



# **SYCHRON** ONDEMAND DESKTOP™

## INSTALLING AND CONFIGURING ONDEMAND METRICS

# Contents

|        |   |    |
|--------|---|----|
| 1.     | INTRODUCTION .....                                | 1  |
| 2.     | DATABASE INSTALLATION .....                       | 1  |
| 2.1.   | MYSQL.....  | 2  |
| 2.2.   | MICROSOFT SQL SERVER.....                         | 2  |
| 3.     | CLUSTER METRICS.....                              | 2  |
| 3.1.   | ONDEMAND 3.5.....                                 | 2  |
| 3.1.1. | Installation.....                                 | 3  |
| 3.1.2. | Configuration .....                               | 3  |
| 3.2.   | ONDEMAND 4.0.....                                 | 4  |
| 4.     | CLIENT METRICS.....                               | 7  |
| 4.1.   | INSTALLATION.....                                 | 7  |
| 4.2.   | CONFIGURATION.....                                | 10 |
| 5.     | REPORTS .....                                     | 11 |
| 6.     | APPENDIX – DATABASE SCHEMA.....                   | 13 |
| 6.1.   | TABLE 1: DATABASE TABLE “HABITATUSAGE” .....      | 13 |
| 6.2.   | TABLE 2: DATABASE TABLE “USERSEGMENTDETAIL” ..... | 13 |

## 1. Introduction

This document describes the framework for capturing usage information for OnDemand clusters. This supports the analysis of usage patterns at the cluster, Habitat, server, and user levels, allowing an administrator to determine how the resources are being used over time. This will then allow:

- optimizations for server consolidation, enabling greater or fewer resources to be allocated at the most appropriate time
- analysis of server use, to track scheduled and unscheduled downtime
- analysis of user access patterns over time, at the cluster, Habitat, and server levels

Both the previous OnDemand 3.5 products as well as the latest OnDemand 4.0 enable the capturing of these metrics, supporting VMware ESX, Microsoft™ Hyper-V and Microsoft Terminal Server platforms. The captured data format is identical for all OnDemand products and platforms, allowing customers to compare the advantages as they upgrade to OnDemand 4.0 and to compare the server efficiency of different configurations.

Metrics gathering is divided into two separate packages:

- **Cluster metrics** capture the usage patterns of the Habitats and servers within each cluster. The package is installed and run on the Offboard controller for the OnDemand 3.5 product and on any machine that has access to the OnDemand Enterprise Manager in the latest OnDemand 4.0 product.
- **Client metrics** capture each user event as users log in and out of a desktop and disconnect and reconnect to that desktop. Install the package on a VM gold image and access it from a user logon/logoff GPO with the SycClient tool.

The metrics are stored in a central database, using either MySQL or Microsoft SQL Server. We have provided a set of Excel-based templates for reference/use.

## 2. Database Installation

*The following examples reflect a **user account** named `ondemand`, `ondemand` as the **password**, a **database** named `SychronOnDemandMetrics`, and a **server** named `sql1.sychron.com`.*

OnDemand Metrics features have been tested with MySQL and Microsoft SQL Server relational databases. Setup for the database is as follows:

1. Create an account for the metrics.
2. Create a database for the metrics.
3. Create the pair of tables in the new database.
4. Grant read/write permissions to the new account for the new database.

The following sections describe the database creation and setup for MySQL in a Linux environment and for SQLServer in a Microsoft environment.

## 2.1. MySQL

As a privileged user, create the account and new database, and then assign permissions for the new account. In this case, we use the default `root` account.

```
# mysql -u root -p
password: *****

mysql> CREATE USER 'ondemand';
mysql> CREATE DATABASE SynchronOnDemandMetrics;
mysql> GRANT ALL PRIVILEGES ON SynchronOnDemandMetrics.* TO
'ondemand'@'%';
mysql> quit
```

Now log into the new account and set the password.

```
# mysql -DSynchronOnDemandMetrics -uondemand
mysql> SET PASSWORD = PASSWORD('ondemand');
```

Run the table creation script.

```
# mysql -DSynchronOnDemandMetrics -uondemand -pondemand -B <
/opt/Synchron/metrics/createTables_mysql.sql
```

## 2.2. Microsoft SQL Server

On the SQL Server, the SQL script `C:\Program Files\Synchron\OnDemand Cluster Metrics\SynchronOnDemandMetrics_createdb.sql` will create the `SynchronOnDemandMetrics` database. Double-click the file to start the database construction. Upon successful completion of database creation, use the second script `C:\Program Files\Synchron\OnDemand Cluster Metrics\SynchronOnDemandMetrics.sql` to create the user accounts and two metrics tables.

