

DCAPE

Distributed Custodial Archival Preservation Environments

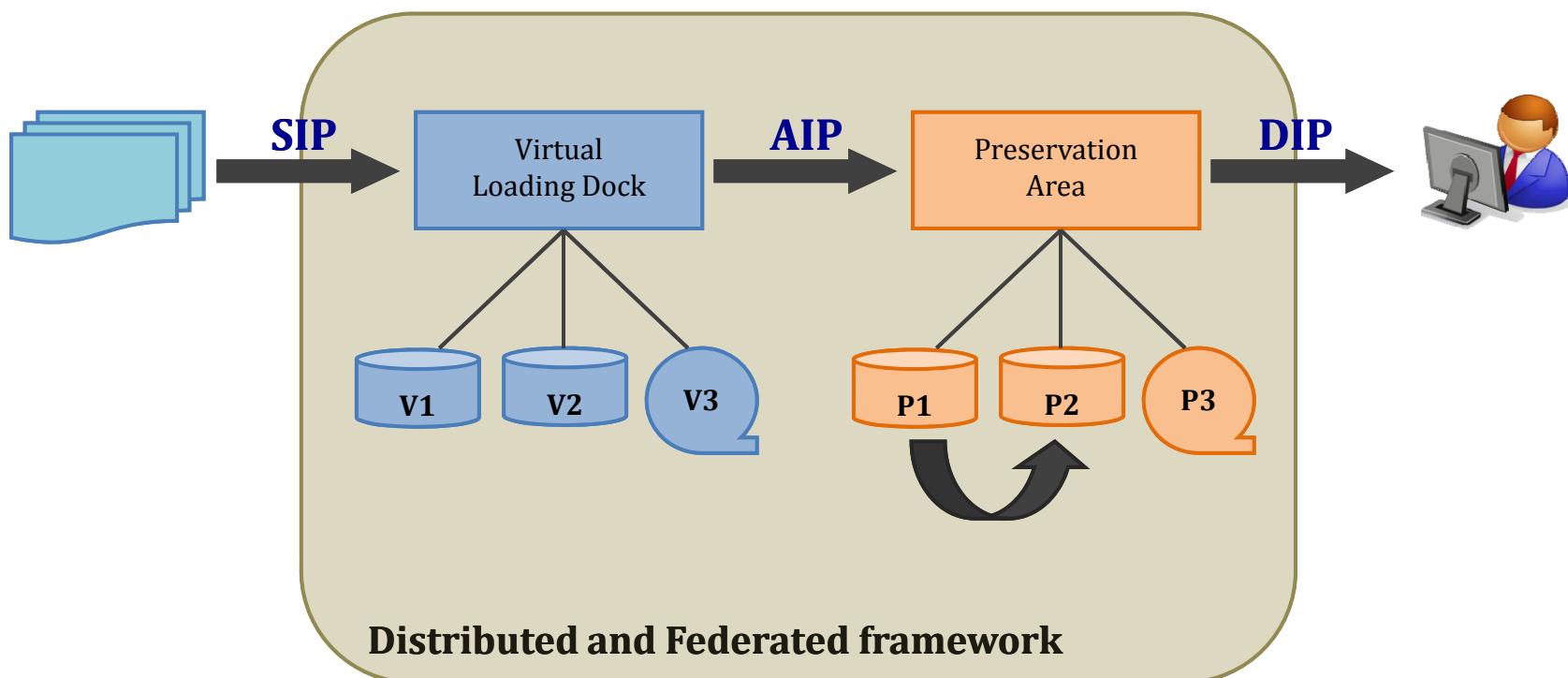
(<http://dcape.org>)

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What Is DCAPE?

