

## 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 - Document Control System (DCS)**

CENTRE CMMI Version 1.2 Compliance Measurements & Analysis - White Paper

Author: Michael P. Angelakis      DCS #996      Version: 4.0      Date: 04/13/10      Page 1 of 7

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

**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

## Select Tables

TABLE NAME	SELECTED TABLE
AccessType	Contract
ActionItem	Inventory
ActionType	InventoryContracts

## Choose Your Columns

COLUMN NAME IN	SELECTED COLUMN
ContractAdministrativeCloseOutDate	ContractContractNumber
ContractBDMID	Inventory Model
ContractBillable	Inventory.CENTREPartNumber
ContractBillAddress1	Inventory.PartDescription
ContractBillAddress2	Inventory.QuantityAvailable
ContractBillAttentionTo	Inventory.QuantityDamaged
ContractBillCity	Inventory.QuantityDemo
ContractBillMileage	Inventory.QuantityOnOrder
ContractBillState	Inventory.QuantityQA
ContractBillZipCode	Inventory.QuantityReserved
ContractBlock	Inventory.QuantityTestbed
ContractCIRECRequired	

## Filter to Your Needs

REPORTING TABLE	OPERATOR	VALUE	LOGICAL OP.
Contract	=	7815-003	AND
COLUMN		COLUMN	Expression#:
Contract.ContractNumber (varchar)		Select Column	1

## Sort Output as Desired

COLUMN NAME	SELECTED COLUMN
Contract.ContractNumber	Inventory.CENTREPartNumber
Inventory.Model	
Inventory.PartDescription	
Inventory.QuantityAvailable	
Inventory.QuantityDamaged	
Inventory.QuantityDemo	
Inventory.QuantityOnOrder	
Inventory.QuantityQA	
Inventory.QuantityReserved	
Inventory.QuantityTestbed	

## Title the Report and Save for Future Use

Report Title:	Inventory Report
Report Type:	Adhoc Report
Save Query:	<input checked="" type="checkbox"/>

Can output data to Excel if desired

## Run the Report

Inventory Report		ContractNumber	CENTREPartNumber	PartDescription	QuantityAvailable	QuantityDamaged	QuantityDemo	QuantityOnOrder	QuantityQA	QuantityTestbed
7815-003	LC2050 SUPER G3	4504		Arm for paper cassette flag se	0	0	0	0	0	0
7815-003	UF 770	5717		complete unit	0	0	0	0	0	0
7815-003	580	5865		Printed Circuit Main Sensor PBA	0	0	0	0	0	0
7815-003	L621	5898		FUSER LAMP 110V	15	0	0	20	0	0
7815-003	L621	6117		Paper Ejection Tray (qty 2)	22	0	0	0	0	0

### SP 1.2 Specify measures to address the measurement objectives.

**CENTRE Evidence:** Project measurements and objectives are identified in Projects particulars. Performance related measurements are identified in CENTRE reports and are submitted as direct evidence of compliance for this Specific Practice.

### SP 1.3 Specify how measurement data will be obtained and stored.

**CENTRE Evidence:** Project data is obtained from Project, Supply Chain, ITSM, Requirements and Change Management records. All Project data is stored in CENTRE modules. All Project relevant records are direct evidence in support of this Specific Practice.

# CENTRE CMMI 1.2 Artifacts for Process Improvement

## SP 1.4 Specify how measurement data will be analyzed and reported.

**CENTRE Evidence:** Measurement data generally is subject to Project requirements. For Software Engineering type projects **CENTRE** provides direct evidence that is in line with industry standards. **CENTRE** measures programmer productivity, quality of workmanship and timeliness.



Software Requirement Score Card

Line Item	Program	Release	Status	Total Requirements	Total Estimated Hours	Total Actual Hours	% Variance	Absolute % Variance	Total Defects Pre-Release Chart	Total Defects Post-Release Chart	Total Defect Requirements with High Impact Or High Severity	Percent Defect Requirements with High Impact Or High Severity	Total Defect Requirement with Medium/Low Medium/Low Severity
0	PCS	PCS 1.1	Pending	1	63.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Government Response	GRI 2.0	Pending	2	4.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	ITG CENTRE	4.6.9	Pending	18	170.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	ITG CENTRE	4.6.8	Open	35	1178.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	ITG CENTRE	4.6.7	Closed	31	775.68	825.75	-6.46	29.65	16	8	1	3.23	0
5	ITG CENTRE	4.6.6	Closed	33	1330.68	1196	10.12	14.06	36	5	1	3.03	1
6	DCMA Migration Technical Solution	1.0	Closed	1	218	375.5	-72.25	72.25	1	0	0	0	0
7	DCS	DCS 1.0	Closed	2	55.25	56	-1.36	2.56	1	0	0	0	0

