

## 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 Requirements Development - White Paper

Author: Michael P. Angelakis    DCS #999    Version: 4.0    Date: 04/13/10    Page 1 of 9

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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

## CENTRE CMMI Specific & Generic Evidence Elements:

### CENTRE – Requirements Development

SP 1.1 *Elicit stakeholder needs, expectations, constraints, and interfaces for all phases of the product lifecycle.*

**CENTRE Evidence:** While Stakeholders needs typically emerge from Statements of Work, the CENTRE Requirements Module, tightly integrated with the Change Management module, provides for the transformation and management of stakeholders needs into functional requirements and engineering specifications.

#### Search Requirement

SEARCH REQUIREMENT

Requirement ID: 1209  
Program Name: Select  
Requirement Type: Select  
Version Release Number: Select  
GO

Functional Area/Screen:   
Requirement Description:   
Requirement Rationale:   
Comments:   
Issued By: Select  
Approved By: Select  
Estimated Hours >:   
Assigned To: Select  
Actual Hours:   
Applied 508 Rules: Select

#### Search Result List

Requirement#	Program Name	Functional Area	Description	Issue Date	Approved Date	Estimated Hours	Priority	Assigned To	Order #	Status	Updated Product'n
1209	ITG CENTRE	Sales Orders, Part Orders, CMDB	10/7/2008 6:05:53 PM Entered by:Hadjikyriakou, George on behalf of Giovanni and Pat Z. Change the Part Order detail and the Sales Order detail screens so that the following functionality is provided: a. Split up the current field where a serial num	10/8/2008 10:38:26 AM	10/9/2008 11:16:58 AM	45.6714	NONE	Fellers, Bridget S.	0	Opened	NO

#### Requirement 1209 Expanded View

VIEW REQUIREMENT [ 1209 ]

Workflow Status [ Not Initiated ]

Program Name: ITG CENTRE  
Version Release Number: 4.6.9  
Functional Area/Screen: Sales Orders, Part Orders, CMDB  
Requirement Description: 10/7/2008 6:05:53 PM Entered by:Hadjikyriakou, George on behalf of Giovanni and Pat Z.  
Change the Part Order detail and the Sales Order detail screens so that the following functionality is provided:  
a. Split up the current field where a serial number is entered so that only one serial number is entered per line item. Add a new field where the Asset tag number may be entered as varchar(15).  
b. Add the following new fields in the line item detail section:  
i. [NetName] as varchar(15)  
ii. [SiteReceiveDate] as date (use the calendar control to enter date)  
iii. [AssetTag] as varchar(20)  
Requirement Rationale: Change Request # 275  
Customer reporting requirements, and streamlining of the current process to help save manual effort and time.

Uploaded Documents: Change Request # 275

OVERVIEW  
Issued By: Fellers, Bridget S. Type: Change Functionality  
Date Issued: 10/9/2008 10:38:26 AM Impact: NONE  
Approved By: Hadjikyriakou, George Implementation Severity: NONE  
Approved Date: 10/9/2008 11:16:58 AM Preceding Requirement ID: 0  
Assigned To: Fellers, Bridget S. Implementation Order: 0  
Estimated Hours: 45.6714 Applied 508 Rules: No  
Actual Hours: 23 Documentation Updated: No  
Planned Start Date: 10/9/2008 9:00:00 AM Actual Start Date: 10/9/2008 11:34:48 AM  
Planned End Date: 10/17/2008 6:00:00 PM Actual End Date:  
Projected End Date: 10/17/2008 6:00:00 PM Production Server Updated: NO  
Status: Opened Last Updated By: Fellers, Bridget S.

Change Request #: 275

## CENTRE CMMI 1.2 Artifacts for Process Improvement

As seen from the expanded view, this requirement is a result of change request 275.

### Change Request 275

**VIEW CHANGE REQUEST [ 275 ]**

**Workflow Status [ Not Initiated ]**

Change Request Name: **Change part order and sales order screens to enable insertion of items in the CMDB**      Desired Completion Date: **10/18/2008**

Category: **Significant Change**      Change Type: **Software**

Change Authority: **Software Engineering MRB**

Proposed Change: **10/7/2008 6:05:53 PM Entered by: Hadjikyriakou, George on behalf of Giovanni and Pat Z.**

Description of current or potential non-conformance/justification: **Change the Part Order detail and the Sales Order detail screens so that the following functionality is provided:**

Customer reporting requirements, and streamlining of the current process to help save manual effort and time.

