IBM Enterprise Content Management System Monitor

Installation Guide

IBM Enterprise Content Management System Monitor
Version 5.5.11

Installation Guide

SC27-9241-06

Table of Contents

Preface **2**
- About this document 2
- Who should read this guide? 2
- Before you start 2
- Feedback on documentation 3

Platform Support with ESM 5.5.11 ..... **4**
- Platforms and releases supported for ESM Server and ESM Agent 4
- Platform Support for ESM 5.5.11 - Managed Middleware & Operating Systems 4

Browser Support with ESM 5.5.11 ..... **6**

Hardware Requirements of ESM **7**

Before you start **8**
- Preposition 8
- Consideration 8
- SLM tag files 9

Preparation before executing the installation **10**
- Database Preparation 10
  - Installing with internal database (H2) 10
  - Installing with external databases (MSSQL or DB2) 10
  - Preparing the databases 10
- Ports 11
- X11 (Unix/Linux) 12
- Diskspace and filesystem 12

Tips and Tricks **13**

Important information before starting any installation **14**
- When updating an existing installation 14
  - Before 15
  - After 16

Virus Scanners **18**

Microsoft Windows Server Core **19**

Updating to 5.5.11 with an H2 database **20**
- Why is the following necessary for H2? 20
- Configuration migration 20
  - Configuration export 21
  - Configuration import 21

Installation using GUI mode **23**
- Windows based server 23
- Linux based server 33
- AIX based server 42

Windows based agent 51
Linux based agent 59
AIX based agent 66
Installation using silent mode 74
Windows based server 74
Windows based agent 75
Linux based server 76
Linux based agent 77
AIX based server 78
AIX based agent 79
Tests for a successful installation 81
Security hints 82
De-installation of the software 83
Windows based systems 83
Linux based systems 86
AIX based systems 89
Running the ESM server with https - Using self-signed or authority signed certificates 93
Create a self-signed certificate 93
Use an authority signed certificate 93
Installing ESM 5.5.11 Containers 95
Tracking License Consumption of ESM 95
Overview 95
Deploying License Service 95
Validating if License Service is deployed on the cluster 95
Installation on Kubernetes & OpenShift 4.x 96
Installation on a Container Runtime 96
Prerequisites 96
Load Container Images 96
Provide a Common Container Network 97
Run ESM Server Container With a Built-in H2 Database 97
Run ESM Server Container With IBM DB2 99
Run ESM Server Container With SQL Server 103
Run ESM Agent Container 106
Troubleshooting 107
Appendix A: Copyright notice 110
IBM Enterprise Content Management System Monitor 110
Appendix B: Notices 111
Appendix C: Trademarks 113

This document contains installation and configuration instructions for the IBM Enterprise Content Management System Monitor server and agent systems. The target audience for this guide are those who install or maintain ESM environments.

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Preface

About this document

This document is written as plain text document and provided as html / pdf. The newest ESM related documents can be found in the help section of the console.

Who should read this guide?

The target audience for this guide are those who install or maintain ESM environments.

Every effort has been made to provide you with complete installation instructions. If information becomes available after the creation of the installation media from which you accessed this guide, we will provide an updated version of the guide on the IBM Customer Service and Support web site (https://www.ibm.com/support). As a general rule, you should refer to the IBM web site to obtain the current version of this guide.

This guide provides instructions for installing and/or upgrading IBM Enterprise Content Management System Monitor, and identifies the IBM/FileNet and 3rd Party products that are certified for the current release. Be aware that each release of IBM Enterprise Content Management System Monitor may have multiple Interim Fixes, or Fix Packs available for installation, each with potentially different dependencies and installation requirements. Therefore, before you attempt to install or upgrade IBM Enterprise Content Management System Monitor, review the list of releases and their associated dependencies on the IBM Support web site (https://www.ibm.com/support).

Before you start

Users of the guide should have knowledge about Unix and/or Microsoft Windows® operating system, web servers, database systems and middleware platforms. The configuration of managed systems (clients) requires advanced knowledge of all IBM ECM systems that should be monitored.

You should read the Upgrade Notes section below!

If you lack the requisite skill sets it is strongly recommended to have IBM Lab Services or a certified ValueNet Partner in order to install this product.

TIP

For tips and tricks regarding the configuration and maintenance of IBM Enterprise Content Management System Monitor please check the CENIT Field Guides at IBM ESM Field Guides.

The updated documentation can be downloaded from the IBM download pages.

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Feedback on documentation

Send your comments by e-mail to comments@us.ibm.com. Be sure to include the name of the product, the version number of the product, and the name and part number of the book (if applicable). If you are commenting on specific text, include the location of the text (for example, a chapter and section title, a table number, a page number, or a help topic title)

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Platform Support with ESM 5.5.11

Platforms and releases supported for ESM Server and ESM Agent

Table 1. Platform Support for ESM 5.5.11 - Management Infrastructure

Product/Platform	Release	Component
Windows	2019, 2022	ESM Server
AIX	7.2 TL5, 7.3 TL0	ESM Server
RHEL (x86_64)	6.10 (deprecated), 7.8, 8.6, 9.0	ESM Server
SLES (x86_64)	12 SP5, 15 SP4	ESM Server
Windows	2012 R2 (deprecated), 2016 SR4, 2019, 2022	ESM Agent
AIX	7.2 TL5, 7.3 TL0	ESM Agent
RHEL (x86_64)	6.10 (deprecated), 7.8, 8.2	ESM Agent
SLES (x86_64)	12 SP 5, 15 SP 3	ESM Agent
s390x / Z64	SLES 12 SP5, 15 SP4, RHEL 7.8, 8.6, 9.0, Ubuntu 20.04, 22.04	ESM Agent

NOTE The supported platform architectures (aka hardware) are listed at https://www.ibm.com/support/pages/semeru-runtimes-support/#platforms_version_11.

Platform Support for ESM 5.5.11 - Managed Middleware & Operating Systems

Table 2. Platform Support for ESM 5.5.11 - Managed Middleware & Operating Systems

Product/Platform	Release	Component
DB2	11.1 FP3, 11.1 Express C, 11.5	ESM Server
DB2	11.1, 11.5	ESM Agent
MSSQL	2017, 2019, 2022	ESM Server

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Product/Platform	Release	Component
MSSQL	2017, 2019, 2022	ESM Agent
Oracle	18c, 19c, 21c	ESM Agent
PostgreSQL	12, 13, 14	ESM Agent
WebSphere Application Server	8.5, 8.5.5, 9.0	ESM Agent
WebLogic	11.0, 12.x, 14c	ESM Agent
TSM/Spectrum Protect	7.x, 8.x	ESM Agent

Table 3. Platform Support for ESM 5.5.11 - Managed ECM Engines

Product/Platform	Release	Component
FileNet Image Services	4.1.x, 4.2.x	ESM Agent
IBM Content Navigator	3.0.x, incl. 3.0.14	ESM Agent
IBM Content Collector	4.0.x	ESM Agent
FileNet Content Platform Engine	5.5.x, incl. 5.5.11	ESM Agent
IBM Case Manager	5.3.x	ESM Agent
IBM Business Automation Workflow	21.0.x, 22.0.x, 23.0.1	ESM Agent
IBM Enterprise Records	5.2, 5.2.1	ESM Agent
IBM Content Manager (CM8)	8.6.0.5, 8.7	ESM Agent
IBM Content Manager on Demand	10.1, 10.5	ESM Agent
IBM Datacap	9.1.x	ESM Agent
Daeja ViewONE Virtual	5.0.x	ESM Agent
IBM OperationalDecisionManager	8.10.x, 8.11	ESM Agent
IBM BusinessProcessManager	8.6.x	ESM Agent
IBM BA Containers (CP4BA)	Corresponding Standalone Versions - see above	remote ESM Agent

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Browser Support with ESM 5.5.11

- Mozilla FireFox 100+ (102+ recommended)
- Google Chrome 100+ (110+ recommended)
- Microsoft Edge 100+ (110+ recommended)

NOTE Microsoft IE 11 not supported!

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Hardware Requirements of ESM

Table 4. Container Version of ESM

Container	CPU (min)	CPU (max)	Memory (min)	Memory (max)	Diskspace
Agent	1 core	2 cores	6 GB	8GB	1 GB
Server	1 core	2 cores	6 GB	8GB	5 GB + 20 GB shared location if internal H2 (not for production) is used as Database

Table 5. Install Version of ESM

Type	CPU (min)	CPU (recommended)	Memory (min)	Memory (recommended)	Diskspace
Agent on monitored Server (additionally plan)	10 %	-	10 %	-	1 GB
Agent stand alone	1 core	2 cores	6 GB	8 GB	1 GB
Server	1 core	4 cores	6 GB	8GB	5 GB + 20 GB if internal H2 (not for production) is used as Database

NOTE The load on the agent always depends on the amount of running probes and their schedules.

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Before you start

Preposition

ESM provides an inbuilt database (H2) and an inbuilt http server (Jetty). Both are maintained within software updates and can be seen as a black box. No administration or maintenance must be done.

IMPORTANT There are some restrictions when updating an H2 based installation from one major version to another. Please read the Release Notes for the release version you are targetting to update to and please also read the chapter about the H2 update below.

Consideration

There are some important things you need to think about before you start with the installation.

Installation directory

For security reasons, it is mandatory to restrict access to the installation directory and its contents to a minimum number of accounts.
We therefore recommend that only the account under which the program is executed and the account responsible for installation management have access.

Windows server / agent installation user

The account that is used for the installation of a Windows server or agent must have local admin rights (member of the local administrator group).

Service User

Before you install the server or agent, you should decide which account should be used to run it. On Windows the service can run as local system. Nevertheless, you might want to use a service account. On Unix / Linux a user that has access / execute rights for the monitored application tools should be used.

Root rights

Root access is needed e.g. for the creation of autostart links for the agent.

HA environment (Active/Passive)

If an agent should be installed as HA resource, the virtual IP and the virtual hostname must be used for the installation. Furthermore, a shared drive or filesystem must be used.
On Windows based systems the installation must be repeated on the second node. All services have to be specified in the cluster administration tool.
For Unix / Linux based systems the startup and shutdown of processes have to be specified in the cluster administration tool (e.g. HACMP). There is no need to repeat the installation on the second node.

HA environment (Active/Active)

This is only possible for an agent installation. There must be a separate agent installation on each

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active node. The local hostname should be used for better classification of the event.

Automatic start

Normally the software is started during start up of the server. In some cases e.g.HA on Active/Passive servers the automatic startup might not be useful. Therefore, the start-up procedure can be changed.

Eventforwarding

During the configuration process you can decide if you want to forward events via logfile.

Reporting

ESM offers basic reporting functions.

Firewall

The following ports are used in ESM and need to be opened in the firewall:

- 80 (Default http port for Console URL on ESM Server)
- 443 (Default https port for Console URL on ESM Server)
- 1883 (MQTT based Agent / Server communication)

SSL

The ESM console can be installed using SSL.
The console initially uses a self-signed certificate. It is strongly recommended to replace this by a trusted certificate provided by the customer. See chapter "Running the ESM server with https - Using self-signed or authority signed certificates" for details.

LDAP Login

The most commonly used LDAP Services are supported and can be configured within the ESM console. (See configuration guide)

SLM tag files

IBM Enterprise Content Management System Monitor (ESM) creates so-called Software License Metric (SLM) tag files in the installation process for ESM Server and ESM Agent.

SLM tag files provide a standardized capability for a product to report its consumption of license metrics (resources that are related to the use of the software asset). The SLM tag files are based on the ISO/IEC 19770-4 standard draft for Resource Utilization Measurement.

The SLM tag files are stored in XML format, and new metric records are appended to the end of the file when updating an existing installation. For IBM Enterprise Content Management System Monitor, the SLM tag files (*.slmtag) are stored in the <Installation-Dir>/slm folder.