- Integrated digital preservation service
 - OAIS-compliant / RAC (Repository Audit & Certification) working group
 - Runs on top of distributed and federated storage spaces
- Developed by archivists
- Scalable, customizable, versatile (“one size does not fit all”)
- Web-based dashboard / console
- Funded by NHRPC

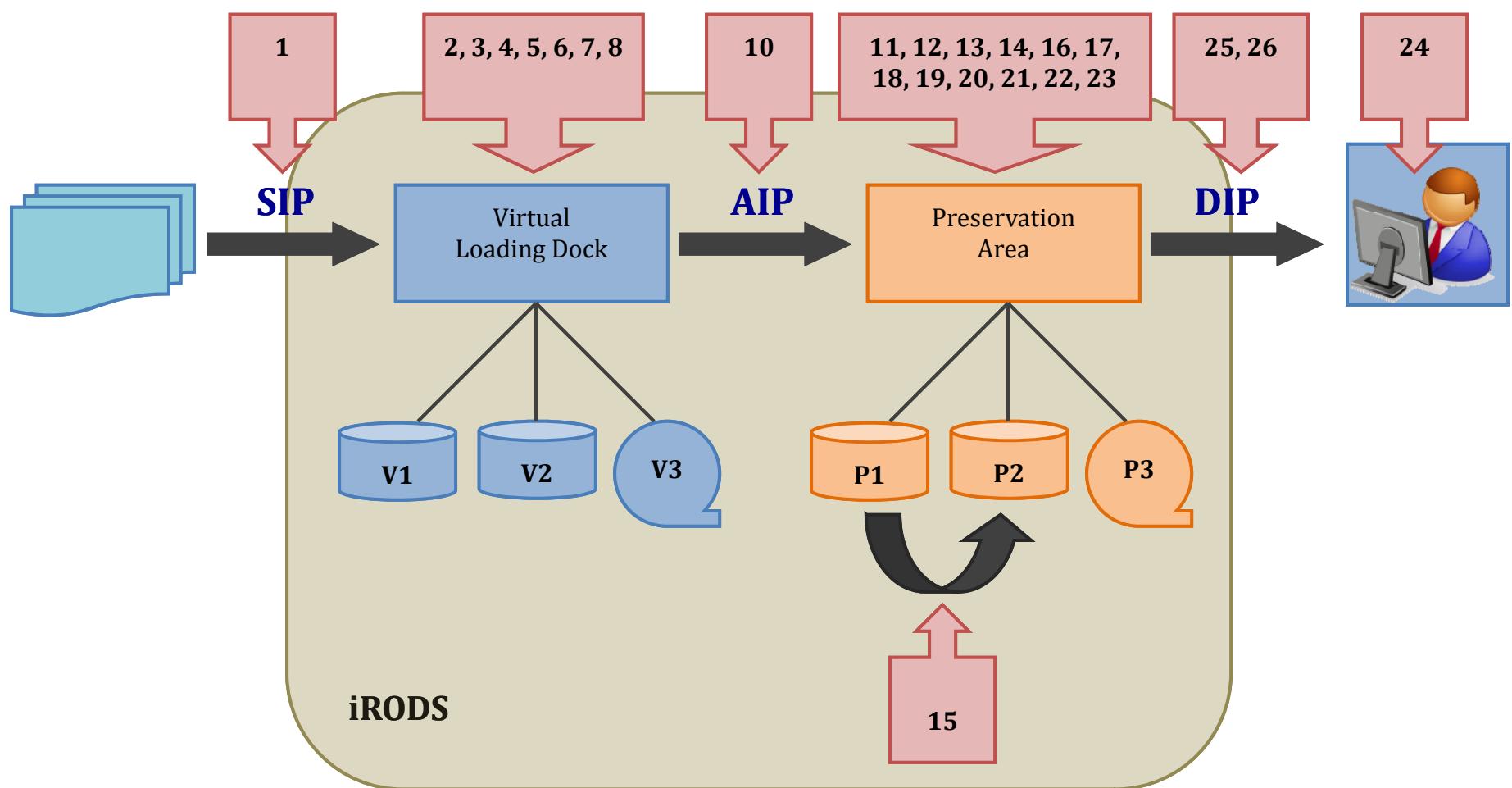
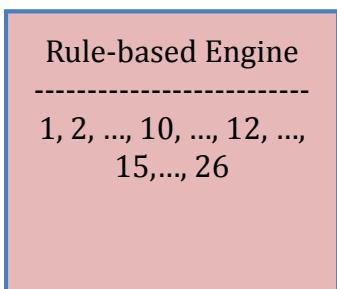