REQUIREMENT LABOR HOUR REPORT CRITERIA

Employee: All Employees

Program: Select GO

Software Release: Select

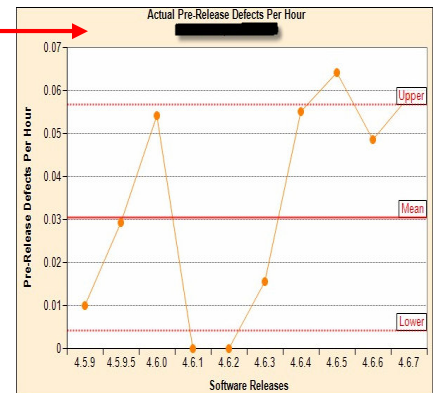
Start Date: 11/3/2008

End Date: 11/3/2008

Group by: Requirement

Software Requirement Summary

Status	Requirements
Issued	12
Closed	862
Opened	7
Denied	63
Under Evaluation	5
Pending Review	25
Suspended	15
Pending Approval	3
Cancelled	177
Approved	3
Testing	1



Developer Score Card

Line Item	Developer	Total Requirements (Closed)	Total Estimated Hours	Total Actual Hours	% Variance	Absolute % Variance	Total Defects Pre-Release	Total Defects Post-Release	Total Actual Hours of Defects Post-Release	Developer Defect Chart
0	Agrifellis, Elias C	11	661.88	934	-41.11	48.86	4	9.85	7.75	View Chart
1	Cambolis, John (n)	15	41	36.7	10.49	66.59	0	0	0	View Chart
2	Coutoulakis, Emmanuel	22	666.23	618.28	7.2	12.22	4	22.19	16.75	View Chart
3	Fellers, Bridget S	254	2857.97	2572.05	10	26.16	46	213.79	159.95	View Chart
4	Gentile, AJ	0	0	0	0	0	0	0	0	View Chart
5	Guttikonda, Maheedhar	120	2895.32	3088.85	-6.68	19.3	57	606.78	671	View Chart
6	Guttikonda, Sumabala	1	59.47	72.75	-22.34	22.34	0	0	0	View Chart
7	Hadjijyniakou, George	203	2011.85	1972.2	1.97	20.56	44	230.07	175.75	View Chart
8	Ludwig, Michael	14	107	26	75.7	83.18	0	0	0	View Chart
9	Pangalos, Soyo (n)	143	2331.33	2615.96	-12.21	44.77	45	223.64	203.9	View Chart
10	Software Group	1	150	154	-2.67	2.67	0	0	0	View Chart
11	Srikanth K	75	2190.79	2377.75	-8.53	18.02	33	313.65	320.5	View Chart

DATA FOR POST RELEASE DEFECT DATA

Software Release	Status	Sequence	Estimated Release Date	Actual Release Date	Estimated Development Hours	Actual Development Hours	Objective Post Release Defects	Estimated Post Release Defects	Actual Post Release Defects	Estimated Post Release Defects Per Hour	Actual Post Release Defects Per Hour	SD of Post Release Defects Per Hour
PCS 1.1	Pending	50	9/13/2008		0	0	0	0	0	0.005	0	0.014
GRI 2.0	Pending	49	9/1/2008		0	0	0	0	0	0.008	0	0.023
4.6.9	Pending	48			0	0	0	0	0	0.008	0	0.023
4.6.8	Open	47	7/22/2008		1081.348	1283.95	8	9.74744	3	0.009	0	0.029
1.0	Pending	46			0	0	0	0	0	0.010	0	0.037
4.6.7	Closed	45	5/12/2008	6/22/2008	175.6757	826.75	0	7.809906	0	0.010	36.45	0.036
4.6.6	Closed	44	3/8/2008	3/27/2008	1330.682	1196	11	14.04548	3	0.011	37	0.039
1.0	Closed	43	1/11/2008		218	375.5	2	3.360578	0	0.015	0	0.052
DCS 1.0	Closed	42	7/15/2007	7/21/2007	8.33	8	0	0.1164423	0	0.014	0	0.050
4.6.5	Closed	41	12/15/2007	12/19/2007	1010.16	920.25	12	15.35448	8	0.015	10.75	0.053
4.6.4	Closed	40	9/15/2007	10/21/2007	808.642	898	9	11.84014	5	0.015	82.75	0.053
HUDSERVER 1.0	Closed	39	9/10/2007	10/1/2007	100	237	1	1.665119	0	0.017	0	0.050
HLR 1.0	Pending	38	7/28/2007		388.52	0	5	6.476882	0	0.017	0	0.050