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Preparation before executing the installation

Database Preparation

Installing with internal database (H2)

No preparation is needed in this case. For updates see the related Release Notes.

Installing with external databases (MSSQL or DB2)

NOTE Only MSSQL and DB2 as external databases are supported. Oracle has some restriction which momentarily cause issue in ESM.

IMPORTANT We strongly advise against entering passwords in JDBC URLs, although some databases support this. This is a serious security risk and should not be used at all, especially in production environments.

If ESM should be installed with external databases, such as MSSQL or DB2, that databases must be prepared in advance.

Create two databases (e.g. ESMConf and ESMMon, one for the configuration and one for the monitoring data) with the information from the "Preparing the databases" chapter below.

The configuration database will have less data and will not grow after the setup and configuration of the environment is complete. The monitoring database size depends on the amount of data that should be stored. Per default the cleanup is set to delete old entries after 1.5 million sets of samples and incidents. This is approx 5 to 8 GB of data but can vary.

Preparing the databases

MSSQL preparation

MS SQL Server General installation parameters The MS SQL Server must be configured for SQL Server Authentication or Mixed Mode Authentication. To change the authentication mode, see MS SQL Server documentation.

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- Create a database to use with ESM Server. Assign the Latin1_General_CI_AS collation to the database.
- Create a database user. Assign the just created ESM Server database as Default database and assign the db_datareader, db_datawriter, db_owner and public roles within the database role membership.

NOTE Make sure, the database schema, that you will use, is the Default Schema of your specified database user, which will be used to connect to your ESM Server database and for database initialization and import, otherwise database initialization for instance will fail.

DB2 preparation

IBM DB2 General installation parameters

- Create a ESM database (use codeset UTF-8 and database Page size 32k). Smaller Page size settings are not supported and cause installation errors.
- Create the ESM technical DB user on your operating system (select a name, e.g. webadmin).
- Create the ESM technical DB user on your previously created ESM database with at least the rights "Connect to database", "Create tables" and "Create schema implicitly"

Ports

ESM uses several ports on the systems. Please make sure to use ports that are not in use during the installation. Precheck the availability of the ESM default ports with the following command:

```
netstat -an | grep <Port> (Linux/Unix)
or
netstat -an | findstr <Port> Windows)
```

The default ports are:

```
ESM Server: 1099,1883,5555,8101,80,443,9092,44444
ESM Agent: 1180,1543,1883,2099,5556,9093,9202,55555
```

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X11 (Unix/Linux)

The installer can be started in silent / console mode, but InstallAnywhere sometimes still tries to address X11 libraries. We have found the necessary libraries are installed if X11 forwarding can be used by ssh connections to the host the installer is executed at.

Diskspace and filesystem

Diskspace and / or file systems on Unix / Linux must be prepared. The server and agent installation take about 500MB each after installation. The server can grow more because of the internal event database then the agent.

The recommendation is 5 GB /20 GB (if H2 is used) for the server and 5 GB for the agent.

On Unix / Linux we recommend to create a separate file system for both.

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Tips and Tricks

For tips and tricks regarding the configuration and maintenance of IBM ECM System Monitor please check the CENIT Field Guides at https://www.cenit.com/en_EN/products-solutions/eim/processing-file-and-document-management/software/ibm-ecm-system-monitor/ibm-esm-field-guides.html

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Important information before starting any installation

All information given during the installation are stored in the file installer.properties. As long as the file exists in the same location, an IA installer will pick up the information from there. In case the agent and server installer is started from the same location, this will also happen and the settings might be incorrect.

Please avoid this by starting the server and agent installer from different locations or removing the file prior an installation.

When updating an existing installation

Before updating make sure you have made a backup of your current installation.

IMPORTANT

When upgrading from 5.5.9.1-001 or any other 5.5.9.1 interim fix to 5.5.11.0-004, the following procedure must be followed in this order:

1. Before the update export the configuration.
2. Update to 5.5.11.0-000.
3. Import the exported configuration into 5.5.11.0-000.
4. At last update to 5.5.11.0-004.

NOTE

If you have a scanner tool that checks the file system, it is possible, your scanner will find an older log4j or log4j2 JAR file after you have deployed older external API JARs. This is not a fault of ESM. Keep in mind to update these external JARs if necessary.

NOTE

We strongly advise against changing an agent's identifier (aka name) with an update. If there is the need to rename an agent, please remove it and reinstall it again later.

If an agent's identifier is changed with an update, that agent will be handled as a new agent by the server. You must then manually switch the probe assignments to that new agent if you want to use the situations that were deployed to the agent before the update and renaming took place. Also keep in mind, the automatic base monitoring deployment will be executed for that new agent if it was not disabled in the server's settings.

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Before

- It is not recommended to mix GUI based and console mode based installations. This can lead to configuration settings erroneously enclosed with double quotes, e.g. "1883" instead of plain 1883.
- Check if there is an installer.properties file in the same directory where the installer binary was copied to.
  - If so, remove this file from the directory before starting the installer. If not, this will damage your installation.
- When updating from ESM 5.5.11.0-000 check if there are Http probes (subsystem type Website) configured.
  - If so, note down the `Url Suffix` parameter as well as the evaluation parameters of the probe(s) as these probes will be removed during update due to internal changes.
  - After update, create instances of the HttpStatus probe (subsystem type Url) with the parameters you noted down before the update.
- When updating from ESM 5.5.11.0-000 check if there are subsystems of type BusinessProcessManager or RuleExecutionServer configured.
  - If so, check the fields `Url`, `User` and `Password`. If these fields are filled, either define a new Website subsystem with these settings below the BPM or REX subsystem or reference an existing Website subsystem with the appropriate settings. If the BPM or REX subsystem references a Keystore subsystem add this reference to the Website as well.
  - After the update, the mentioned fields will no longer be available. The Keystore reference will be removed as well.
- When updating from ESM 5.5.11.0-001 or older, check if there are probe instances of type CeObjectstoreClbInterestBaseObjectsFailed, CeObjectstoreClbNotificationItemObjectsFailed, CeObjectstoreClbNotificationUserObjectsFailed, CeObjectstoreClbSeedlistEntryObjectsFailed, CeObjectstoreClbShareObjectsFailed, CeObjectstoreSweepAnnotationsFailed or CeObjectstoreSweepDocVersionsFailed configured.
  - If so, note down the evaluation parameters of the probe(s) as these probes will be removed during update due to internal changes.
  - After update, create instances of the CePolicySweep probe with the parameters you noted down before the update.
- When updating from ESM 5.5.11.0-001 or older, check if there are probe instances of type CeObjectstoreSweepActivityQueueFailed, CeObjectstoreSweepEmailQueueFailed, CeObjectstoreSweepNotificationQueueFailed, CeObjectstoreSweepThumbnailRequestFailed or CeObjectstoreSweepTranscriptionRequestFailed configured.
  - If so, note down the evaluation parameters of the probe(s) as these probes will be removed during update due to internal changes.
  - After update, create instances of the CeQueueSweep probe with the parameters you noted down before the update.
- When updating from ESM 5.5.11.0-001 or older, check if there are instances of the ObjectStorePerformance probe that are configured with the option SEARCH or COMPLETE but without a custom search. This combination is no longer supported after the update.
  - If so, review these probe instances by either adding a search or by removing them altogether.
  - Probe instances that still match these criteria during update will be disabled.

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Server

- We recommend to stop the ESM server.
- Proceed with the update guided by the installer.
- Due to a 3rd-party limitation whitespace in the installation path are currently not supported under Unix/Linux.

Agent

- We recommend to stop the ESM agent.
- Proceed with the update guided by the installer.
- Due to a 3rd-party limitation whitespace in the installation path are currently not supported under Unix/Linux.

After

- **Modern browsers tend to cache data to enhance the responsiveness of web-UIs. We have found this can lead to complications after updates. Sometimes the browser does not recognize or simply ignores updates of the UI and its underlying data stores. That caching will even survive a browser restart. This all depends on the specific settings of each browser. So after an update it is recommended to explicitly clear the web browser's caches to trigger a fresh update of the UI and its components. Normally pressing Ctrl and F5 when the focus is in the tab of the ESM's UI should clean the cache. But we have found this is not always sufficient. That is why we recommend to use the browser's settings to clear stored website data and the browser's cache.**
- When updating from ESM 5.5.11.0-000, subsystems of type Uri are extracted from the following subsystems:
  - ContentNavigator
  - ContentPlatformEngine
  - Jmx

  Existing Uri subsystems are re-used in this process if possible but manual consolidation is required if the URLs differ in trailing / characters.
- When updating from ESM 5.5.11.0-000, subsystems of type Uri are extracted from the following probe configurations:
  - CertificateExpiration
  - CertificateValidation

  Existing probe configs are moved below these Uri subsystems. Existing Uri subsystems are re-used in this process if possible but manual consolidation is required if the URLs differ in trailing / characters.
- When updating from ESM 5.5.11.0-000, check the evaluation for probes of type CertificateExpiration. The probe now always returns the number of days the certificate is still valid. The offset parameter and the resulting possibility to use the probe as a status probe have been removed.
- When updating from ESM 5.5.11.0-000, check the Uri subsystems referenced by subsystems of type

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BusinessProcessManager and RuleExecutionServer. Due to a cleanup of internal data inconsistencies, these references may be incorrect.

- When updating from ESM 5.5.11.0-000, add instances of the HttpStatus probe as replacement for the Http probe as described in the Before section above. Note that in this probe the list of acceptable HTTP codes is part of the probe parameters instead of the evaluation.
- When updating from ESM 5.5.11.0-001 or older, add instances of the CePolicySweep probe as replacement for the CeObjectstoreClbInterestBaseObjectsFailed, CeObjectstoreClbNotificationItemObjectsFailed, CeObjectstoreClbNotificationUserObjectsFailed, CeObjectstoreClbSeedlistEntryObjectsFailed, CeObjectstoreClbShareObjectsFailed, CeObjectstoreSweepAnnotationsFailed and CeObjectstoreSweepDocVersionsFailed probes as described in the Before section above.
- When updating from ESM 5.5.11.0-001 or older, add instances of the CeQueueSweep probe as replacement for the CeObjectstoreSweepActivityQueueFailed, CeObjectstoreSweepEmailQueueFailed, CeObjectstoreSweepNotificationQueueFailed, CeObjectstoreSweepThumbnailRequestFailed and CeObjectstoreSweepTranscriptionRequestFailed probes as described in the Before section above.
- When updating from ESM 5.5.11.0-001 or older, the following probes will be switched to use Objectstore subsystem names instead of the symbolic names:
  - CeAdvancedStorageDirectReplicasFailed
  - CeAdvancedStorageRemoteReplicasFailed
  - CeObjectstoreChangesFailed
  - CeObjectstoreIndexingExceptions
  - CeObjectstorePublishRequestsFailed
  - CeObjectstoreQueueItemsFailed
  - CeObjectstoreSweepBackgroundSearchesFailed
  - CeObjectstoreSweepFrameworkExceptions
  - ContentSearchServicesFTSPerformance
  - ListenerCEUser
  - ObjectstoreCustomQuery
  - ObjectstoreCustomQueryCount
  - ObjectstoreDocumentIndexingErrors
  - ObjectstoreLoadDocumentPerformance
  - ObjectStorePerformance
  - ObjectstoreRecoveryBin

  If you have any of these probes configured, you may need to adjust the configuration accordingly.

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Virus Scanners

We strongly advise to exclude the karaf folder of the server from virus scans and from access by other external programs that potentially can lead to file locks. This can lead to database corruption.

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Microsoft Windows Server Core

Starting with version 5.5.11.0 ESM does support an installation on Microsoft Windows Server Core for the server and the agent component.

