

HOW TO

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Subject: Extending Oracle Enterprise Manager to collect HP-UX glance data

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This documentation is based on a paper of *Alexander Gorbachev*
<http://www.oracloud.com/papers/ExtendingOracleEnterpriseManager10g.pdf>

We would like to build a new target type called "Storage Area Network" to include HP-UX glance IO data, e.g. I/O Operations per second, KB read/writer per second system wide.

Installation:

There are several files involved:

- \$AGENT_HOME/sysman/admin/default_collection/storage_area_network.xml
- \$AGENT_HOME/sysman/admin/metadata/storage_area_network.xml
- \$AGENT_HOME/sysman/admin/scripts/san/san_glance.pl
- \$AGENT_HOME/sysman/admin/scripts/san/glance_script.sh
- \$AGENT_HOME/sysman/admin/scripts/san/glance_io.sh

File \$AGENT_HOME/sysman/default_collection/storage_area_network.xml:

```
<!DOCTYPE TargetCollection SYSTEM "../dtds/TargetCollection.dtd">
<TargetCollection TYPE="storage_area_network" >

  <CollectionItem NAME = "Response">
    <Schedule>
      <IntervalSchedule INTERVAL = "1" TIME_UNIT = "Min"/>
    </Schedule>
    <Condition COLUMN_NAME="Status" CRITICAL="Down" OPERATOR="CONTAINS" />
    <Condition COLUMN_NAME="gbl_disk_phys_read_rate" OPERATOR="GT" />
    <Condition COLUMN_NAME="gbl_disk_phys_write_rate" OPERATOR="GT" />
    <Condition COLUMN_NAME="gbl_disk_phys_read_byte_rate" OPERATOR="GT" />
    <Condition COLUMN_NAME="gbl_disk_phys_write_byte_rate" OPERATOR="GT" />
  </CollectionItem>

</TargetCollection>
```

File: \$AGENT_HOME/sysman/metadata/storage_area_network.xml :

Attention: It is mandatory to increment the META_VER version string every time, the xml file is modified!

```
<!DOCTYPE TargetMetadata SYSTEM "../dtds/TargetMetadata.dtd">
<TargetMetadata META_VER="2.4" TYPE="storage_area_network">
  <Display>
    <Label NLSID="san_name">Storage Area Network</Label>
    <ShortName NLSID="short_san_name">SAN</ShortName>
    <Description NLSID="san_desc">Storage Area Network Description</Description>
  </Display>
  <Metric NAME="Response" TYPE="TABLE">
    <Display>
      <Label NLSID="san_response">Response</Label>
    </Display>
    <TableDescriptor>
      <ColumnDescriptor NAME="Status" TYPE="STRING">
        <Display>
          <Label NLSID="san_status">Status</Label>
        </Display>
      </ColumnDescriptor>
      <ColumnDescriptor NAME="gbl_disk_phys_read_rate" TYPE="NUMBER">
        <Display>
          <Label
NLSID="gbl_disk_phys_read_rate">gbl_disk_phys_read_rate</Label>
        </Display>
      </ColumnDescriptor>
      <ColumnDescriptor NAME="gbl_disk_phys_write_rate" TYPE="NUMBER">
        <Display>
          <Label
NLSID="gbl_disk_phys_write_rate">gbl_disk_phys_write_rate</Label>
        </Display>
      </ColumnDescriptor>
      <ColumnDescriptor NAME="gbl_disk_phys_read_byte_rate" TYPE="NUMBER">
        <Display>
          <Label
NLSID="gbl_disk_phys_read_byte_rate">gbl_disk_phys_read_byte_rate</Label>
        </Display>
      </ColumnDescriptor>
      <ColumnDescriptor NAME="gbl_disk_phys_write_byte_rate" TYPE="NUMBER">
        <Display>
          <Label
NLSID="gbl_disk_phys_write_byte_rate">gbl_disk_phys_write_byte_rate</Label>
        </Display>
      </ColumnDescriptor>
    </TableDescriptor>
    <QueryDescriptor FETCHLET_ID="OSLineToken">
      <Property NAME="perlBin" SCOPE="SYSTEMGLOBAL">perlBin</Property>
      <Property NAME="scriptsDir" SCOPE="SYSTEMGLOBAL">scriptsDir</Property>
      <Property NAME="command" SCOPE="GLOBAL">
%perlBin%/perl %scriptsDir%/san/san_glance.pl
</Property>
      <Property NAME="startsWith" SCOPE="GLOBAL">em_result=</Property>
      <Property NAME="delimiter" SCOPE="GLOBAL">|</Property>
    </QueryDescriptor>
  </Metric>

  <InstanceProperties>
    <InstanceProperty NAME="host">
      <Display>
        <Label NLSID="host">Host</Label>
      </Display>
    </InstanceProperty>
  </InstanceProperties>
</TargetMetadata>
```

File \$AGENT_HOME/sysman/admin/scripts/san/san_glance.pl:

```
#!/oracle/agent10g/10.2.0/perl/bin/perl
system ('/oracle/agent10g/10.2.0/sysman/admin/scripts/san/glance_script.sh
>>/oracle/agent10g/10.2.0/sysman/admin/scripts/san/glance_script.stdout
2>>/oracle/agent10g/10.2.0/sysman/admin/scripts/san/glance_script.stderr');
#use strict;
#require "emd_common.pl";
$line = `/usr/bin/tail -1 /oracle/agent10g/10.2.0/sysman/admin/scripts/san/glance_output.txt`;
#print $line;
@Items = split (/ +/, $line);
$em_result=join ("|", @Items[1],@Items[2],@Items[3],@Items[4]);
print "em_result=Up|$em_result\n";
```

