PCI Optimization API

This API is used by a PCI Handler Microservice as envisioned in the solution for the Casablanca 5G OOF-PCI Use Case

OOF/HAS Create/Update API

Interface Defintion	Description
URI	https://{host}:{port}/api/oof/pci/v1
Operation Type	POST
Content-Type	application/json

Request Header

Header Name	Required?	Description
Accept	N	Determines the format of the body of the response. Valid value is "application/json"
Authorization	Y	Supplies Basic Authentication credentials for the request. If the Authorization header is missing, then an HTTP 400 Invalid Request response is returned. If the string supplied is invalid, then an HTTP 401 Unauthorized response is returned.
Content-Type	Y	Determines the format of the request content. Only application/json is supported.
Content-Length	N	Number of bytes in the body of the request. Note that content length is limited to 1 MB.

Request Body

Attribute	Required?	Cardinality	Content	Values	Description
requestInfo	Y	1	RequestInfo Object		The content of the RequestInfo object.
cellInfo	Y	1	CellInfo Object		The Content of the CellInfo object.

RequestInfo Object

Attribute	Required?	Cardinality	Content	Values	Description
transactionId	Y	1	UUID /String		A unique ID to track an ONAP transaction.

requestId	Y	1	UUID /String		A unique ID to track multiple requests associated with a transaction.
callbackUrl	Y	1	URL		The end point of a callback service where recommendations are posted.
callbackHeader	N	1	JSON blob		The header information a client expecting in a async callback.
sourceId	Y	1	String		The unique ID of a client making an optimization call.
requestType	Y	1	String	create, update, delete	The type of a request
numSolutions	N	1	Integer		Expected number of solutions. numSolution can also be specified using an optimization query policies, where the default configured value is 1. The value from a request gets higher precedence over the value defined in a policy.
optimizers	Y	1..N	List of Strings	scheduling	A list of optimization services.
timeout	Y	1	Integer		A tolerance window (in secs) for expecting solutions.

CellInfo Object

Attribute	Required?	Cardinality	Content	Values	Description
networkId	Y	1	String		Id of network requiring PCI optimization
cellIdList	Y	1..N	List of Strings		List of cellIds triggering need for PCI optimization (e.g. potential confusion)
anrInputList	Y	1..N	List of ANR Info objects		ANR inputs (list of 'removable' cells)
fixedPCICells	N	1..N	List of Strings		List of cellIds whose PCI values are not allowed to be changed during PCI optimization
priorityTreatmentCells	N	1..N	List of Strings		List of cellIds requiring priority/special treatment during PCI optimization
trigger	N	1	String	NbrListChange	Type of trigger causing need for PCI optimization

CellId Object

Attribute	Required?	Cardinality	Content	Values	Description
CellId	Y	1	String		Cell identity

ANRInfo Object

Attribute	Required?	Cardinality	Content	Values	Description
CellId	Y	1	String		Cell Identity
RemovableNeighbors	Y	1..N	List of strings		List of removable neighbor cells

Synchronous Response Body

Attribute	Required?	Cardinality	Content	Values	Description
requestId	Y	1	UUID/String		A unique Id for an ONAP transaction.
transactionId	Y	1	UUID/String		A unique ID to track multiple requests associated with a transaction.
statusMessage	N	1	String		Reasoning if a requestStatus is failure.
requestStatus	Y	1	String	accepted, failed	The status of a request.

Asynchronous Response Header

Header Name	Required?	Description
Accept	N	Determines the format of the body of the response. Valid value is "application/json"

Authorization	Y		Supplies Basic Authentication credentials for the request. If the Authorization header is missing, then an HTTP 400 Invalid Request response is returned. If the string supplied is invalid, then an HTTP 401 Unauthorized response is returned.
Content-Type	Y		Determines the format of the request content. Only application/json is supported.
Attribute	N		Attribute and respecrtive value that a client has sent in the callbackHeader field of a requerst.
Content-Length	N		Number of bytes in the body of the request. Note that content length is limited to 1 MB.

Asynchronous Response Body

Attribute	Required?	Cardinality	Content	Values	Description
requestId	Y	1	UUID/String		A unique Id for an ONAP transaction.
transactionId	Y	1	UUID/String		A unique ID to track multiple requests associated with a transaction.
statusMessage	N	1	String		Reasoning if requestStatus is failure.
requestStatus	Y	1	String	completed, failed, pending	The status of a request.
solutions	Y	1..N	List of Solution Objects		Solutions related to a request.

Solution Object

Attribute	Required?	Cardinality	Content	Values	Description
networkId	Y	1	String		Id of network requiring PCI optimization
pciANRSolutions	Y	1	PCIANRSolution Object contents		A list of cellIds in the networkId with modified PCI values, and optionally a list of neighbors to be blacklisted

PCIANRSolution Object

Attribute	Required?	Cardinality	Content	Values	Description
cellId	Y	1	String		cellId with modified PCI value
pciSolutions	Y	1..N	List of pciSolution object		New PCI value for cellId
anrSolutions	Y	1..N	List of ANRInfoobject		ANR solutions

pciSolution Object

Attribute	Required?	Cardinality	Content	Values	Description
cellId	Y	1	String		cellId with modified PCI value
pci	Y	1	Integer		New PCI value for cellId

ANRInfo Object

Attribute	Required?	Cardinality	Content	Values	Description
cellId	Y	1	String		cellId with modified PCI value
removableNeighbors	Y	1..N	List of Strings		List of neighbors to be blacklisted

HTTP Response Code

HTTP Code	Response Phrase	Description
201	Created	An optimization solution is found.
202	Accepted	An optimization request is accepted.

400	Bad request	Bad request.
401	Unauthorized	Request body is not compliant with the API definition.
404	Not found	The server cannot find the requested URI.
405	Method not found	The requested method is not supported by a server.
500	Internal server error	The server encountered an internal server error or timed out.
520	Solver error	Requested number of solutions cannot be found.

Request Example

OOF/PCI Request Example

```
{
  "requestInfo": {
    "transactionId": "xxx-xxx-xxxx",
    "requestId": "yyy-yyy-yyyy",
    "callbackUrl": "https://wiki.onap.org:5000/callbackUrl",
    "sourceId": "PCIHMS",
    "requestType": "create",
    "numSolutions": 1,
    "optimizers": ["pci"],
    "timeout": 600
  },
  "cellInfo": {
        "networkId": "NTWK005",
        "cellIdList": [
         "EXP001"
         ]
  }
}
```

Synchronous Response Example

OOF/PCI Response Example

```
{
  "transactionId": "xxx-xxx-xxxx",
  "requestId": "yyy-yyy-yyyy",
  "requestStatus": "accepted",
  "statusMessage": ""
}
```

Asynchronous Response Example

OOF/PCI Response Example

```
{
  "transactionId": "xxx-xxx-xxxx",
  "requestId": "yyy-yyy-yyyy",
  "requestStatus": "completed",
  "statusMessage": "success",
  "solutions": [
        {
                "startTime": "2016-10-01T00:30+01:00",
                "finishTime": "2016-10-01T00:40+01.00",
                "networkId": "NTWK005",
                "pciSolutions": [
         {"cellId": "EXP001", "pci": "101"},
         {"cellId": "EXP002", "pci": "102"},
         ]
        }
  ]
}
```