

# Engineering Resources - 1.12.x



## Warning

Dashboard Service database only

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## Glossary

Term	Definition
Action Plan	An action plan is a set of issues (i.e. violations requiring a remedial action)
Code Fragment	A code fragment identifies a file contents extract.
Component Snapshot	A component is a source code item such as a class, a method, etc. The effective definition depends on the programming language and the technology of the analyzed application. Container of a component is either an application or a module. A defective component is a component in violation with a quality rule pattern.
Defects Summary	Statistics of defects impacting a business criterion for all components in the scope of a tree node
Diagnosis Findings	Diagnosis Findings pinpoint statements or properties of the defective component violating a quality rule pattern.
Diagnosis Value	A diagnosis findings reported as a value.
File Contents	Raw text of a source file.
OMG Functions	Data Function or Transaction as results of Function Point analysis (see "International Function Point Users Group")
Issue	An issue reports a remedial action <u>in a context of an application snapshot</u> . Component and quality rule pattern match either a violation that should have been addressed in previous snapshots, or that will have to be addressed before next snapshot.

Remedial Action	A remedial action describes a user input request to correct a component regarding a quality rule-pattern.
Transaction	A set of components involved in a transaction processing
Tree Node	Hierarchy relation of a component. This hierarchy relation depends on the programming language. For example, a node for a "Java Package" component, will be parent node of "Java Class" nodes.  <b>WARNING: a component may be reached from several tree nodes</b>
Violation	A violation identifies a defective component breaking a quality rule pattern.  <b>IMPORTANT: For a given component and a given quality rule pattern there is 0 or 1 violation. If a component breaks a rule N times, then each occurrence is detailed into diagnosis findings structure with a value counter equals to N, and/or with N values, and/or with N code bookmarks.</b>  A critical violation is a violation of a quality rule identified as critical regarding a technical criterion or a business criterion.  Risk assessment is based on defective components number compared to observable components number.

## OMG Data Functions and Transactions (Excel/CSV Representation only)



### Warning

Even in case of a restricted license, authorizations.xml configuration is applied for these URLs.

## URI Templates

HTTP Action	Media Type	URI Templates	Description
GET	text/csv	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/ifpug-functions	Array of Functions.
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet		
GET	text/csv	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/ifpug-functions-evolution	Array of Functions.
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet		
GET	text/csv	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/omg-functions-functional-evolution{?parameters}	Array of Functions
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet		

## Parameters

URI Parameter	Description	Values	Default value
sheet	Specify the sheet you want to retrieve (only for CSV format)  Possible values are: <ul style="list-style-type: none"> <li>sheet=context</li> <li>sheet=functional</li> <li>sheet=technical</li> </ul>	a string	none

## CSV Representation

Columns	Description	Type	Occurs
Element Type	Whether this object is a Data Function or a Transaction	String	1
Object Name	Full name	String	1
Nb of FPs	Number of Function Points for this Function	Integer	1
FP details	Details on the Function Points for this Function	String	1
Object Type	Type of this Function	String	1
Module name	Name of a functional module containing this Function	String	1
Technology	Technology to which this Function belongs	String	1

## Excel Representation

Columns	Description	Type	Occurs
Element Type	Whether this object is a Data Function or a Transaction	String	1
Object Name	Full name	String	1
Nb of FPs	Number of Function Points for this Function	Integer	1
Impact Factor (for AFP or EFP) Complexity Factor (for AEFP)	Multiplying factor for Adjusted FP available for Transactions only since version 8.0 available for Data Functions since version 8.1 available for AEFP since version 8.2	Float	1
Type	OMG Function type	String	0..1
DET	Data Element Type	Integer	0..1
RET	Record Element Type	Integer	0..1
EIF	External Interface File	Integer	0..1
ILF	Internal Logical File	Integer	0..1
FTR	File Type Referenced	Integer	0..1
Object Type	Type of this Function	String	1
Module name	Name of a functional module containing this Function	String	1
Technology	Technology to which this Function belongs	String	1

## Transaction Directory

### URI Templates

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/transactions	A Transaction directory

### JSON Representation

Properties	Description	Type	Occurs
href	Auto reference	URI	1
name	Name	String	1
security.href	Reference to get transactions by risk propagation index for Security	URI	1
efficiency.href	Reference to get transactions by risk propagation index for Efficiency	URI	1
robustness.href	Reference to get transactions by risk propagation index for Robustness	URI	1

### JSON Example

```

{
  "href": "DEMO/applications/3/snapshots/8/transactions",
  "name": "Transactions for application DEMO in snapshot 2",
  "security": {
    "href": "DEMO/applications/3/snapshots/8/transactions/60016",
    "name": "Transactions ordered by Risk Propagation Index for Security"
  },
  "efficiency": {
    "href": "DEMO/applications/3/snapshots/8/transactions/60014",
    "name": "Transactions ordered by Risk Propagation Index for Efficiency"
  },
  "robustness": {
    "href": "DEMO/applications/3/snapshots/8/transactions/60013",
    "name": "Transactions ordered by Risk Propagation Index for Robustness"
  }
}

```

## Transaction

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/transactions/{BusinessCriterionID}/{?parameters}	Array of Transactions
GET	application/json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/transactions{?parameters}	Array of Transactions

URI Parameter	Description	Values	Default value
startRow	Specify first item (not available for tree-node transactions)	an integer	1
nbRows	Specify max number of items to return or the '\$all' keyword (not available for tree-node transactions)	an integer or the '\$all' keyword	10
business-criterion	Specify a business criterion to compute TRI (only for tree-node transactions)	an integer possible values are 60013, 60014, 60016	60017 (TQI)

### JSON Representation

Properties	Description	Type	Occurs
href	Reference to a transaction	URI	1
name	Transaction full name	String	1
shortName	Transaction short name	String	1
transactionRiskIndex	Risk assessment according to a health factor (if the business criterion is a health factor, this value is displayed, otherwise it is not)	int	0 or 1

### JSON Example

```
[
  {
    "href": "DEMO/transactions/21/snapshots/8",
    "name": "[F:\CASTMS\TSTAEP82\Deploy\Shopizer\shopizer_src\sm-shop\WebContent\customer\address.jsp]",
    "shortName": "address.jsp",
    "transactionRiskIndex": 1291
  },
  {
    "href": "DEMO/transactions/22/snapshots/8",
    "name": "[F:\CASTMS\TSTAEP82\Deploy\Shopizer\shopizer_src\sm-central\WebContent\cartproperties\cartproperties.jsp]",
    "shortName": "cartproperties.jsp",
    "transactionRiskIndex": 851
  }
]
```

## Tree Node

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/tree-node	Tree-node attached to this application. This is the root of all tree nodes.
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/tree-node	Tree-node attached to this module.
GET	application/json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}	Tree-node detail
GET	application/json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/children/{?parameters}	Array of direct tree node children for TQI by default. Tree nodes are ordered by names.
GET	application/json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/ancestors	Array of all tree node ancestors. Tree Nodes are ordered by descending node levels
GET	application/json	{Domain}/components/{ComponentID}/snapshots/{SnapshotID}/tree-nodes	Array of tree-nodes related to this component as a component may be reached from several tree nodes.

URI Parameter	Description	Values	Default value
startRow	Specify first item	an integer	1
nbRows	Specify max number of items to return	an integer	10

### JSON Representation

Properties	Description	Type	Occurs
href	Auto reference	URI	1
name	Name	String	1
component	Related component There is no component for a tree-node attached to an application or a module.	Structure	0..1
component.name	Related component There is no component for a tree-node attached to an application or a module.	URI	1
component.type.name	Component type name. This name can be used as a file name of a PNG image.	String	1
component.type.label	Component type label: "C++ Class", "Java Class", "Java Method"	String	1
defects-summary.href	URI to get statistics of defects: defective components, violated rule patterns, violations	URI	1

children.href	URI to get all direct children nodes Warning: Undefined for leaf nodes.	URI	0..1
ancestors.href	URI to get all parents of this tree node. Warning: Undefined for the root tree-node wich is the application.	URI	0..1

