GroundWork Monitor – BMC Service Desk Express (MAGIC) Design Specification

New York City Human Resources Administration (HRA)

IT Infrastructure Monitoring System

VERSION 2.0
April 3, 2013

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1. BACKGROUND OF HRA MONITORING PROJECT

New York City Human Resources Administration (HRA) headquartered in Brooklyn, New York is responsible for administering various programs for the support of children and families within the New York City boroughs. The Administration maintains over 100 offices, a major web portal and a substantial computing infrastructure in order to carry out its responsibilities. HRA is establishing a unified IT monitoring system using GroundWork Monitor Enterprise. This system is replacing and augmenting a collection of internally developed tools. This design documents the specific implementation details for integrating GroundWork Monitor to HRA's existing BMC Service Desk Express (SDE) deployment. Service Desk Express was formerly called 'MAGIC'. The term 'MAGIC' is not used in the remainder of this document.

In April 2013, HRA is migrating to a PostgreSQL-based version of GroundWork Monitor. The SDE integration has accordingly been ported to work with PostgreSQL, and the V2.0 version of this document reflects that change, particularly in the installation instructions.

2. ASSUMPTIONS AND PREREQUISITES

The integration of GroundWork Monitor to BMC Service Desk Express is dependent on functionality available in specific versions of each product. This design is based on GroundWork Monitor Professional version 6.7.0 and BMC Service Desk Express version 9.8. The integration is not guaranteed or assumed to work with newer versions of either software.

3. DESIGN SPECIFICATION

OVERVIEW

The integration between GroundWork Monitor Enterprise Edition (GWMEE) and BMC Service Desk Express (SDE) is based on the volitional creation (or update) of SDE tickets by a user of the GWMEE Event Console. That is, a user of the GWMEE Event Console decides that one or more events showing in the Event Console should be selected and associated with a new (or existing) ticket in the SDE system. The action of creating (or updating) a ticket is initiated by the user selecting those events, and then selecting the ticket creation menu option within the Event Console. Everything else about the integration is handled by code on the GWMEE and SDE systems.

The integration is 'two-way' in the sense that it supports the one-way creation (or update) of SDE tickets, and then the subsequent checking of ticket status within SDE in order to update the relevant events within the GWMEE Event Console.

The generic steps of the one-way process are outlined in Figure 1. In the figure the user of the Event Console is an Operator. The database and normalization routines that drive the Event Console are collectively called Foundation. Step 4 of the process is where the specific code for interfacing to SDE is implemented.

For more information on configuring actions in the Event Console the reader is directed to the online Bookshelf help application within GroundWork Monitor.