Root Cause:

Change Request Documents

Issued By: **Hadjikyriakou, George**      Date issued: **10/7/2008 6:10:47 PM**

Action Type: **Improvement**      Priority: **HIGH**

Internal Audit Number:

Status: **Approved**      Approved Date: **10/8/2008 9:33:21 PM**

Approved By: **Software Engineering MRB**      Begin Work Date: **10/8/2008 9:33:21 PM**

Assigned To: **Fellers, Bridget S.**      Due Date: **10/31/2008 9:33:21 PM**

Information Security Approval Required: **NO**      Completed Date:

Approving Security Officer: **Select**      Validation Date:

Approved by Security Officer: **NO**      Date Last Updated: **10/8/2008 9:35:20 PM**

Last Updated By: **Hadjikyriakou, George**

Software Requirements: 1  
 Service Records: 0

Software Requirements: 1

Requirement 1209

Requirement#	Program Name	Functional Area	Description
1209	ITG CENTRE	Sales Orders, Part Orders, CMDB	10/7/2008 6:05:53 PM Entered by: Hadjikyriakou, Giovanni and Pat Z. Change the Part Order detail screens so that the following functionality is provided: the current field where a serial num

**SP 1.2 Transform stakeholder needs, expectations, constraints, and interfaces into customer requirements.**

**CENTRE Evidence:** The needs, constraints, expectations and interfaces are defined at the Change Request and Requirement levels.

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# CENTRE CMMI 1.2 Artifacts for Process Improvement

## Change Request

**VIEW CHANGE REQUEST [ 275 ]**

Workflow Status [ Not Initiated ]

Change Request Name: **Change part order and sales order screens to enable insertion of items in the CMDB**

Category: Significant Change

Change Type: Software

Change Authority: Software Engineering MRB

Proposed Change: 10/7/2008 6:05:53 PM Entered by: Hadjikyriakou, George on behalf of Giovanni and Pat Z.

Desired Completion Date: 10/18/2008

Change the Part Order detail and the Sales Order detail screens so that the following

## Change Analysis

**NEW ANALYSIS FOR CHANGE REQUEST [ 217 ]**

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.

Software Requirements: 1

## Design Document

**VIEW REQUIREMENT [ 1209 ]**

Workflow Status [ Not Initiated ]

Program Name: ITG CENTRE

Version Release Number: 4.6.9

Functional Area/Screen: Sales Orders, Part Orders, CMDB

Requirement Description: 10/7/2008 6:05:53 PM Entered by: Hadjikyriakou, George on behalf of Giovanni and Pat Z.

## Design Document

**EDIT DESIGN SPECIFICATION FOR REQUIREMENT [ 1209 ]**

Date Created: 10/9/2008 10:38:26 AM Created By: Fellers, Bridget S.  
Date Last Updated: 10/10/2008 11:07:23 AM Last Updated By: Fellers, Bridget S.

Description:

Add the following fields to the PartDetail table:  
[NetName] as varchar(15)  
[SiteReceiveDate] as date  
[AssetTag] as varchar(20)  
[AcceptanceDate] as date

Add the following fields to the SODetail table:  
[NetName] as varchar(15)  
[SiteReceiveDate] as date  
[AssetTag] as varchar(20)  
[AcceptanceDate] as date

Add the following fields to the Contract table:  
[ConfigurationItemImportDesignatedContract] as integer  
[UpdateAcceptancedate] as integer

Add the following field to the ContractEquipment table:  
[AcceptanceDate] as date

Add the following field to the AssetLog table:  
[AcceptanceDate] as date

Peer Review Performed:  Issue Identified:   
Reviewed By: Select Date Reviewed:   
Comments:

## CENTRE CMMI 1.2 Artifacts for Process Improvement

**SP 2.1 Establish and maintain product and product component requirements, which are based on the customer requirements.**

**CENTRE Evidence:** As seen above, the CENTRE Requirements module provides the direct evidence for this Specific Practice.

