

QM-Documentation

Software Development

PD SWD

01.00

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1. General

1.1. Scope

This process applies to all entities of KCC.

This document provides a guideline for performing software development for all products, solutions and customers in all regions.

1.2. Abbreviations

DP	Design Prime
D	Designer
T	Tester
PJM	Project Manager
TP	Test Prime

1.3. Referenced Documents

PD PJM	Project Management
PD TM	Test Management
PD OUT	Outtasking
PD DOK	Documentation
PD ACC	Acceptance
PD DEL	Development Environment and Lab

1.4. Mandatory Related Documents

Document	Details
SOP for document review	
Template SA (Software Architecture)	in-Step generated document
Template SWA (Template Software Architecture)	in-Step generated document
Template DD (Detailed Design)	in-Step generated document
Template TP (Test Plan)	in-Step generated document
Template AP (Acceptance Plan)	in-Step generated document

2. Input, Output and Criteria**2.1. Input**

Name	Archive		
	Medium	Location	Period
System architecture [draft]	generated doc	in-Step	13

TRS	generated doc	in-Step	13
URS	generated doc	in-Step	13
Project Assignment	File	File share	13
Project Plan	File	File share	13
Estimation of Efforts	File	File share	13
Problem Tickets	DB entry	ProStar	13
Acceptance Plan	generated doc	in-Step	13

2.2. Output

Name	Archive		
	Medium	Location	Period
WBS Work Breakdown Structure	generated doc	in-Step	13
SA System Architecture	generated doc	in-Step	13
SWA Software Architecture	generated doc	in-Step	13
DD Detailed Design	File	in-Step	13
SR Service Request	DB entry	ProStar	13
TP Test Plan	generated doc	in-Step	13
Review Protocol	DB entry	in-Step	13
Test Report / Results	generated doc/ DB entry	in-Step	13
SW units (source code)	File	Clearcase	13
Build Files	File	in-Step	13
Load (Component)	File	Clearcase	13
System	Files	Clearcase	13

2.3. Entry and Exit

2.3.1. Entry

The process starts with the project assignment.

2.3.2. Exit

Regular exit is after receiving the statement of acceptance from the customer. PD PJM may terminate an instance of PD SWD at any time.

3. Process

#	Activity	Description/  System&Archive /  Template	Responsibilities		
		◀ Input/ ▶ Output / ♦ Decision	D	C	Info
01	« Project assigned	After the project has been assigned via <u>PD PJM</u> the relevant documents are handed over to the design prime. The DP checks system architecture and TRS and consults with TSM/PA in case any clarification is needed.			
	Handover of requirements and system architecture draft	 in-Step: System specifications, System Design & Architecture  n/a ◀ System architecture [draft], TRS, URS, Project Assignment , Project Plan ▶ n/a	DP	D	
02	Planning of development (WBS)	Based on the actual project plan and the estimated efforts the DP creates a detailed WBS (tasks in in-Step) for the work packages within the SWD.			
		 in-Step: Project Management  n/a ◀ Project plan; estimation of efforts ▶ WBS	DP	PjM	
03	Refining system architecture	The draft of the system architecture is refined to a detailed level which is suitable for the SWD. After that the review of the system architecture (including specification of system interfaces) is performed and the document is reworked if necessary. Finally the reviewed SA is delivered to the processes of DOK, TM and OUT and PJM receives the milestone information.			
		 in-Step: System specifications  SOP for document review System architecture ◀ System architecture [draft] ▶ SA to PD TM , PD OUT , PD DOK ♦ MILESTONE: System architecture REVIEWED	DP	D	PjM
04	Delivery planning	Based on the system architecture the strategy for delivery is derived. If this has an impact on the project plan, the latter is adjusted to conform to the strategy of delivery. System components are assigned to individual designers for creating the software architecture (see step 05).			
		 in-Step: System specifications  n/a ◀ System architecture ▶ Adjusted project plan Assigned components	DP		D