## JSON Example

```
{
  "href": "CASTONCAST/tree-nodes/3-63888-63923/snapshots/2",
  "name": "AMTActionsImpl::CAMTTestDomifier",
  "component": {
    "name": "[S:\\CAIP\\SRC\\...[CAMTTestDomifier]",
    "type": {
      "name": "C_CLASS",
      "label": "C++ Class"
    }
  },
  "sourceCodes": {
    "href": "CASTONCAST/components/231310/snapshots/2/source-codes",
    "name": "Source Codes"
  },
  "defectsSummary": {
    "href": "CASTONCAST/tree-nodes/3-63888-63923/snapshots/2/defects-summary",
    "name": "Defects"
  },
  "children": {
    "href": "CASTONCAST/tree-nodes/3-63888-63923/snapshots/2/children",
    "name": "Children"
  },
  "ancestors": {
    "href": "CASTONCAST/tree-nodes/3-63888-63923/snapshots/2/ancestors",
    "name": "Ancestors"
  }
}
```

```

{
  "href": "ENDTOEND83/tree-nodes/4-3231-3234/snapshots/16",
  "name": "ListTitles.jsp",
  "component": {
    "href": "ENDTOEND83/components/36382/snapshots/16",
    "name": "[c:
\\jenkins6_slave\\workspace\\CAIP_Trunk_TestE2E_CSS_ADG\\Work\\CAST\\Deploy\\Jurassic
Park\\JSPBookDemo\\ListTitles.jsp]",
    "shortName": "ListTitles.jsp",
    "type": {
      "label": "eFile",
      "name": "CAST_Web_File"
    },
    "sourceCodes": {
      "href": "ENDTOEND83/components/36382/snapshots/16/source-codes",
      "name": "Source Codes"
    },
    "treeNodes": {
      "href": "ENDTOEND83/components/36382/snapshots/16/tree-nodes",
      "name": "Tree Nodes"
    },
    "codeLines": 81,
    "commentedCodeLines": null,
    "commentLines": 0,
    "coupling": 1,
    "fanIn": 1,
    "fanOut": 17,
    "cyclomaticComplexity": 4,
    "ratioCommentLinesCodeLines": 0,
    "halsteadProgramLength": 126,
    "halsteadProgramVocabulary": 40,
    "halsteadVolume": 464.798811218356,
    "distinctOperators": 12,
    "distinctOperands": 28,
    "integrationComplexity": 4,
    "essentialComplexity": 1
  },
  "defectsSummary": {
    "href": "ENDTOEND83/tree-nodes/4-3231-3234/snapshots/16/defects-summary",
    "name": "Defects"
  },
  "children": {
    "href": "ENDTOEND83/tree-nodes/4-3231-3234/snapshots/16/children",
    "name": "Children"
  },
  "ancestors": {
    "href": "ENDTOEND83/tree-nodes/4-3231-3234/snapshots/16/ancestors",
    "name": "Ancestors"
  }
}

```

## Defects Summary

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application /json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/defects-summary{? parameters}	Summary of defects

URI Parameter	Description	Values	Default value
---------------	-------------	--------	---------------

business-criterion	Business Criterion to compute statistics	An integer	60017 (TQI)
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## JSON Representation

Properties	Description	Type	Occurs
href	Auto reference	URI	1
name	Name	String	1
violations.number	Number of violations impacting a business criterion	Integer	1
defectiveComponents.number	Number of defective components impacting a business criterion	Integer	1
violatedRulePatterns.href	URI to get list of violated rule patterns in the scope of this node	URI	1
violatedRulePatterns.number	Number of violated rules patterns impacting a business criterion For each rule-pattern, see "violation" resource to get list of violations.	Integer	1
criticalViolations.number	Number of critical violations impacting a business criterion	Integer	1
defectiveComponentsToCriticalRules.number	Number of defective components impacting the critical rules of a business criterion	Integer	1
violatedCriticalRulePatterns.number	Number of critical violated rules patterns impacting a business criterion	Integer	1

## JSON Example

```
{
  "href": "DEMO/tree-nodes/1-2-1827/snapshots/28/defects-summary?business-criterion=60017",
  "name": "eCommerce DataAccess",
  "violations": {
    "number": 9164
  },
  "defectiveComponents": {
    "number": 3501
  },
  "violatedRulePatterns": {
    "name": "Violated Rule Patterns",
    "href": "DEMO/tree-nodes/1-2-1827/snapshots/28/violated-rule-patterns?business-criterion=60017",
    "number": 227
  },
  "criticalViolations": {
    "number": 53
  },
  "defectiveComponentsToCriticalRules": {
    "number": 256
  },
  "violatedCriticalRulePatterns": {
    "number": 11
  }
}
```

## Violated Rule Pattern

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/violated-rule-patterns{?parameters}	An array of violated rule patterns ordered by violations number
	text/csv		
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet		



URI Parameters	Description	Values	Default value
business-criterion	Specify a business criterion to select rule patterns which associated Quality Rule indicator is contributing to a business criterion	an integer	60017 (TQI)

## JSON Representation

Properties	Description	Type	Occurs
rulePattern.href	Auto reference	URI	1
violations.name	Name	String	1
violations.href	Reference to get the list of violations		
violations.number	Number of violations/defective components for this rule pattern	Integer	1

## JSON Example

```
{
  "rulePattern": {
    "href": "DEMO/rule-patterns/554"
  },
  "violations": {
    "name": "Violations",
    "href": "DEMO/tree-nodes/0-1-64400/snapshots/28/violations?rule-pattern=554&business-criterion=60017",
    "number" : 19579
  }
}
```

## EXCEL Example

Object Name	Business criterion	Metric Name	Metric Id	Weight	Critical	Snapshot Date	Violations
IFPUG	Total Quality Index	Declare as Static all methods not using instance members	7270	8	true	2013-6-21	430

## Components Directory

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/components	A Components directory
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/components	A Components directory

## JSON Representation

Properties	Description	Type	Occurs
href	Auto reference	URI	1
name	Name	String	1
security.href	Reference to get components ordered by risk propagation index for Security	URI	1
efficiency.href	Reference to get components ordered by risk propagation index for Efficiency	URI	1
robustness.href	Reference to get components ordered by risk propagation index for Robustness	URI	1
transferability.href	Reference to get components ordered by risk propagation index for Transferability	URI	1
changeability.href	Reference to get components ordered by risk propagation index for Changeability	URI	1

## JSON Example

```

{
  "href": "DEMO/applications/3/snapshots/8/components",
  "name": "Components for object DEMO in snapshot 2",
  "security": {
    "href": "DEMO/applications/3/snapshots/8/components/60016",
    "name": "Components ordered by Risk Propagation Index for Security"
  },
  "efficiency": {
    "href": "DEMO/applications/3/snapshots/8/components/60014",
    "name": "Components ordered by Risk Propagation Index for Efficiency"
  },
  "robustness": {
    "href": "DEMO/applications/3/snapshots/8/components/60013",
    "name": "Components ordered by Risk Propagation Index for Robustness"
  },
  "transferability": {
    "href": "DEMO/applications/3/snapshots/8/components/60011",
    "name": "Components ordered by Risk Propagation Index for Transferability"
  },
  "changeability": {
    "href": "DEMO/applications/3/snapshots/8/components/60012",
    "name": "Components ordered by Risk Propagation Index for Changeability"
  }
}

```

## Component Snapshot

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/components/{HealthFactorID}/{?parameters}	Array of Components of an application snapshot filtered by Health Factor
	text/csv		
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet		
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/components/{HealthFactorID}/{?parameters}	Array of Components of a module snapshot filtered by Health Factor
	text/csv		
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet		
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/components/{DistributionID}/{categoryRank}/{?parameters}	Array of Components of a distribution
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/components/{DistributionID}/{categoryRank}/{?parameters}	Array of Components of a distribution
GET	application/json	{Domain}/applications/{ApplicationID}/components/65005/{?parameters}	Array of Components for Cost Complexity
GET	application/json	{Domain}/modules/{ModuleID}/components/65005/{?parameters}	Array of Components for Cost Complexity
GET	application/json	{Domain}/components/{ComponentID}/snapshots/{SnapshotID}	A component snapshot

### Common parameters

URI Parameters	Description	Values	Default value
startRow	Specify first item	an integer	1
nbRows	Specify max number of items to return	an integer	10
business-criterion	A health factor ID to compute propagated risk index	String	None


**Additional parameters for {Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/components/{HealthFactorID} and {Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/components/{HealthFactorID} :**

URI Parameters	Description	Values	Default value
properties	<p>List of component properties which should be non-null to filter the components</p> <p>Eg, <b>properties=(cyclomaticComplexity,fanOut)</b> filters the components keeping only those which have a non-null cyclomaticComplexity and a non-null fanOut</p> <p>The available properties are: codeLines, commentedCodeLines, commentLines, coupling, fanIn, fanOut, cyclomaticComplexity, ratioCommentLinesCodeLines, halsteadProgramLength, halsteadProgramVocabulary, halsteadVolume, distinctOperators, distinctOperands, integrationComplexity, essentialComplexity.</p> <p>Their values are known only for the last snapshot.</p>	a list of predefined strings	None
order	<p>See Indexed Violation order</p> <p>By default, components are ordered by PRI desc (if any), component full name asc, component id asc</p> <p>The sortable columns are all the above properties, plus the following : <i>pri, component-name, component-id</i></p>	a list of sort orders	None

**Only parameters applicable to {Domain}/applications/{ApplicationID}/components/65005/{?parameters} and {Domain}/modules/{ModuleID}/components/65005/{?parameters}**

URI Parameters	Description	Values	Default value
snapshot-ids	<p>Two snapshot ids (snapshot range to consider)</p> <p>Eg. snapshot-ids=(12,14)</p>	Two comma separated integers	none
status	<p>Status of the artifacts between snapshots S1 and S2</p> <p>Possible values are one of the following: added, updated, deleted</p>	String	none
technologies	A technology name to filter artifacts	String	none