## 3. Cluster Metrics

For a given cluster, the cluster metrics tool will regularly record the cluster name, the name of each Habitat within the cluster, and, for each Habitat, its watermarks and a summary of the number of desktops that are stopped, running, available for use, in use by clients, and broken in some way.

### 3.1. OnDemand 3.5

Each cluster (i.e., each Fedora Offboard controller) is responsible for collecting its own metrics and inserting them into the central database. The installation of a metrics

package on a controller allows the controller to capture periodic usage information on all of the desktops within each Habitat of the cluster.

### 3.1.1. Installation

Before the installation can proceed, you must install the `yum` package management tool on the OnDemand Offboard Controller. Running `yum info yum` determines if `yum` is installed. If it is not, use the installation CD to install the `yum` RPM. Then run the file to install the metrics package as shown in the following example:

```
unzip ODBC-1.0.9481.zip

./install
```

If, for any reason, the install does not complete successfully, you can edit the `install` file and uncomment the following line:

```
export SYCHRON_FORCE=1
```

Run the `install` file again.

Once the `install` completes, a new file called `sychron_capture.pl` will be in the usual `/opt/sychron/VirtualDesktop` folder. This is the file that you will run to capture the metrics. The file runs via a script which has been installed into `/etc/init.d/sychron_metrics`. This script is also symbolically linked to `/etc/dc5.d/S99sychron_metrics`, so that it will automatically run on a reboot of the controller.

### 3.1.2. Configuration

You will need to edit the file `/etc/init.d/sychron_metrics` to provide it with the correct database connection information. The default contents of this file have:

```
/opt/sychron/VirtualDesktop/sychron_capture.pl \  
--server sql1.sychron.com \  
--driver FreeTDS \  
--database SychronOnDemandMetrics --port 1433 \  
--username ondemand --password ondemand &
```

You must correctly set the following options:

**server**        the name of the server holding the database

**driver**        the ODBC driver name, currently one of *FreeTDS*, which supports

*Microsoft SQL Server or MySQL ODBC 3.51 Driver*

- database** the name of the database holding the metrics information
- port** the port number on which the database listens (typically 1433 for *FreeTDS* and 3306 for *MySQL*)
- username** the name of the user who has been granted database access rights
- password** the password for this user

By default, the system will capture metrics every two minutes. You can change this default by supplying the option `--period <mins>`.

You can test the *FreeTDS* driver and *Microsoft SQL Server* central database using the `tsql` independent tool:

```
export LD_LIBRARY_PATH=/usr/local/lib
tsql -H sql1.synchron.com -p 1433 \
-U ondemand -P ondemand
```

Once you have set these parameters, you can start the metrics capturing service.

```
/etc/init.d/synchron_metrics start
```

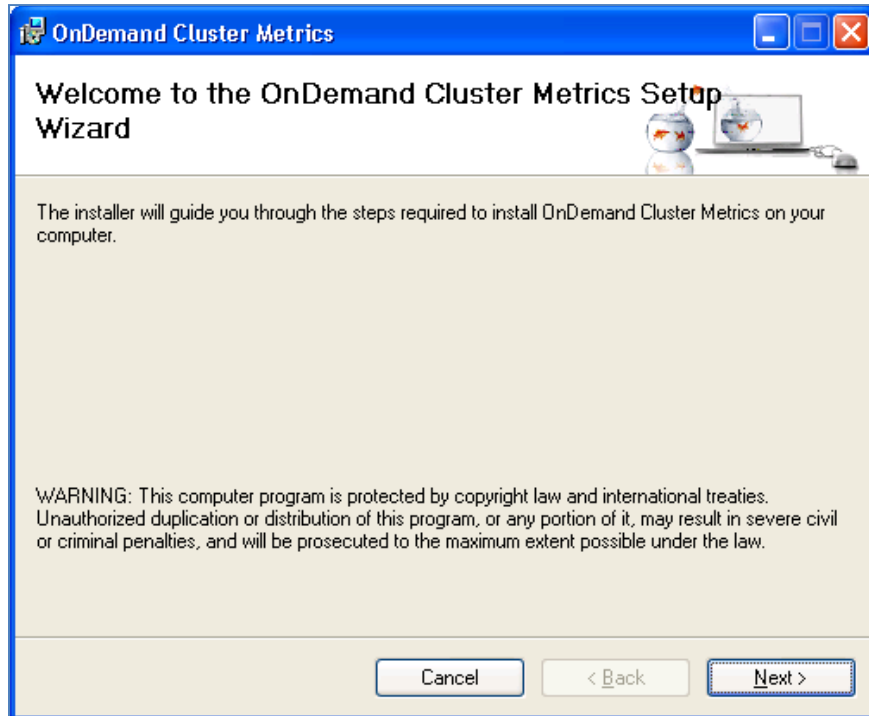
You can stop the service by replacing `start` with `stop`.

```
/etc/init.d/synchron_metrics stop
```