Initial ISO MOIMS-rac Capabilities and Mapping to *DCAPE* rules
 RAC No.'s are from the "Combined Annotated document" Wiki page
<http://wiki.digitalrepositoryauditandcertification.org/bin/view/Main/CombinedMetricsDocumentsFollowingFaceToFace>
 Accessed on Sep. 2009

ISO Item	RAC No.	DCAPE Item	ISO Criteria	DCAPE Machine-Actionable Rule
1	A3.2.2 A5.1.3 A.5.1.4 A5.2		Address liability and challenges to ownership/rights.	Map from submission template to access and distribution controls
2	B1.1	DCAPE 4	Identify the content information and the information properties that the repository will preserve.	Define templates that specify required metadata and parameters for rules that are required to enforce properties
3	B1.1.2		Maintain a record of the Content Information and the Information Properties that it will preserve.	Link submission and policy templates to the preserved collection
4	B1.3	DCAPE 3	Specify Submission Information Package format (SIP)	Define templates that specify structure of a SIP and required content of a SIP.
5	B1.4	DCAPE 1	Verify the depositor of all materials.	Ingest data through a staging area that has a separate account for each depositor.
6	B1.5	DCAPE 6	Verify each SIP for completeness and correctness	Compare content of each SIP against template.
7	B1.6	DCAPE 8	Maintain the chain of custody during preservation.	Manage audit trails that document the identity of the archivist initiating the task
8	B1.7	DCAPE 22	Document the ingestion process and report to the producer	Send e-mail message to producer when process flags are set.
9	B1.8	DCAPE 10	Document administration processes that are relevant to content acquisition.	Maintain list of rules that govern management of the archives
10	B2.1 B2.1.1	DCAPE 13	Specify Archival Information Package format (AIP)	Define templates that specify structure of an AIP and required content of an AIP.
11	B2.1.2		Label the types of AIPs.	Store AIP type with each collection.
12	B2.2	DCAPE 13	Specify how AIPs are constructed from SIPs.	Define transformation rule based on parsing of SIP template and AIP template
13	B2.3 B2.3.1	DCAPE 14	Document the final disposition of all SIPs	Maintain an audit trail for all SIPs
14	B2.4 B2.4.1 B2.4.1.1 B2.4.1.2 B2.4.1.3		Generate persistent, unique identifiers for all AIPs.	Define unique persistent logical name for each AIP

15	B2.4.1.4 B2.4.1.5		Verify uniqueness of identifiers.	Identifier uniqueness enforced by algorithm that assigns identifiers
16	B2.4.2		Manage mapping from unique identifier to physical storage location.	Storage location mapping enforced by iRODS data grid framework
17	B2.5	DCAPE 19	Provide authoritative representation information for all digital objects.	Define template specifying required representation information.
18	B2.5 B2.5.1	DCAPE 7	Identify the file type of all submitted Data Objects.	Apply type identification routine to each object on ingestion.
19	B2.6 B2.6.1		Document processes for acquiring preservation description information (PDI)	Define rule set that will be applied to extract PDI.
20	B2.6.2		Execute the documented processes for acquiring PDI.	Apply PDI rules specific to a collection.
21	B2.6.3 B2.7 B2.7.1 B2.7.2 B2.7.3		Ensure link between the PDI and relevant Content Information.	Set PDI extraction flag as part of PDI extraction rules.
22	B2.8	DCAPE 14	Verify completeness and correctness of each AIP.	Compare AIP against template for required content.
23	B2.9	DCAPE 17	Verify the integrity of the repository collections/content.	Periodically evaluate checksums and compare with original checksum value.
24	B2.10 B3.1 B3.2	DCAPE 21	Record actions and administration processes that are relevant to AIP creation.	Maintain an audit trail of processing steps applied during AIP creation.
25	B4.1		Specify storage of AIPs down to the bit level.	Identify form of container used to implement an AIP.
26	B4.1.1		Preserve the Content Information of AIPs.	Manage replicas of each AIP
27	B4.1.2		Actively monitor the integrity of AIPs.	Periodically evaluate checksums.
28	B4.2 B4.2.1	DCAPE 21	Record actions and administration processes that are relevant to AIP storage.	Maintain an audit trail of processing steps applied during AIP storage.
29	B4.2.2	DCAPE 18	Prove compliance of operations on AIPs to submission agreement.	Parse audit trails to show all operations comply with submission rule template
30	B5.1	DCAPE 24	Specify minimum descriptive information requirements to enable discovery.	Define submission template for required descriptive metadata.
31	B5.2	DCAPE 11	Generate minimum descriptive metadata and associate with the AIP.	Apply rule to extract metadata specified within submission agreement.
32	B5.3 B5.3.1		Maintain link between each AIP and its descriptive information.	Package descriptive metadata within the AIP as an XML file
33	B6.1	DCAPE 9	Enforce access policies.	Authenticate all users, authorize all operations
34	B6.1.1	DCAPE 23	Log and review all access failures	Periodically parse audit trails and

