

## CENTRE CMMI 1.2 Artifacts for Process Improvement

# CENTRE™ (Common Enterprise Resource)

### Systems and Software Engineering Platform designed for CMMI compliance

**Capability Maturity Model Integration (CMMI)** is a process improvement approach that provides organizations with the essential elements of effective processes. **CMMI** helps integrate traditionally separate organizational functions, set process improvement goals and priorities, provide guidance for quality processes, and provide a point of reference for appraising current processes. (Software Engineering Institute, **SEI** web-site, [www.sei.cmu.edu/cmmi/general/](http://www.sei.cmu.edu/cmmi/general/))

**CENTRE** is a software product designed, authored and produced by **Integration Technologies Group Inc.** **CENTRE** is composed of configurable modules intended to provide compliance with **CMMI** process areas and **ISO** clauses while increasing organizational efficiency, effectiveness and continual improvement.

**Integration Technologies Group Inc. (ITG)**, [www.itgonline.com](http://www.itgonline.com), is a systems and software engineering company founded in 1984 and headquartered in Falls Church, Virginia, USA. ITG is ISO 20000-1:2005, ISO 9001:2008 and ISO 27001:2005 registered. As well, the company is an SEI member and partner and has been externally appraised twice at CMMI Level 3.

This document contains brief descriptions of **CENTRE CMMI** Software features which cover specific and generic evidence of compliance for practices required by **CMMI for Development Version 1.2** process areas. As with all process improvement methodologies and industry best practices, management commitment, quality record collection, analysis and processing are required to achieve improvement objectives and successful appraisals and registrations.

**CENTRE** was developed to facilitate today's Best Practices Certifications and process improvement methodologies. By using **CENTRE**, businesses can increase efficiencies across key business processes and satisfy many of the requirements stipulated by the **SEI** and international standards boards. Some of the benefits that may be derived by implementing compliance with **CMMI** process areas are:

- Improved Quality of Output
- Increased Accuracy of Estimates
- Earlier Identification of Defects
- Accurate Measurements of Processes
- Higher Operational Efficiency
- Cost Reduction and Integration with Industry Standards

As a result, an organization using **CENTRE** will be recognized as delivering successful service to its clients and constituents with dependably high-quality and consistent methods and practices. The **CENTRE CMMI** Software 1.2 implementation includes 'CENTRE ISO 9001:2008' Quality Management System elements which are:

CENTRE CMMI Version 1.2 Compliance, Requirements Management - White Paper

Author: Michael P. Angelakis      DCS #1002      Version: 4.0      Date: 04/13/10      Page 1 of 6

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## **CENTRE CMMI 1.2 Artifacts for Process Improvement**

**CENTRE - Document Control System (DCS)**  
**CENTRE - Records Control System (RCS)**  
**CENTRE - Human Resources**  
**CENTRE - Meeting Management**  
**CENTRE - Customer Satisfaction Surveys**  
**CENTRE - Supply Chain Management**  
**CENTRE - Ad-Hoc Report Writer**

These elements are described in more detail in the **CENTRE ISO 9001:2008** Compliance Package - White Paper.

### **Disclaimer**

Use of CENTRE modules or similar software alone does not result in organizational CMMI conformance. Documented procedures, defined processes and work instructions, staff training and internal audits of Process Areas compliance are needed to prepare an organization for a CMMI appraisal. The ITG CENTRE Document Control System (DCS) contains documentation that describes the ITG Quality Management System and consists principally of the following documents:

- Business Quality Manual (BQM) in conformance with ISO 9001:2008,
- Information Technology Services Management manual (ITSM) in conformance with ISO 20000-1:2005,
- Information Security Management System manual (ISMS) in conformance with ISO 27001:2005,
- Corporate process workflow, Quality Procedures and Quality Work Instructions.

# CENTRE CMMI 1.2 Artifacts for Process Improvement

## CENTRE CMMI Specific & Generic Evidence Elements:

### CENTRE – Requirements Management

SP 1.1 *Develop an understanding with the requirements providers on the meaning of the requirements.*

**CENTRE Evidence:** The Change Management module is utilized to provide the basis for the creation of “Requirements” in CENTRE. Upon the submission and approval of a Change Request, a Requirement is created and assigned. The direct evidence for this Specific Practice is Change and Requirements records.