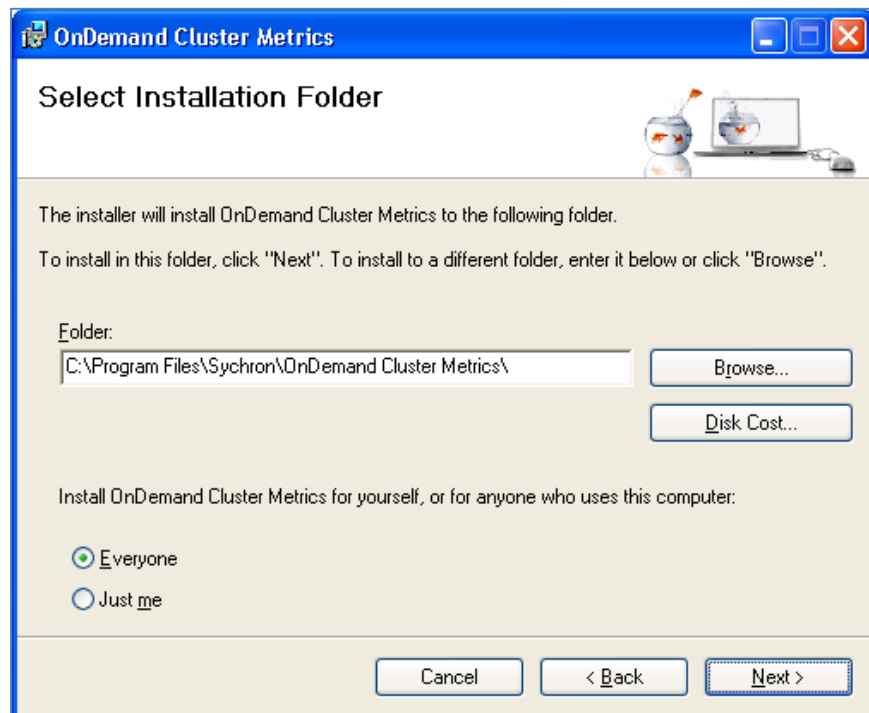
### **3.2. OnDemand 4.0**

Install the cluster metrics package on a Windows machine that has access to the OnDemand Enterprise Manager or is running the Enterprise Manager.

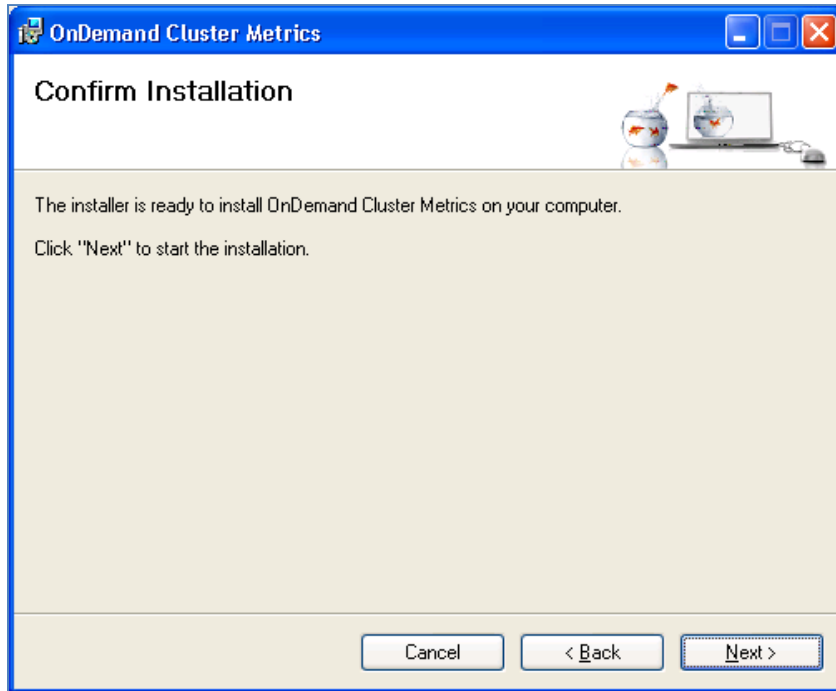
To begin, open the ZIP file `OnDemand_Cluster_Metrics-1.0.xxxx.zip`.