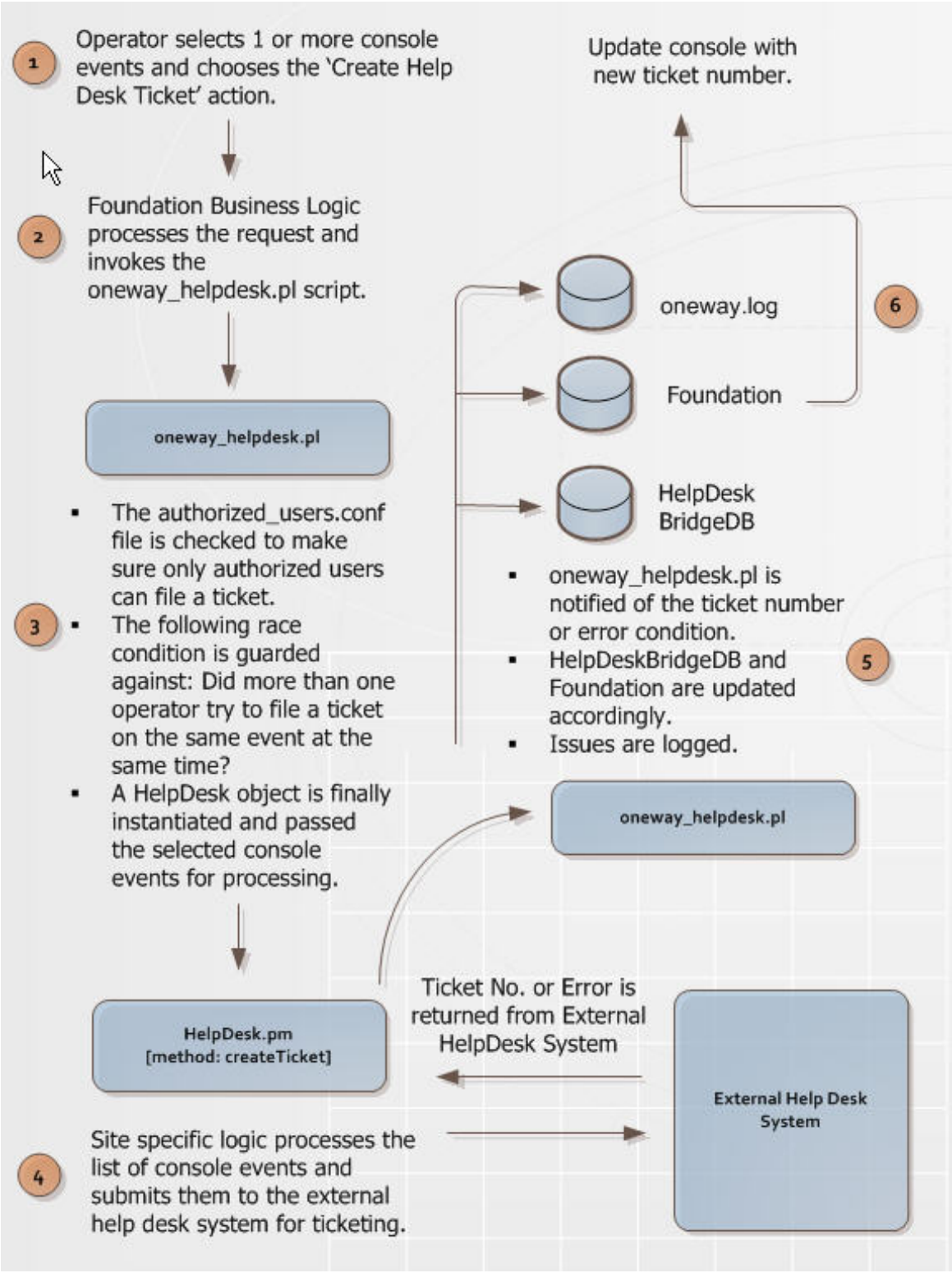

Figure 1: One-way ticketing process

Having addressed the generic one-way process, the two-way process is easy to follow. The steps of that process are outlined in Figure 2.