#	Activity	Description/  System&Archive /  Template			Responsibilities		
		◀ Input/ ▶ Output / ◆ Decision			D	C	Info
05	Creating software architecture	The software architecture (including specification of interfaces) is created and a review is performed. After the review the document is reworked if necessary. Finally the reviewed SWA is delivered to the processes of TM and OUT.  in-Step: System Components ◀ System architecture ▶  Template “software architecture”; SOP for document review Software architecture; SWA to PB TM, PB_OUT ◆ MILESTONE: Software architecture REVIEWED			D	DP, TP	PjM
06	Setup development environment	A service request regarding the development environment is entered in case a new environment is needed. This request is directed to the process DEL.  n/a ◀ Software architecture ▶  n/a Service request			DP		PjM
07	Creating detailed design	Based on the software architecture the detailed design is created. Thereafter a review of the document(s) is performed and a rework is performed if necessary. Finally the reviewed DD is delivered to the processes of DOK and TM.  in-Step: System Components ◀ Software architecture ▶  Template “detailed design”; SOP for document review Detailed design; DD to PB TM, PB_DOK ◆ MILESTONE: Detailed Design REVIEWED			D	DP	PjM
08	Assigning DD to developers	The design prime assigns any element of the detailed design to 1 developer who is then responsible for the creation of the code and the respective documentation.  in-Step: System Components ◀ Detailed design ▶  “developer task” (in-Step) Assigned developer tasks			DP		D

#	Activity	Description/  System&Archive /  Template ◀ Input/ ▶ Output / ♦ Decision	Responsibilities		
			D	C	Info
09	Unit development and testing	Software units are created and documented. Unit test plans are created and agreed by the respective designers. The unit test plans are executed and the results are reported within a test report. The scope of any code review is defined by the design prime and thereafter reviews are performed by the developers and designers who have been selected. In case code reviews or tests uncover defects a rework is performed and if necessary the reviews/tests are repeated. At the end all defects need to be solved and the documentation of the software units needs to be completed.  in-Step: System specifications Prostar  "test plan" (in-Step) ◀ Detailed design; risk analysis Problem tickets ▶ Test plan; review protocols; test reports; technical documentation; SW units ♦ MILESTONE: Code REVIEWED / Unit TESTED	D	DP; D	PjM
10	Load build	To build the load it is verified that all relevant units are checked in (into the repository). If this is the case, the build files are created as described in the design documents and the load build is executed.  Repository  n/a ◀ System architecture; detailed design; SW units ▶ Build files, load	D	DP	
11	Performing sanity test	After the load is built or aggregated it is configured and a sanity test is performed. The sanity test might result in a need for reworking 1-n units. In any case the results are documented and a step back to #09 is performed if rework is needed.  Repository  n/a ◀ Load ▶ Test results ♦ Sanity test OK Go to #12 Sanity test NOK Back to #09 (Problem ticket) ♦ MILESTONE: Sanity Test PASSED	T	D	DP, TP
12	Integration test level 1-n / System testing	Testable objects are handed over (the status of the TO is set to "ready for test") to the process PD TM and then tested there. After completion of the test a test report and if applicable problem tickets are returned and analysed here. If open problem tickets exist, these are assigned to the respective developers and a step back to #09 is performed. In case further aggregations are needed they are created according to the system or component architecture and thereafter fed into the PD TM again. This is repeated until the final aggregation (=system) is reached.  in-Step: System Design & Architecture, System Components  n/a ◀ System architecture; units and components ▶ Tested components; tested system Next aggregation needed Restart #12 Final aggregation reached Go to #13 Defect(s) detected Back to #09 (Problem ticket) ♦ MILESTONE: Test level x COMPLETED / System TESTED	DP	TP	TP, PjM

#	Activity	Description/  System&Archive /  Template ◀ Input/ ▶ Output / ♦ Decision	Responsibilities		
			D	C	Info
13	Preparing acceptance	After successful completion of the system test the acceptance plan is checked and reworked if necessary. Thereafter it is delivered to PD_ACC and Acceptance is performed according to PD_ACC.  in-Step: Quality Assurance  "Acceptance Plan" (in-Step) ◀ Acceptance plan ▶ Acceptance plan ♦ MILESTONE: Ready for acceptance	TP	DP	PjM
14	« Problem ticket	In case any problem tickets are generated during PD_ACC, these are assigned to the respective developers and a step back to #09 is performed.  Prostar  n/a ◀ Problem tickets ▶ ♦ No defects Go to #15 Defect(s) detected Back to #09 (Problem ticket)	DP	TP	PjM
15	Close down	Once acceptance has been successful the software development is completed. Final hand over to project management PD_PjM is performed and the development team is resolved. Lessons learned are collected and all relevant objects (code and documents) are stored in the accepted versions.  n/a  n/a ◀ n/a ▶ Lessons learned; complete repository of objects ♦ MILESTONE: Acceptance COMPLETED	DP	PjM	

3.1. Annotations

none

4. KPIs and Metrics

Not defined in the moment.

5. History

Version	Date	Reason	Change
01.00	2009-06-15	First edition	