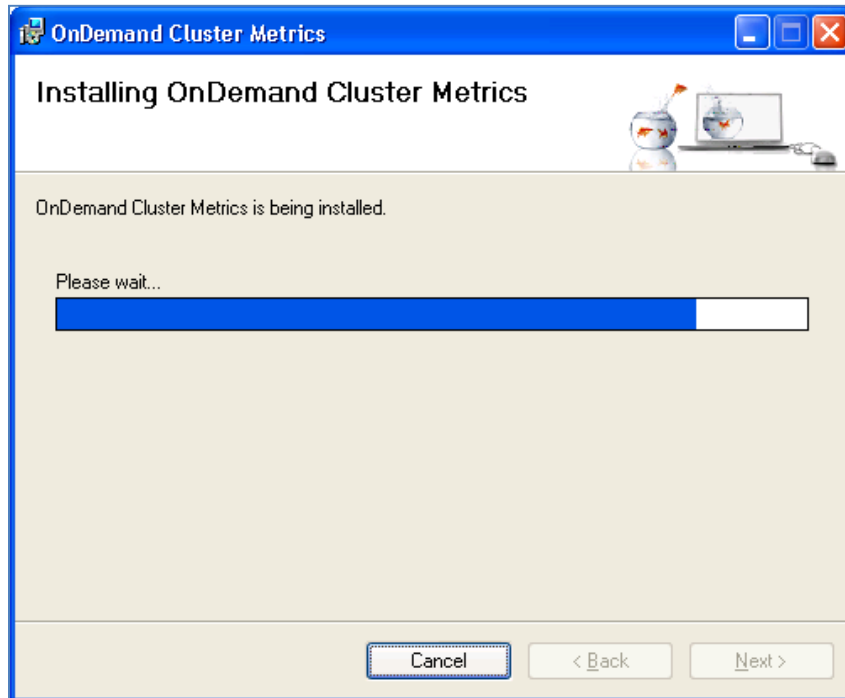
Click **Next**.



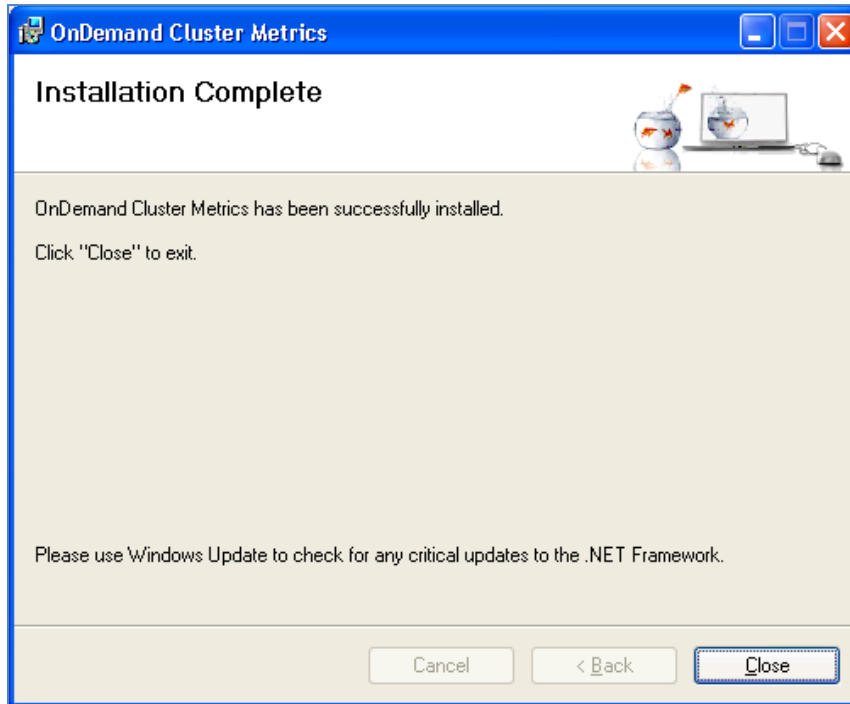
This dialog requests the location for installation of the Cluster Metrics package. We recommend that you use the default folder. Select **Next** when done.



Click **Next**.







Installation is complete. Click **Close**.