## JSON Representation

Properties	Description	Scope	Type	Occurs
href	Auto reference	n/a	URI	1
name	Full name of the component.	n/a	String	1
shortName	Short name of the component	n/a	String	1
propagationRiskIndex	Risk propagation assessment index according to an input health factor. This attribute is not set, if health factor is not specified	Enabled if a business criterion is specified	Integer	0..1
status	An enumeration value of ["added", "updated", "unchanged"]	n/a	String	0..1
sourceCodes.href	<p>A reference to get an array of code fragments. Each code fragment is a part of the source code.</p> <div style="border: 1px solid red; padding: 5px; margin-top: 10px;">  This data is set only for the last snapshot of this application         </div>	Enabled for last Application Snapshot only	URI	0..1
type.label	Component type label: "C++ Class", "Java Class", "Java Method"	n/a	String	0..1
type.name	Component type name. This name can be used as a file name of a PNG image.	n/a	String	0..1
treeNodes.href	A reference to get an array of all tree nodes linked to this component	Enabled for last snapshot only	URI	0..1

## Additional parameters

(available through the {Domain}/components/{ComponentID}/snapshots/{SnapshotID} URL only, and the "component" parameter of {Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID} URL only)

Properties	Description	Scope	Type	Occurs
codeLines	Number of code lines	Enabled for last snapshot only, on requesting a single	Integer	0..1

		ComponentSnapshot		
commentedCodeLines	Number of commented code lines	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
commentLines	Number of comment lines	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
coupling	Coupling	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
fanIn	Number of ingoing calls/references	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
fanOut	Number of outgoing calls/references	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
cyclomaticComplexity	Cyclomatic Complexity	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
ratioCommentLinesCodeLines	The total number of comments divided by the total number of code lines	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Double	0..1
halsteadProgramLength	Program length as the sum of number of operands and number of operators	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
halsteadProgramVocabulary	Sum of distinctOperators and distinctOperands	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
halsteadVolume	The volume as $\text{programLength} * \log_2(\text{distinctOperands} + \text{distinctOperators})$	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Double	0..1
distinctOperators	Number of distinct operators	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
distinctOperands	Number of distinct operands	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
integrationComplexity	Integration Complexity measures the number of independent integration paths	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1
essentialComplexity	Essential Complexity measures the number of non-structured independent paths	Enabled for last snapshot only, on requesting a single ComponentSnapshot	Integer	0..1

## JSON Example

```
{
  "href": "CENTRAL/components/4/snapshots/5",
  "name": "com.cast.monster_event.base.model.Monster.Monster",
  "shortName": "Monster",
  "status": "added",
  "sourceCodes": {
    "href": "CENTRAL/components/4/snapshots/5/source-codes",
    "name": "Source codes"
  },
  "treeNodes": {
    "href": "CENTRAL/components/4/snapshots/5/tree-nodes",
    "name": "Tree nodes"
  }
}
```

```
{
  "href": "ENDTOEND83/components/34364/snapshots/16",
  "name": "WASecurityForm._Default.GetRawInputGet",
  "shortName": "GetRawInputGet",
  "type": {
    "label": "C# Method",
    "name": "CAST_DotNet_MethodCSharp"
  },
  "treeNodes": {
    "href": "ENDTOEND83/components/34364/snapshots/16/tree-nodes",
    "name": "Tree Nodes"
  },
  "codeLines": 1,
  "commentedCodeLines": null,
  "commentLines": 0,
  "coupling": 3,
  "fanIn": 2,
}
```

```

"fanOut": 3,
"cyclomaticComplexity": 1,
"ratioCommentLinesCodeLines": 0,
"halsteadProgramLength": 8,
"halsteadProgramVocabulary": 8,
"halsteadVolume": 16.635532333438686,
"distinctOperators": 5,
"distinctOperands": 3,
"integrationComplexity": 1,
"essentialComplexity": 1
}

```

ENDTOEND84/applications/7/components/65005?snapshot-ids=(3,15)&status=updated&technologies=(.NET)

```

[
  {
    "href": "ENDTOEND84/components/16879/snapshots/15",
    "name": "Pchit.Builder.AddListToList",
    "shortName": "AddListToList",
    "nbOfUpdates": 1,
    "complexity": "moderate risk",
    "sqlComplexity": "low risk",
    "granularity": "moderate risk",
    "lackOfComments": "moderate risk",
    "coupling": "low risk",
    "treeNodes": {
      "href": "ENDTOEND84/components/16879/snapshots/15/tree-nodes",
      "name": "Tree Nodes"
    }
  },
  ...
]

```

## Code Fragment

### URI Templates

*no URI. A code fragment is always embedded in a parent structure.*

### JSON Representation

Properties	Description	Type	Occurs
file.href	URI to get source file contents as a text using the related media-type	URI	1
file.name	path/name of the file	String	1
file.size	size of the file (number of octets)	Integer	1
startLine	start line of code fragment	Integer	1
startColumn	start column of code fragment Note: column number may be set to null in some cases, for example for a diagnosis findings of type "path"	Integer	1
endLine	end line of code fragment	Integer	1
endColumn	end column of code fragment Note: column number may be set to null in some cases, for example for a diagnosis findings of type "path" Note 2: this value is exclusive. code fragment end at column (endColumn-1). This convention allows to locate a point in the text.	Integer	1

### JSON Example

```

{
  "file": {
    "href": "CENTRAL/local-sites/1/file-contents/123",
    "name": "test.java",
    "size": 15
  },
  "startLine": 6,
  "startColumn": 1,
  "endLine": 6,
  "endColumn": 10
}

```

## File Contents

### URI Templates

HTTP Action	Media Type	URI Templates	Description
GET	text/plain	{Domain}/local-sites/{SiteID}/file-contents/{ContentsID}/?{Parameters}	Source file contents as a text

URI Parameters	Description	Values	Default value
start-line	Specify first line to extract	an integer	1
end-line	Specify last line to extract	an integer	<i>Last line no</i>

### Text/Plain Representation

A raw text

## Action Plan Summary

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/action-plan/summary/{?parameters}	Action plan summary for this application at this snapshot
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/action-plan/summary/{?parameters}	Action plan summary for this application at this snapshot

URI Parameter	Description	Values	Default value
objectSamples	Specify a number of sample objects to display	An integer	5
rule-pattern	Filter the issues following the specified quality rules The common syntax for this parameter can be found in the Violation section	a combination of integers and strings eg. rule-pattern=(7156,8294)	All quality rules
status	Filter the issues following the specified statuses	Possible values are "added", "pending" or "solved" eg. status=(added,pending)	All statuses
tag	Filter the issues following the specified tags (an issue is returned if the tag equals the specified value)	eg. tag=(low,high)	All tags
comment	Filter the issues following the specified comment (an issue is returned if the comment equals the specified value)	eg. comment=() /* blank comment */ comment=(test) comment=(,test) /* blank comment or test */	All comments
object-fullname		a string	All object full

Filter the issues following the specified object full name  
(an issue is returned if the object full name contains the specified value)

names

## JSON Representations

- D/applications/A/snapshots/S/action-plan/issues
- D/applications/A/snapshots/S/action-plan/summary
- D/applications/A/snapshots/S/action-plan/triggers

Properties	Description	Type	Occurs
rulePattern.href	Reference to get a rule pattern description	URI	1
objectSamples	A sample of defective components	Array	1
objectSamples[ ]	A defective component	Structure	1..*
addedIssues	Number of issues added to the action plan in the requested snapshot	Integer	1
pendingIssues	Number of issues selected before the requested snapshot and remaining in the action plan	Integer	1
solvedIssues	Number of issues selected before the requested snapshot that have been corrected in the meantime	Integer	1

## JSON Example

```
[
  {
    "rulePattern": {
      "href": "DEMO/rule-patterns/1003114",
      "name": " Avoid class with too many fields"
    },
    "objectSamples": [
      { "name": "S:\\...MatchFilter" },
      { "name": "S:\\...UtilityManager" },
      { "name": "S:\\...SummaryGrid" },
      { "name": "S:\\...ParameterConstants" },
      { "name": "S:\\..." }
    ],
    "addedIssues": 283,
    "pendingIssues": 8,
    "solvedIssues": 1
  }
]
```

## Remedial Action

### URL Templates & Parameters

*no URI. A remedial action is always embedded in an issue or a violation.*

## JSON Representations

Properties	Description	Type	Occurs
status	This property is set only in the scope of an <a href="#">issue</a> or a <a href="#">violation</a> .  This property is computed with internal dates properties compared to the current snapshot date: <ul style="list-style-type: none"><li>• <b>"added"</b>: A remedial action has been requested at this violation snapshot date, because this violation has been identified as an issue</li><li>• <b>"pending"</b>: A remedial action has been requested prior to this violation snapshot date; this violation is still an issue to solve, it has not been corrected for this snapshot</li><li>• <b>"solved"</b>: This violation has been solved and does no longer exist in this snapshot</li></ul>	String	1
dates.	Date of last change of this remedial action	Date	1

updated			
comment	A short comment provided by the requester who added manually a remedial action. End of lines are represented with characters \n	String	1
priority	Remediation priority: extreme, high, moderate, low	String	1
tag	A general text intended to replace priority	String	1








## JSON Example

```
{
  "dates" : { "updated": {"time":...} },
  "comment": "...",
  "priority": "high",
}
```

## Issue

An issue represents a remedial action for a rule pattern and a component in a context of an application snapshot.