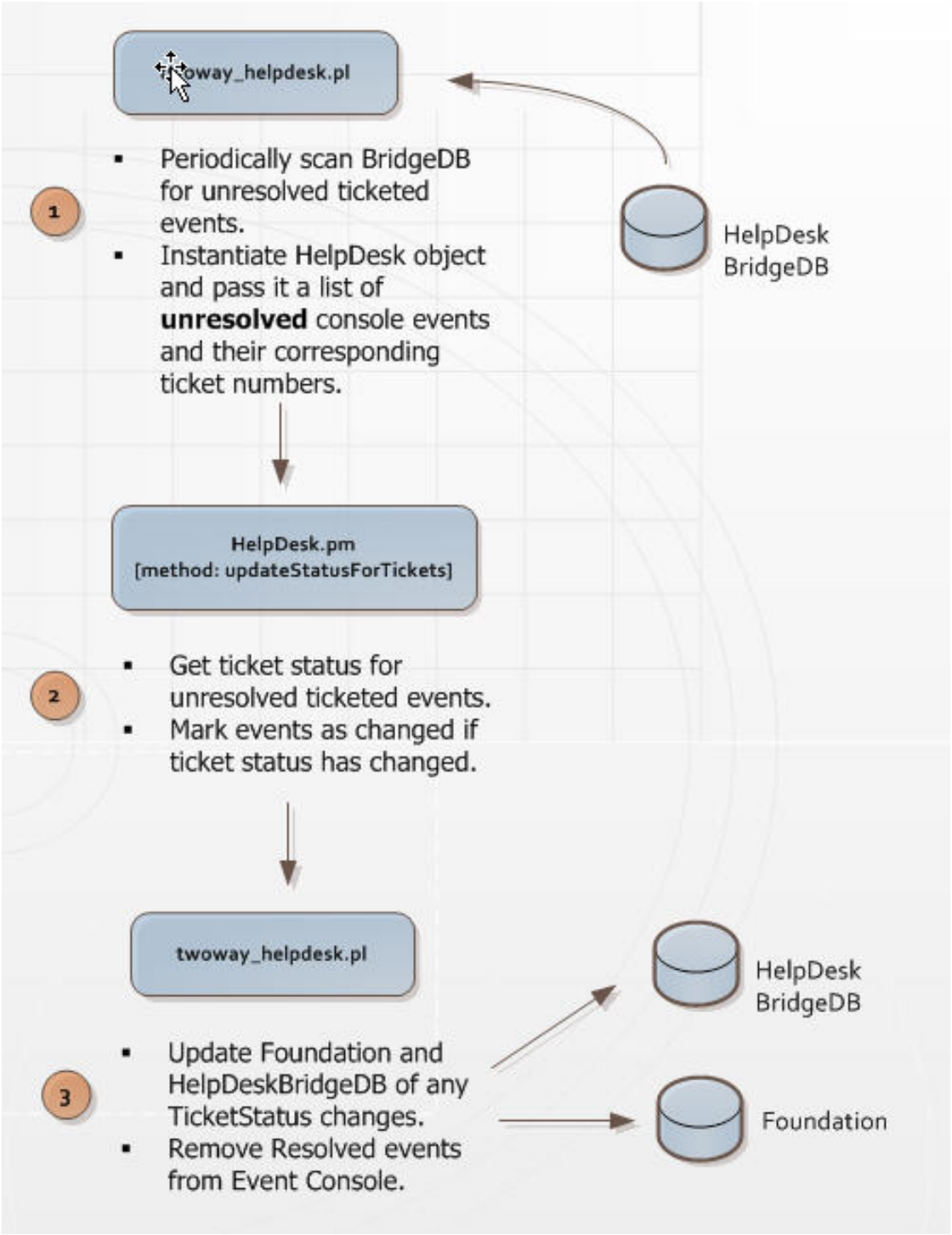

Figure 2: Two-way ticketing process

As noted in the figure, the two-way process is initiated periodically from the GWMEE system using the UNIX cron subsystem. The frequency of this will be set to 5 minutes. It should be noted that an Operator can resolve events as part of the standard features of the Event Console. Tickets in SDE for resolved events will not be queried as part of the two-way process. A byproduct of that logic is that tickets in SDE that correspond to resolved events in the Event Console will NOT be closed. Configuring of an integration to automatically close SDE tickets when corresponding GWMEE events are resolved is out of scope of the current engagement.

It is in the createTicket and updateStatusForTickets methods that the interfacing to SDE occurs.

The interface to SDE is based on the SDE Integration Engine (IE). This design specification does not attempt to describe all of the features of the SDE IE. However, providing some definitions is useful for an understanding of the rest of this design.

Term	Definition
Package	A package is the top-level definition of an integration. It is how integrations are defined and deployed. A package includes one or more integration steps and can map to a business workflow so that each step represents integrating a different application or business function.
Step	A step is one integration process that retrieves data from one source and transforms it to write to a target. A step consists of one source adapter, one target adapter, a mapping or transformation, one initiator, and error handling rules. A step can include multiple data rows. A step can contain one or more substeps.
Initiator	An initiator is a user-defined event that starts an integration step to retrieve, map, and write data as specified in the step.
Adaptor	Adapters connect to target or source data providers (databases or applications). Each application or data source has its own adapter or uses a basic adapter. An adapter retrieves or writes data, specifies connection properties required for each provider type, and validates connection properties.
Mapping	Mapping is the copying of data from a specific column of data in the source adapter to a column in the target.

Table 1: SDE IE definitions

In the above table, which is an extract from the BMC SDE IE 9.8 Administrator's Guide, the high level terms from previous versions of SDE IE are presented. The idea is that you configure a package which has an initiator, steps, source and target adapters, and mapping configuration somewhere in between. In SDE IE 9.8, a new type of package – based on web services – is introduced. The workflow and terminology in constructing web services packages is different. This point needs to be made clear because HRA has experience with previous versions of SDE IE.

GroundWork will configure two SDE IE web services based packages as part of this integration service. The first will be called GroundWorkInsertUpdate and will be called from the createTicket method when an Operator requests a ticket to be opened or updated. The second will be called GroundWorkSelect and will be called from the updateStatusForTickets method when the two-way integration is executed. The workflow and parameters used to configure each of these SDE IE packages are described in a later section of this design specification. Each package is stored as an XML file that GroundWork will import into the SDE IE that HRA provides.