			and anomalies.	summarize access failures
35	B6.2	DCAPE 26	Disseminate authentic copies of records	Define template to specify creation of a Dissemination Information Package (DIP)
36	C1.1.2	DCAPE 15	Maintain replicas of all records, both content and representation information	Periodically snapshot metadata catalog, and maintain at least two replicas
37	C1.1.3	DCAPE 12	Detect bit corruption or loss.	Periodically validate checksums
38	C1.1.3.1	DCAPE 16	Report all incidents of data corruption or loss and repair/replace lost data	Periodically synchronize replicas, and generate and store report
39	C1.1.5	DCAPE 19	Manage migration to new hardware and media	Replicate AIPs to new storage system
40	C1.1.6		Document processes that enforce management policies	Maintain copy of the rule base and micro-services used for each collection
41	C1.1.6.1		Document changes to policies and processes	Version policies and micro-services
42	C1.1.6.1.1		Test and evaluate the effect of changes to the repository's critical processes.	Version state information attributes.
43	C1.2.1		Synchronize replicas	Periodically synchronize replicas
44	C2.3		Delineate roles, responsibilities, and authorization for archivist initiated changes	Define archivist roles and limit execution of preservation procedures to the archivist role
45	C2.4 B2.5.2		Maintain an off-site backup of all preserved information	Federate two independent iRODS data grids and replicate digital holdings
46	B2.5.3		Maintain access to the requisite Representation Information.	Manage Representation Information as metadata attributes on each record
47	B6.2.1 C1.1.1 C1.1.1.1 C1.1.1.2 C1.1.1.3 C1.1.1.4 C1.1.1.5 C1.1.1.6		Maintain and correct problem reports about errors in data or responses from users.	Parse audit trails for unsuccessful operations and design appropriate micro-service recovery mechanisms
48		DCAPE 24	Provide a search interface.	
49		DCAPE 5	Perform a virus check.	
50		DCAPE 2	Implement a loading dock.	
51		DCAPE 20	Migrate records to new formats.	
52		DCAPE 25	Create and certify Dissemination Information Packages.	



DCAPE Dashboard/Console

DCAPE DEMO

Welcome! chienyi, [Logout](#)

- chienyi's Collections
- Virtual Loading Dock
 - K-12_Databases
 - NorthCarolina
 - malaria
 - wwi_orphansfriend
 - Record Group A
- Preservation Area
- Reference Room

New CollectionUpload FileSearch: Submit

Name	Status
K-12_Databases	63%
NorthCarolina	50%
Record Group A	91%

2010-08-10 16:24:14	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBIN99.DBF
2010-08-10 16:24:57	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBOUT00.DBF
2010-08-10 16:25:38	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBOUT01.DBF
2010-08-10 16:26:23	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBOUT02.DBF
2010-08-10 16:27:01	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBOUT03.DBF
2010-08-10 16:27:27	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBOUT95.DBF
2010-08-10 16:27:56	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBOUT96.DBF

Question? Please email salt at unc dot edu. Thanks!

Create New Collection

- Add Metadata

DCAPE DEMO Welcomel chienyi, [logout](#)

New Collection Upload File Search: Submit

Please enter the initial set of metadata. Use the pull-down menu to select additional metadata from pre-defined template.