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/action-plan/issues/{?Parameters}	<p>Array of issues applicable <b>until this application snapshot</b></p> <p>"status" property if remedial action indicates the violation status regarding this action.</p>
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/action-plan/issues/{?Parameters}	<p>Array of issues applicable <b>until this module snapshot</b></p> <p>"status" property if remedial action indicates the violation status regarding this action.</p>
POST	application/json	{Domain}/applications/{ApplicationID}/action-plan/issues	<p>Create a set of issues from last application snapshot</p> <div style="border: 1px solid red; padding: 5px; margin-bottom: 10px;"> <p> Users <b>MUST</b> have QUALITY_MANAGER Role and <b>MUST</b> be granted to access to the related application</p> </div> <p> Payload is a collection of triplets: component, rule-pattern, and remedial action.</p> <pre>[   { "component": { "href": "D/components/C/snapshots/S" },     "rulePattern": { "href": "D/rule-patterns/M" },     "remedialAction": { "comment": "blablabla", "tag": "mytag" },     ... ]</pre> <p> For compatibility considerations with earlier versions, the following format is still accepted:</p> <pre>"remedialAction": { "comment": "blablabla", "priority": "high" }</pre> <p> No active action must be already defined on the same component and the same rule pattern</p> <p> Remedial actions are created with last application snapshot date as internal 'start date'</p>
PUT	application/json	{Domain}/applications/{ApplicationID}/action-plan/issues	<p>Update a set of issues opened in last application snapshot for a rule pattern</p> <div style="border: 1px solid red; padding: 5px; margin-bottom: 10px;"> <p> Users <b>MUST</b> have QUALITY_MANAGER Role and <b>MUST</b> be granted to access to the related application</p> </div> <p> Payload is a collection of triplets: component, rule-pattern, and remedial action.</p>



			<pre>[   { "component": { "href": "D/components/C/snapshots/S" },     "rulePattern": { "href": "D/rule-patterns/M" },     "remedialAction": { "comment": "blablabla", "tag": "mytag" },     ... ]</pre> <p><b>i</b> For compatibility considerations with earlier versions, the following format is still accepted:</p> <pre>"remedialAction": { "comment": "blablabla", "priority": "high" }</pre> <p><b>i</b> Related component must belong to the last application snapshot</p> <p><b>i</b> Remedial action must be active (i.e. not deleted with internal 'last date').</p>
DELETE	application/json	{Domain}/applications/{ApplicationID}/action-plan/issues	<p>Remove a set of issues opened in last application snapshot for a rule pattern</p> <div style="border: 1px solid red; padding: 5px; margin: 10px 0;"> <p><b>!</b> Users MUST have QUALITY_MANAGER Role and MUST be granted to access to the related application</p> </div> <p><b>i</b> Payload is a collection of issues, with rule-pattern href and component href:</p> <pre>[ { component: { "href": .... }, rulePattern: { "href": .... } }, ... ]</pre> <p><b>i</b> Related component must belong to the last application snapshot</p> <p><b>i</b> Remedial actions must be active (i.e. internal 'end date' property not set).</p>

## Parameters

URI Parameter	Description	Values	Default value
startRow	Specify first item (for JSON format only)	an integer	1
nbRows	Specify max number of items to return (for JSON format only)	an integer	10
rule-pattern	Filter the issues following the specified quality rules The common syntax for this parameter can be found in the Violation section	a combination of integers and strings eg. rule-pattern=(7156,8294)	All quality rules
status	Filter the issues following the specified statuses	Possible values are "added", "pending" or "solved" eg. status=(added,pending)	All statuses
tag	Filter the issues following the specified tags (an issue is returned if the tag equals the specified value)	eg. tag=(low,high)	All tags
comment	Filter the issues following the specified comment (an issue is returned if the comment equals the specified value)	eg. comment=() /* blank comment */ comment=(test) comment=(,test) /* blank comment or test */	All comments
object-fullname	Filter the issues following the specified object full name (an issue is returned if the object full name contains the specified value)	a string	All object full names

## JSON Representations

Properties	Description	Type	Occurs
href	Reference to an issue		
component	Defective component snapshot violating a quality rule pattern	Structure	1
rulePattern.href	Quality Rule Pattern to comply	URI	1
remedialAction	Remedial Action	Structure	0..1

## JSON Example

```
{
  "remedialAction" : {
    "dates": {
      "updated": {"time":...},
    },
    "status": "added",
    "comment": "...",
    "priority": "high",
    "tag": "to exclude"
  }
  "component" : {
    "href": "DEMO/components/858321/snapshots/12",
    "name": "com.cast.monster_event.base.model.Monster.Monster"
  }
},
"rulePattern": {
  "href": "CENTRAL/rule-patterns/4672",
  "name": "Methods must have appropriate JavaDoc @param tags"
},
}
```

## Excel/CSV Representation









Columns	Description	Type	Occurs
Action plan priority	Remediation priority: extreme, high, moderate, low	String	1
Action plan tag	A general text intended to replace priority	String	1
Action plan status	This property is set only in the scope of an <a href="#">issue</a> or a <a href="#">violation</a> .  This property is computed with internal dates properties compared to the current snapshot date: <ul style="list-style-type: none"> <li>• <b>"added"</b>: A remedial action has been requested at this violation snapshot date, because this violation has been identified as an issue</li> <li>• <b>"pending"</b>: A remedial action has been requested prior to this violation snapshot date; this violation is still an issue to solve, it has not been corrected for this snapshot</li> <li>• <b>"solved"</b>: This violation has been solved and does no longer exist in this snapshot</li> </ul>	String	1
Action plan comment	Remedial action comment	String	1
Quality rule name	Rule pattern name	String	1
Object name location	Full name of the defective component	String	1
Action plan last update	Date of last update in the action plan	Date	1

## Action Plan Trigger

An Action Plan Trigger is composed of a rule pattern and a remedial action. If active, all the violations of the corresponding rule will be automatically put in Action Plan in the next snapshot.

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/action-plan/triggers	Array of action plan triggers applicable in the next snapshot
	text/csv		
	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{?Parameters}	
POST	application/json		Create a set of action plan triggers

		{Domain}/applications/{ApplicationID}/action-plan/triggers	<div style="border: 1px solid red; padding: 5px; margin-bottom: 10px;">  Users MUST have QUALITY_AUTOMATION_MANAGER Role and MUST be granted to access to the related application </div> <p> Payload is a collection of triplets: rule pattern, remedial action pattern, active.</p> <pre>[ {   "rulePattern":{"href":"D/rule-patterns/M"},   "remedialActionPattern":{"tag":"blabla bla","comment":"to do asap"},   "active": "true" }, ... ]</pre> <p> For compatibility considerations with earlier versions, the following format is still accepted:</p> <pre>"remedialActionPattern":{"priority":"extreme","comment":"to do asap"}</pre>
PUT	application/json	{Domain}/applications/{ApplicationID}/action-plan/triggers	<p>Update a set of action plan triggers</p> <div style="border: 1px solid red; padding: 5px; margin-bottom: 10px;">  Users MUST have QUALITY_AUTOMATION_MANAGER Role and MUST be granted to access to the related application </div> <p> Payload is a collection of triplets: rule pattern, remedial action pattern, active.</p> <pre>[ {   "rulePattern":{"href":"D/rule-patterns/M"},   "remedialActionPattern":{"tag":"blabla bla","comment":"to do asap"},   "active": "true" }, ... ]</pre> <p> For compatibility considerations with earlier versions, the following format is still accepted:</p> <pre>"remedialActionPattern":{"priority":"low","comment":"to do someday"}</pre>
DELETE	application/json	{Domain}/applications/{ApplicationID}/action-plan/triggers	<p>Remove a set of action plan triggers</p> <div style="border: 1px solid red; padding: 5px; margin-bottom: 10px;">  Users MUST have QUALITY_AUTOMATION_MANAGER Role and MUST be granted to access to the related application </div> <p> Payload is a collection of rule patterns:</p> <pre>[ { "rulePattern": { "href": "D/rule-patterns/M" } }, ... ]</pre>

#### Parameters

URI Parameter	Description	Values	Default value
rule-pattern	Filter the action plan triggers following the specified quality rules. The common syntax for this parameter can be found in the Violation section	a combination of integers and strings	All quality rules

#### JSON Representations

Properties	Description	Type	Occurs
rulePattern	Rule Pattern	Structure	1
remedialActionPattern	Remedial Action Pattern NB. Whether the input has been "comment + priority" or "comment + tag", the JSON will contain {"priority": "value", "tag": null} or {"priority": null, "tag": "value"}.	Structure	1
active	Whether the Action Plan Trigger is currently active or not	Boolean	1

## JSON Example

```
{
  "rulePattern": {
    "href": "ADG73/rule-patterns/7424",
    "name": "Avoid using SQL queries inside a loop"
  },
  "remedialActionPattern": {
    "priority": "high",
    "tag": null,
    "comment": "DBA - sprint 24",
    "dates": {
      "updated": {
        "time": 1411730470000,
        "isoDate": "2014-09-26"
      }
    }
  },
  "active": true
}
```

## Exclusion Request Detail

### URL Templates & Parameters

*no URI. An exclusion request detail is always embedded in an exclusion request or a violation.*

### JSON Representation

Properties	Description	Type	Occurs
status	<ul style="list-style-type: none"><li><b>added</b>: a newly created exclusion request</li><li><b>processed</b>: an exclusion request that has been processed</li><li><b>unbound</b>: an exclusion request has been defined but the violation does not exist any more</li></ul>	String	1
userName	User name who created/updated the exclusion request	String	1
comment	A comment ("False Positive" for example)	String	1
dates.updated	Creation date or date of last update	Date	1




## JSON Example

```
"exclusionRequest": {
  "status": "added",
  "userName": "DCA",
  "comment": "False positive",
  "dates": {
    "updated": {
      "time": 1497279600000,
      "isoDate": "2017-06-12"
    }
  }
}
```

## Exclusion Request

An exclusion request represents the request to exclude a violation in the future (after reconsolidation or new snapshot).