File \$AGENT_HOME/sysman/admin/scripts/san/glance_script.sh:

```
#!/usr/bin/ksh
export UNIX95=1
export HOME=/oracle/agent10g
GLANCE_DIR=/oracle/agent10g/10.2.0/sysman/admin/scripts/san
export USER=`/usr/bin/whoami`
# check glance process
#echo "Start `date`"
#echo "(1)"
#/usr/bin/ps -U $USER -f
#echo "(2)"
#/usr/bin/ps -U $USER -f|/usr/bin/grep "/opt/perf/bin/glance"
#echo "(3)"
#/usr/bin/ps -U $USER -f|/usr/bin/grep "/opt/perf/bin/glance" |/usr/bin/grep -v grep
#echo "(4)"
#/usr/bin/ps -U $USER -f|/usr/bin/grep "/opt/perf/bin/glance" |/usr/bin/grep -v grep | /usr/bin/wc
-l

IS_RUNNING=`/usr/bin/ps -U $USER -f|/usr/bin/grep /opt/perf/bin/glance |/usr/bin/grep -v grep |
/usr/bin/wc -l`
#echo "IS_RUNNING IS: $IS_RUNNING"
if [ $IS_RUNNING -eq 0 ];
then
  if [ ` /usr/bin/uname -m ` != 'ia64' ];
  then
    nohup /opt/perf/bin/glance -adviser_only -syntax $GLANCE_DIR/glance_io.conf -j 60 >>
$GLANCE_DIR/glance_output.txt 2>/dev/null &
  else
    nohup /opt/perf/bin/glance -aos $GLANCE_DIR/glance_io.conf -j 60 >>
$GLANCE_DIR/glance_output.txt 2>/dev/null &
  fi
fi
```

File \$AGENT_HOME/sysman/admin/scripts/san/glance_io.sh:

```
print GBL_STATDATE, gbl_stattime, gbl_disk_phys_read_rate , gbl_disk_phys_write_rate,
gbl_disk_phys_read_byte_rate, gbl_disk_phys_write_byte_rate
```

Activating the metric:

```
emctl reload agent
```

Reporting:

1) Query the data with OEM

gbl_disk_phys_read_byte_rate: Last 24 hours

Last Updated **Nov 6, 2007 1:24:22 PM CET**
View Data Last 24 hours

Statistics

- Last Known Value **4287.8**
- Average Value **5235.87**
- High Value **171742**
- Low Value **0**
- Warning Threshold **Not Defined**
- Critical Threshold **Not Defined**
- Occurrences Before Alert **1**
- Corrective Action **None**

Metric Value

Alert History

Comment for Most Recent Alert Add Comment

Severity	Timestamp	Message	Last Comment	Details
✓	Nov 4, 2007 5:43:08 PM	CLEARED - The value of gbl_disk_phys_read_byte_rate is 656.5		-

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Response

Page Refreshed **Nov 6, 2007 1:25:00 PM CET**

Name	Value
Status	Up
gbl_disk_phys_read_rate	4074.3
gbl_disk_phys_write_rate	119.8
gbl_disk_phys_read_byte_rate	96749.3
gbl_disk_phys_write_byte_rate	1053.2

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Fertig

2) Query the data via SQL

```
select target_name, target_type, type_meta_ver, target_guid from mgmt_targets where target_type = 'storage_area_network'
```

TARGET_NAME	TARGET_TYPE	TYPE_META_VER	TARGET_GUID
host1_SAN	storage_area_network	2.4	053EB7571E2457119FDAE7FF8280BE68
host2_SAN	storage_area_network	2.4	91DF5E16F1C506B677E9647A68FBF7C3

```
select target_type, type_meta_ver, metric_name, metric_guid, metric_column from mgmt_metrics where target_type = 'storage_area_network' and type_meta_ver= '2.4'
```

TARGET_TYPE	TYPE_META_VER	METRIC_NAME	METRIC_GUID	METRIC_COLUMN
storage_area_network	2.4	Response	65347DD6487840F108ABA770B026CD5A	gbl_disk_phys_write_byte_rate
storage_area_network	2.4	Response	737E1486694DE9E3AB13291EA30D8509	gbl_disk_phys_read_rate
storage_area_network	2.4	Response	76D8B90F358C33E6B6497CFF7239D657	
storage_area_network	2.4	Response	A99C4191F97633C2224FA689E3045D70	Status
storage_area_network	2.4	Response	C2E1D2468430277ABE13517394913BBC	gbl_disk_phys_write_rate
storage_area_network	2.4	Response	F16D53A182836E37699A481E889BA3DC	gbl_disk_phys_read_byte_rate

```
select target_guid, metric_guid, collection_timestamp, value from mgmt_metrics_raw where target_guid = '053EB7571E2457119FDAE7FF8280BE68' and metric_guid = 'F16D53A182836E37699A481E889BA3DC';
```

TARGET_GUID	METRIC_GUID	COLLECTION_TIMESTAMP	VALUE
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:26:22	33599,7
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:25:22	96749,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:24:22	4287,8
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:23:22	5970,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:22:22	3384
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:21:22	3887,6
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:20:22	643,1
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:19:22	5689,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:18:22	2749,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:17:23	2055,6
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:16:22	1664,5
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:15:22	1165,8
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:14:22	1967,7
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:13:22	1602
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:12:22	2789,2
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:11:22	3547,5
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:10:22	1730,8
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:09:22	973,8
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:08:22	2011,1
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:07:22	1263,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:06:22	2077,9
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:05:22	6427,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:04:22	1935,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:03:22	257,6
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:02:22	2543,3
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:01:22	1768,1
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 13:00:22	2204,4
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 12:59:22	18338,5
053EB7571E2457119FDAE7FF8280BE68	F16D53A182836E37699A481E889BA3DC	06.11.2007 12:58:22	37574,7