You can now run the installed `clusterMetrics` tool using:

```
clusterMetrics <EM-endpoint> <cluster-name> [<sample-period>]
```

The `EM-endpoint` is the DNS name of a Windows server running the Enterprise Manager. The `cluster-name` is the name of a cluster that the Enterprise Manager is managing. You can also specify an optional `sample-period`, in minutes, which will override the default two-minute value.

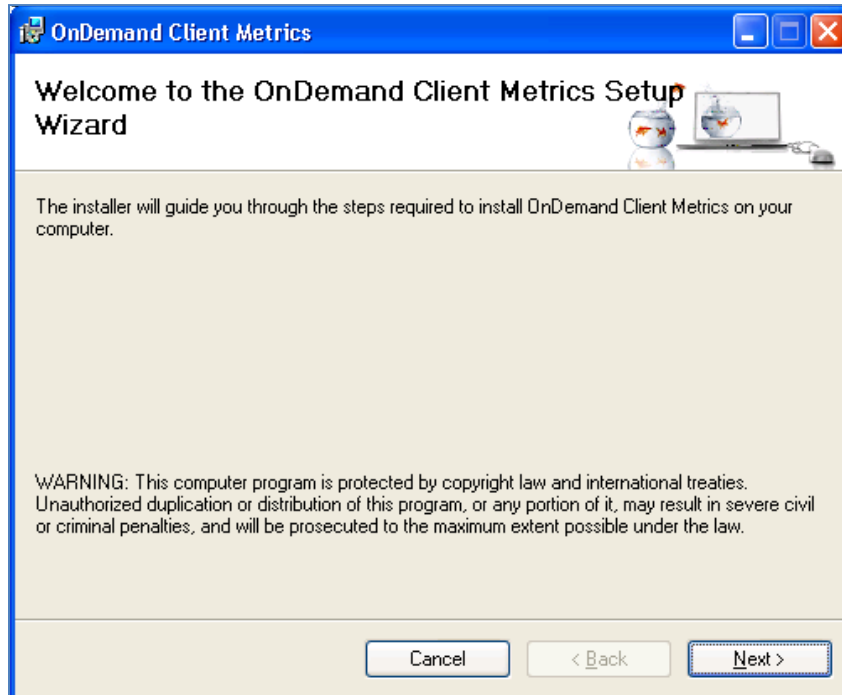
## 4. Client Metrics

The OnDemand Client Metrics feature gathers data relative to user session activity. It is delivered to a customer as a standard Microsoft installer file. The feature gathers client metrics each time a user logs in, logs off, disconnects, or reconnects to a virtual desktop. Each pair of a login/reconnect and a logoff/disconnect inserts a record into a centralized database.

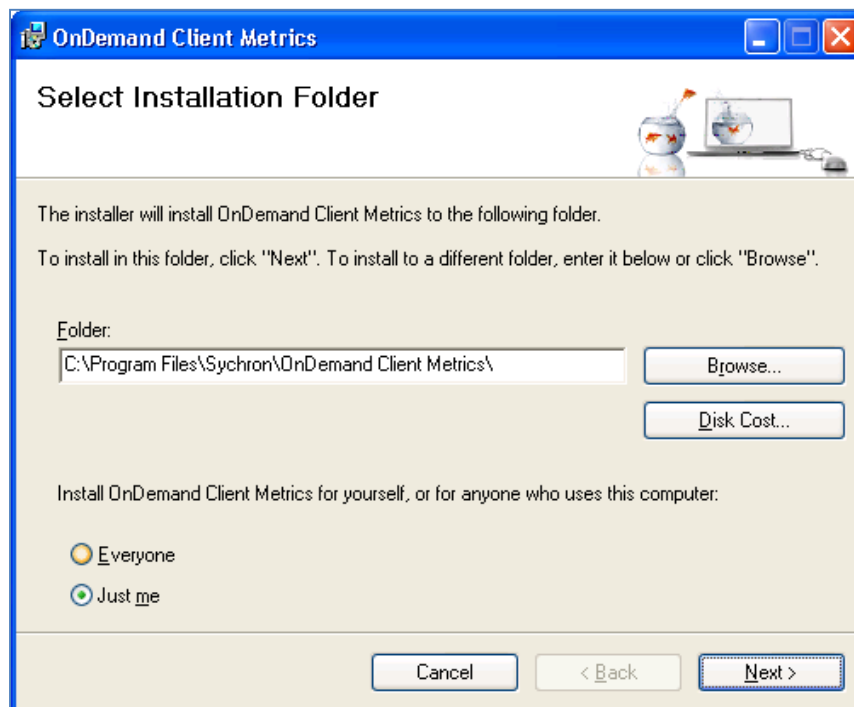
### 4.1. Installation

To employ the feature, you must install the `.msi` file on a Windows platform. During installation, the administrator will encounter prompts for the installation folder and a folder that contains the Synchron services utility `synchron_services_query.exe`.