#### Post Change Review

The mandatory editing fields are indicated with an asterisk \*

\*Date of Follow-up Audit:

Assigned Auditor:

Audit Program Manager:

Actual Follow-up Date:

Was action taken effective?:

Resolution:

#### Risk Impact and Back-out of the Change

The mandatory editing fields are indicated with an asterisk \*

\*Describe the potential risks, impacts, and business benefits associated with the change request:

Identify and describe a methodology for reverting or remedying the change if found unsatisfactory after implementation:

#### Change Record

Workflow Status [ Not Initiated ]

Change Request Name: ITIL V3 - Modify the Asset 'Serial Number Summary' display to include two (2) additional fields.

Category: Minor Change

Change Type: Software

Change Authority: Software Engineering MMB

Proposed Change: Modify the Asset 'Serial Number Summary' display to include two (2) additional fields of information.

1- Number of Problems related to this item.

2- Number of Changes related to this item.

Hyperlink the information field to display the Changes and Problems related to the

Description of current or potential non-conformance/justification: Provide additional information when viewing a 'Serial Number Summary'

Root Cause: n/a

Change Request Documents

Issued By: Vespe, Robert R.

Action Type: Improvement

Internal Audit Number:

Status: Issued

Approved By:

Assigned To:

Information Security Approval Required: NO

Approved by Security Officer:

Approved by Security Officer:

Software Requirements: 0

Service Records: 0

Date Issued: 8/15/2008 10:24:07 AM

Priority: MEDIUM

Validation Date:

Begin Work Date:

Due Date:

Completed Date:

Validation Date:

Date Last Updated: 8/15/2008 10:24:07 AM

Last Updated By: Vespe, Robert R.

#### Related (CIs) to this Change

The mandatory editing fields are indicated with an asterisk \*

\*Select Configuration Item SourceType: Change Request

\*Select Configuration Item Source: Select a Source

- Select a Source
- Contracts
- Contract Assets
- Service Calls
- Software Requirement
- Scan Request
- Projects
- Customer Survey
- Customer Survey No FE
- Electronic Repairs
- Subcontractors
- Labor Resources
- Meeting Minutes

#### Requirement Development

Workflow Status [ Not Initiated ]

Program Name: ITC CENTRE

Version Release Number: 4.6.6

Functional Area/Screen: Service Call - Task - Change Requests - Causal Analysis and Resolution Screens

Requirement Description: This requirement is being changed to reflect discussions during the Software Management Review Board meeting.

1- At the Project screen level the Project Manager will decide. (by selecting an available option), if the project is subject to Customer QA and Surveys.

2- A list of available Customer Survey Forms will be presented to the Project Manager for selection

3- All forms must include the contents of the paragraph below.

4/19/2007 8:55:16 AM Entered by: Agritellis, Elias C.

Requested by: Angelakis, Michael

4/19/2007 8:55:17 AM Entered by: Agritellis, Elias C.

Tracing and correcting problem areas. CMMI V compliance.

Created Change Request 83

Requirement Rationale:

Uploaded Documents:

Change Request #: 83

Tasks: 1

Verification Log: 3/29/2008 6:50:48

Verification test = PA

3/29/2008 3:17:08

On the SelectAllCus breaks if you select and click on the Cor

3/29/2008 2:56:10

Searching for all sur Professional Service

Pre-Release Defects: 6

Verification Tests: Pa

Modified Components: 1

Entered By: Maheed

DEPLOYMENT INSTR

1. Create new table requirements72tabl

2. Add 2 new colum QAStatusCodeID int

#### Assessments

The mandatory editing fields are indicated with an asterisk \*

Cost Reduction:  (Person Hours Per Year Value)

Revenue Enhancement:  (Currency Value)

Compliance:  (Registration/Appraisal)

Risk to Quality:

Risk to Finance:

Risk to Reputation:

SP 1.2 *Obtain commitments to the requirements from the project participants.*

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## CENTRE CMMI 1.2 Artifacts for Process Improvement

**CENTRE Evidence:** As seen above, the Change Management Module requires both an analysis of the Change Request as well as approvals from the relevant authorities.