EVENT PARAMETERS

GroundWork will configure the integration between GWMEE and SDE using a set of inputs available either from the GWMEE Portal or from the individual events. Because the source code is provided to HRA, other parameters could be used in the future.

HRA has requested device location be provided in the ticket creation request. There is no single field that designates device location in GWMEE. Instead, there is an assignment of a device to one or more groups, called Host Groups. GroundWork has evaluated whether using Host Groups for device location will work at HRA. In the Design phase of the main project between GroundWork and HRA (of which the SDE integration is a smaller part) device lists were obtained and locations determined. GroundWork has constructed a list of 96 different locations and is proposing in this design document to create one Host Group for each. The full list of those is provided in

Appendix B. They are all prefixed with the characters 'sc-'. GroundWork will code the determination of which Host Groups the device for a selected Event belongs to and include that information in the ticket creation request.

The following parameters will be supplied to the createTicket method:

Name	Description	Sample
MonitorStatus	Status text describing the status for the event. Standard status text strings are defined in the GWMEE product although customers can adjust these for their own purposes.	CRITICAL
DeviceDisplayName	Host name for the event	serverA.customer.com
DeviceIdentification	Host address for the event (host name if address is not defined)	10.0.0.1
LogMessageID	Unique GWMEE event ID which is numeric	10045
ReportDate	Timestamp of event	2009-02-18 14:53:16
MsgCount	Number of consolidated events for the event. Standard criteria for consolidation are defined in the GDWP product although customers can adjust these for their own purposes.	3
TextMessage	Text of the event.	DISK CRITICAL – free space: / 13634 MB (73% inode=94%)
HostGroups	Comma separated list of 4 letter location Host Groups which the Host belong to in GWMEE.	sc-15-Metrotech-Core
Operator	Log in name of the GWMEE Portal user who is requesting a ticket to be created	admin

Table 2: createTicket parameters

How the parameters are used to create or update a new SDE ticket is described in the next sections.

GWMEE Service Desk Express Module

The installation and configuration steps within SDE IE are as simple as importing the provided package. GroundWork will handle this step. Installing and configuring the GroundWork Monitor side of the integration is more complex and is described here.

Prerequisites

For the Service Desk Express Module to be installed, a verified installation of GroundWork Monitor Professional 6.7.0 is required.

Fresh Installation

The Service Desk Express Module distribution comprises one RPM file for the GroundWork software, and one tarball containing ancillary customer-specific files:

1. `groundwork-servicedeskexpress-integration-2.0.0-20796.el5.noarch.rpm`
2. `servicedeskexpress-HRA-2.0.0.tar.gz`

After downloading these files to the GWMEE 6.7.0 server, you will probably want to wait until a scheduled maintenance window to perform the install. That's because the install involves several actions that modify the database, and to do so, the installation will start and stop portions of GWMEE.

Once the maintenance window has arrived, the first step is to back up the PostgresSQL `gwcollagedb` database, in case you should need to revert for any reason. The steps to back up and restore databases are described in the GWMEE Bookshelf application.

The next step is to install the RPM. Installing it will stop and start portions of GWMEE, and modify the database.

To install the RPM, it is necessary to specify how to access the PostgreSQL database, so the installation scripting inside the RPM can perform its actions. This data is communicated to the RPM via two environment variables, `PG_HOST` and `PG_PASS`. `PG_HOST` must reflect the hostname of the machine where your PostgreSQL database is running. Specifying `PG_HOST` is optional, as it will default to localhost. `PG_PASS` is required; its value is supposed to be the `postgres`-account database-user password, and that formulation can be used for a completely automated install. However, supplying the password in that manner is insecure, so we break rank with RPM standards, and allow a tiny bit of user interaction when the RPM is installed. If you define PG_PASS as an empty string, it will be passed that way into the RPM scripting, which will then prompt you (twice) for the `postgres`-user password.

```
PG_PASS="" rpm -Uvh groundwork-servicedeskexpress-integration-2.0.0-20798.el5.noarch.rpm
```

Along with the integration scripting and configuration files, the RPM contains all the Perl module extensions required to implement web services calls, beyond those that are already included in the GWMEE 6.7.0 release. For reference, the modules that are included in the RPM are:

- Class::Inspector 1.28
- Email::Date::Format 1.002
- ExtUtils::MakeMaker 6.64
- IO::SessionData 0.001
- MIME::Lite 3.029
- MIME::Types 1.38
- SOAP::Lite 0.715
- SOAP::Transport-TCP 0.715
- Sort::Naturally 1.03
- Task::Weaken 1.04

The RPM will automatically update the GroundWork Foundation database (`gwcollagedb`) content, and add a new `helpdeskbridgedb` database. The Foundation database stores event data that appears in the Event Console. The updating adds support for the extra HelpDesk ticket number field. To update the content, the services that access the database must be stopped; this is why you want to run the RPM install during a scheduled maintenance window, if the GWMEE server is in production.