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
POST	application/json	{Domain}/applications/{ApplicationID}/exclusions/requests	Create a collection of Exclusion requests (comment is required)  <div style="border: 1px solid red; padding: 5px; color: red;">  Users MUST have EXCLUSION_MANAGER Role and MUST be granted to access to the related application         </div>
PUT	application/json	{Domain}/applications/{ApplicationID}/exclusions/requests	Update comments of a collection of Exclusion requests (href of rulePattern and href or component are required)  <div style="border: 1px solid red; padding: 5px; color: red;">  Users MUST have EXCLUSION_MANAGER Role and MUST be granted to access to the related application         </div>
DELETE	application/json	{Domain}/applications/{ApplicationID}/exclusions/requests	Delete a collection of Exclusion requests (href of rulePattern and href or component are required)  <div style="border: 1px solid red; padding: 5px; color: red;">  Users MUST have EXCLUSION_MANAGER Role and MUST be granted to access to the related application         </div>

### Parameters

URI Parameter	Description	Values	Default value
startRow	Specify first item (for JSON format only)	an integer	1
nbRows	Specify max number of items to return (for JSON format only)	an integer	10

## JSON Representations

Properties	Description	Type	Occurs
component	Defective component snapshot violating a quality rule pattern	Structure	1
rulePattern.href	Quality Rule Pattern to comply	URI	1
exclusionRequest	Detail of the exclusion request	Structure	1
exclusionRequest.dates.updated	Creation date or date of last update	Date	1
exclusionRequest.comment	A comment ("False Positive" for example)	String	0..1
exclusionRequest.userName	User name who created/updated the exclusion request	String	1
exclusionRequest.status	<ul style="list-style-type: none"> <li><b>added</b>: a newly created exclusion request</li> <li><b>processed</b>: an exclusion request that has been processed</li> <li><b>unbound</b>: an exclusion request has been defined but the violation does not exist any more</li> </ul>	String	1

## JSON GET Example

```
{
  "component": {
    "href": "ENDTOEND83/components/19517/snapshots/15",
    "name": "com.castsoftware.util.data.Criterion",
    "shortName": "Criterion",
    "treeNodes": {
      "href": "ENDTOEND83/components/19517/snapshots/15/tree-nodes",
      "name": "Tree Nodes"
    }
  },
  "rulePattern": {
```

```

        "href": "ENDTOEND83/rule-patterns/4554",
        "name": "Avoid large Classes - too many Methods"
    },
    "exclusionRequest": {
        "status": "added",
        "userName": "DCA",
        "comment": "Num metric, Single AV, Violation in last snapshot (15)",
        "dates": {
            "updated": {
                "time": 1497279600000,
                "isoDate": "2017-06-12"
            }
        }
    }
}

```

## JSON POST/PUT/DELETE Input Example (Request Payload)

```

[
  {
    "rulePattern": { "href": "ENDTOEND83/rule-patterns/4672" },
    "component": { "href": "ENDTOEND83/components/18568/snapshots/15" },
    "exclusionRequest": { "comment": "to exclude" }
  },
  {
    "rulePattern": { "href": "ENDTOEND83/rule-patterns/7846" },
    "component": { "href": "ENDTOEND83/components/21514/snapshots/15" },
    "exclusionRequest": { "comment": "false positive" }
  },
  {
    "rulePattern": { "href": "ENDTOEND83/rule-patterns/7846" },
    "component": { "href": "ENDTOEND83/components/21520/snapshots/15" },
    "exclusionRequest": { "comment": "false positive" }
  }
]

```

## Exclusion Summary

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/excluded-violations-summary	Exclusion summary for this application at this snapshot

#### Parameters

URI Parameter	Description	Values	Default value
rule-pattern	Filter the excluded violations summary following the specified quality rules. The common syntax for this parameter can be found in the Violation section	a combination of integers and strings	All quality rules

### JSON Representation

Properties	Description	Type	Occurs
href	Auto reference	URI	1
name	Name	String	1
excludedViolations.number	Number of excluded violations in this application snapshot	Integer	1

## JSON Example

ENDTOEND83/applications/3/snapshots/15/excluded-violations-summary

```
{
  "href": "ENDTOEND83/applications/3/snapshots/15/excluded-violations-summary",
  "name": "Excluded Violations Summary",
  "excludedViolations": {
    "number": 25
  }
}
```

## Scheduled Exclusion

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/exclusions/scheduled(?Parameters)	Scheduled exclusions for this application at this snapshot

#### Parameters

URI Parameter	Description	Values	Default value
status	status of the scheduled exclusion: <ul style="list-style-type: none"> <li>to-add = violations to exclude at the next snapshot or reconsolidation</li> <li>to-remove = exclusions to de-exclude at the next snapshot or reconsolidation</li> <li>\$all = scheduled exclusions with the to-add or to-remove status indifferently</li> </ul>	to-add to-remove \$all	\$all
rule-pattern	Filter the scheduled exclusions following the specified quality rules. The common syntax for this parameter can be found in the Violation section	a combination of integers and strings	All quality rules
startRow	Specify first item (for JSON format only)	an integer	1
nbRows	Specify max number of items to return (for JSON format only)	an integer	10

## JSON Representation

Properties	Description	Type	Occurs
component	Defective component snapshot violating a quality rule pattern	Structure	1
rulePattern.href	Quality Rule Pattern to comply	URI	1
exclusionRequest	An exclusion request. This property is exclusive with "remedialAction" property	Structure	0..1
remedialAction	A remediation action request This property is exclusive with "exclusion" property	Structure	0..1

## JSON Example

ENDTOEND83/applications/3/snapshots/15/exclusions/scheduled

```
[
  {
    "component": {
      "href": "ENDTOEND83/components/19517/snapshots/15",
      "name": "com.castsoftware.util.data.Criterion",
      "shortName": "Criterion"
    },
    "rulePattern": {
      "href": "ENDTOEND83/rule-patterns/4554",
      "name": "Avoid large Classes - too many Methods"
    },
    "exclusionRequest": {
      "status": "added",
      "userName": "DCA",
      "comment": "Num metric, Single AV, Violation in last snapshot (15)",
      "dates": {
        "updated": {
          "time": 1497279600000,
          "isoDate": "2017-06-12"
        }
      }
    },
    "remedialAction": null
  },
  {
    "component": {
      "href": "ENDTOEND83/components/17172/snapshots/15",
      "name": "O11JNK.LINDBERGH_CENTRAL.PROPATTR",
      "shortName": "PROPATTR"
    },
    "rulePattern": {
      "href": "ENDTOEND83/rule-patterns/1596",
      "name": "Avoid using \"nullable\" Columns except in the last position in a Table"
    },
    "exclusionRequest": null,
    "remedialAction": null
  }
]
...
]
```

## CSV Representation

Columns	Description	Type	Occurs
Exclusion status	Status of the scheduled exclusion: "to add" or "to remove"	String	1
Exclusion requester	Name of the EXCLUSION_MANAGER user who requested to add the exclusion	String	1
Exclusion request comment	Comment associated to the exclusion request	String	1
Quality rule name	Name of the quality rule	String	1
Object name location	Full name of the object	String	1
Exclusion request last update	Date of last update of the exclusion request	String	1

## CSV/EXCEL Example

Exclusion status	Exclusion requester	Exclusion request comment	Quality rule name	Object name location	Exclusion request last update
to add	DCA	Comment 1	Avoid large Classes - too many Methods	com.castsoftware.util.data.Criterion	2017-06-12
to remove			Avoid using "nullable" Columns except in the last position in a Table	O11JNK.LINDBERGH_CENTRAL.PROPATTR	
to add	DCA	Comment 2	Avoid using Fields (non static final) from other Classes	<Default Package>.ButtonReset.actionPerformed	2017-06-12
to add	ExclusionMan	Comment 3	Avoid using Global Variables	<none>	2017-06-12
to add	ExclusionMan	Comment 4	Avoid using Inner Classes	com.castsoftware.util.string.	2017-06-12



				XMLFileInterpreterImpl.flushSection	
to add	DCA	Comment 5	Methods must have appropriate JavaDoc @param tags	com.castsoftware.util.data.retriever.RowReaderConstant.close	2017-06-12