**SP 1.3 Manage changes to the requirements as they evolve during the project.**

**CENTRE Evidence:** Change Management records provide the direct evidence for this practice:

Search Change Records:

Any number of field criteria including 'Wild Card values' may be entered

Category

- Select
- Major Change
- Standard Change
- Minor Change
- Significant Change
- Urgent

Type

- Select
- Hardware
- Software
- Documentation
- Other
- Contract Initiation

Authority

- Select
- Not Assigned
- Best Practices MRB
- Department Manager
- Executive Management
- GRI/CMS MRB
- Infrastructure MRB
- Logistics MRB
- Software Engineering MRB
- TAM/SME Operations MRB
- Training & Certifications MRB

Action

- Select
- Improve
- Corrective Action
- Preventive Action
- Organizational Innovation
- Contract Initiation

Change Management

List of Matching Change Records (may be sorted by clicking on any 'Blue' column heading)

SELECT CHANGE REQUEST										
Change Request #	Change Request Name	Change Authority	Proposed Change	Issued Date	Issuer	Approved Date	Priority	Assigned To	Status	Begin Work Date
4	Improve Phone Answering Procedure	Department Manager	How to answer phone by COs	9/18/2006 6:24:52 PM	Karmiris, Lefteris	1/23/2007 4:38:27 PM	LOW	Martinez, Christina G.	Closed	6/24/2007 4:38:27 PM
5	Test Change Management Processes	Department Manager	This is to document the Change Request system for ITIL certification	9/29/2006 3:59:11 PM	Vespe, Robert R.		HIGH	None	Cancelled	
6	ITIL Requirement - Add the Problem Record ID to the Change Request Screen	Software Engineering MRB	11/14/2006 - Lee Leiber - As requested and approved by the Software MRB - 1. On the "Change Record", add a text box labeled "Affected CIs". This box will not be editable. 2. On the "Change Record", add a "Get Configuration Item" but	10/13/2006 5:10:06 PM	Vespe, Robert R.	11/9/2006 11:07:23 AM	HIGH	Hadjikyriakou, George	Closed	11/20/2006 12:11:44 PM
7	ITIL Requirement - Add a Severity code and SLA values to the asset data record and service call score	Software Engineering MRB	1- Add a Severity field (read-only calculated severity code (1-5) from the values indicated in the Criticality and Impact fields. Develop a method to use the criticality and impact codes to create a weighted severity code value. As an asset is entered,	10/13/2006 5:37:16 PM	Vespe, Robert R.	11/9/2006 11:10:56 AM	HIGH	Hadjikyriakou, George	Closed	11/15/2006 2:10:17 PM
8	REQUEST WITHDRAWN - ITIL Requirement - Record (Log) Asset Modifications	Best Practices MRB	Robert Vespe, 11-01-06 This Change Request is withdrawn - Serial Number Change' log file .... To satisfy the ITIL requirement, 'As changes are made to the CI record (dates, locations), the modified information is cyclically recorded in the 'Comme	10/18/2006 3:43:23 PM	Vespe, Robert R.		HIGH	None	Cancelled	
9	ITIL Requirement - Modify the Asset Record - Add a Lifecycle Status Field	Best Practices MRB	To satisfy ITIL's configuration management requirement "Does the tool support customizable CI Lifecycle status", please make the following changes: 1- Modification of the asset table is requested, create an additional asset field titled 'Lifecycle Stat	10/24/2006 9:45:29 AM	Vespe, Robert R.	11/5/2006 11:16:45 AM	MEDIUM	Hadjikyriakou, George	Closed	
10	Inventory adjustments	Logistics MRB	Permit Ali to enter Inventory Management and "Receive" shipments from Falls Church Warehouse. Also permit Ali appropriate rights so that he can adjust the inventory of the HUB Warehouse.	10/24/2006 1:41:04 PM	Angelakis, Michael P.	11/9/2006 11:19:07 AM	NONE	Hadjikyriakou, George	Closed	10/12/2007 5:14:31 PM
11	Expansion of Subcontractor Data Profile	Software Engineering MRB	Expand Subcontractor Profile Screen to capture Subcontractor Service Levels and Rate Structure break down for all Subcontractors. Below is the information we will be capturing from Subcontractors	11/16/2006 2:25:51 PM	Medina, Abel F.	12/20/2006 4:13:16 PM	HIGH	Hadjikyriakou, George	Denied	12/26/2006 3:09:03 PM