After the RPM is installed, you should add the content of the tarball, which contains some additional files related to configuring the BMC SDE software:

```
tar xvfz servicedeskexpress-HRA-2.0.0.tar.gz -C /
chown -R nagios:nagios /usr/local/groundwork/servicedeskexpress/customer
```

At this point the installation of the GroundWork Service Desk Express module is complete, except for local configuration. The rest of this document describes the configuration files included in the RPM, along with those contained in the tarball for the configuration of the SDE IE packages.

CONFIGURATION

There are a number of configuration files that are installed as part of the Service Desk Express module. This section describes their roles along with the preconfigured settings in each. All configuration files are stored under `/usr/local/groundwork/servicedeskexpress/config/`.

authorized_users.conf

This configuration file allows specification of which GWMEE users are allowed to create tickets. User names must be specified one per line and must match the user ID specified in the GWMEE system. The '*' wildcard can be used if all GWMEE users who have access to the Event Console are authorized to file tickets. For HRA the wildcard will be configured. HRA can update this file based on future stated requirements.

bridge_db.conf

This configuration file contains the database access parameters for the HelpDeskBridgeDB database that gets created during the install process. This file will be configured with the correct location and access credentials for this database by GroundWork. In particular, the standard file installed by the RPM will have an empty password field, and this must be edited to contain the password for the `helpdesk` user. Also modify the specified host, if you are using a remote PostgreSQL database, as the RPM does not perform this substitution on the installed file.

oneway_helpdesk.conf

This configuration file contains a handful of parameters. The purpose of the parameters is explained in the inline text and they will be configured for HRA as part of this engagement.

servicedeskexpress_module.conf

This configuration file contains HRA-specific parameters that are used in the `createTicket` and `updateStatusForTickets` methods.

This file should only be altered to coincide with changes in the `HRA::HelpDesk.pm` file within the RPM.

twoway_helpdesk.conf

Like the `oneway_helpdesk.conf` file, the `twoway_helpdesk.conf` file contains a number of different parameters. And like its one-way counterpart, these parameters will be configured for HRA. One parameter that HRA may wish to update over time is ResolvedStates. It represents the set of states in the ticketing system that indicate when a ticket is considered resolved. This is a comma-separated and apostrophe-delineated set of strings. For this engagement, it will be set to 'C'.

BMC SDE IE WEB SERVICES

The SDE IE supports publishing web services that may be consumed by external applications such as GWMEE. GroundWork will configure two web services packages as part of this integration service. The description of what parameters are parsed to the web service and what results are returned are given in a WSDL file for each web service. The files for the two packages are included as appendices in this design specification. For the reader's benefit, the parameters are also described in the subsections below.

SDE IE web service packages are configured by either importing an XML package file or by using the web-based IE console. For a clearer explanation of the packages, a description of configuring using the IE console is given. The two XML files included in the tarball you installed above should contain this same information:

```
/usr/local/groundwork/servicedeskexpress/customer/HRA-GroundWorkInsertUpdate.xml
/usr/local/groundwork/servicedeskexpress/customer/HRA-GroundWorkSelect.xml
```

GroundWorkInsertUpdate Web Service

This web service is for the creation or updating of an SDE ticket. The web service is called from the `createTicket` method on the GWMEE server. The event parameters for each selected event are provided in the web services request. The response from the web service is the ticket reference. For HRA this is the `Incident #` field.

The web service package includes all of the mappings from GWMEE event fields to SDE ticket fields. Those mappings can be thought of as business rules.

The configuration of this web service package is described below as if a user had walked through the SDE IE console.