## Scheduled Exclusions Summary

### URI Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/exclusions/scheduled-summary{?Parameters}	Scheduled exclusions summary for this application at this snapshot

#### Parameters

URI Parameter	Description	Values	Default value
rule-pattern	Filter the scheduled exclusions following the specified quality rules. The common syntax for this parameter can be found in the Violation section	a combination of integers and strings	All quality rules

### JSON Representation

Properties	Description	Type	Occurs
href	Auto reference	URI	1
name	Name	String	1
scheduledExclusionsToAdd.number	Number of scheduled exclusions to add in the next snapshot or reconsolidation	Integer	1
scheduledExclusionsToRemove.number	Number of scheduled exclusions to remove in the next snapshot or reconsolidation	Integer	1
scheduledExclusions.number	scheduledExclusionsToAdd.number + scheduledExclusionsToRemove.number	Integer	1

### JSON Example

ENDTOEND83/applications/3/snapshots/15/exclusions/scheduled-summary
<pre>{   "href": "ENDTOEND83/applications/3/snapshots/15/exclusions/scheduled-summary",   "name": "Scheduled Exclusions Summary",   "scheduledExclusionsToAdd": {     "number": 5   },   "scheduledExclusionsToRemove": {     "number": 1   },   "scheduledExclusions": {     "number": 6   } }</pre>

## Violation

A violation identifies a component breaking a quality rule, with following properties:

- a defective component
- a violated rule pattern
- a set of findings to pinpoint the statements or properties of the defective component violating the rule pattern
- a remedial action request or an exclusion request

For example, consider these 2 quality rules:

1. "Methods must have appropriate JavaDoc @param tags"
2. "Avoid calling the same paragraph with PERFORM and GO TO statements"

For Quality Rule #1, diagnosis results are list of parameter names without documentation.

For Quality Rule #2; diagnosis results are list of "GO TO" statements. For each diagnosis result, a pair of diagnosis bookmarks locates the GO TO and the PERFORM statement.


Note: "findings" are also known as "associated values"

Note 2: "violation" is also known as "failed check"

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/components/{ComponentID}/snapshots/{SnapshotID}/violations{?Parameters}	An empty array if there is no violation or an array with a single violation.
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/violations{?Parameters}	Array of Violations that have been raised <b>for this application snapshot</b> .
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/violations{?Parameters}	Array of Violations that have been raised <b>for this module snapshot</b>
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/violations{?Parameters}	Array of Violations that have been raised <b>for this application snapshot</b> in the scope of this tree node
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/transactions/{TransactionID}/snapshots/{SnapshotID}/violations{?Parameters}	Array of Violations that have been raised <b>for this application snapshot</b> in the scope of this transaction
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/excluded-violations{?Parameters}	Array of Violations that are effectively excluded in this application snapshot
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/removed-violations{?Parameters}	Array of Violations that have been removed between this snapshot and the previous snapshot. The violations have been corrected, excluded, or the object does not exist any more.

### Parameters

URI Parameter	Description	Values	Default value
startRow	Specify first item (for JSON format only)	an integer	1
nbRows	Specify max number of items to return (for JSON format only)	an integer	10
rule-pattern	Specify the Quality Rules with a combination of the following syntaxes, separated by commas: <ul style="list-style-type: none"> <li><b>c</b>: technicalCriterionId</li> <li><b>cc</b>: businessCriterionId</li> <li><b>nc</b>: businessCriterionId</li> <li><b>bqi</b>: businessCriterionId (Base Quality Indicators, i.e. all quality indicators from a Business Criterion)</li> <li><b>critical-rules</b> keyword (i.e. identified as critical regarding a business criterion)</li> <li>a metric type, eg <b>quality-rules</b> keyword</li> <li>a rule pattern id</li> </ul> <p>NB: parameter not used for Excluded Violations</p>	a combination of integers and strings	All quality rules
business-criterion	A quality indicator ID of a business criterion (optional parameter) to add "Propagated Risk Index" property to components.  If not specified or not a health factor, components will contain no PRI  <div style="border: 1px solid red; padding: 5px; margin: 10px 0;">  It's up to the requester to set a business criterion consistent with the rule-pattern. </div> <p>NB: parameter not used for Excluded Violations and Removed Violations</p>	an integer	None
technologies	A technology name to filter violations on  This parameter is available for ApplicationSnapshot violations and ModuleSnapshot violations, in any Media Type  NB: parameter not used for Excluded Violations and Removed Violations	String	none
status	A violation status to filter violations on  NB: parameter not used for Excluded Violations and Removed Violations	String	none

Date of last change of this remedial action

## Excel/CSV Representation

Columns	Description	Type	Occurs
Quality rule name	Full name of a rule pattern	String	1
Object name location	Full name of the defective component	String	1
Object status	Component status on this component compared to the previous snapshot  "added": new component  "unchanged": unchanged component  "updated": updated component	String	1
Snapshot date	Input snapshot Date with YYYY-MM-DD format	String	1
Business Criterion	An optional input health factor to filter violations.  if this business criterion is a health factor, then a Propagated Risk Propagation Assessment Index is calculated for this Health Factor	String	0..1
Risk	Risk propagation assessment index according to an input health factor.	Integer	0..1
Diagnosis Findings Name	The associated values (with a comma separator in case of multiple values)	String	1
Violation status	Diagnosis status on this component compared to the previous snapshot  <ul style="list-style-type: none"> <li>"added": this component is a newly defective object regarding this quality rule</li> <li>"updated": some diagnosis results have been changed</li> <li>"unchanged": compared to the previous snapshot, diagnosis results are left unchanged</li> </ul>	String	1
Action plan status	Status of a related issue regarding the snapshot of the container (application or module)  <ul style="list-style-type: none"> <li>"added": newly created issue in the current snapshot</li> <li>"pending": pending issue, violation is not yet corrected for this snapshot</li> <li>"solved": issue "solved for this snapshot</li> </ul>	String	1

Action plan tag	A general text intended to replace priority	String	1
Exclusion request status	Exclusion request status	String	1
Exclusion requester	Name of the EXCLUSION_MANAGER user who requested the exclusion	String	1

## CSV Representation

Diagnosis with bookmarks:

Quality rule name	Business Criterion	Object name location	Object Status	Snapshot Date	Propagation Risk Index	Status	Number of violations	Action Plan Status	Action Plan Priority
Avoid missing WHEN OTHERS in CASE statements	Transferability	F:\USERS\ABD\CAST-TESTS\...\KCD_FTAB_GET	unchanged	2014-12-31	1	unchanged	3	pending	

Diagnosis without bookmarks:

Quality rule name	Business Criterion	Object name location	Object Status	Snapshot Date	Propagation Risk Index	Status	Number of violations	Undocumented parameters	Action Plan Status	Action Plan Priority
Methods must have appropriate JavaDoc @param tags	Transferability	com.cast.monster_event.base.model.Monster.Monster	unchanged	2014-12-31	1	unchanged	3	in_description, in_city, in_pricePerHour	pending	
Methods must have appropriate JavaDoc @param tags	Transferability	com.cast.monster_event.base.model.MonsterEvent.addMonster	unchanged	2014-12-31	1	unchanged	3	a,b,c	pending	
Methods must have appropriate JavaDoc @param tags	Transferability	com.cast.monster_event.base.model.Customer.Customer	unchanged	2014-12-31	1	unchanged	3	a,b,c	pending	
Methods must have appropriate JavaDoc @param tags	Transferability	com.cast.monster_event.base.model.MonsterEvent.addOption	unchanged	2014-12-31	1	unchanged	3	a,b,c	pending	
Methods must have appropriate JavaDoc @param tags	Transferability	com.cast.monster_event.base.model.MonsterEvent	unchanged	2014-12-31	1	added	3	a,b,c	pending	
Methods must have appropriate JavaDoc @param tags	Transferability	com.cast.monster_event.base.model.SpookyPlace.SpookyPlace	unchanged	2014-12-31	1	added	3	a,b,c	pending	

## JSON Representation

Properties	Description	Type	Occurs
component	Defective component snapshot violating a quality rule pattern	Structure	1
rulePattern.href	Quality Rule Pattern to comply	URI	1
remedialAction	A remediation action request This property is exclusive with "exclusion" property	Structure	0..1
diagnosis	Diagnosis status and findings or bookmarks This property is null if violation has been solved or excluded	Structure	0..1
exclusionRequest	An exclusion request. This property is exclusive with "remedialAction" property	Structure	0..1

Diagnosis structure

--	--	--	--

Properties	Description	Type	Occurs
status	Diagnosis status on this component compared to the previous snapshot <ul style="list-style-type: none"> <li>"added": this component is a newly defective object regarding this quality rule</li> <li>"updated": some diagnosis results have been changed</li> <li>"unchanged": compared to the previous snapshot, diagnosis results are left unchanged</li> </ul>	String	1
findings.ref	A reference to a diagnosis findings structure	URI	0..1