**SP 2.2 Allocate the requirements for each product component.**

**CENTRE Evidence:** CENTRE Requirements are allocated by release version and can be used as direct evidence for conformance with this Specific Process. The requirements need not be “software” but can be any type that may be applicable to a Project.

The screenshot shows the 'SEARCH REQUIREMENT' form. The 'Version Release Number' dropdown is highlighted with a purple oval. A red arrow points from this oval to a separate dropdown menu on the right, which lists release versions from 4.6.9 down to 4.5.2. The version 4.6.8 is selected in both.

Selected Requirements of Release 4.6.8

Requirement#	Program Name	Functional Area	Description	Issue Date	Approved Date	Estim Hour			
826	ITG CENTRE	Service Call	7/14/2008 12:15:26 PM Entered by:Hadjikyriakou, George The work performed thus far as part of this requirement, were to provide a proof of concept. I am going to modify the hours of this requirement from 105 to 56 and close it. I will also create a ne	3/2/2007 12:52:31 PM	2/8/2008 1:51:48 PM	53.21			
1102	ITG CENTRE	Projects	Add controls in the system to prevent Task start and end dates from falling outside the parent project's duration and project durations from falling outside the related contract period of performance. The same holds true when going the other way, i.e. the	2/2/2008 4:18:26 PM	2/8/2008 11:58:11 AM	36.88958	HIGH	Pangalos, Spyro (n)	
1108	ITG CENTRE	Inventory - Purchase Order - Part Order	7/14/2008 12:35:20 PM Entered by:Hadjikyriakou, George The work performed thus far as part of this requirement, were to provide a proof of concept. I am going to modify the hours of this requirement from 62 to 44 and close it. I will also create a new	2/2/2008 5:25:45 PM	2/8/2008 11:36:20 AM	35.8781	LOW	Gutikonda, Maheedhar	
1141	ITG CENTRE	Software Requirement	Bug found in Requirement 1089 The system breaks when saving a time sheet. The error occurs in the method which updates the Task Actual Start Date. Error From Event Viewer Warning: File :\\webacts3.0\NavBar\Tet\UserEditTime Sheet.asp Line 194 Object r	5/8/2008 3:51:54 PM	5/8/2008 3:55:01 PM	5.2916	NONE	Gutikonda, Maheedhar	
1150	ITG CENTRE	Table Driven Submenu System Proof of Concept	To display the New Banner and Main Menu tabs from the recent implementation in the .NET screens. Provide proof of concept demo of new methodology to be used for implementing the new submenu table driven system.	6/2/2008 10:21:36 AM	6/2/2008 10:21:50 AM	61.19287	MEDIUM	Srikanth K	
1151	ITG CENTRE	Table driven submenu system	Expand the table driven Main Menu system to include a new table driven submenu system. Replace the submenu options displayed in the existing ASP and .NET pages with the values provided in the new table driven database. - Stakeholders: All Users - Read	6/2/2008 10:36:05 AM	6/17/2008 4:21:03 PM	106.6579	NONE	Srikanth K	
1152	ITG CENTRE	Incident module EditServiceCall.asp	1. In the Notify feature available from the Incident screen, add the following data (available in the incident record) to the body of email notifications generated from the incident module? - Priority Level - POC Email - Sales Person or BDM - Res	6/4/2008 9:44:00 AM	6/10/2008 12:47:34 PM	19.00393	NONE	Fellers, Bridget S.	
1154	ITG CENTRE	RCS	Re-write the RCS functionality in .NET to look and feel like the DCS and operate in a standalone mode. Further explanation: Basically the way records are being searched for and the look of the records found and displayed should be similar to the look	6/4/2008 9:52:42 PM	6/17/2008 4:18:06 PM	68.50633	HIGH	Srikanth K	

