

CREATING A DEVELOPMENT ENVIRONMENT, WORTHY OF WITHSTANDING STRINGENT CONTROLS AND AUDITS

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Introduction

We have streamlined our process for project tracking, production change control, customer sign off, and configuration management. Our process uses PeopleTools customizations to track customer requests, cost estimates, resource planning, project status, functional and technical requirements, testing, and approvals for implementation to production. We use a third party product to migrate batch and on-line enhancements. Finally, we use a workflow application to send emails to Quality Assurance, Customers, On-Call Support, and Management for approvals.

Raytheon is an industry leader in defense and government, electronics, space, information technology, technical services, and special mission aircraft. We currently use PeopleSoft Application version 8.8 and PeopleTools 8.47.08 on an Oracle 10g database with a Unix Sun Solaris operating system. We use the Quest software tool, STAT version 5.2.1, to perform our PeopleSoft migrations.

We have a centralized US payroll that pays more than 60,000 employees bi-weekly and 2,000 employees weekly. Within the payroll are 15 subsets or groups with the largest subset paying 14,000 employees. Raytheon's international locations use PeopleSoft for HR only. We have a total of 49 different company codes, 39 domestic and 10 international. We provide our employees with employee self service including On-Line Paycheck View, PTO, Direct Deposit, Federal W-4, State W-4, Emergency Contacts, Education, and Employee Fact Sheet.

Process Life Cycle

We use three main tools for our process life cycle: the Change Request Database, STAT migration tool, and the Production Change Notice also known as the PCN. (See Appendix 1 and 2) The Payroll/HR client sends a request to PeopleSoft IT where it is entered and documented in the change request database. A unique project number is automatically assigned to this request, and an automated email notification is sent to management to alert them that a new request was added. Within the change request database, the request is then assigned to the developer to estimate how many hours of IT effort it will take to complete the request. After estimating the effort, the developer updates the change request database with the estimate and updates the request status to 'Ready for Review'. An automatic email notification is sent to management with the updated status. Using PS Query, management runs a report of all requests with a 'Ready for Review' status. Management reviews this report with the clients at the monthly Change Control Board (CCB). Clients approve and prioritize the requests during this meeting.

Once a request has been approved by the client, management assigns it to a developer within the change request database. The developer creates a STAT entry that will contain all the batch and on-line modules that will be modified by the developer. A unique STAT Number is automatically assigned to this request by STAT. The project number from the change request database is also included on the STAT entry.

After the customer approves testing in the user acceptance test environment (UAT), the developer creates a Production Change Notice (PCN). The project number and stat number are included on the PCN. An automatic email notification is sent to the Peer Reviewer, Quality Assurance Reviewer, On-Call Support, Customer, and Manager for approval. The developer updates the status to "Install" on the change request database. An automatic email notification is sent to management with the updated status. The developer requests a migration to production using the STAT workflow.

PeopleSoft IT has a monthly migration. Using PS Query, the CM runs a report of all requests with an 'Install' status. The CM reviews this report with the developers at the monthly Pre-Migration meeting to verify which projects will be migrated in that month's migration window. The CM receives email notification from the PCN only after the peer review, quality assurance review, on-call notification, customer approval, and management approval is

complete. The CM should not move the request to production until all approvals are received. Once the approvals are received, the CM migrates the request to production using STAT. After performing the STAT migration, the CM updates the status to “Complete” on the change request database.

Change Request Database

Our on-line PeopleTools customization tracks customer requests when they are entered and documented. We use the change request database for multiple application requests, not exclusively PeopleSoft related requests. (See Appendix 3) All updates and changes are kept in the change request database from that point forward. Cost estimates are entered and reviewed at the CCB meeting. Funding approval dates are entered in the change request database after the CCB meeting. Status reports are run weekly using PS Query and are provided to the Customer Relationship Lead (CRL) so that they can review with the customer. These same reports are used by management for resource planning. Test plans and test results are also updated in the change request database. As statuses change, automated emails are sent to developers and managers. Automatic late notification reporting is produced weekly to notify developers of past due dates. An audit trail is available for the request which includes the information that was last updated, the before and after values and the time and date stamp.

The change request database requires the following fields to be entered when creating a request.