## JSON Example

```
[
  {
    "component" : {
      "href": "CENTRAL/components/4/snapshots/5",
      "name": "com.cast.monster_event.base.model.Monster.Monster",
      "propagationRiskIndex" : . . . . ,
      "status": "unchanged",
      "sourceCodes": {
        "href": "CENTRAL/components/4/snapshots/5/source-codes"
        "name": "Source codes",
      }
    },
    "rulePattern": {
      "href": "CENTRAL/rule-patterns/4672",
      "name": "Methods must have appropriate JavaDoc @param tags"
    },
    "remedialAction" : {
      "dates": {
        "updated": {"time":...},
      },
      "comment": "...",
      "priority": "high",
      "status": "added",
      "tag": "high"
    },
    "exclusionRequest": null,
    "diagnosis": {
      "status": "unchanged",
      "findings": {
        "href": "CENTRAL/components/4/snapshots/5/findings/4672"
        "name": "Diagnosis Findings"
      }
    }
  }
]
```

```
[
  {
    "component": {
      "href": "ENDTOEND83/components/15700/snapshots/15",
      "name": "com.castsoftware.util.string.XMLFileInterpreterImpl.flushSection",
      "shortName": "flushSection",
      "status": "unchanged",
      "sourceCodes": {
        "href": "ENDTOEND83/components/15700/snapshots/15/source-codes",
        "name": "Source Codes"
      },
      "treeNodes": {
        "href": "ENDTOEND83/components/15700/snapshots/15/tree-nodes",
        "name": "Tree Nodes"
      }
    },
    "diagnosis": {
```

```

        "status": "unchanged",
        "findings": {
            "href": "ENDTOEND83/components/15700/snapshots/15/findings/7308",
            "name": "Diagnosis Findings"
        }
    },
    "exclusionRequest": {
        "status": "added",
        "userName": "ExclusionMan",
        "comment": "Meme metrique mais violation added",
        "dates": {
            "updated": {
                "time": 1497259800000,
                "isoDate": "2017-06-12"
            }
        }
    },
    "rulePattern": {
        "href": "ENDTOEND83/rule-patterns/7308",
        "name": "Avoid using Inner Classes"
    },
    "remedialAction": null
}
]

```

#### ENDTOEND83/applications/3/snapshots/15/excluded-violations

```

[
  {
    "rulePattern": {
      "href": "ENDTOEND83/rule-patterns/1596",
      "name": "Avoid using \"nullable\" Columns except in the last position in a Table"
    },
    "component": {
      "href": "ENDTOEND83/components/17172/snapshots/15",
      "name": "O11JNK.LINDBERGH_CENTRAL.PROPATTR",
      "shortName": "PROPATTR"
    },
    "exclusionRequest": {
      "status": "processed",
      "userName": "ExclusionMan",
      "comment": "Char metric, Multiple AV, Processed",
      "dates": {
        "updated": {
          "time": 1497259800000,
          "isoDate": "2017-06-12"
        }
      }
    },
    "remedialAction": null
  }
]

```

## Indexed Violation

This allows to filter violations with parameters, using a dedicated Lucene index.

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
PUT	application/json	{Domain}/violations-index NB. This is restricted to <b>ADMIN</b> users	Create the Lucene index dedicated to violations search

GET	application/json	{Domain}/violations-index	Return information about the index
GET	application/json text/csv application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/indexed-violations{?Parameters}	Number and array of Violations resulting from filtering with Parameters for this application snapshot

## Parameters

All parameters are optional. If mentioned, they will filter the violations accordingly.

URI Parameter	Description	Values	Default value
startRow	See Violation startRow	an integer	1
nbRows	See Violation nbRows	an integer	10
rule-pattern	See Violation rule-pattern  A combination of bqi:BCID, c:TCID, RuleID (bqi means Base Quality Indicator, c means Contributor)  eg. rule-pattern=(bqi:60014) means all QRs of BC "Efficiency" rule-pattern=(c:61020) means all QRs of TC "Programming Practices - Modularity and OO Encapsulation Conformity" rule-pattern=(7156) means the QR "Avoid Too Many Copy Pasted Artifacts" rule-pattern=(bqi:60014,c:61020,7156) means the union of all above QRs	a combination of integers and strings	All quality rules
weight	A combination of integer values ranged from 1 to 9  eg. weight=(2) means all QRs with a weight=2 weight=(2,5) means all QRs with a weight=2 or a weight=5	Integer	All weights
critical	true or false  eg. critical=(true) means all critical QRs critical=(false) means all non critical QRs	Boolean	All criticalities
business-criterion	See Violation business-criterion	an integer	None
status	See Violation status	String	none
object-status	The violated component status  Takes one or more values among "added", "updated", "unchanged"	String	none
technologies	See Violation technologies	String	none
modules	One or more module names	String	none
transactions	One or more transaction ids	Integer	none
mode	See Search Results mode	String	none
object-fullname	A string to search in a component's name	String none	
order	Specify columns to be sorted on server side  <b>asc</b> means ascending order, <b>desc</b> means descending order. Each sortable column is represented by a parameter value: <ul style="list-style-type: none"><li>• Actions or Exclusions: <b>action-exclusion-status</b></li><li>• Object name location: <b>component-name</b></li><li>• Rule: <b>rule-pattern-name</b></li><li>• Status: <b>diagnosis-status</b></li></ul> The use of parameter <b>order</b> is optional. Also, if you use this parameter, you can mention from one to four values in it. Any not mentioned column value takes the default value. By default, violations are sorted by: PRI desc (if any), then by RULE_NAME asc, then by OBJECT_FULL_NAME asc, then by OBJECT_ID asc		

#### Examples:

- **order=(asc(action-exclusion-status))** sorts the violations by ascending "Action/Exclusion": violations with remedial action, followed by violations with exclusion request, followed by all other violations
- **order=(desc(diagnosis-status))** sorts the violations by descending "Violation Status": "updated" violations, followed by "unchanged" violations, followed by "added" violations
- **order=(asc(action-exclusion-status),asc(component-name))** sorts the violations by ascending "Action/Exclusion", then by ascending "Object name"
- **order=(asc(action-exclusion-status),asc(rule-pattern-name),desc(component-name),asc(diagnosis-status))**

**NB** Sorting works also with pagination. You can combine it with the **startRow** and **nbRows** parameters

**NB.** Any combination of the parameters rule-pattern, weight and critical gives the QRs verifying all the constraints.  
For example: rule-pattern=(bqi:60014)&weight=(2,5)&critical=(true) means "all critical QRs of BC Efficiency with weight=2 or weight=5"

## JSON Representation

Properties	Description	Type	Occurs
number	Total number of violations matching the filter	Integer	1
violations	Filtered violations	Array of Violations	1

## JSON Example

```
{
  "number": 4893,
  "violations": [
    {
      "component": {
        "href": "ENDTOEND833/components/1049/snapshots/13",
        "name": "AppliPubs.liens_serveurs.lien_table",
        "shortName": "lien_table",
        "status": "unchanged",
        "sourceCodes": {
          "href": "ENDTOEND833/components/1049/snapshots/13/source-codes",
          "name": "Source Codes"
        },
        "treeNodes": {
          "href": "ENDTOEND833/components/1049/snapshots/13/tree-nodes",
          "name": "Tree Nodes"
        }
      },
      "diagnosis": {
        "status": "unchanged",
        "findings": {
          "href": "ENDTOEND833/components/1049/snapshots/13/findings/7344",
          "name": "Diagnosis Findings"
        }
      },
      "exclusionRequest": null,
      "rulePattern": {
        "href": "ENDTOEND833/rule-patterns/7344",
        "name": "Avoid \"SELECT *\" queries"
      },
      "remedialAction": null
    },
    ...
  ]
}
```

GET ENDTOEND833/violations-index



```

{
  "href": "ENDTOEND833/violations-index",
  "name": "Violations search index for applications of ENDTOEND833",
  "status": "toUpdate", /* status of the index */
  "date": { /* date of index creation or update */
    "time": 1493775223000,
    "isoDate": "2017-05-03"
  },
  "lastSnapshotDate": { /* date of last snapshot for this domain */
    "time": 1493778823000,
    "isoDate": "2017-05-03"
  },
  "size": 6954394 /* size of the index in bytes */
}

```

## Excel/CSV Representation

See Violation Excel/CSV Representation

## Violations Summary

This represents the counts of total, added, updated or unchanged violations.