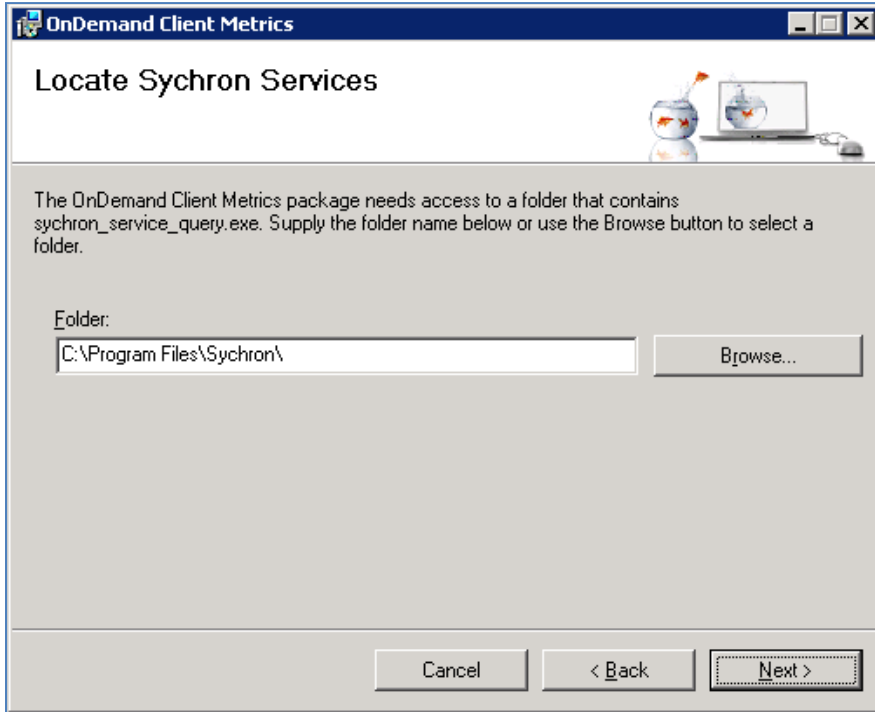
To begin, open the compressed ZIP file `OnDemand_Client_Metrics-1.0.xxxx.zip`. Double-click the `setup.exe` to start the installer.



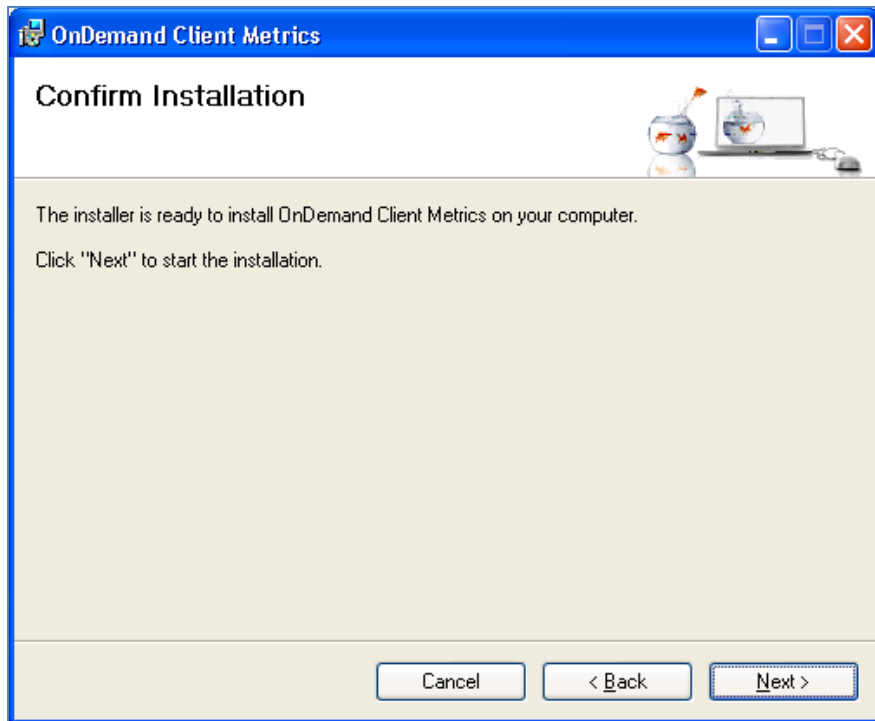
Click **Next**.