- Project Description – A one sentence description of the project that will be familiar to the customer.
- Application Name – The application referenced in this change request. A prompt table edit provides a drop-down list to the user of all the allowed applications.
- Work Type – The option that best describes the type of work requested. A prompt table edit provides a drop-down list to the user of all allowed work types.
- Customer Name – The name of the customer requesting the change. A prompt table edit provides a drop-down list to the user of all allowed customers.
- Priority – The priority or urgency of this request. A prompt table edit provides a drop-down list to the user of all allowed priorities.
- Received Date – This date defaults to the date the project was entered into the change request database.
- CRL – The customer relationship leader for the customer requesting the change. This field is defaulted to the CRL assigned to the application referenced in this request.
- Project IT/Lead – The person designated as the project or IT lead for this request. A prompt table edit provides a drop-down list to the user of all allowed project/IT leads.
- Project Status – The current overall status of this project. A prompt table edit provides a drop-down list to the user of all allowed project status codes.
- Charge Number - The charge number or cost center used to bill the labor back to the customer.
- Functional Specs – The functional specifications that describe the change or enhancement the customer is requesting.

Additional fields are provided to support the change request database, but are not required.

- Approval Date – The date the customer approved funding for this request.
- Rank - The customer ranking of this request. A prompt table edit provides a drop-down list to the user of all allowed ranking codes.
- Project Total Hours – The total number of hours estimated for this request.
- Production Change Request – A check box that denotes a change is made to production, be it hardware, software, data, schedule change, etc.
- Migration Type – The migration type, either Emergency or Normal, depending on the migration schedule of this application.
- Release Date – The date the changes included in this request will be migrated to production. Once a request is approved this becomes a required field.
- Package ID - If using the STAT migration tool, this is the STAT number. If not using STAT, this field is non applicable.
- Release ID – The release id for this request. PeopleSoft IT uses YY-MM format for the release id. If implementation falls between releases, round to the next release.

- Test Plans – Test plans and testing results documentation is notated for this request. This is required once a project enters Install or Complete status.
- Process Improvement – A check box to denote if this change is a process improvement for the customer or IT.

A change request can have multiple tasks within a change request. The following fields define a task assigned to a particular IT resource.

- IT Resource – A required field that designates the name of the IT resource assigned to this request. A prompt table edit provides a drop-down list to the user of all allowed IT resources.
- Task Status – A required field that details the current status of one particular task identified for this request. A prompt table edit provides a drop-down list to the user of all allowed task status codes.
- Sequence Number - A sequential number is automatically assigned for each task.
- Estimated Hours - The hours estimated by the IT resource for this task.
- Actual Hours – The actual number of hours spent by the IT resource on this task.
- Hours to Complete – The hours remaining to complete this task calculated by subtracting actual hours from estimated hours.
- IT Description/Comments - The detailed description of the changes to be made by IT for this task.

Production Change Notification (PCN)

In order to ensure that all approvals are received before requests are migrated to production, we use a customized Lotus Notes workflow application to send email approval requests to a Peer Reviewer, Quality Assurance Reviewer, Customer, On-Call Support, and Management before requesting the migration from the CM. (See Appendix 4) The developer initiates the PCN request. The peer reviewer verifies the request documentation and modifications. The customer approves migration to production based off completion of acceptance testing. The quality assurance reviewer verifies test plans and test results are documented in the change control database. On-call support is notified of migration to production so that they are not surprised in the middle of the night. Management approves migration to production. The CM migrates request to production after verifying that all approvals are complete. The developer verifies changes were successfully migrated to production.

Migrations cannot always be performed on a scheduled basis. Emergency migrations can occur when verbal approval is given by the client. However formal completion of PCN must occur within two business days. Email reminders are sent automatically to ensure the PCN is complete within the accepted time frame. If PCN's are not complete within two business days, they are reported as an exception in the audit process.

Migration Tool

STAT is used to migrate batch and on-line requests to UAT and production. The migration path is defined in STAT. (See Appendix 5) The CM role is also defined in STAT and is required to migrate to UAT and Production environments. STAT maintains version control. A baseline copy is taken from production and changes can always be backed out using the STAT tool.

The developer completes unit testing in the development environment and requests a migration to the UAT environment. PeopleSoft IT has a development environment where the developers perform unit testing and a UAT environment where the clients perform their acceptance testing and modules are staged before they move to production. The migration path is development to UAT to production. (See Appendix 6) The Configuration Manager (CM) performs the migration to the UAT environment. The developer does not have access to migrate to the UAT environment.