Parameter	Value
Web Service Configuration Description	Web service supporting insertion or updating of incidents with data from GroundWork Monitor
Web Server Details	This will be the Web Server Name as defined by HRA after installation of the BMC SDE Web Service Administrator service. This is magicmtc1.windows.nyc.hra.nycnet.
Web Service Method Name	GroundWorkInsertUpdate
Web Service Method Description	Web service supporting insertion or updating of incidents with data from GroundWork Monitor
Web Service Method Type	InsertUpdate
Parameter	
Name	MonitorStatus
Type	String
Description	Status text describing the status for the event
Name	DeviceDisplayName
Type	String
Description	Host name for the event
Name	DeviceIdentification
Type	String
Description	Host address for the event
Name	LogMessageID
Type	Integer
Description	Unique event ID
Name	ReportDate
Type	String
Description	Timestamp of event
Name	MsgCount
Type	Integer
Description	Number of consolidated events for the event

Name	TextMessage
Type	String
Description	Text of the event
Name	HostGroups
Type	String
Description	List of location Host Groups which the Host belongs to
Name	Operator
Type	String
Description	Log in name of the GroundWork Monitor Portal user who is requesting a ticket to be created
BMC SDE Settings	
Select Adapter – Description	Web Services Service Desk Express Adapter
Select Adapter – Adapter Type	WS-SDE
BMC SDE Connection – DSN	SDEWebServices
BMC SDE Connection – User ID	GDWKWEB
BMC SDE Connection – Password	(This is on file)
BMC SDE Connection - _SMSYSADMIN_Password	(This is on file)
BMC SDE Details – Group Name	MIS NOC
BMC SDE Details – Module Name	Incident
BMC SDE Details – Insert/Update Mode	InsertUpdate
BMC SDE Details – Use Business Rules	Enable
BMC SDE Details – Update Closed Record	No
BMC SDE Details – Update Inactive Record	No
BMC SDE Sub Details – Update on field	Incident #
BMC SDE Return Fields	Incident #,State:
Mappings	
Target -> Source	{Helpdesk IP Address} -> {source:DeviceIdentification}
Target -> Source	{NOC_HOST_GP} -> {source:HostGroups}
Target -> Source	{NOC_OP} -> {source:Operator}
Target -> Source	{NOC_DEVICE} -> {source:DeviceDisplayName}
Target -> Source	{NOC_LOG_MSG} -> {source:LogMessageID}
Target -> Source	{Incident Description} -> {source:TextMessage}
Target -> Source	{Urgency ID:} -> {source:MonitorStatus}
Target -> Source	{#} -> {source:MsgCount}
Target -> Source	{Date Occured} -> FormatDateTime({source:ReportDate},2) & " " & FormatDateTime({source:ReportDate},3)
Security Settings	
Web Service Security	WS-Security 1.0 (disabled)
Web Method Authentication Type – SDE User ID	GDWKWEB
Web Method Authentication Type – SDE User password	(This is on file)
Transport Security	Enable Anonymous Access
Denied Access options	Granted Access except 10.10.10.10.*
Customize Web Service Logging	Trace (reduce to Warn when GroundWork Monitor integration is in production)
Destination	File

Table 3: GroundWorkInsertUpdate parameters

*There is a bug in BMC SDE IE in the configuration of web services transport security. It is not possible to deny access to all IP address except a specified set. It is this access control that GroundWork wishes to use. HRA should contact BMC to have the issue addressed and then GroundWork will advise of the necessary but simple update to the web service configuration to support it.

GROUNDWORKSELECT WEB SERVICE

This web service is for the determination of a SDE ticket status. The web service is called from the `updateStatusForTicket` method on the GWMEE server. The ticket reference, `Incident #`, is the only parameter provided in the web services request. The response from the web service is the state of each ticket. For HRA this is the `Incident #` field. The two-way HelpDesk process uses the state information for each ticket to determine whether the corresponding event in the GWMEE Event Console should be accepted or not.