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/violations-summary{?Parameters}	Violations Summary for this application snapshot
GET	application/json	{Domain}/modules/{ModuleID}/snapshots/{SnapshotID}/violations-summary{?Parameters}	Violations Summary for this module snapshot
GET	application/json	{Domain}/tree-nodes/{Level}-{LowerID}-{UpperID}/snapshots/{SnapshotID}/violations-summary{?Parameters}	Violations Summary for this treenode snapshot
GET	application/json	{Domain}/transactions/{TransactionID}/snapshots/{SnapshotID}/violations-summary{?Parameters}	Violations Summary for this transaction snapshot

### Parameters

URI Parameter	Description	Values	Default value
rule-pattern	A rule pattern ID	an integer or a string	None (Mandatory parameter)
technologies	A technology name to filter violations on This parameter is available for ApplicationSnapshot violations and ModuleSnapshot violations only	String	none
status	A violation status to filter violations on "status" can have one of the following values: added, updated, unchanged If you want to get the total count of violations (corresponding to "status=all"), simply do not mention any status in the URL. If the corresponding "status" has not been requested in the URL, then the response contains "xxxViolations": null instead of "xxxViolations": { "number": N }	String	none

## JSON Representation

---

Properties	Description	Type	Occurs
href	Self reference	URI	1
name	Name	String	1
totalViolations.number	The number of total violations in the context, or null if not requested	Integer	0..1
addedViolations.number	The number of added violations in the context, or null if not requested	Integer	0..1
updatedViolations.number	The number of updated violations in the context, or null if not requested	Integer	0..1
unchangedViolations.number	The number of unchanged violations in the context, or null if not requested	Integer	0..1

## JSON Example


```
{
  "href": ".../violations-summary?rule-pattern=R&technologies=T&status=S",
  "name": "Violations count by rule, technology and status",
  "totalViolations": { "number": 4 },
  "addedViolations": { "number": 2 },
  "updatedViolations": { "number": 1 },
  "unchangedViolations": { "number": 1 }
}
```

## Diagnosis Findings

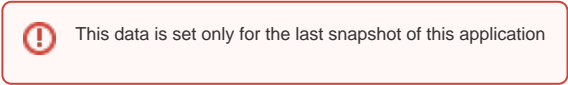
### URI Templates

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/components/{ComponentID}/snapshots/{SnapshotID}/findings/{RuleID}	Findings of a violation

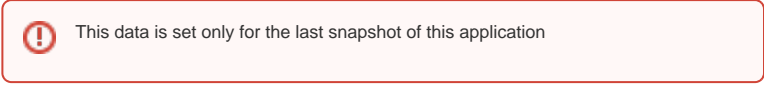
### JSON Representation

Properties	Description	Type	Occurs
name	Name of findings items. If values is empty then no name is set. Name may be "null" if diagnosis of the rule pattern does not set any name.	String	1
type	Type of an item of 'values' <ul style="list-style-type: none"> <li><b>integer</b>: value is an integer. This value is typically a threshold that has been exceeded.</li> <li><b>object</b>: value is a wrapper of a component</li> <li><b>path</b>: value is an execution path. An execution path is an array of wrappers of code fragment.</li> <li><b>group</b>: value is a group. A group is an array of wrappers of components</li> <li><b>percentage</b>: value is decimal number between 0 and 100</li> <li><b>text</b>: value is a string</li> <li><b>null</b>: no value</li> </ul>	String	1
values	An array of findings items	Array	0..1
values[ ]	An item (see type). For type " <b>integer</b> " and " <b>percentage</b> " this array contains a single value.	Any	1..*
bookmarks	An array of array of bookmarks. <div style="border: 1px solid red; padding: 5px; margin-top: 10px;">  This data is set only for the last snapshot of this application </div>	Array	0..1
bookmarks[ ][ ]	A structure that pinpoints a violation.	Structure	0..*
parameters	An array of parameters	Array	0..1
parameters[ ]	A parameter	Structure	0..*
status[ ]	<i>Reserved</i>	String	0..*

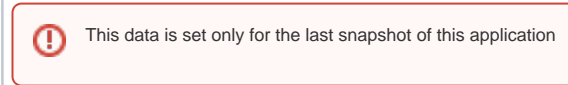
Findings item for type "object":

Properties	Description	Type	Occurs
values[ ].component.codeSources	Component source codes  	Structure	0..1

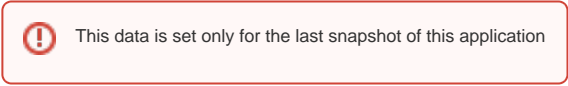
Values for type "path":

Properties	Description	Type	Occurs
values[ ][ ].component	Component of the code fragment	Structure	1
values[ ][ ].codeFragment	A code fragment of an execution step  	Structure	0..1
values[ ][ ].level	Execution code level of the code fragment, when this code fragment is part of an execution path	Integer	0..1

Values for type "group":

Properties	Description	Type	Occurs
values[ ][ ].component.sourceCodes	Source codes of a group member  	Structure	0..1

Bookmark item:

Properties	Description	Type	Occurs
bookmarks[ ][ ].component	Component of the code fragment	Structure	1
bookmarks[ ][ ].codeFragment	A code fragment  	Structure	0..1

Parameter item:

Properties	Description	Type	Occurs
parameters[ ].name	Parameter name	String	1
parameters[ ].values[ ]	A parameter default value according of the technology	Any	1..*

## JSON Examples

Examples below are a list of JSON patterns:

Integer type

```
// Values is made of a single integer value which is number of bookmarks
{
  "name": "Number of Violations Patterns",
  "type": "integer",
  "values": [ 2 ],
  "bookmarks": [
    [
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} },
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
    ],
    [
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} },
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
    ]
  ]
}
```

### Integer type

```
// Values is made of single sizing value w/o bookmarks
{
  "name": null,
  "type": "integer",
  "values": [ 35 ],
  "bookmarks": [
    [
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} },
    ]
  ]
}
```

### Percentage type

```
// Values made of a single percentage value w/o bookmarks
{
  "name": "Comment/Code Ratio",
  "type": "percentage",
  "values": [ 15.0 ],
  "bookmarks": []
}
```

### Text type

```
// Values is a list of message texts, w/o bookmarks
{
  "name": "Undocumented parameters",
  "type": "text",
  "values": [ "param1", "param2" ],
  "bookmarks": [
    [
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
    ],
    [
      { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
    ]
  ]
}
```

### Object type

```
// Values is a list of components w/o bookmarks
{
```

```

    "name": "Name of the table having a misused composite index",
    "type": "object",
    "values": [
        { "component": { "name": "...", "sourceCodes": {...} } },
        { "component": { "name": "...", "sourceCodes": {...} } }
    ],
    "bookmarks": [
        [
            { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
        ],
        [
            { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
        ]
    ]
}

```

### Path type

```

// Values is a list of execution steps (case of a data-flow diagnosis)
// Ex: 7954: Avoid indirect String concatenation inside loops
// Ex: 7150: Favor PreparedStatement or CallableStatement over Statement
// Note: 7150 is a contributor of "66062: Secure Coding - Input Validation"
{
    "name": null,
    "type": "path",
    "values": [
        [
            { "component": {...}, "codeFragment": {...}, "level": 2 },
            { "component": {...}, "codeFragment": {...}, "level": 2 }
        ],
        [
            { "component": {...}, "codeFragment": {...}, "level": 2 },
            { "component": {...}, "codeFragment": {...}, "level": 2 }
        ]
    ],
    "bookmarks": null
}

```

### Group type

```

// Specific case for "7156: Avoid Too Many Copy Pasted Artifacts"
{
    "name": null,
    "type": "group",
    "values": [
        [
            { "component": { ... } },
            { "component": { ... } }
        ],
        [
            { "component": { ... } },
            { "component": { ... } }
        ]
    ],
    "bookmarks": null
}

```

### No value type

```

// Values is empty, but bookmarks are set
{
    "name": null,
    "type": null,

```

```

    "values": [],
    "bookmarks": [
      [
        { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} },
        { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
      ],
      [
        { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} },
        { "component": { "name": "...", "sourceCodes": {...} }, "codeFragment": {...} }
      ]
    ]
  }

```

## Search Results

Search results are items indexed by Lucene. As the construction of these indexes is still optional, we deliver these feature in a separate URI.

## URL Templates & Parameters

HTTP Action	Media Type	URI Templates	Description
GET	application/json	{Domain}/applications/{ApplicationID}/snapshots/{SnapshotID}/search-results/{?Parameters}	Search results on this application snapshot

### Parameters

URI Parameter	Description	Values	Default value
items	type of items to search on	"components"	none
mode	search mode "prefix" retrieves objects starting with "word" "term" retrieves objects containing "word"	"prefix" or "term"	none
word	the word to search	a string	none
startRow	Specify first item	an integer	1
nbRows	Specify max number of items to return	an integer	10

## JSON Representations

Properties	Description	Type	Occurs
number	Total number of results matching the search	Integer	1
components	Search results, ordered by alphabetical order (case-unsensitive) and object_id	List<SnapshotedComponents>	1

## JSON Example

```

{
  "number": 7277,
  "components": [
    {
      "id": 284004,
      "name": "[S:\\CAIP\\JAVA\\Applications\\Dashboard\\adg\\adg-war\\src\\main\\webapp\\javascript\\isomorphic\\system\\modules\\ISC_Core.js].$be",
      "shortName": "$be",
      "type": {
        "label": "Javascript Client Side Method",

```

```
        "name": "CAST_Javascript_ClientSide_Method"
    },
    {
        "id": 290125,
        "name": "[S:\\CAIP\\JAVA\\Applications\\Dashboard\\adg\\adg-
war\\src\\main\\webapp\\javascript\\isomorphic\\system\\development\\ISC_Core.js].$be",
        "shortName": "$be",
        "type": {
            "label": "Javascript Client Side Method",
            "name": "CAST_Javascript_ClientSide_Method"
        }
    },
    ...
}
```