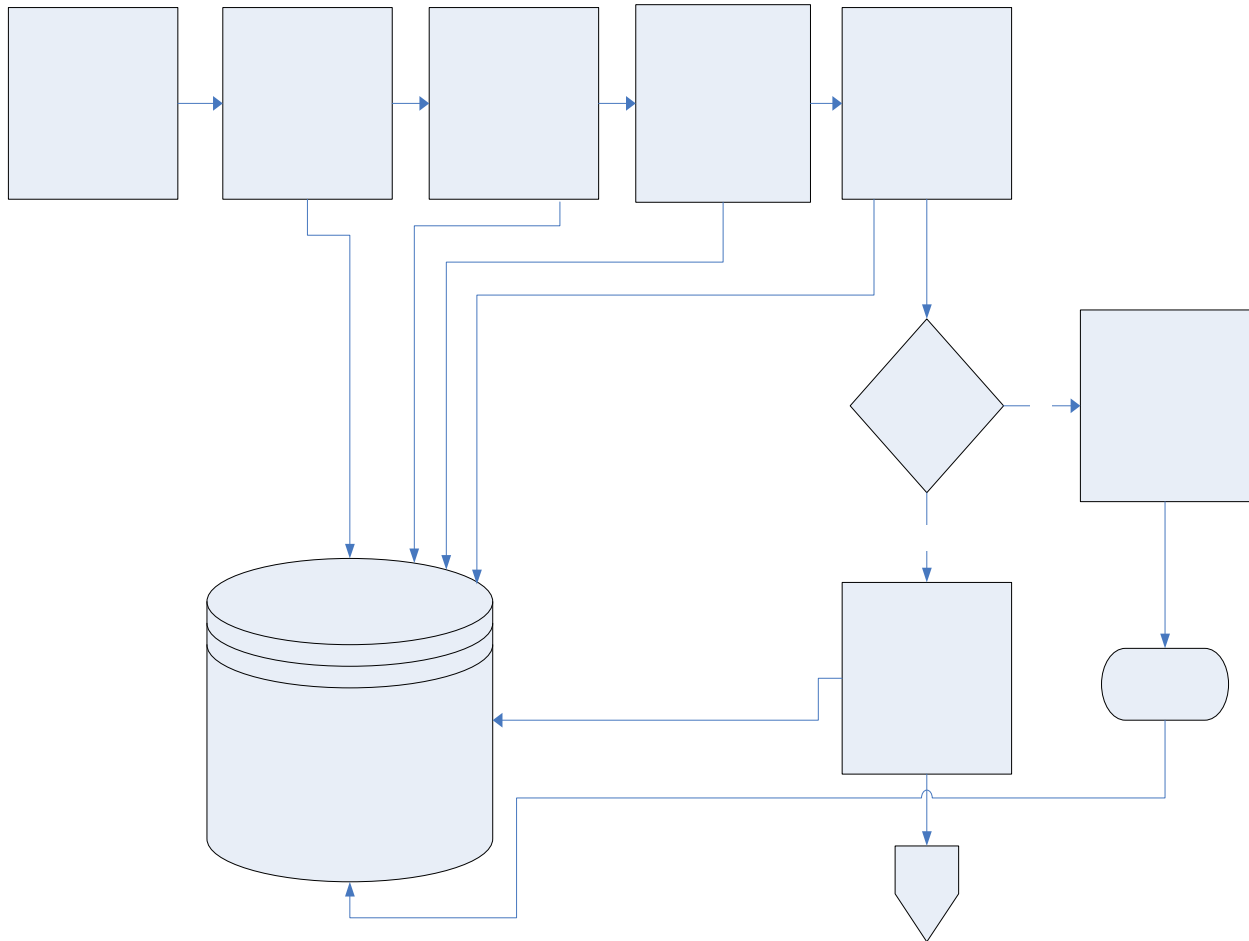
Audit

PeopleSoft HCM is in scope for the Sarbanes Oxley Act – Section 404 due to its potential for affecting the financial bottom line of the company. IT has specific audit control activities that must be followed in order to pass the internal and external audits. A combination of the Change Request Database, Production Change Notification, and STAT Migration Tool allows us to meet the IT requirements and pass the Sarbanes Oxley audits. Using PS Query against the change request database, we are able to provide on-demand audit reporting as per the auditors' requests. We then match the request with its PCN to verify that all approvals have occurred in a timely manner. Lastly, the STAT request is validated against the change request and PCN.