Parameter	Value
Web Service Configuration Description	Web service supporting retrieval of incident status for GroundWork Monitor
Web Server Details	This will be the Web Server Name as defined by HRA after installation of the BMC SDE Web Service Administrator service. This is magicmtc1.windows.nyc.hra.nycnet
Web Service Method Name	GroundWorkSelect
Web Service Method Description	Web service supporting retrieval of incident status for GroundWork Monitor
Web Service Method Type	Select
Parameter	
Name	Incident
Type	Integer
Description	Integer #
BMC SDE Settings	
Select Adapter – Description	Web Services Service Desk Express Adapter
Select Adapter – Adapter Type	WS-SDE
BMC SDE Connection – DSN	SDEWebServices
BMC SDE Connection – User ID	GDWKWEB
BMC SDE Connection – Password	(This is on file)
BMC SDE Connection - _SMSYSADMIN_Password	(This is on file)
BMC SDE Details – Group Name	MIS NOC
BMC SDE Details – Module Name	Incident
Filter	"Incident #" = = '{parameter:Incident,"0"}'
BMC SDE Return Fields	State:
Mappings	N/A
Security Settings	
Web Service Security	WS-Security 1.0 (disabled)
Web Method Authentication Type – SDE User ID	GDWKWEB
Web Method Authentication Type – SDE User password	(This is on file)
Transport Security	Enable Anonymous Access
Denied Access options	Granted Access except 10.10.10.10.*
Customize Web Service Logging	Trace (reduce to Warn when GroundWork Monitor integration is in production)
Destination	File

Table 4: GroundWorkSelect parameters

*There is a bug in BMC SDE IE in the configuration of web services transport security. It is not possible to deny access to all IP address except a specified set. It is this access control that GroundWork wishes to use. HRA should contact BMC to have the issue addressed and then GroundWork will advise of the necessary but simple update to the web service configuration to support it.

Final Verification and Configuration

The two-way integration must be automated, and this was done automatically by the RPM, even before the configuration files are set up and the web services are deployed and tested. A simple `nagios`-user `cron` job was set to execute the `twoway_helpdesk.pl` script every five minutes:

```
*/5 * * * * /usr/local/groundwork/servicedeskexpress/bin/twoway_helpdesk.pl > /dev/null 2>&1
```

You should verify that this `cron` job is in place. Redirecting all the output to `/dev/null` prevents a buildup of email to the `nagios` user, should the script ever produce any output on the standard output or error streams. If you needed to run this command manually for diagnostic purposes, you would leave off that redirection.

Also, because both the one-way and two-way integration scripts generate logging to files, those files should be set up for rotation. The RPM installs a `/etc/logrotate.d/groundwork-servicedeskexpress` file for that purpose.

GroundWork recommends that HRA set up some additional Public Filters in the GroundWork Event Console to facilitate work flow using the integration. This is because the default System Filters called 'All Open Events', 'Operation Status – Open', 'Operation Status – Accepted' do not expose the custom fields that are added with the help desk integration. GroundWork has included two example filters in Appendix C that illustrate how HRA can adapt the Event Console to their workflow.

Upgrade or Migrate Scenario

The process for upgrading or migrating from the previous MySQL-based release of the Service Desk Express integration involves the following steps:

1. Upgrade or migrate the GWMEE system to the 6.7.0 release, up until the part where the `master_migration_to_pg.pl` script will be run. Do not run the standard script that is provided with the GWMEE 6.7.0 release.
2. Install the Service Desk Express integration RPM and tarball, as noted above in the Fresh Installation section. This will establish the schema for the HelpDeskBridgeDB database, which must be in place before data can be migrated from the old system to the new system.
3. Use the alternate `master_migration_to_pg.pl` script provided separately, which is a copy of this script that will be included in the GWMEE 7.0.0 release. This copy knows about the HelpDeskBridgeDB, and should be able to migrate its existing content.
4. Finish the standard installation of the GWMEE 6.7.0 release.
5. Convert one pathname in the data you migrated from the old system, by running the following commands manually as the `nagios` user:
   ```
   psql -d gwcollagedb -U collage
   update actionproperty
     set value = '/usr/local/groundwork/servicedeskexpress/bin/oneway_helpdesk.pl'
   where value = '/usr/local/groundwork/helpdesk/bin/oneway_helpdesk.pl';
   \q
   ```
6. The migration of data from the old (MySQL) `GWCollageDB` database will have removed the setup that the Service Desk Express integration RPM put in place within the new (PostgreSQL) `gwcollagedb` copy

of that database. Although the old data should have contained mostly-equivalent setup, it is probably best to re-run the step that sets up the new database. To that end, you should run the following command as the `nagios` user, and answer password prompts as needed:
`/usr/local/groundwork/servicedeskexpress/db/prepare_databases_for_servicedeskexpress`

7. Ensure that the `/usr/local/groundwork/config/console-admin-config.xml` file contains the public filters that you desire. The current RPM does not install any such filters. You may wish to compare the copy of this file from the old system, to ensure that any public filters added in the old system since the original installation of this integration are carried forward.
8. Compare the `/usr/local/groundwork/helpdesk/config/authorized_users.conf` file from the pre-upgrade system to the equivalent `/usr/local/groundwork/servicedeskexpress/config/authorized_users.conf` file in the upgraded system. The RPM installed vanilla content for this file, and you will want to bring forward any setup in this file that occurred since the original install of the previous version of this integration.
9. If this was a same-system upgrade, you must manually remove the `nagios`-user `cron` job that reflects the old prior-release pathname for the `twoway_helpdesk.pl` script (that is, `/usr/local/groundwork/helpdesk/bin/twoway_helpdesk.pl`).