## CENTRE CMMI 1.2 Artifacts for Process Improvement

There are many additional industry standard measurements for software engineering available as direct evidence in compliance with this Specific Practice.

### SP 2.1 *Obtain specified measurement data.*

**CENTRE Evidence:** Direct evidence related data is usually captured by CENTRE modules in the course of Project performance.

### SP 2.2 *Analyze and interpret measurement data.*

**CENTRE Evidence:** Data is automatically analyzed at various stages of Project performance, including financial analysis,

Select Year: 2006 GO		Select Month: April GO		Budget Percentage of Estimate: 0						
Cost Category Name	Enter value to set all future months for category items	System Predicted Estimate	Average Estimate Deviation Percentage	Estimated Current month	Budgeted Current month	Actual Current month	Variance Current month	Budgeted Year To Date	Actual Year To Date	Var Year To Date
Cost Category Name	Enter value to set all future months for category items	System Predicted Estimate	Average Estimate Deviation Percentage	Estimated Current month Average	Budgeted Current month Average	Actual Current month Average	Variance Current month Average	Budgeted Year To Date Average	Actual Year To Date Average	Var Year To Date Average

[Export To Excel](#) [Export To Word](#)

Earned Value,

EARNED VALUE MEASUREMENTS - PART I [CONTRACT TO DATE VALUES]				
Category Item	Projected to Date	Actual to Date	Projected % to Completion	Actual % to Completion
Schedule Progress (in Days):				
Total Cost:		0.00		
Net Margin:		0.00		
Labor Hours:				
Labor Cost:		0.00		
Material Cost:		0		
Installation Cost:		0		

**EARNED VALUE MEASUREMENTS - PART II [AT YEAR END : 2006]**

Timeliness.

PROJECT 8026-000 Depot Billing <span style="float: right;">Edit Project Refresh</span>												
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	Copy Task	New Task Name
Integration Billing (8026-000) Summary	6/9/2006 8:00:00 AM	7/1/2006 5:00:00 PM	6/9/2006 8:00:00 AM		7/31/2009 5:00:00 PM	Started	100%	0%				
QA Billing (8026-000) Summary	6/9/2006 8:00:00 AM	7/1/2006 5:00:00 PM	6/9/2006 8:00:00 AM		7/31/2009 5:00:00 PM	Started	100%	0%				
Repair Billing (8026-000) Summary	6/9/2006 8:00:00 AM	7/1/2006 5:00:00 PM	6/9/2006 8:00:00 AM		7/31/2009 5:00:00 PM	Started	100%	0%				
Research Billing (8026-000) Summary	6/9/2006 8:00:00 AM	7/1/2006 5:00:00 PM	6/9/2006 8:00:00 AM		7/31/2009 5:00:00 PM	Started	100%	0%				
RMA Billing (8026-000) Summary	6/9/2006 8:00:00 AM	7/1/2006 5:00:00 PM	6/9/2006 8:00:00 AM		7/31/2009 5:00:00 PM	Started	100%	0%				
Support Billing (8026-000) Summary	6/9/2006 8:00:00 AM	7/1/2006 5:00:00 PM	6/9/2006 8:00:00 AM		7/31/2009 5:00:00 PM	Started	100%	0%				

### SP 2.3 *Manage and store measurement data, measurement specifications, and analysis results.*

CENTRE CMMI Version 1.2 Compliance Measurements & Analysis - White Paper

Author: Michael P. Angelakis

DCS #996

Version: 4.0

Date: 04/13/10

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**CENTRE Evidence:** All direct evidence data is managed in and stored by CENTRE modules.

**SP 2.4 Report results of measurement and analysis activities to all relevant stakeholders.**

**CENTRE Evidence:** Direct evidence of reporting measurement and analysis activities to stakeholders is found in the CENTRE Meeting Management module.