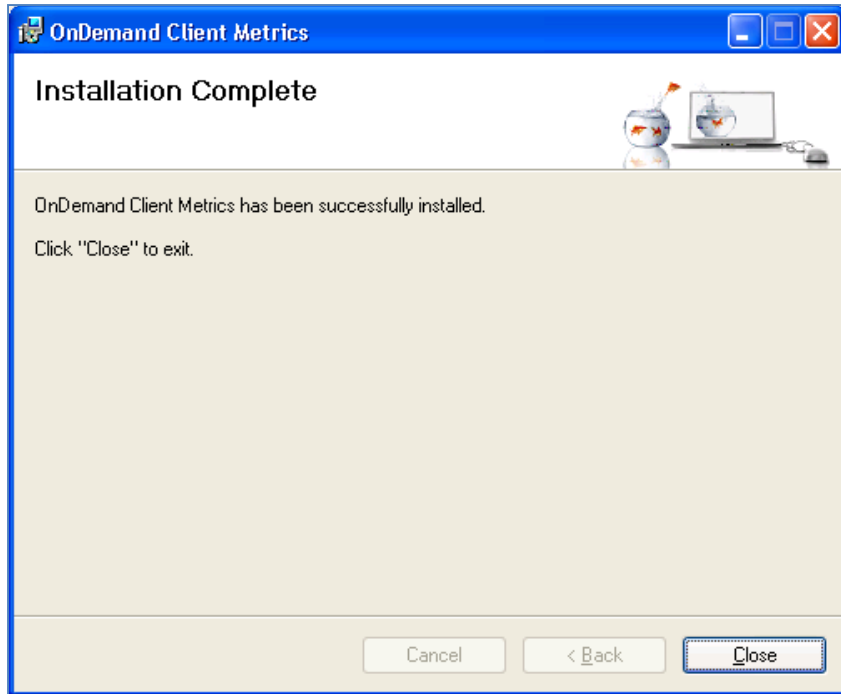
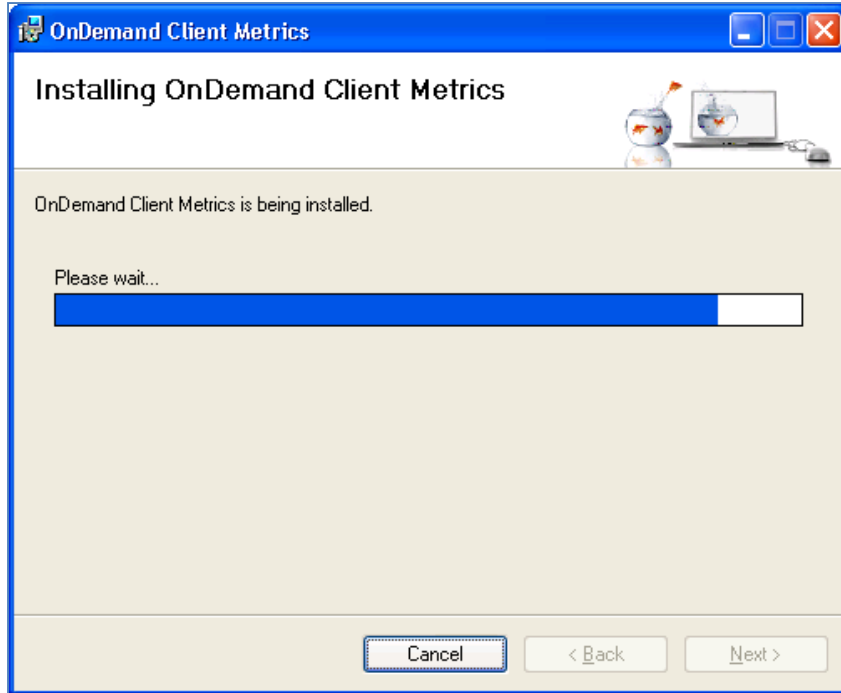
This dialog requests the location for installation of the Client Metrics package. We recommend that you use the default folder. Select **Next** when done.



This dialog requests the location of previously installed Sychron client software. The selected folder must contain the file `sychron_services_query.exe`. Click **Next** when done.



Click **Next**.



Installation is complete.