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# CENTRE CMMI 1.2 Artifacts for Process Improvement

SP 1.4 *Maintain bidirectional traceability among the requirements and work products.*

**CENTRE Evidence:** Approved Change Requests result in Requirements that are managed by the Release Management module:

## Change Record

**VIEW CHANGE REQUEST [ 33 ]**  
Workflow Status [ Not Initiated ]  
Change Request Name: Causal Analysis and Resolution  
Category: Standard Change  
Change Type: Software  
Change Authority: Software Engineering MRB  
Proposed Change: 4/19/2007 8:55:16 AM Entered by: Agritelis, Elias C.  
Requested by: Angelakis, Michael  
Add Customer Survey functionality to Tasks and Change Requests as in Service Calls. There will be links to the survey screen on all three screens. The existing Survey

## Requirement

**VIEW REQUIREMENT [ 872 ]**  
Workflow Status [ Not Initiated ]  
Program Name: ITG CENTRE  
Version Release Number: 4.6.6  
Functional Area/Screen: Service Call - Task - Change Requests - Causal Analysis and Resolution Screens  
Requirement Description: 10/23/2007 3:43:30 PM Entered by: Angelakis, Michael P.  
1-At the Project screen level the Project Manager will decide, (by selecting an available option), if the project is subject to Customer QA and Surveys.  
2-A list of available Customer Survey Forms will be presented to the Project Manager for selection  
3- All forms must include the contents of the paragraph below.  
4/19/2007 8:55:16 AM Entered by: Agritelis, Elias C.  
Requirement Rationale: 4/19/2007 8:55:17 AM Entered by: Agritelis, Elias C.  
Tracing and correcting problem areas, CMMI V compliance.  
Created Change Request 83

## Release 'Requirement' Scores

Line Item	Requirement ID	Tasks Status	Assigned To Developer	Requirement Type	Validation By	Requirement Review Issues Identified	Peer Review Issues Identified	Developer Conducted Peer Review	Total Estimated Hours	Total Actual Hours	Total Variance %	Total Defects Pre-Release	Total Defects Post-Release
1	828	↓ Closed	AgriTelis, Elias C.	New Functionality	Angelakis, Michael P.	No	No	Hadjikyriakou, George	53.25	56.5	-6.1	0	0
2	1102	↓ Closed	Pangalos, Spyro (n)	New Functionality	Angelakis, Michael P.	No	No	Hadjikyriakou, George	36.88958	56.25	-32.48	1	1
3	1108	↓ Closed	Guttkonda, Maheedhar	New Functionality	Angelakis, Michael P.	No	No	Hadjikyriakou, George	35.8781	44	-22.64	0	0
4	1141	↓ Closed	Guttkonda, Maheedhar	Defect	None	No	No	None	5.2916	0	100	0	0

## Design, Estimates, and Process areas

**EDIT DESIGN SPECIFICATION FOR REQUIREMENT [ 872 ]**  
Date Created: 4/19/2007 9:13:08 AM  
Date Last Updated: 2/9/2008 11:59:46 AM  
Description: Add Customer Survey functionality to Tasks and Change Requests as in Service Calls. There will be links to navigate to the survey screen these screens. The existing Survey screens (2) will be modified to include a new set of Causal Analysis and Resolution fields as described below in the following sections:

**EDIT ESTIMATE FOR REQUIREMENT [ 872 ]**  
The mandatory editing fields are indicated with an asterisk \*  
Work Description: 10/23/2007 3:43:30 PM Entered by: Angelakis, Michael P.  
1-At the Project screen level the Project Manager will decide, (by selecting an available option), if the project is subject to Customer QA and Surveys.