Summary of release 4.6.8

VIEW SOFTWARE RELEASE	
Software Release Name: 4.6.8	Program: ITG CENTRE
Release Sequence: 47	Status: Open
Estimated Release Date: 7/22/2008	Release Type:
Objective Pre Release Defects Parameter 10	Actual Release Date:
Objective Pre Release Defects: 15	Objective Post Release Defects Parameter 10
Estimated Pre Release Defects (calculated): 17.1486	Objective Post Release Defects: 8
Actual Pre Release Defects (calculated): 35	Estimated Post Release Defects (calculated): 9.74744
Estimated Pre Release Defects Per Hour (calculated): 0.016	Actual Post Release Defects (calculated): 3
Estimated Development Hours (calculated): 1081.348	Estimated Post Release Defects Per Hour (calculated): 0.009
Actual Development Hours (calculated): 1263.95	Actual Post Release Defect Hours Per Hour (calculated): 0.000
Actual Post Release Defect Hours (calculated): 0	Actual Post Release Defect Hours (calculated): 0
<b>Statistics for Estimated Pre Release Defects Per Hour:</b>	<b>Statistics for Estimated Post Release Defects Per Hour:</b>
Variance: 0.002	Variance: 0.001
Standard Deviation: 0.047	Standard Deviation: 0.029

## CENTRE CMMI 1.2 Artifacts for Process Improvement

### SP 2.3 *Identify interface requirements.*

**CENTRE Evidence:** Interface requirements may be identified in the body of the functional requirement.

### SP 3.1 Establish *and maintain operational concepts and associated scenarios.*

**CENTRE Evidence:** Direct evidence for this Specific Practice is contained in the Requirements module Modified Components/Deployment Integration Instructions text box. The **CENTRE** Document Control System contains documentation which provides guidance applicable to this Specific Practice.

The screenshot shows the 'VIEW REQUIREMENT [ 1209 ]' interface. The 'Requirement Description' field contains the following text:

10/7/2008 6:05:53 PM Entered by: Hadjikyriakou, George on behalf of Giovanni and Pat Z.

Change the Part Order detail and the Sales Order detail screens so that the following functionality is provided:

- Split up the current field where a serial number is entered so that only one serial number is entered per line item. Add a new field where the Asset tag number may be entered as varchar(15).
- Add the following new fields in the line item detail section:
  - [NetName] as varchar(15)
  - [SiteReceiveDate] as date (use the calendar control to enter date)
  - [AssetTag] as varchar(20)

The 'Requirement Rationale' field contains: 'Change Request # 275' and 'Customer reporting requirements, and streamlining of the current process to help save manual effort and time.'

The 'Modified Components/Deployment-Integration Instructions' section is highlighted in pink and contains the following text:

Table Changes  
-----  
Add the following field to the ContractEquipment table:  
  
AcceptanceDate datetime  
  
\*\*\*\*  
Add the following fields to the Contract table:  
  
ConfigurationItemImportDesignatedContract int  
UpdateAcceptanceDate smallint  
  
Run following script:  
  
update Contract set UpdateAcceptanceDate=0 where UpdateAcceptanceDate is null

This is a close-up of the 'Modified Components/Deployment-Integration Instructions' text box. It contains the following text:

Table Changes  
-----  
Add the following field to the ContractEquipment table:  
  
AcceptanceDate datetime  
  
\*\*\*\*  
Add the following fields to the Contract table:  
  
ConfigurationItemImportDesignatedContract int  
UpdateAcceptanceDate smallint  
  
Run following script:  
  
update Contract set UpdateAcceptanceDate=0 where UpdateAcceptanceDate is null

## CENTRE CMMI 1.2 Artifacts for Process Improvement

Sample of process documentation included in the CENTRE Document Control System (DCS)

SEARCH FOR DOCUMENT

Document #:  -V

Title:

Abstract:

File Names:

Owner:

Classification Level:

Authors	Departments	Document Type	Document Keywords
Abel Medina Alicia Reilly Andreas Tzoumas ASG Administrative Account Executiv ASG Administrative Support ASG Adr ASG Purchasing Specialist ASG Purc ASG Technical Support ASG Technic ASG Training Coordinator ASG Trainir Asia English PDM PDM	Accounting Business Development Electronic Repairs Executive Management Government Programs International Programs ITG-SP Labor Resources Logistics National Support Center	Marketing Material Marketing White Papers Other Policy Documents Process Performance Models Project Plans Quality Forms <b>Quality Procedures</b> Quality Work Instructions Risk Management	Change Managem Configuration Man Control Corrective Action Decision Analysis Document Guidelines Internal Audit IT Management

