



COMPLIANCE COMPONENT

DEFINITION	
<i>Name</i>	DBMS – Availability and Readiness
<i>Description</i>	<p>Availability and Readiness is the percentage of time the database is in a functional state performing its operational tasks. A functional DBMS allows access to the data within the database when needed. It also includes any software, hardware or utility component associated with the DBMS to perform uninterrupted and without deviating from its normal operating confines. The availability and readiness is affected if any of these factors are unavailable. The availability of the DBMS decreases when any of these factors are unavailable and is not beneficial for the proprietor of the DBMS.</p> <p>With the increased use of internet and web applications, the operational hours of businesses are increasing to a 24 hour a day 7 day a week process. To achieve 24 X 7 accessibility and readiness, the architecture of the DBMS must accommodate for regularly scheduled maintenance, hardware and software updates, as well as hardware and software failures.</p>
<i>Rationale</i>	<p>Having high availability and readiness of DBMS is a core component of many agency goals. Downtime of any element can result in unfavorable consequences. There are multiple consequences of downtime:</p> <ul style="list-style-type: none"> • Loss of Productivity - employees unable to perform their tasks • Loss of Customer Services – citizens or customers unable to access or fulfill needs • Loss of Financial Services – cash flow, payment guarantees, and/or purchasing discounts • Loss of Reputation – citizens, customers, suppliers, and/or business partners <p>These aspects are the justification for investing in products increasing the availability and readiness.</p>
<i>Benefits</i>	<p>Having higher availability and readiness can benefit:</p> <ul style="list-style-type: none"> • Productivity • Available services • Credibility • Usage of online services by citizens • Information sharing amongst agencies
ASSOCIATED ARCHITECTURE LEVELS	
<i>Specify the Domain Name</i>	Information
<i>Specify the Discipline Name</i>	Database Management
<i>Specify the Technology Area Name</i>	Database Management Systems (DBMS)
<i>Specify the Product Component Name</i>	
COMPLIANCE COMPONENT TYPE	
<i>Document the Compliance Component Type</i>	Guideline
<i>Component Sub-type</i>	

COMPLIANCE DETAIL

<p><i>State the Guideline, Standard or Legislation</i></p>	<p>There are various methods available in achieving higher availability of the DBMS.</p> <ul style="list-style-type: none"> • Failover Clustering – is a process where the operating system and the application work in unison in the event of software or hardware failure. Through configuration, redundant hardware will run as the failed primary component. Failover clustering is based on a clustered operating system, which can be either a Server cluster or Network Load Balancing cluster. A Server cluster connects multiple servers and will transfer the load to another server in the event of a failure. In the event of a failure the load is only directed to the functional servers. • Log Shipping – is a process where a backup server is created from a backup of the original server. The transactional logs from the original server are “shipped” and loaded into the backup server. In case of a failure the backup server is minimally out of sync with the original server. • Replication – is the process of creating duplicate copies of the production database in various locations. In the event of a failure connectivity must be established to these locations for the applications to use the database. • Backup and Recovery – is the process of backing up the database and using the backups logs to recover the system in the event of a failure. • Online Utilities – Tools and techniques that enable database changes and backups without affecting general availability of the system. Various types of utilities include: <ul style="list-style-type: none"> ○ Online backups/Hot backup – is the process of backing up the database without bringing the system down ○ Dynamic Changes – the ability to update database structures without impacting availability. An example of this technology includes Schema Evolution. ○ Maintenance and Reorganization – enables dynamic online database tuning and performance enhancements. • Parallel Sysplexing – is the processing creating a cluster of MVS/ESA systems that run on mainframe platform. A clustered data sharing 24X7 system is created, which allows for data availability and data sharing for all applications within the cluster. A Sysplex timer synchronizes all components within the cluster and in the event of a failure the logs, transactions and messages coordinated by a standard time.
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Document Source Reference #

Compliance Sources

<i>Name</i>	DB2 UDB for OS/390 and z/OS V7 Data Sharing: Planning for DB2 Sharing	<i>Website</i>	http://publib.boulder.ibm.com/cgi-bin/bookmgr/BOOKS/dsndsh13/2.0?DT=20030505133231
<i>Contact Information</i>			
<i>Name</i>	Microsoft SQL Server 2000 Resource Kit	<i>Website</i>	www.microsoft.com/resources/documentation/sql/2000/all/reskit/en-us/part4/c1261.ms
<i>Contact Information</i>			

KEYWORDS			
<i>List Keywords</i>	DBMS, availability, readiness, failover clustering, log shipping, replication, backup, recovery, hot backups, online backups, dynamic changes, parallel sysplexing		
COMPONENT CLASSIFICATION			
<i>Provide the Classification</i>	<input type="checkbox"/> <i>Emerging</i>	<input checked="" type="checkbox"/> <i>Current</i>	<input type="checkbox"/> <i>Twilight</i> <input type="checkbox"/> <i>Sunset</i>
<i>Sunset Date</i>			
COMPONENT SUB-CLASSIFICATION			
<i>Sub-Classification</i>	<i>Date</i>	<i>Additional Sub-Classification Information</i>	
<input type="checkbox"/> <i>Technology Watch</i>			
<input type="checkbox"/> <i>Variance</i>			
<input type="checkbox"/> <i>Conditional Use</i>			
Rationale for Component Classification			
<i>Document the Rationale for Component Classification</i>			
Migration Strategy			
<i>Document the Migration Strategy</i>			
Impact Position Statement			
<i>Document the Position Statement on Impact</i>			
CURRENT STATUS			
<i>Provide the Current Status</i>	<input type="checkbox"/> <i>In Development</i>	<input type="checkbox"/> <i>Under Review</i>	<input checked="" type="checkbox"/> <i>Approved</i> <input type="checkbox"/> <i>Rejected</i>
AUDIT TRAIL			
<i>Creation Date</i>	12-13-04	<i>Date Approved / Rejected</i>	2-8-05
<i>Reason for Rejection</i>			
<i>Last Date Reviewed</i>		<i>Last Date Updated</i>	
<i>Reason for Update</i>			