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Updating to 5.5.11 with an H2 database

IMPORTANT

- See the chapter about platform support in the Install Guide for a list of databases supported in production.
- ESM 5.5.11 cannot use the H2 databases of the previous versions and therefore ignores them completely.
- This is a technical limiation of H2 that cannot be circumvented by ESM.
- The following is also necessary for Cloud deployments when upgrading to 5.5.11.
- Re-installing 5.5.11 on top of an existing 5.5.11 installation will remove the database files of any older version without further notice or inquiry even from the backup directory.
- Also keep in mind that you can always ask your support representative for help.

NOTE As always when migrating data or applications: Make a backup before you start.

Why is the following necessary for H2?

ESM 5.5.11 switched from H2 1.4.x to 2.1.x. This was necessary to get the newest security fixes besides all the other improvements and fixes of H2.

Between version 1.4.200 and version 2.0.x of H2 there have been major changes. A simple update is not possible. A more elaborate migration is mandatory. The officialy way to upgrade is to export the data into an SQL script, create a fresh database, and then load the SQL into that database.

We have decided to make this process more user friendly concering the configuration data by enhancing the existing configuration export and import mechanism of ESM.

NOTE Migration of the monitoring data is not supported.

Configuration migration

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NOTE We recommend to read the chapter "Configuration Import/Export" in the "Configuration Guide" before executing the following steps. The chapter contains a more detailed description and includes screenshots for a better understanding.

Configuration export

IMPORTANT For the following the lowest supported version of ESM is 5.5.9.1-001. Configuration exports of versions older than 5.5.9.1-001 are not supported and will be rejected by the import. This does also apply for the agents known by the server. The state (ONLINE, OUTDATED, …) of the agents is irrelevant only the version matters. So you have to remove all agents, that are not at least on this lowest supported version and patch level from your system before exporting the configuration. If not, the import will fail.

Before updating to 5.5.11 you must export the existing configuration via the web UI. If you do not export the configuration now, you will not be able to transfer your configuration into the updated installation later on.

- Login as administrator.
- Click on the "Administration" tab.
- Click on "Configuration Import/Export" in the left menubar. This is the last item in the menubar.
- In the newly opened list showing only two icons click on "Export complete configuration". This is the left one of the two icons. The one with the arrow pointing downwards.
- In the newly opened editor you can change the filename containing the exported data. This is optional. If you want to stick with the default "configuration.json".
- Click on the checkmark-icon to start the export.
- Your browser should now handle the download. Maybe it will ask you where to save the export file. Store it in a save place on your disk outside of the installation directory of ESM.

IMPORTANT Do not save the exported configuration in the installation directory of the product. Use a location outside of the installation directory. If not, the file will get lost in the update process.

After the export has succeeded you can start the update process of the product. And then import the configuration as described in the next section.

Configuration import

After the product was updated to version 5.5.11 you can import the exported configuration directly from the web UI.

Of course you can also import the exported configuration into a fresh install of 5.5.11.

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- Login as administrator.
- Click on the "Administration" tab.
- Click on "Configuration Import/Export" in the left menubar. This is the last item in the menubar.
- In the newly opened list showing only two icons click on "Import configuration". This is the right one of the two icons. The one with the arrow pointing upwards.
- In the newly opened editor click on "Choose File" and select the file created by the export done before.
- Optionally you can deactivate the probes being imported.
- At last click on the checkmar-icon to start the import.

After the import has finished successfully, the configuration migration is complete.

NOTE We recommend to check the imported configuration now. If all looks as expected, we also recommend to export the newly imported configuration as a backup for 5.5.11.

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Installation using GUI mode

For the installation an InstallAnywhere package is provided. The installation offers 3 different modes: GUI, console and silent mode (See chapter Installation using silent mode for examples).
This chapter shows the installation in GUI mode. The console mode is equivalent to the GUI mode, the only difference is that the input must be provided in the console and not in a GUI interface.

Windows based server

- Start the installation by executing the file "ESM_Server_Installer.exe" as administrator
- The "Software License Agreement" window is loaded. Accept the license agreement and proceed with "Next".

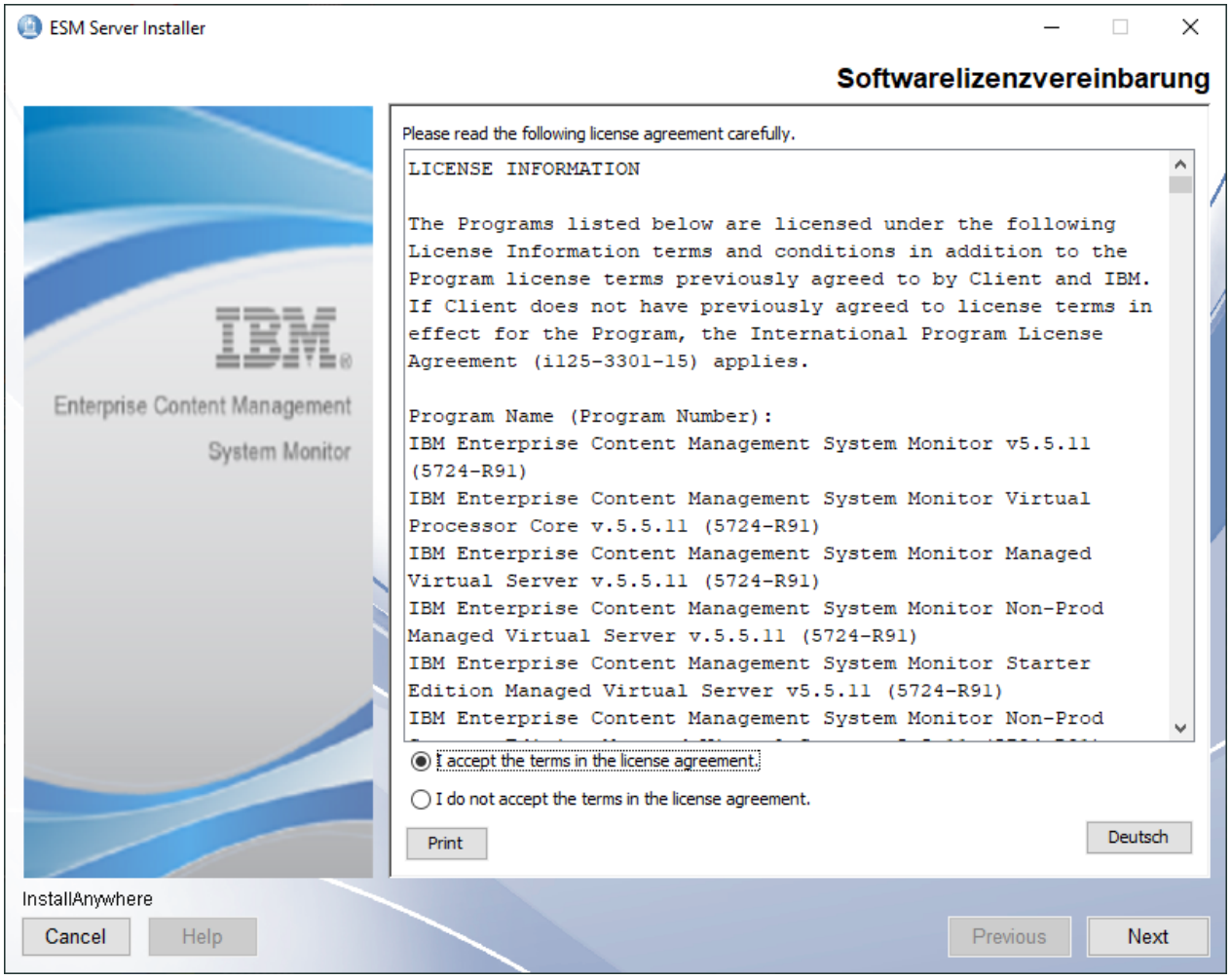

Image of Software License Agreement

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- The next window is "Welcome to ESM Server". It shows some information about the installation. Click "Next" to proceed.

Image of Welcome to ESM Server

- The next window is "Choose Installation Folder". Specify your path for the installation here. The default is `C:\Program Files\IBM\ESM\Server`. Click "Next" to proceed.

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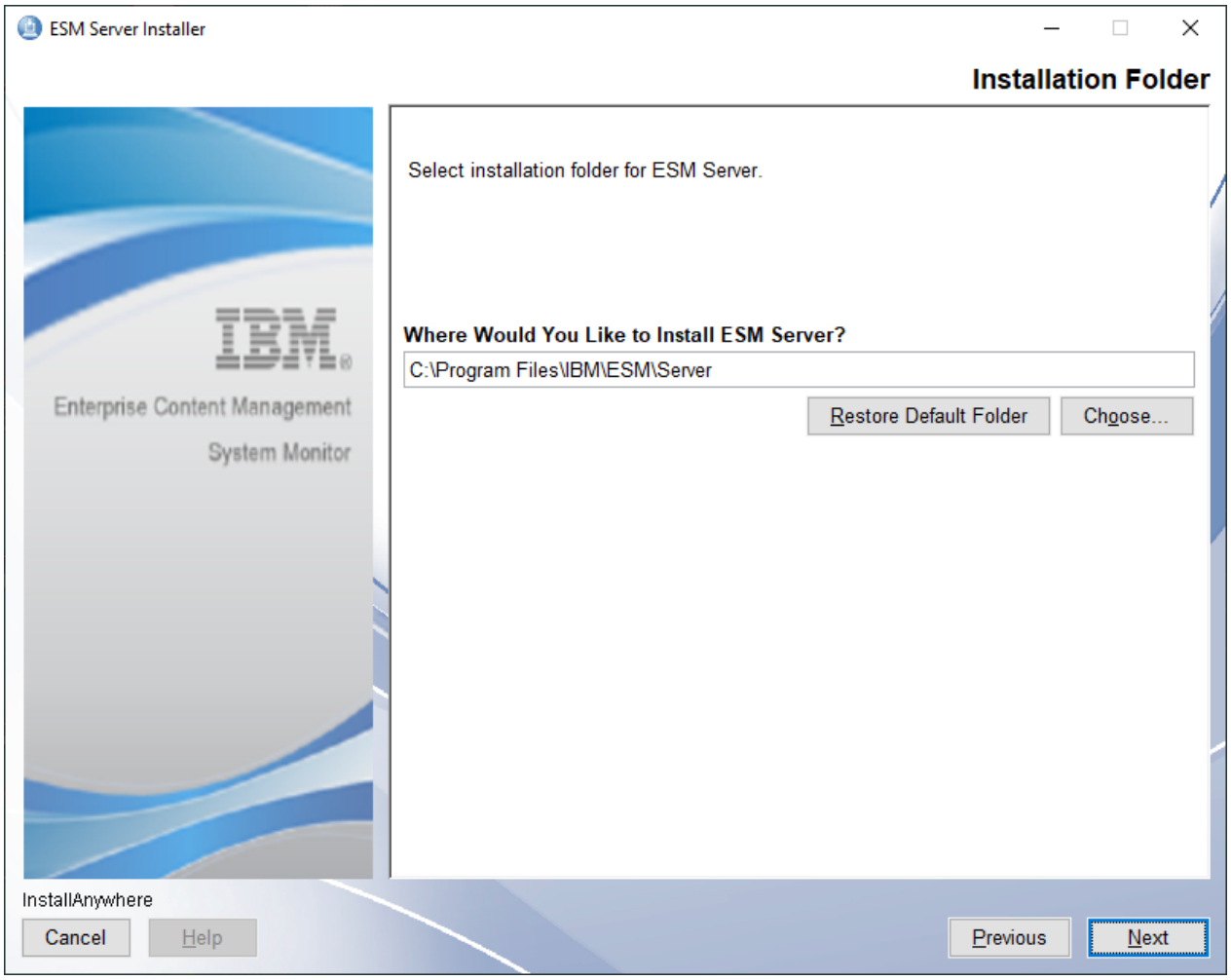

Image of Choose Installation Folder

- The next window is "Server Settings". The following parameters can be specified. Click "Next" to proceed. We recommend to keep https enabled.