Conclusion

Using our developed processes for project tracking, production change control, and customer sign off, as well as our third party application software for configuration management, we are able to track a change request from user request to production implementation. This also enables us to comply with both internal and external audit requirements. We developed our change request database using PeopleTools. We use PS Query to satisfy various reporting requirements for users, clients, resources, change control board, and audit purposes.

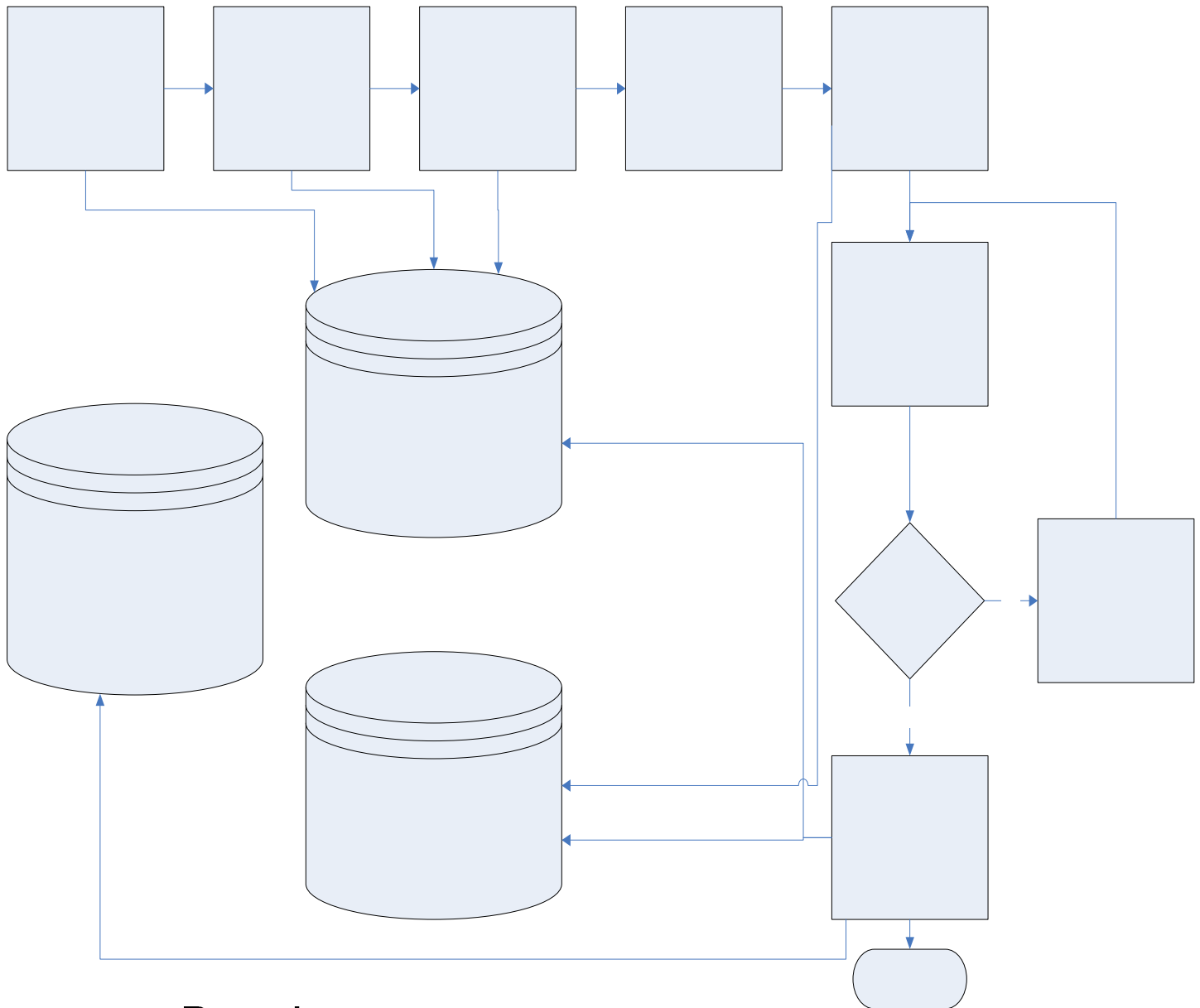
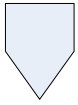
Appendix 1 - Change Request Flow