## 4.2. Configuration

You must customize the file `customerSettings.js` to specify the database connection string that the system should use to interact with the customer-chosen

database engine. This feature uses ODBC; therefore, you must install the appropriate ODBC client driver in the desktop image for the chosen database engine.

Four pairs of files, each with `.bat` and `.wsf` extensions, are of special interest to the installer:

1. `logon` - executed upon a user logon
2. `logout` - executed upon a user logout
3. `disconnect` - executed upon a user disconnect
4. `reconnect` - executed upon a user reconnect

These files will be linked with SycClient (see below) so that a user event (e.g., logon) results in the appropriate file being run (e.g., `logon.bat`). If the `.bat` file is used, the folder containing the metrics installation is automatically picked up in order to run the `.wsf` file. For example, `logon.bat` contains:

```
set ONDEMAND_SCRIPTS=C:\Program Files\Sychron

set ONDEMAND_METRICS_SCRIPTS=C:\Program Files\Sychron\OnDemand
Client Metrics

%ONDEMAND_METRICS_SCRIPTS%\logon.wsf
```

If the `.wsf` file is going to be executed directly, you must edit `customerSettings.js` to point to the folder (note the escaped double slashes):

```
var DEFAULT_ONDEMAND_SCRIPTS = "C:\\Program Files\\Sychron";
```

Install the GPO Additions package, containing SycClient, in the desktop gold image (or on the physical terminal server). SycClient runs by linking the desktop with a local group policy and runs under the user's account.

The "Sychron Services" folder specified for the client metrics package in this case will typically be the same as for the GPO Additions package, as this contains all of the required executables. Within the GPO Additions folder, each of the `.bat` files can be extended to also run the associated metrics file.

SycClient will only listen for disconnect and reconnect events, since it is run via a logon GPO (and so the logon event has already occurred). The client metrics files `logon.bat` and `logout.bat` will need to be triggered via a logon and logoff local group policy respectively.

## 5. Reports

An Excel-based report generator is included to provide examples of charts that you can produce from the OnDemand Metrics package. When you properly set the data sources, the package can access records in either MySQL or Microsoft SQLServer databases.

The file contains VisualBasic modules that you may also incorporate into Microsoft Access for more elaborate reporting.

The Excel file is installed as C:\Program Files\Sychron\OnDemand Cluster Metrics\Metrics Graphs.xlsx.

In addition, the database schema is described in the Appendix to facilitate access by other database report generator tools.

## 6. Appendix – Database Schema

**6.1. Table 1: Database Table “habitatUsage”**

| Field             | Data Type    | Example                  |
|-------------------|--------------|--------------------------|
| sampleTime        | TIMESTAMP    | 2009-12-03 09:51:56.000  |
| clusterName       | VARCHAR(255) | sych-manager.sychron.com |
| habitatName       | VARCHAR(255) | Support                  |
| minWatermark      | SMALLINT     | 2                        |
| maxWatermark      | SMALLINT     | 4                        |
| lowWaterMark      | SMALLINT     | 1                        |
| highWatermark     | SMALLINT     | 2                        |
| stoppedSessions   | SMALLINT     | 2                        |
| startedSessions   | SMALLINT     | 0                        |
| availableSessions | SMALLINT     | 1                        |
| inuseSessions     | SMALLINT     | 1                        |
| damagedSessions   | SMALLINT     | 0                        |

**6.2. Table 2: Database Table “userSegmentDetail”**

| Field                      | Data Type    | Example                     |
|----------------------------|--------------|-----------------------------|
| startTime                  | TIMESTAMP    | 2009-11-05 08:52:43.687     |
| stopTime                   | TIMESTAMP    | 2009-11-06 17:09:46.000     |
| startReason                | CHAR         | R                           |
| stopReason                 | CHAR         | L                           |
| portalName                 | VARCHAR(255) | CONCIERGE                   |
| portalServicingTime        | INT          | 2251                        |
| username                   | VARCHAR(255) | joeuser                     |
| originatingClientIP        | VARCHAR(15)  | 10.1.129.43                 |
| originatingClientDNSName   | VARCHAR(255) | compaq-engineer.sychron.com |
| originatingClientAssetName | VARCHAR(255) | compaq-engineer.sychron.com |
| clientSoftwareName         | VARCHAR(255) | Java/1.6.0 12               |
| sessionName                | VARCHAR(255) | SUPPO001-03                 |
| serverName                 | VARCHAR(255) | sych-manager                |
| clusterName                | VARCHAR(255) | sych-manager                |
| habitatName                | VARCHAR(255) | Support                     |
| sessionID                  | VARCHAR(255) | 633829935300548848          |