  Hostname

  Default: *<server name>*

  Server IP

  Default: *0.0.0.0*

  MQTT Port

  Default: *1883*

  HTTP Port

  Default: *80*

  HTTPS

  Default: *Enabled*

  HTTPS Port

  Default: *443*

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RMI Registry Port

Default: *1099*

RMI Server Port

Default: *44444*

SSH Port

Default: *8101*

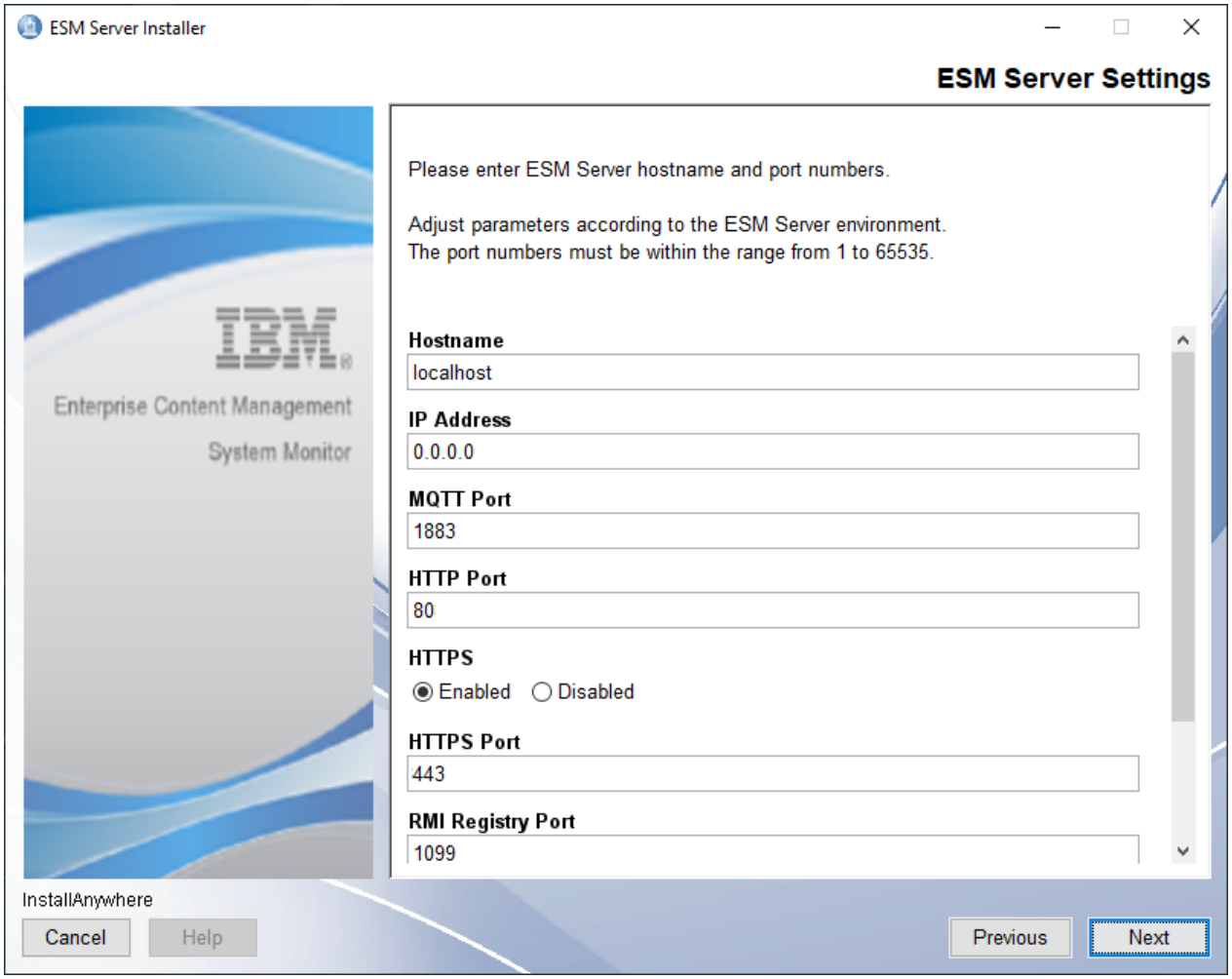

Image of Server Settings

- The next window is "Configuration Database Settings". The default settings are for usage with the internal H2 DB. DB2 and MSSQL is possible as well.

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IMPORTANT

If the installation is done with DB2 or MSSQL, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy after a successful installation. In addition, if the connection is established with an LDAP account. The service needs to be started with this account and for MSSQL the matching auth.dll must be copied to <Installation-Dir>/karaf/lib/wrapper. Start the software afterwards. The default settings must be changed to fit your MSSQL or DB2 database.

JDBC Url

Default:
`jdbc:h2:./configuration;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MODE=LEGACY`

Database Driver Class Name

Default: `org.h2.Driver`

Database Username

Default: `db`

Database Password

Default: `pw is hidden`

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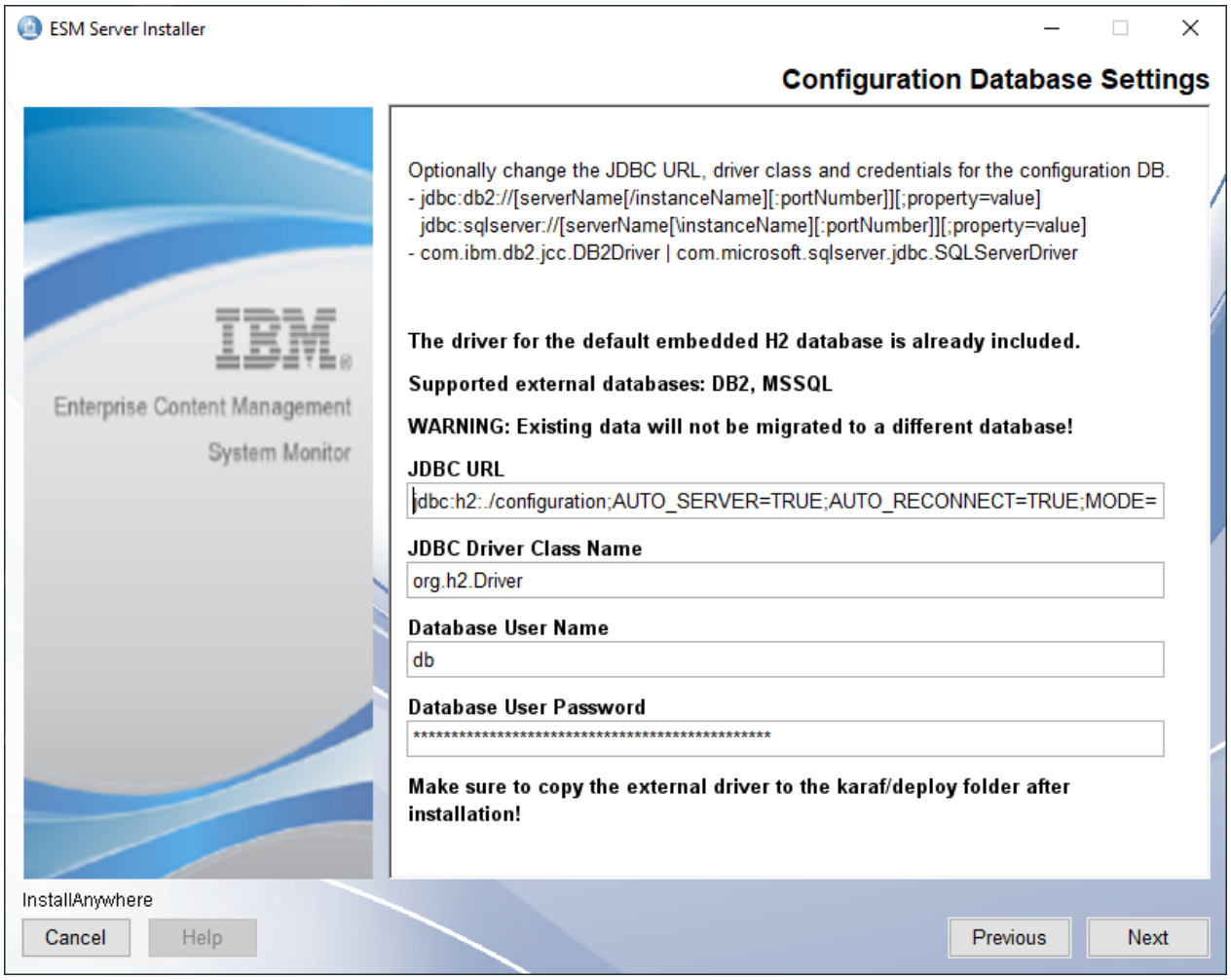

Image of Configuration Database Settings

- The next window is "Monitoring Database Settings". The default settings are for usage with the internal H2 DB. DB2 and MSSQL is possible as well.

IMPORTANT

If the installation is done with DB2 or MSSQL, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy after a successful installation. In addition, if the connection is established with an LDAP account. The service needs to be started with this account and for MSSQL the matching auth.dll must be copied to <Installation-Dir>/karaf/lib/wrapper. Start the software afterwards. The default settings must be changed to fit your MSSQL or DB2 database.

JDBC Url

Default: *`jdbc:h2:./monitoring;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE`*