## Release Scores and Comparison

Line Item	Program	Release	Status	Total Requirements	Total Estimated Hours	Total Actual Hours	% Variance	Absolute % Variance	Total Defects Pre-Release	Total Defects Post-Release	Total Defect Requirements with High Impact Or High Severity	Percent Defect Requirements with High Impact Or High Severity	Total Defect Requirements with Medium/Low Severity	Percent Defect Requirements with Medium/Low Severity
0	POB	POB 1.1	Pending	1	62.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Government Response	GR 2.0	Pending	2	4.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	ITG CENTRE	4.6.6	Pending	18	156.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	ITG CENTRE	4.6.6	Open	35	1178.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	ITG CENTRE	4.6.6	Closed	21	775.88	825.75	-6.46	29.65	16	2	1	3.23	0	0
5	ITG CENTRE	4.6.6	Closed	39	1330.68	1196	10.12	14.06	36	2	1	2.03	1	2.03
6	DDMA Migration Technical Solution	1.0	Closed	1	218	375.5	-72.25	72.25	1	0	0	0	0	0
7	DCS	DCS 1.0	Closed	2	35.23	56	-1.36	2.56	1	0	0	0	0	0
8	ITG CENTRE	4.6.6	Closed	32	1010.16	920.25	8.9	14.84	24	6	2	3.77	9	14.88
9	ITG CENTRE	4.6.6	Closed	61	808.64	896	-10.8	51.13	23	9	4	9.76	6	14.63
10	Star Interface	SI (Phase 1)	Closed	1	100	237	-137	137	2	0	0	0	0	0
11	Helioc Land Registry	HLR 1.0	Pending	25	388.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	ITG CENTRE	4.6.6	Closed	49	614.8	573.5	6.07	19.51	5	3	0	0	9	18.37
13	ITG CENTRE	4.6.6	Closed	14	841.47	406	-1.13	8.13	5	11	0	0	9	3.14

Process Area Name	Process Area Description	Select
CMMI/CAR	Causal Analysis & Resolution	<input type="checkbox"/>
CMMI/CM	Configuration Management	<input type="checkbox"/>
CMMI/DAR	Decision Analysis & Resolution	<input type="checkbox"/>
CMMI/IPM	Integrated Project Management + IPPD	<input type="checkbox"/>
CMMI/MA	Measurements & Analysis	<input type="checkbox"/>
CMMI/OID	Organizational Innovation & Deployment	<input type="checkbox"/>
CMMI/OPD	Organizational Process Definition	<input type="checkbox"/>
CMMI/OPP	Organizational Process Performance	<input type="checkbox"/>
CMMI/OT	Organizational Training	<input type="checkbox"/>
CMMI/PI	Product Integration	<input type="checkbox"/>

SP 1.5 *Identify inconsistencies between the project plans and work products and the requirements.*

**CENTRE Evidence:** Each CENTRE Requirement is a task within a “Release” project:

# CENTRE CMMI 1.2 Artifacts for Process Improvement

Search

Searching for Requirement 1151 results in the following record:

Requirement # 1151

This requirement is related to Change request 184, and is one task of the Project 'CENTRE Release 4.6.8'

Project 'CENTRE Release 4.6.8'

Project Name	Contract Number	Status	Priority	Plan Start Date	Actual Start Date	Planned End Date	Actual End Date	POC	DAR	View Project Summary	View Tasks	View Hours	View Gantt
CENTRE Release 4.6.8	4333-000	Active	1	6/2/2008 9:00:00 AM	6/2/2008 9:00:00 AM	7/31/2008 6:00:00 PM		George Hadjikyriakou	NO	SUMMARY	TASKS		

Task 1151 Under Project

Task Name	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date	Projected End Date	Status	% Planned Completed	% Actual Completed	Resources	Hours Worked
Req. 1151: Table driven menu system for ASP and NET	6/18/2008 9:00:00 AM	7/11/2008 6:00:00 PM	6/28/2008 4:31:18 PM	8/24/2008 8:04:04 AM	7/22/2008 6:00:00 PM	Started	100%	100%		

The direct evidence for this specific practice is that CENTRE enables “Requirements” to be defined as tasks of a Project and be subject to **Project Planning** and **Project Monitoring and Control**.