DOCUMENT#	TITLE	AUTHOR	DCS SUBMISSION DATE	DB INFO REVISED
937-V1	Draft Procedure - IT Security Management, ITG QP-22 - Executive Management	Michael Angelakis	2/12/2008 2:06:51 PM	10/29/2008 3:18:26 PM
769-V2	Procedure - Change Management, ITG QP-16 - Executive Management	Michael Angelakis	2/20/2007 3:57:28 PM	10/29/2008 3:38:30 PM
807-V2	Procedure - Configuration Management, ITG QP-19 - Executive Management	Michael Angelakis	5/10/2007 4:16:45 PM	10/29/2008 3:39:45 PM
147-V7	Procedure - Control of Documents, ITG QP-2 - Executive Management	Lefteris Karmiris	6/28/2004 11:47:00 AM	10/29/2008 2:25:45 PM
148-V2	Procedure - Control of Non-Conforming Products, ITG QP-4 - Executive Management	Lefteris Karmiris	6/28/2004 12:08:00 PM	10/29/2008 2:26:26 PM
146-V4	Procedure - Control of Records, ITG QP-3 - Executive Management	Lefteris Karmiris	6/28/2004 11:34:00 AM	10/29/2008 2:28:19 PM
150-V5	Procedure - Corrective Action, ITG QP-6 - Executive Management	Lefteris Karmiris	6/28/2004 12:37:00 PM	10/29/2008 2:28:43 PM
617-V3	Procedure - Decision Analysis and Resolution, ITG QP-14 - Executive Management	Michael Angelakis	10/6/2005 1:47:00 PM	10/29/2008 3:40:04 PM
220-V4	Procedure - Internal Audits, ITG QP-7 - Executive Management	Lefteris Karmiris	7/30/2004 5:00:00 PM	10/29/2008 2:29:09 PM
544-V1	Procedure - Management Review Boards, ITG QP-11 - Executive Management	Michael Angelakis	5/12/2005 5:57:00 PM	10/30/2008 3:44:14 PM
151-V4	Procedure - Management Review, ITG QP-8 - Executive Management	Michael Angelakis	6/28/2004 12:48:00 PM	10/30/2008 3:43:51 PM
806-V2	Procedure - Organizational Innovation and Deployment, ITG QP-18 - Executive Management	Michael Angelakis	5/10/2007 1:30:02 PM	10/29/2008 3:52:19 PM
905-V2	Procedure - Organizational Process Performance, ITG QP-20 - Executive Management	Michael Angelakis	11/5/2007 4:31:59 PM	10/30/2008 3:45:02 PM

### SP 3.2 *Establish and maintain a definition of required functionality.*

**CENTRE Evidence:** The required functionality description is typically contained in the Statement of Work and is transformed directly into functional requirements, or into change requests that once approved become functional requirements. The direct evidence for this Specific Practice is contained in the Change and Requirement descriptions text boxes.



## CENTRE CMMI 1.2 Artifacts for Process Improvement

### SP 3.3 *Analyze requirements to ensure that they are necessary and sufficient.*

**CENTRE Evidence:** The direct evidence provided to satisfy this Specific Practice are the Change and Requirements approval processes, documented in the corresponding modules as well as in Management Meeting minutes.

SELECT MEETING				
Meeting Name	Number of Sessions	Open Action Items	Closed Action Items	Action Items On Hold
<input type="radio"/> <a href="#">ADMC-2 Program Meetings</a>	3	3	23	1
<input type="radio"/> <a href="#">CENTRE Release Training</a>	1	0	0	0
<input type="radio"/> <a href="#">CMMI Compliance Matrix Review</a>	22	3	30	0
<input type="radio"/> <a href="#">CMMI Process Meetings</a>	3	0	0	0

### SP 3.4 *Analyze requirements to balance stakeholder needs and constraints.*

**CENTRE Evidence:** The direct evidence provided to satisfy this Specific Practice are the Change and Requirements approval processes, documented in the corresponding modules as well as in Management Meeting minutes.

### SP 3.5 *Validate requirements to ensure the resulting product will perform as intended in the user's environment.*

**CENTRE Evidence:** The direct evidence for Requirements Validation provided to support this Specific Practice is contained in the validation submenu selection of the Requirements Module.

#### Requirement