**SEARCH MEETING**

Meeting Name:  CLEAR

**NEW MEETING**

The mandatory editing fields are indicated with an asterisk \*

\*Meeting Name:

**Select Desired Meeting:**

Meeting Name	Number of Sessions	Open Action Items	Closed Action Items	Action Items On Hold	Cancelled Action Items
<input type="radio"/> ADMC-2 Program Meetings	3	3	23	1	1
<input type="radio"/> CENTRE Release Trainings	1	0	0	0	0
<input type="radio"/> CMMI Compliance Matrix Review	22	3	30	0	2
<input type="radio"/> CMMI Process Meetings	3	0	0	0	0
<input type="radio"/> DCMA Daily Meeting	5	0	0	0	0
<input type="radio"/> Hellenic Land Registry	1	0	0	0	0
<input type="radio"/> House of Representatives Red Team	1	0	0	0	0
<input type="radio"/> Management Review Board, Best Practices	26	10	44	1	2
<input type="radio"/>	7	0		0	0

**Select Specific Meeting Date**

**SELECT MEETING MINUTES FOR [ ADMC-2 Program Meetings ]**

Meeting Date	Issued By	Status	Approved By
<input type="radio"/> 7/13/2006 11:00:00 AM	Gardner, Murray G.	Approved	Gardner, Murray G.
<input type="radio"/> 6/14/2006 10:30:00 AM	Rexin, Judy (K)	Approved	Gardner, Murray G.
<input type="radio"/>	Gardner, Murray G.		Gardner, Murray G.

**View Minutes**

**VIEW MEETING MINUTES FOR [ ADMC-2 Program Meetings ]**

The mandatory editing fields are indicated with an asterisk \*

\*Meeting Date and Time: 7/13/2006 11:00:00 AM  
Date: Thursday, July 13, 2006  
Time: 11:00 AM  
Attendees: Glenn, James, Catrina, Dave, Bill, Judy  
Items Discussed  
Due to re-protest by Gateway, task due dates can slip until notice to proceed has been delivered from the Army but continue with forward momentum.  
Telephone Set-Up - T-1 line has been installed at ITG. Determine where in-house phones will be placed, at salesmen desk, call operators, TAM, Glenn's desk?  
Incorporate into GovConnect training session, scripts for transfer of service calls from GovConnect to ITG w/ the Army customer on the line with emphasis on the need to inform call participants as to  
\*Issued By: Gardner, Murray G.  
Approved By: Gardner, Murray G.

**Meeting Action Items**

**SELECT ACTION ITEM FOR [ ADMC-2 Program Meetings ]**

ID	Start Date	Issue	Suggestions	Action Items	Owner	Outcome	Due Date
<input type="radio"/> 160	4/24/2006 1:14:19 PM	Establish formal subcontract with: GovConnection, Prism Pointe, LGB, Bethune-Cookman, Four Points	DaveW and BillH will work with Dave Cohen to complete this task	2: This task has been broken into a separate Action Item for each subcontractor agreement. Progress will be tracked on the Action page of the Project Workbook located at \\itg.centralcommon\Team Halladay\Contracts\B103-999 ADMC-2\Project Workbook ...GG 11/06/14/06 - Glenn to call Prism Pointe and get them to send their version of subcontract agreement to us. BillH says when we have that.	Wilson, David M.	2: This task has been broken into a separate Action Item for each subcontractor agreement. Progress will be tracked on the Action page of the Project Workbook located at \\itg.centralcommon\Team Halladay\Contracts\B103-999 ADMC-2\Project Workbook. This Action Item will be closed when all subcontracts are in place. ...GG 06/14/06: Candidate College is Johnson C. Smith Univ. Dave is talking w	6/30/2006 1:14:19 PM
<input type="radio"/> 160	6/14/2006 3:42:43 PM	Establish process for live transfer of service calls from GovC to ITG.		1: 06/14/06 - Dave to set up meeting with GovC to define situations requiring live transfer to a sales person at ITG, and establish the flow of activity when such situations arise...GG	Wilson, David M.	08/31/06: This issue was not addressed at the lunch/bleem on Aug 29. The process has not been determined at this time. Bill, Dave and Mike are discussing and will let me know how they want it set up...GG 07/13/06: Dave adding to training a clear explanation for GovC sales "rap" concerning ho	6/30/2006 4:09:34 PM

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