Client Request
received

Entered into
Change
Request db

Appendix 2 - Stat/Production Change Notification Flow



Developer
Creates
STAT
With STAT #

Developer
requests
UAT Migrate

Appendix 3 - Change Request DB Page

Project Tracking List			
Project Number	4400	Entered By	
		Last Updated By	
Project Description	enhancement - SPEC for Tracking Australian Base Pay		
Received Date	01/02/2008	Application Name	PeopleSoft
Work Type	5 - Enhancement	Customer Name	Smith, Jane
Priority	Priority 4	CRL	Jones, Jerry
Approval Date	01/03/2008	Project/IT Lead	Lewis, Rachel
Rank	4 - N/A	Project Status	Ready to Test
Charge No	3514640	Tracking Australian Base pay	
Project Total Estimated Hours	16.00		
Production Change Request	<input type="checkbox"/>	Migration Type	Normal
		Release Date	02/13/2008
		Package ID	HR-726
		Release ID	08-02
Functional Specifications			
Jane Smith 01/02/2008 01:02 PM Please note that this request is pending financial approval. I had sent it out without getting the approval.			
Jane Smith 01/02/2008 08:06 AM The following request is to provide capability for reporting and analysis on 'base pay' for all Raytheon employees globally. Currently we port over the Compensation components of pay for all domestic			
Test Plan & Results			
Created test files out of HRWORK and sent to the DataWarehouse for review.			

Appendix 3 - Change Request DB Page

Process Improvement?

Benefits of the Process Improvement

IT Resource Tracking		Find	First	1 of 1	Last
Sequence number	1				
Estimated Hours	<input type="text" value="16.00"/>				
Actual Hours	<input type="text"/>	*IT Resource	<input type="text"/>		
Hours to Complete	<input type="text" value="16.00"/>	Task Status	<input type="text" value="Ready to Test"/>		
IT Description/Comments					
<p>1/2/08 - QDS - DW will no longer need the pay_comp file that is produced as part of the TASOUT. They want a dump of the PS_COMPENSATION table using the same type of logic that is used when we dump the PS_JOB and PS_JOB_JR tables. Write a SQL similar to DW_PS_JOB.sql or DW_PS_JOB_JR.sql. They will also require a one type dump of the PS_COMPENSATION table that contains all records.</p>					

[Run a Query](#)

Save

Return to Search

Previous in List

Next in List

Add

Include History

Appendix 4 - Production Change Notification

**Production Change Notice (PCN)
Installation Routing Form**

Application Name: PeopleSoft
Change Request Number: 4400
Change Request Description: Tracking Australia Pay - Send Compensation data to the DW