Database Driver Class Name

Default: *`org.h2.Driver`*

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Database Username

Default: *db*

Database Password

Default: *pw is hidden*

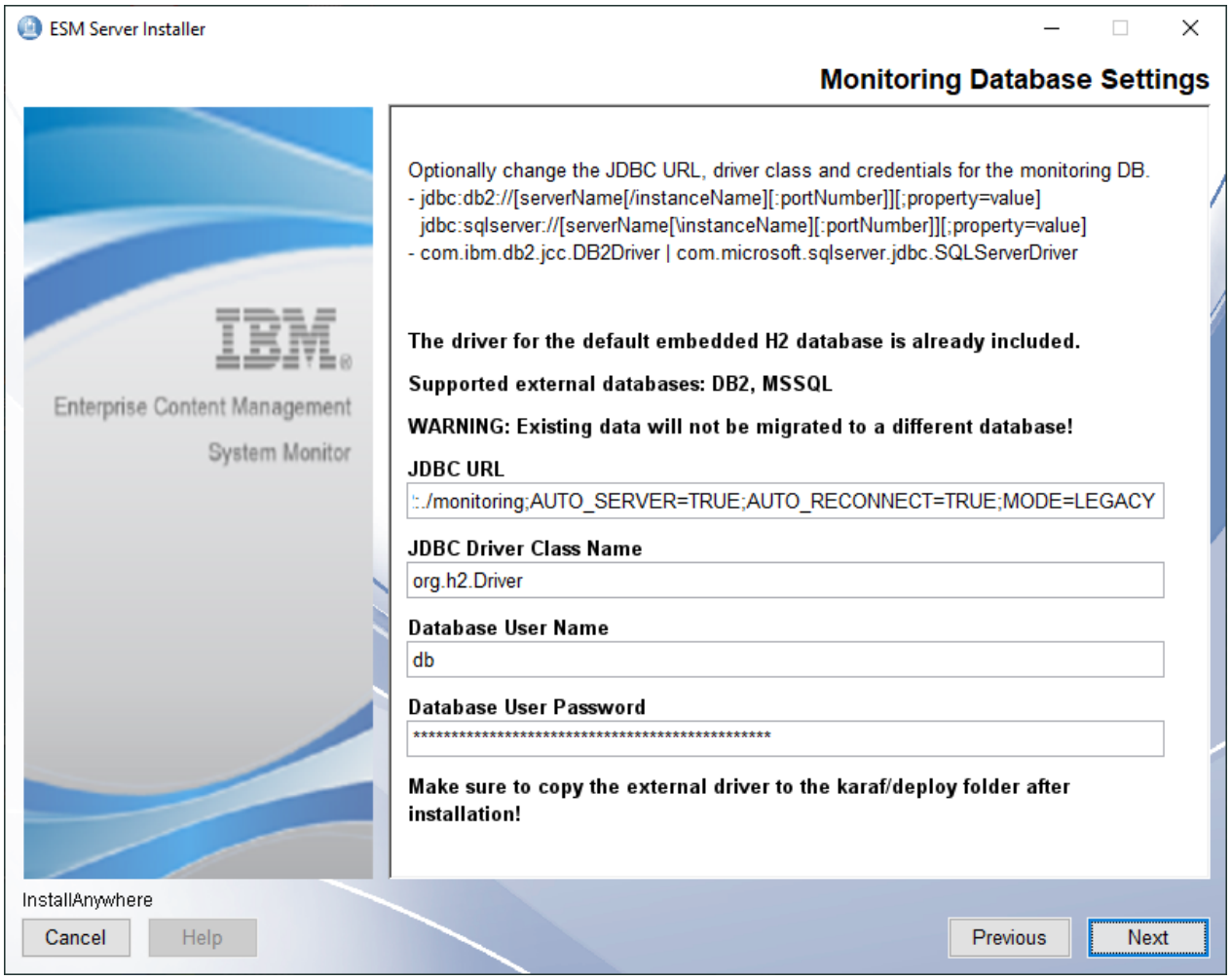

Image of Monitoring Database Settings

- The next window is "Autostart and Systemstart". The following parameters can be specified. Click "Next" to proceed.

  Start ESM Server after Installation

  Default: Yes = checked

  Start ESM Server at OS Start

  Default: Yes = unchecked

NOTE If unchecked, the service will be installed with manual startup type.

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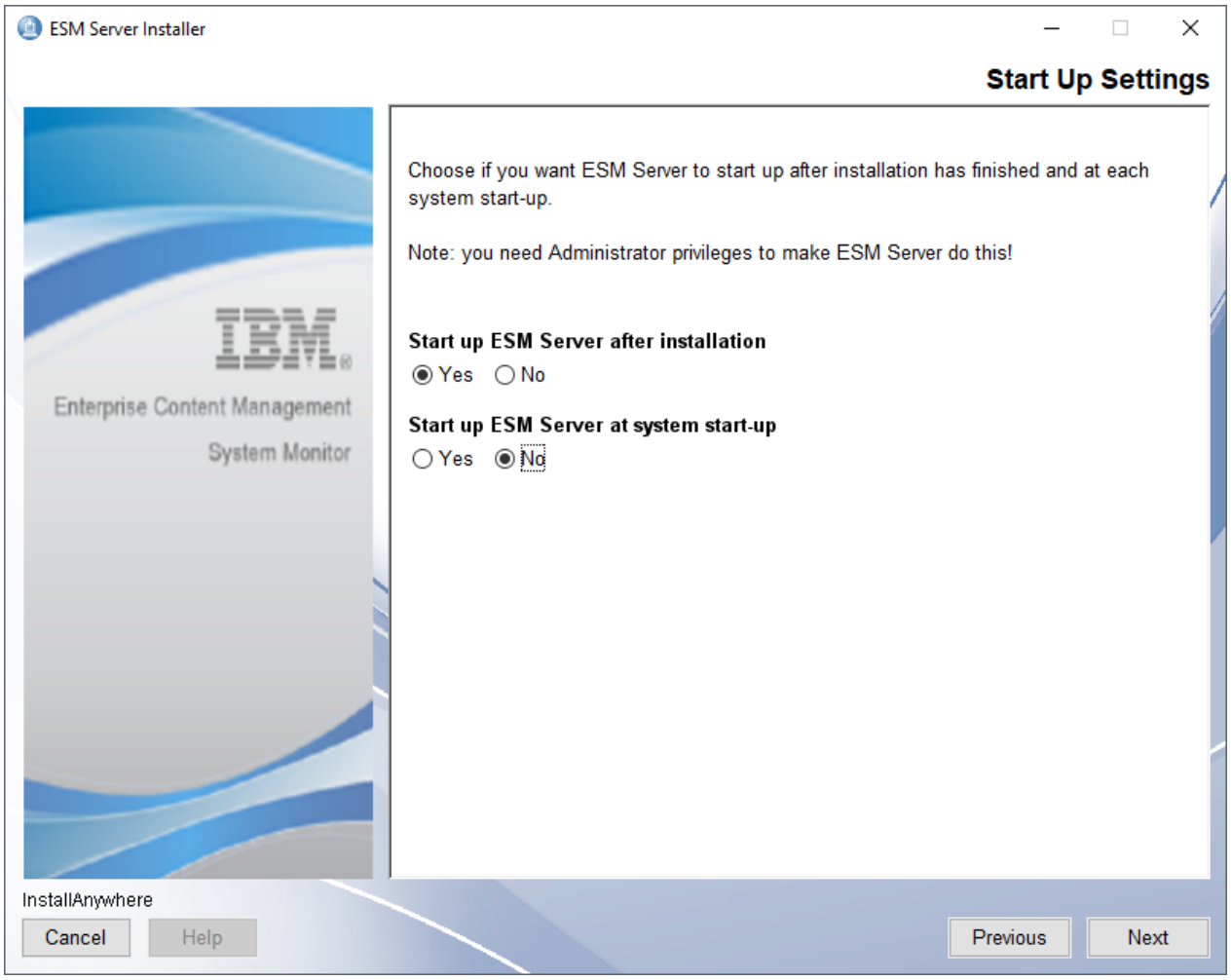

Image of Autostart and Systemstart

- The next window is "Service Installation". The following parameters can be specified. Click "Next" to proceed.

  Re-Install ESM Server Service

  Default: No = checked

NOTE This Window will only be shown if the OS is Windows, the installation is an update installation and a service is used in the previous installation already.

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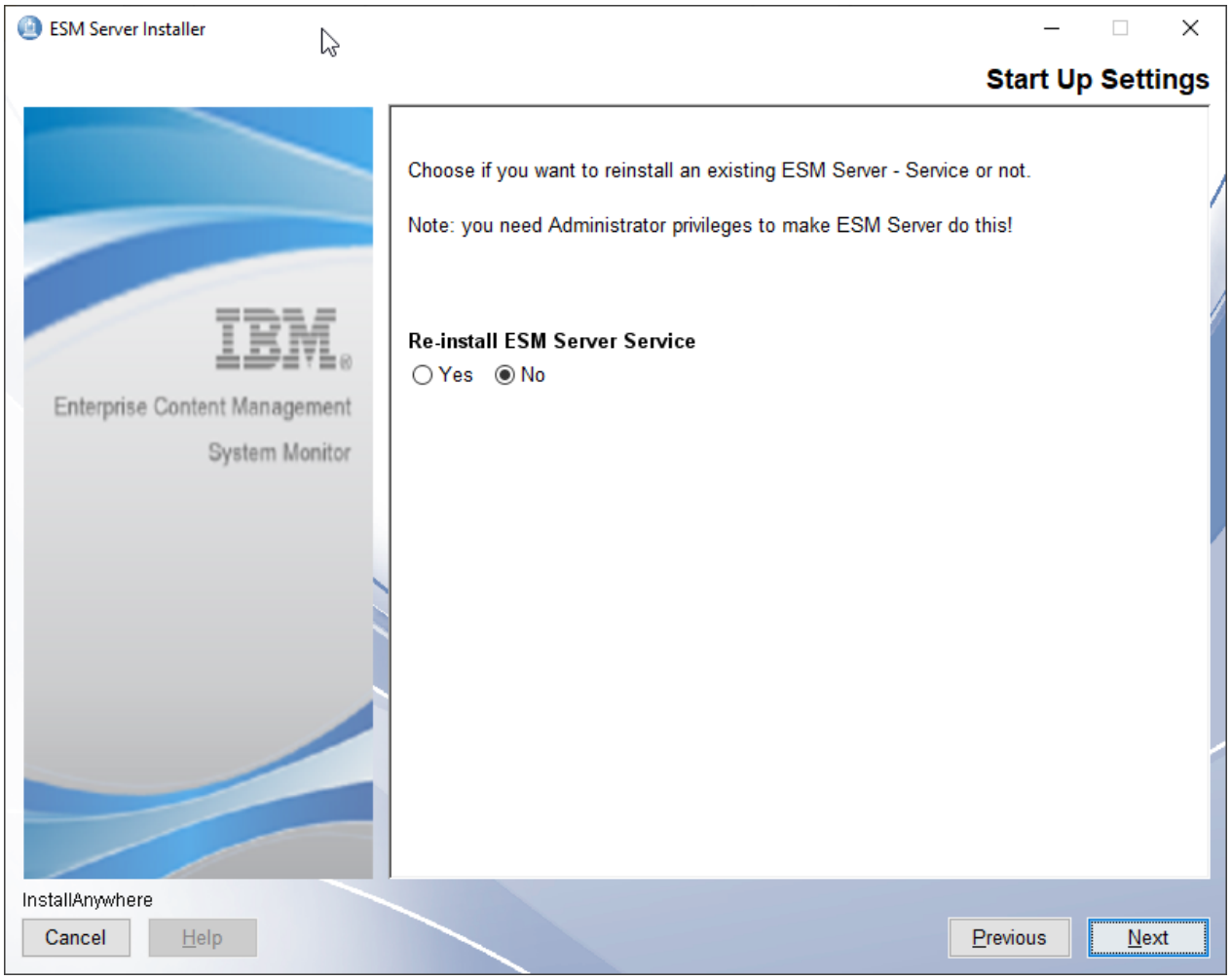

Image of Service Installation

- The next window is "Pre-Installation Summary". Click "Install" to proceed.

