HZ_PARTIES table keep track of how many times that Party has been updated. It would be simple to create a subscription to the Update Party event that runs some custom code to update the DFF. If proper coding standards are used, this would be accomplished by a call to the Update Party public API. The problem is that this in itself would fire another Update Party Business Event which would invoke the subscription again and so on, causing a loop. In this case, it would probably be best prior to calling the Update Party public API in your custom code to check to see if anything else other than the value of the DFF has changed. If not, then it is unnecessary to update the DFF again.

Conclusion

Business Event Callouts are a flexible and powerful feature in the TCA. They allow custom processing to occur in an asynchronous manner under the dominion of the Workflow Agent. Since User Hooks are no longer available, these Business Event Callouts are the method of choice for manipulating objects as activity occurs in the TCA.