Type: Batch On Line Scheduling Data Patch Other

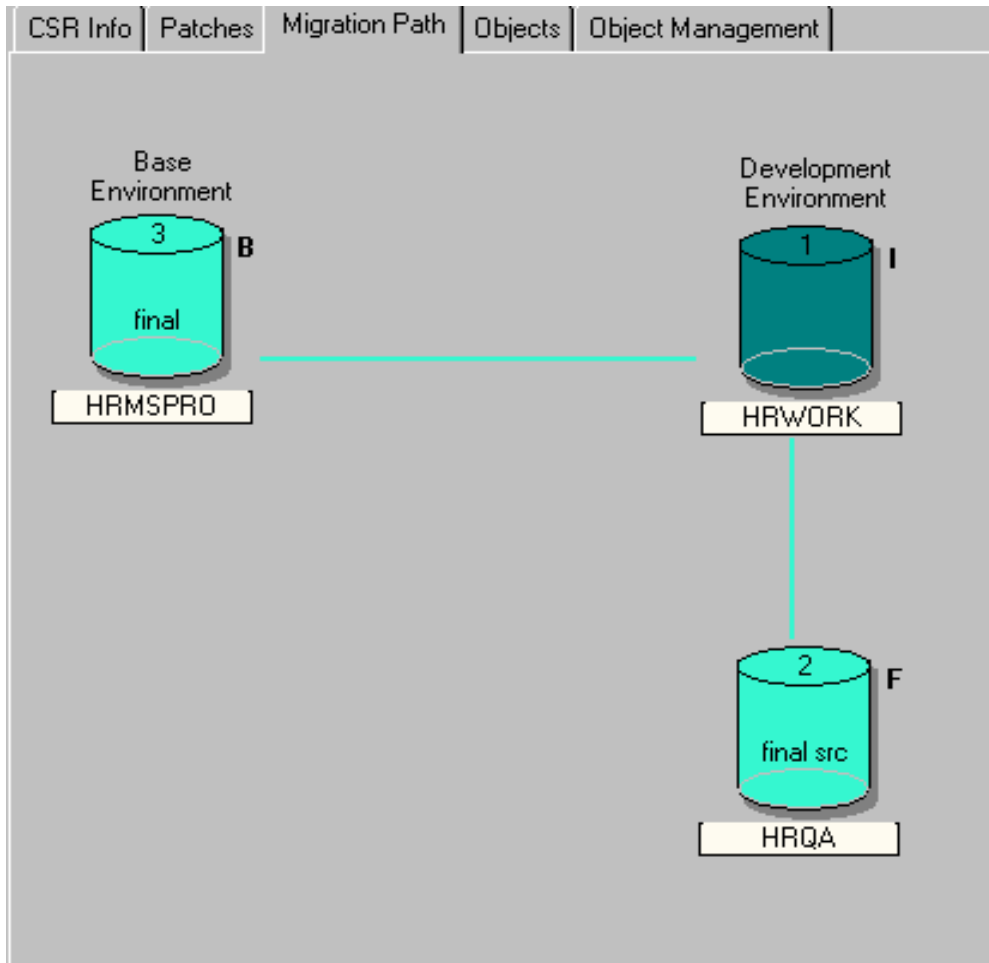
Requested Implementation Date: 02/13/2008
External or International Access: Yes No
Normal Implementation: Yes No

PeopleSoft STAT CSR#: HR-726

	Date	Comments
Reviewed and tested changes	01/31/2008	
<input checked="" type="checkbox"/> Peer Review - Reviews documentation and software changes.	01/31/2008	
<input checked="" type="checkbox"/> QA - Reviews changes and testing results.	01/31/2008	
<input checked="" type="checkbox"/> Customer - Verifies that Acceptance Testing has been completed.	02/08/2008	
inf_c_support <input checked="" type="checkbox"/> On-Call Support - Acknowledges Changes	01/31/2008	
<input checked="" type="checkbox"/> IT Management - Acknowledges Changes	02/01/2008	
<input checked="" type="checkbox"/> Configuration Manager - Moves Changes to Production	02/13/2008	20080213 - btw - migrated final from hrqa to hrmspro, batch sql customized text.
<input checked="" type="checkbox"/> Originator - Verifies change in Production	02/13/2008	
<input checked="" type="checkbox"/> Configuration Manager - Change Request completed and notifications sent	02/13/2008	open complete

Comments/Instructions:

Appendix 5 - Stat Migration Path



Appendix 6 - Stat Workflow

Change/Service Request - HRMS HR-762

Customer: Alt # Financial Shared Services

Cust Prio: Low Tracking # 4576-N

Application: Human Resources and Payr Env: Project:

Short Descr: Chg Advy/Chk Batch print to use Chk Dt from PAY_CHK

CSR Type: Defect Status: Install

Priority: Low Workflow: Defect

Queue: Migrators User Id:

Open By:

Opened: 15FEB2008 13:46

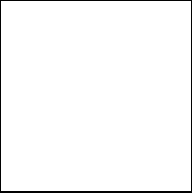
Due: 26MAR2008 13:46

Closed: 01JAN1900 00:00

[Description] | Task/Time | Detail Logs | [PeopleSoft] | **[Workflow]** | [History] | Issues | [Resolution]

```

graph TD
    S1[S *New: Open] --> E1[E Deleted]
    S1 --> E2[E On Hold]
    S1 --> E3[E Combined with other project]
    S1 --> S2[S *In Progress]
    S2 --> E4[E Deleted]
    S2 --> E5[E On Hold]
    S2 --> E6[E Combined with other project]
    S2 --> S3[S *Ready To Migrate]
    S3 --> S4[S *Ready To Test]
    S4 --> S5[S *Install]
  
```



New UNASSIGNED Projects