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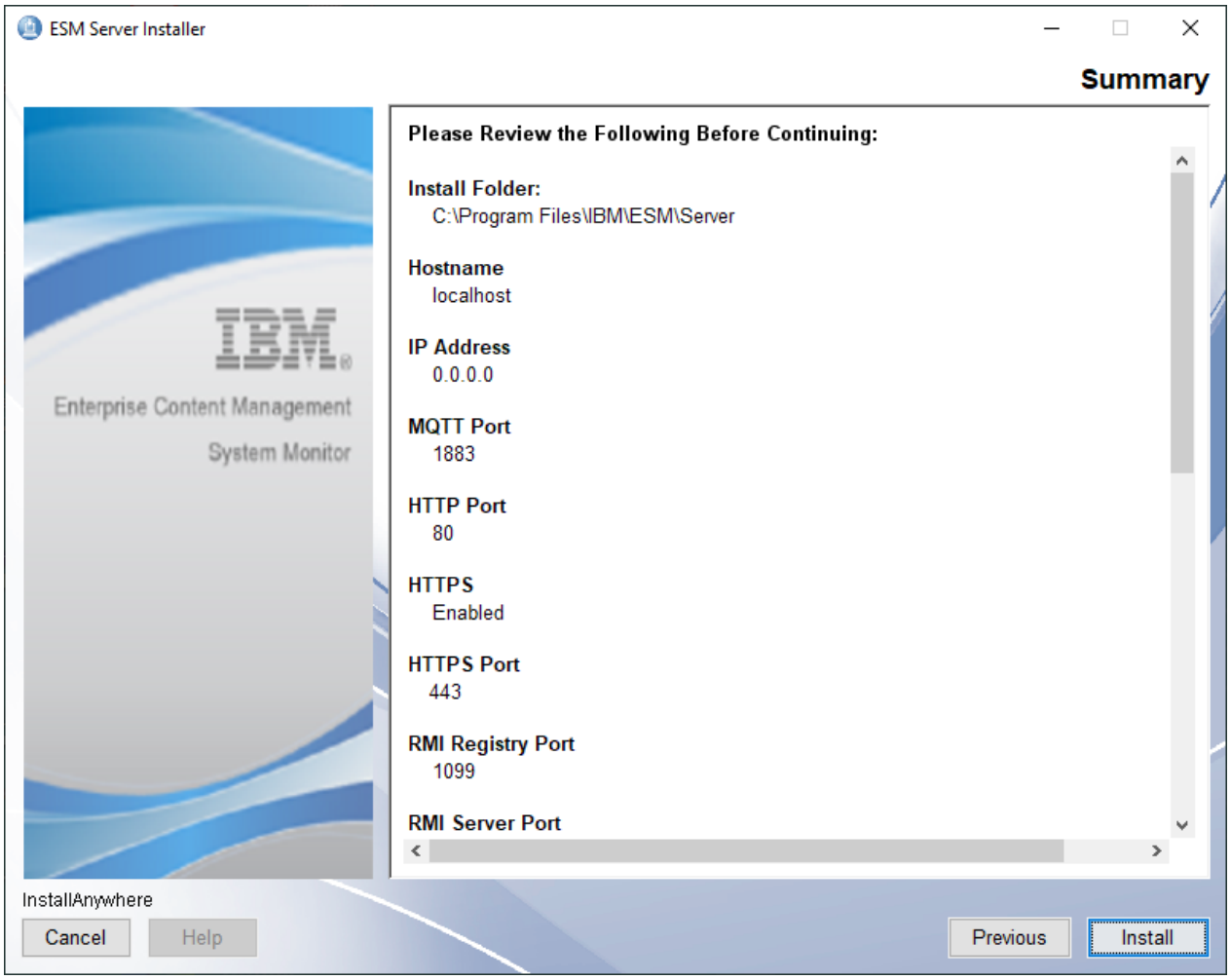

Image of Pre-Installation Summary

- The installation starts and finishes with the window "Install Complete". Click "Done" to close and finish the installation procedure.

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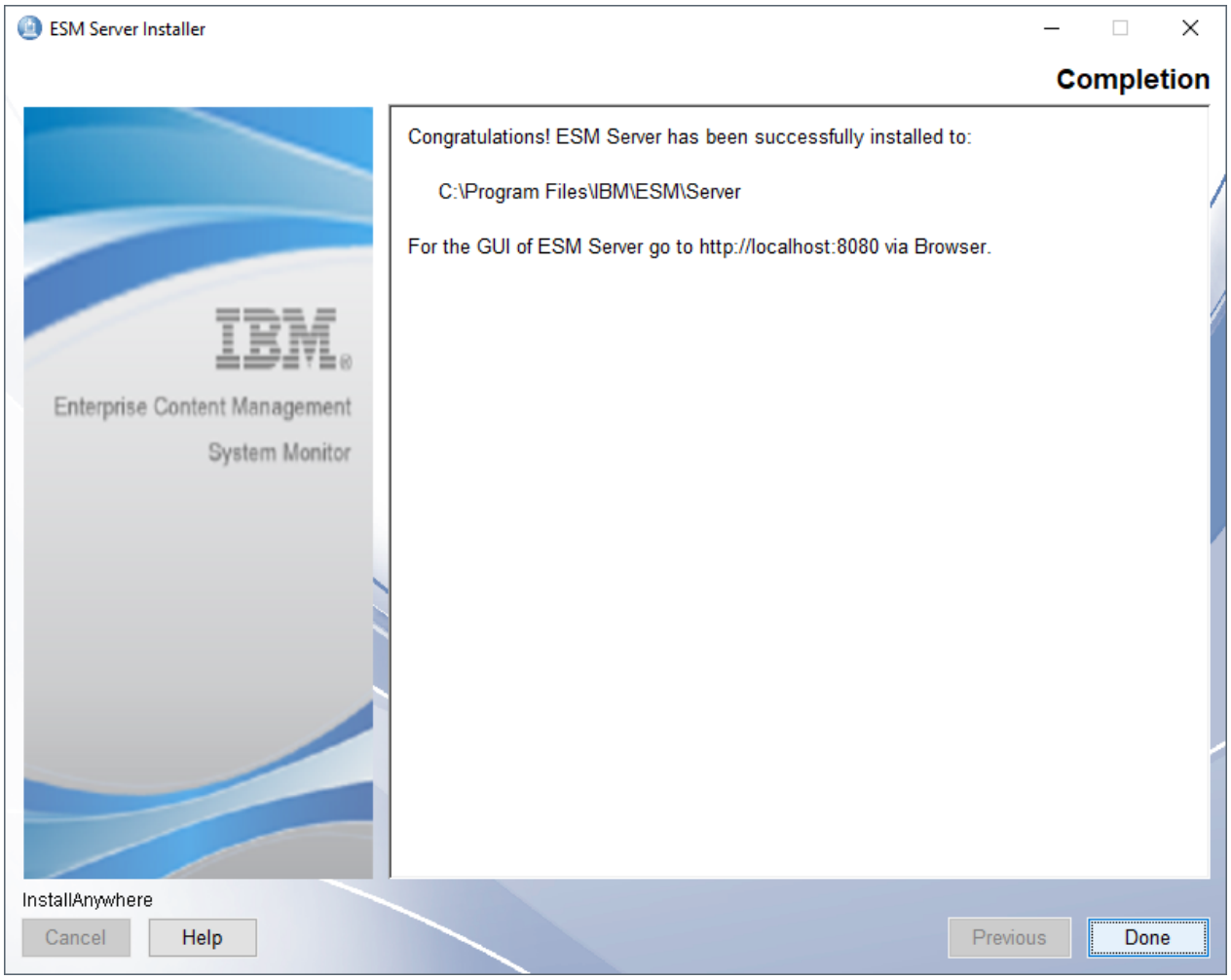

Image of Installation Complete

Linux based server

IMPORTANT Ports < 1000 will only work for root based installations

- Start the installation by executing the file "ESM_Server_Installer.bin"
- The "Software License Agreement" window is loaded. Accept the license agreement and proceed with "Next".

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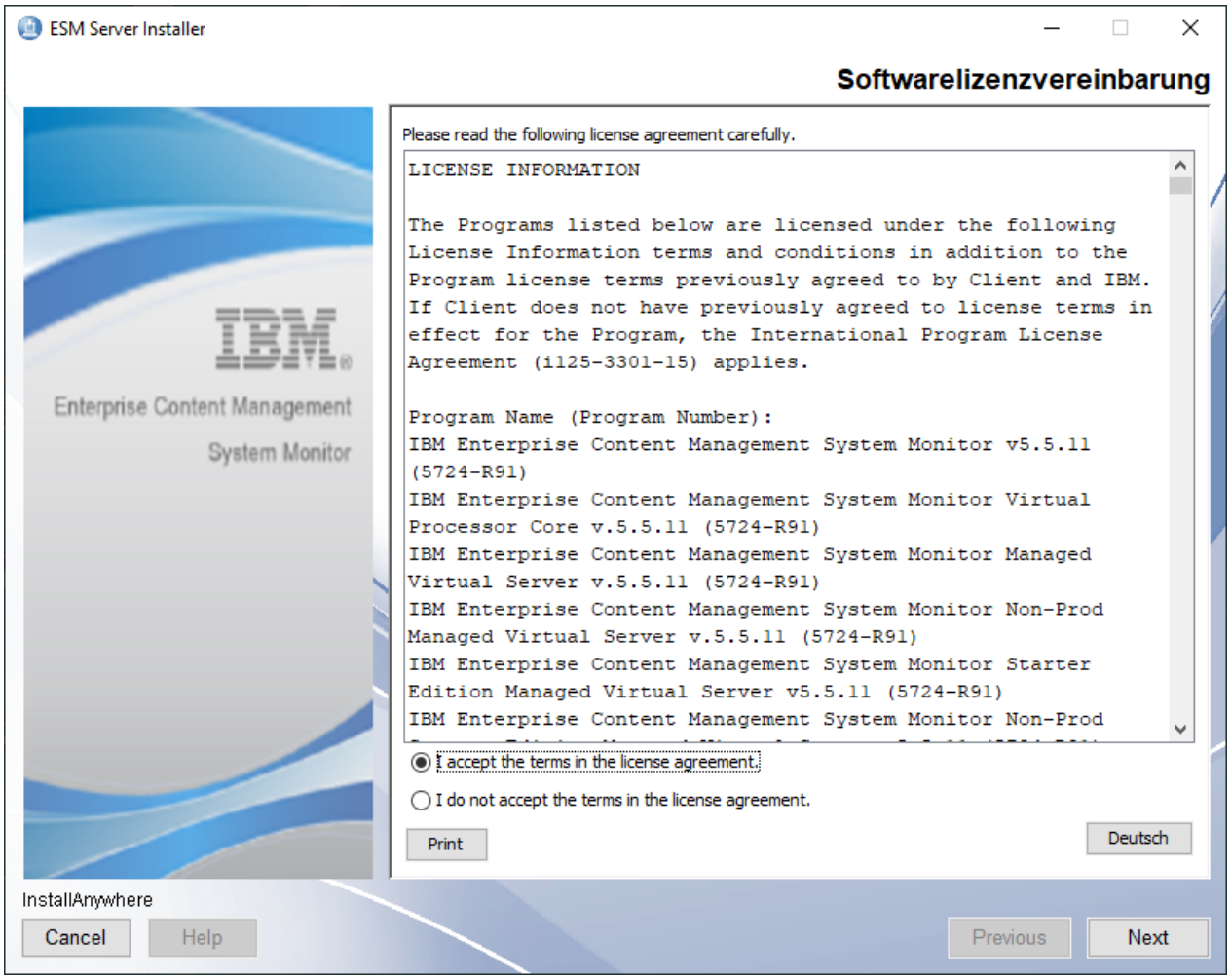

Image of Software License Agreement

- The next window is "Welcome to ESM Server". It shows some information about the installation. Click "Next" to proceed.

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Image of Welcome to ESM Server

- The next window is "Choose Installation Folder". Specify your path for the installation here. The default is `/opt/IBM/ESM/Server`. Click "Next" to proceed.