1 2 3

Create New Collection

*Collection Name:
*Creator:
Metadata Template: North Carolina Preservation Metadata

Digital Creation Date:
Digital Creator:
Capture Hardware & Software:
Resolution:
Compression:
Bit Depth:
Color Space:
Security:
Checksum:
Revision:

Time	Event	Target
2010-08-10 16:17:53	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBGFE97.DBF
2010-08-10 16:18:53	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBGFE98.DBF
2010-08-10 16:19:46	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBGFE99.DBF
2010-08-10 16:20:14	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBIN00.DBF
2010-08-10 16:20:43	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBIN01.DBF
2010-08-10 16:21:12	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBIN02.DBF

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Create New Collection

- Customize Policy

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New Collection Upload File Search: Submit

Please specify the policy you want to apply on this collection.
The policy you specified will be applied to the
sub-collections, too.

1 2 3 Apply Policy

SIP Policy

MD5 Checksum: Yes No
Virus Check: Yes No
Tar File Auto-extraction: Yes No
Archivist's Approval: Yes No

AIP Policy

Tar File Creation: Yes No
Replication: Yes No
Fixity Check: Yes No

DIP Policy

Open to public: Yes No

Back Next

2010-08-10 16:43:25	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE95.DBF
2010-08-10 16:44:07	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE96.DBF
2010-08-10 16:44:52	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE97.DBF
2010-08-10 16:45:33	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE98.DBF
2010-08-10 16:46:13	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE99.DBF
2010-08-10 16:46:55	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSIN00.DBF
2010-08-10 16:47:31	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSIN01.DBF

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Progress Status Check

DCAPE DEMO Welcome! chienyi, [logout](#)

New Collection [Upload File](#) Search: [Submit](#)

Name	Status
DM47_00.DBF	50%
DM47_01.DBF	50%
DM47_93.DBF	50%
DM47_94.DBF	50%
DM47_95.DBF	50%
DM47_96.DBF	50%
DM47_97.DBF	50%
DM47_98.DBF	50%
DM47_99.DBF	50%
DM4_01.DBF	50%
DM58_00.DBF	50%
DM58_01.DBF	50%
DM58_96.DBF	50%
DM58_97.DBF	50%
DM58_98.DBF	50%
DM58_99.DBF	50%

Metadata		Policy	
Policy	Value	Policy	Value
DCAPE_STATUS_CHKSUM	79c19c179a4728b4b19e8a6e7c0dd9bb	DCAPE_STATUS_VIRUS_CHK	Pending

Time	Event	Target
2010-08-10 16:17:53	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K12_Databases/finance/DATA/FBGFE97.DBF
2010-08-10 16:18:53	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K12_Databases/finance/DATA/FBGFE98.DBF
2010-08-10 16:19:46	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K12_Databases/finance/DATA/FBGFE99.DBF
2010-08-10 16:20:14	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K12_Databases/finance/DATA/FBIN00.DBF
2010-08-10 16:20:43	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K12_Databases/finance/DATA/FBIN01.DBF
2010-08-10 16:21:12	Virus_Check	/dcape-dev/home/chienyi/VirtualLoadingDock/K12_Databases/finance/DATA/FBIN02.DBF

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Progress Status Check – with Errors

DCAPE DEMO Welcomel chienyi, [logout](#)

New Collection [Upload File](#) Search:

Name	Status
LICENSE.txt	100%
MANAGE.txt	100%
Makefile	100%
README.txt	100%
eicar_com.zip	100%
summary.txt	100%

Metadata		Policy
Policy	Value	
DCAPE_STATUS_CHKSUM	6ce6f415d8475545be5ba114f208b0ff	
DCAPE_STATUS_VIRUS_CHK	Eicar-Test-Signature FOUND	

2010-08-10 16:43:25	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE95.DBF
2010-08-10 16:44:07	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE96.DBF
2010-08-10 16:44:52	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE97.DBF
2010-08-10 16:45:33	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE98.DBF
2010-08-10 16:46:13	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSFE99.DBF
2010-08-10 16:46:55	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSIN00.DBF
2010-08-10 16:47:31	Virus_Check /dcape-dev/home/chienyi/VirtualLoadingDock/K-12_Databases/finance/DATA/FBSIN01.DBF

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