NOTE: As of this writing, we have not tested the upgrade process in-house. Please report any issues with these steps back to GroundWork Engineering so we can update this document as appropriate.

4. CONFIGURATION PREREQUISITES AND DELIVERABLES

The prerequisites and deliverables for the completion of the GroundWork Monitor SDE Integration Configuration phase are listed below. The detail provided below will be referenced in the QA Check List used for Configuration phase sign off.

HRA

- Provide access to the Integration Engine web console of an instance of BMC Service Desk Express 9.8. This instance is what GroundWork will use to create and test the SDE IE web services packages. The main SDE interface is http://magicmtc1/SDE/default.aspx. The integration console interface is http://magicmtc1/IntegrationConsole/login.aspx. The login account for GroundWork is GDWORK with the password retained on-file.
- A supported hardware and operating system configuration on which GroundWork can install GroundWork Monitor Professional 6.7.0 and the GroundWork Monitor SDE Integration. The parent GroundWork Monitor server is M1e1-GWPARENT M1e1-GWPARENT-12.nw.hra.nycnet.

GroundWork

- BMC SDE IE integration packages to support the agreed upon GroundWork Monitor SDE Integration design. These will be installed by GroundWork on the provided instance of SDE 9.8.
- GroundWork Service Desk Express Module configured according to the agreed-upon GroundWork Monitor SDE Integration design. This will be installed by GroundWork on the provided system where GroundWork Monitor Professional 6.7.0 is also installed.
- Updated 'as built' design specification to account for any information missing during the design phase including the actual web services package definitions in XML format.

Other than this design document and copies of the deployed integration components, GroundWork will include modules in the Training phase of the pilot phase project that cover installation and configuration details of this integration.

5. APPENDIX A – HRA BMC SDE IE PACKAGES

This section will document the contents of the XML files describing each of the two SDE IE web services packages supporting the integration. These files will not exist until an instance of BMC SDE 9.8 is provided by HRA.

6. APPENDIX B – HRA_SITE_CODES.XLS

A separate document entitled `HRA_Site_Codes.xls` contains the list of 96 HRA locations that will have Host Groups defined within GWMEE. This file is included in the tarball provided with this integration software.

7. APPENDIX C – EXAMPLE PUBLIC FILTERS

The following filters can be added to the file `/usr/local/groundwork/config/console-admin-config.xml` to enable displaying of OPEN SNMPTRAP or ACCEPTED SNMPTRAP messages which include the operator and ticketNo columns. From these examples the reader should be able to see how to create additional filters to support viewing of messages for other application types such as NAGIOS and SYSLOG. After making changes to the XML file, several processes need to be restarted on the GroundWork server with a `service groundwork restart gwservices` command. That will interrupt access to the GroundWork Monitor product.

```
<Filter>
        <Name>Open SNMP traps</Name>
        <Label>Open SNMP traps</Label>
        <AppType>SNMPTRAP</AppType>
        <HostGroup></HostGroup>
        <MonitorStatus></MonitorStatus>
        <Severity></Severity>
        <Fetch>
                <Size></Size>
                <Order>DESC</Order>
        </Fetch>
        <Time>
                <Unit></Unit>
                <Measurement></Measurement>
        </Time>
        <OpStatus>OPEN</OpStatus>
</Filter>

<Filter>
        <Name>Accepted SNMP traps</Name>
        <Label>Accepted SNMP traps</Label>
        <AppType>SNMPTRAP</AppType>
        <HostGroup></HostGroup>
        <MonitorStatus></MonitorStatus>
        <Severity></Severity>
        <Fetch>
                <Size></Size>
                <Order>DESC</Order>
        </Fetch>
        <Time>
                <Unit></Unit>
                <Measurement></Measurement>
        </Time>
        <OpStatus>ACCEPTED</OpStatus>
</Filter>
```

8. REFERENCES