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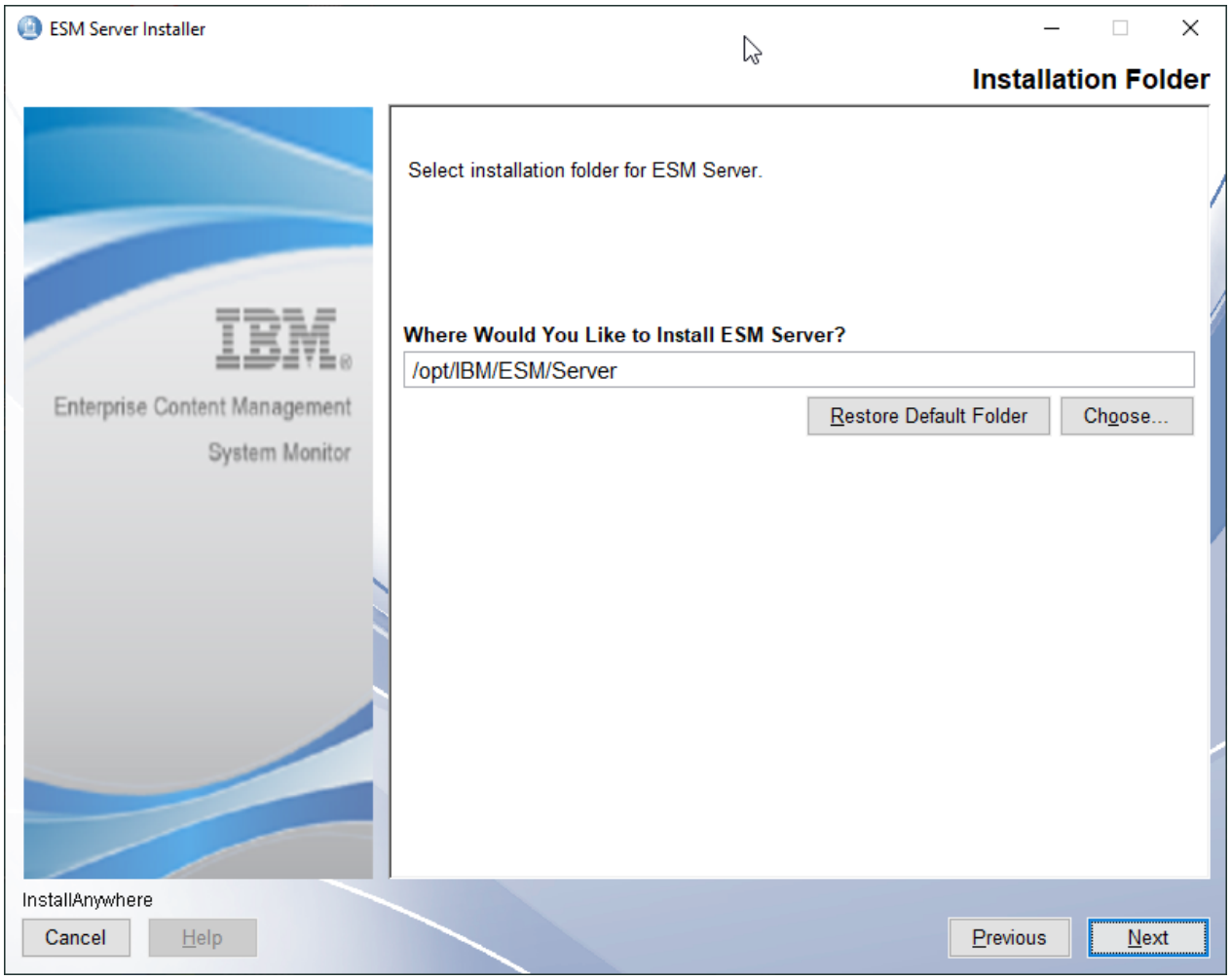

Image of Choose Installation Folder

- The next window is "Server Settings". The following parameters can be specified. Click "Next" to proceed. We recommend to keep https enabled.

  Hostname

  Default: *<server name>*

  Server IP

  Default: *0.0.0.0*

  MQTT Port

  Default: *1883*

  HTTP Port

  Default: *80*

  HTTPS

  Default: *Enabled*

  HTTPS Port

  Default: *443*

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RMI Registry Port

Default: *1099*

RMI Server Port

Default: *44444*

SSH Port

Default: *8101*

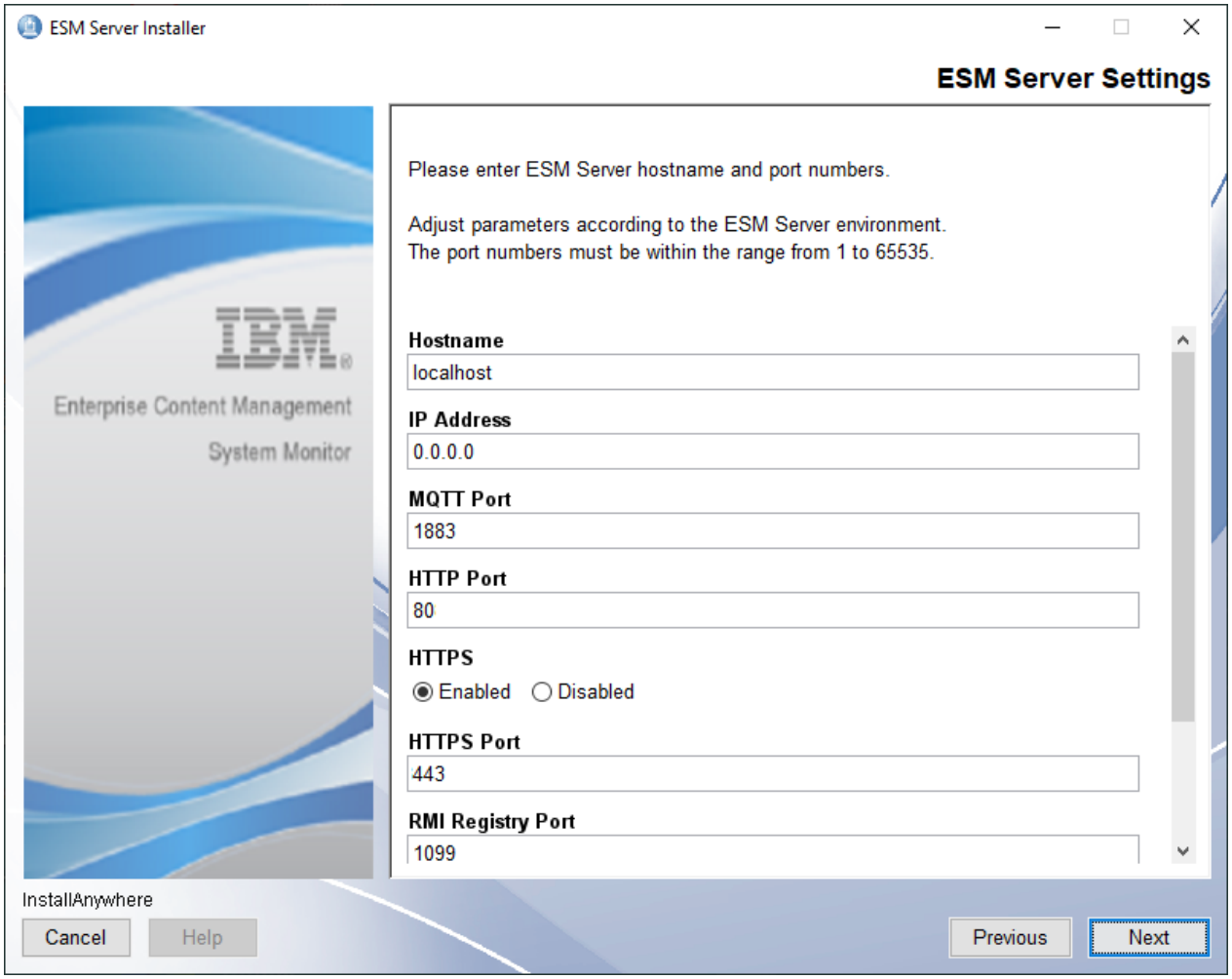

Image of Server Settings

- The next window is "Configuration Database Settings". The default settings are for usage with the internal H2 DB. DB2 and MSSQL is possible as well.

IMPORTANT

If the installation is done with DB2 or MSSQL, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy after a successful installation and start the software afterwards. The default settings must be changed to fit your MSSQL or DB2 database.

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JDBC Url

Default:
jdbc:h2:./configuration;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MODE=LEGACY

Database Driver Class Name

Default: *org.h2.Driver*

Database Username

Default: *db*

Database Password

Default: *pw is hidden*

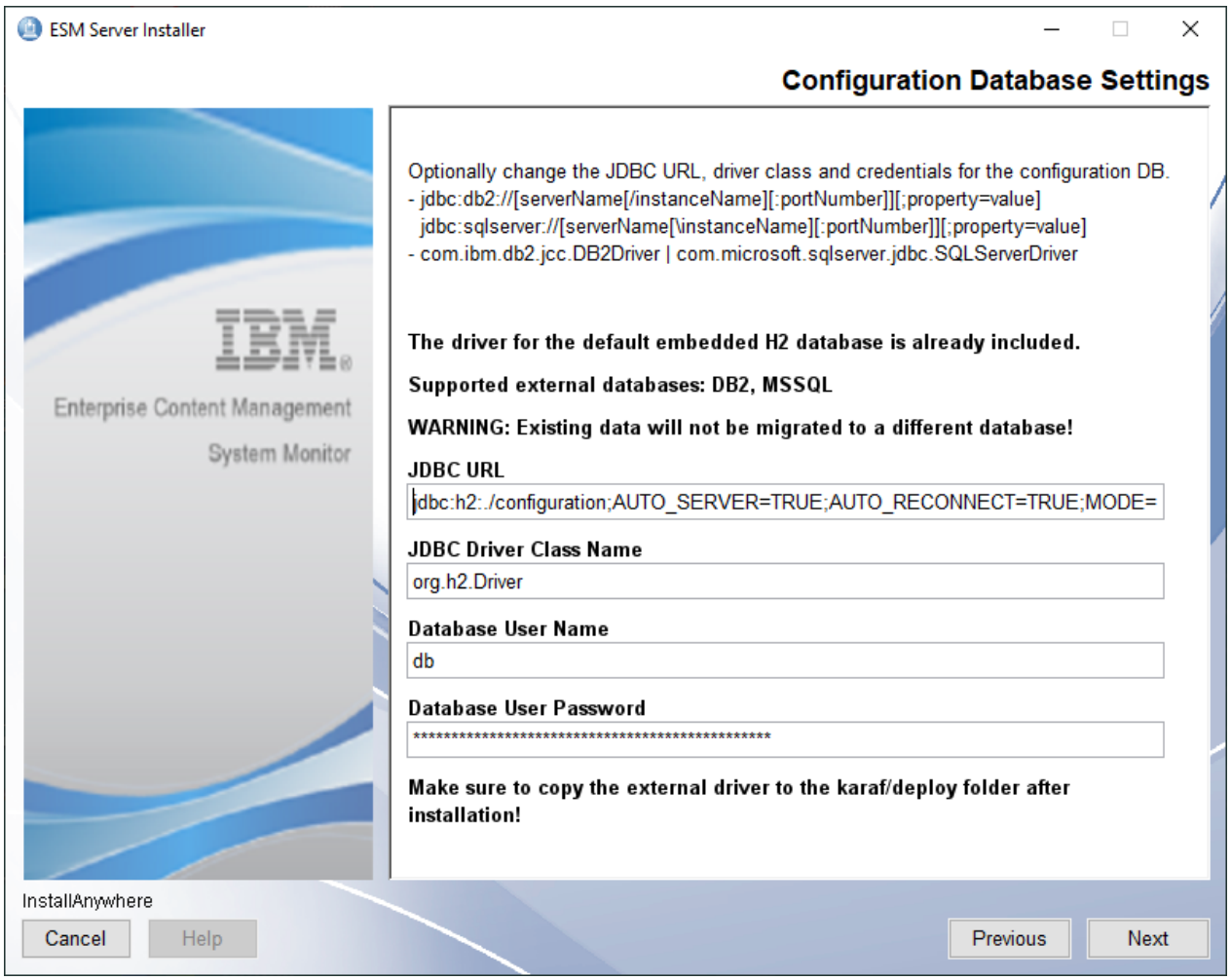

Image of Configuration Database Settings

- The next window is "Monitoring Database Settings". The default settings are for usage with the internal H2 DB. DB2 and MSSQL is possible as well.

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IMPORTANT

If the installation is done with DB2 or MSSQL, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy after a successful installation and start the software afterwards. The default settings must be changed to fit your MSSQL or DB2 database.

JDBC Url

Default:
jdbc:h2:./monitoring;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MODE=LEGACY

Database Driver Class Name

Default: *org.h2.Driver*

Database Username

Default: *db*

Database Password

Default: *pw is hidden*

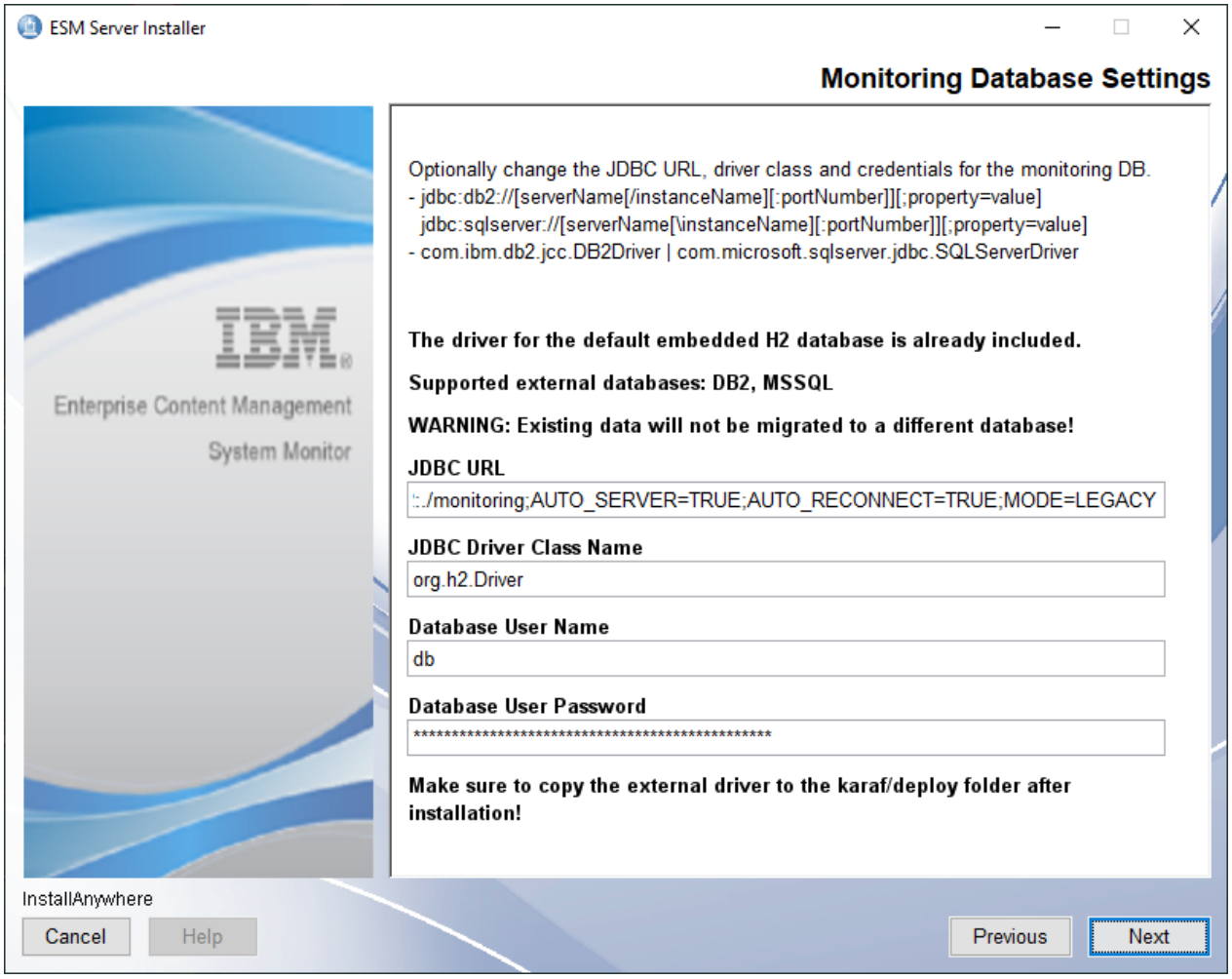

Image of Monitoring Database Settings

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- The next window is "Autostart and Systemstart". The following parameters can be specified. Click "Next" to proceed.

  Start ESM Server after Installation

  Default: Yes = checked

  Start ESM Server at OS Start

  Default: Yes = unchecked

NOTE If unchecked, the no service entry is created in inittab or systemctl. Also root rights are needed for this.

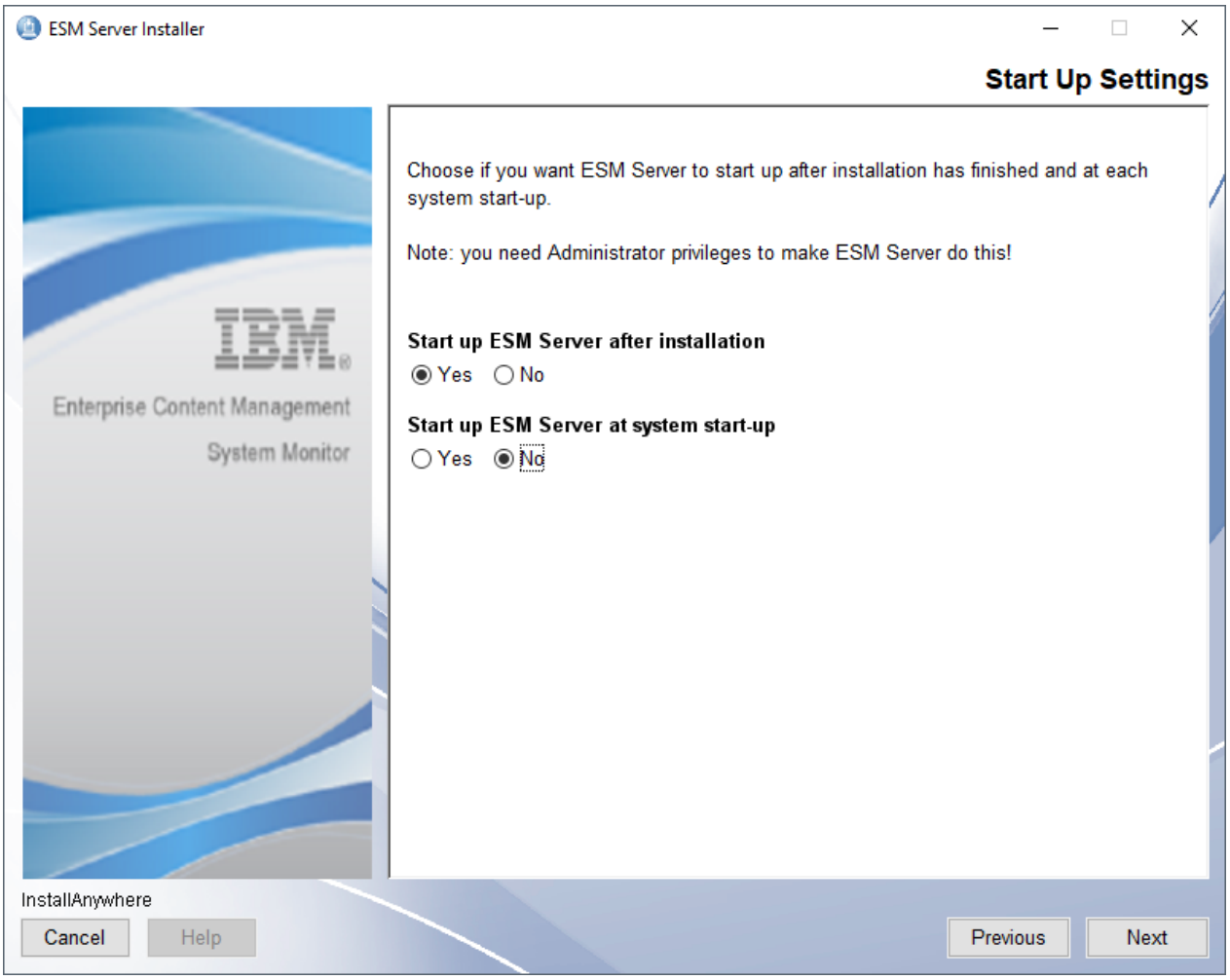

Image of Autostart and Systemstart

- The next window is "Pre-Installation Summary". Click "Install" to proceed.

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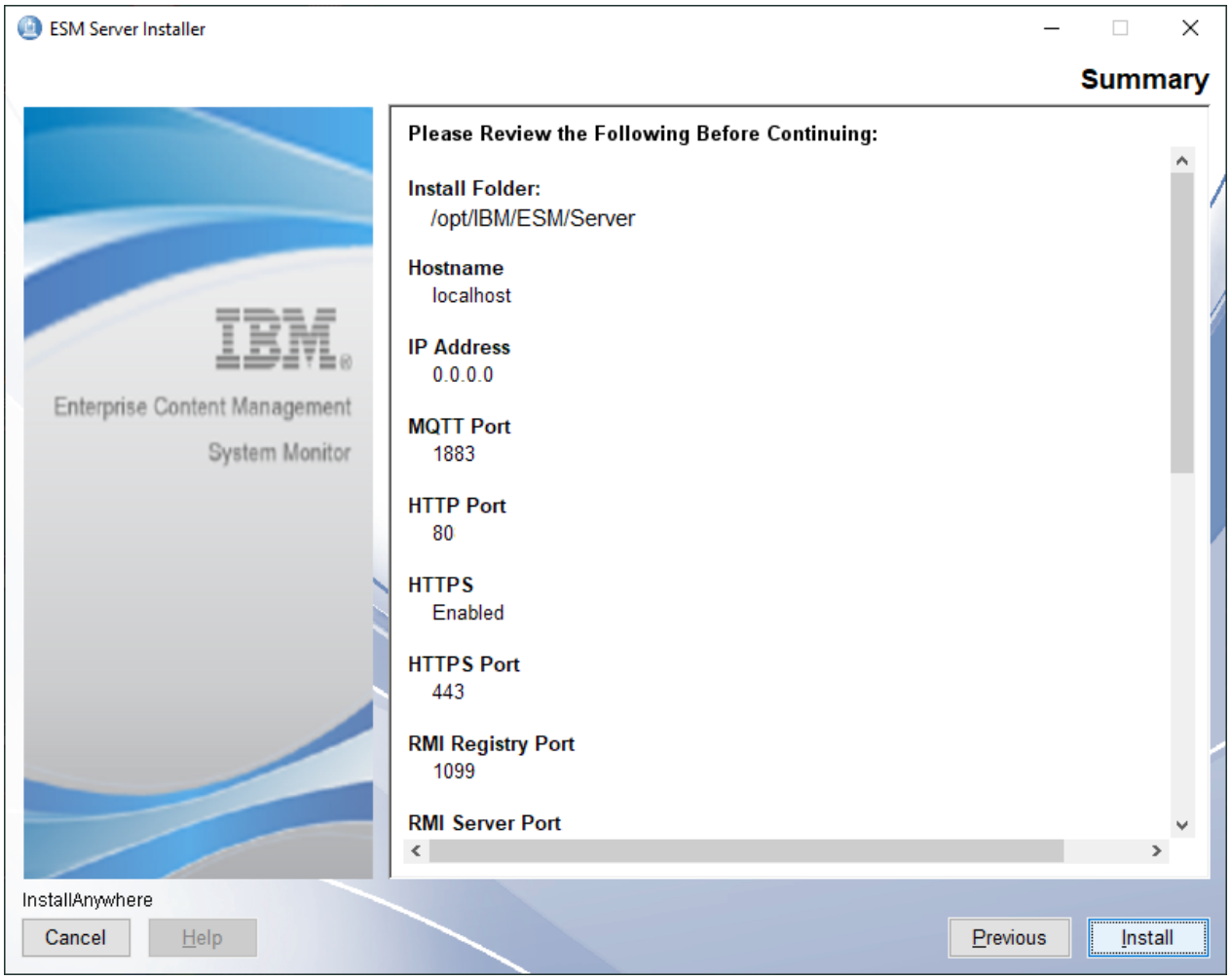

Image of Pre-Installation Summary

- The installation starts and finishes with the window "Install Complete". Click "Done" to close and finish the installation procedure.

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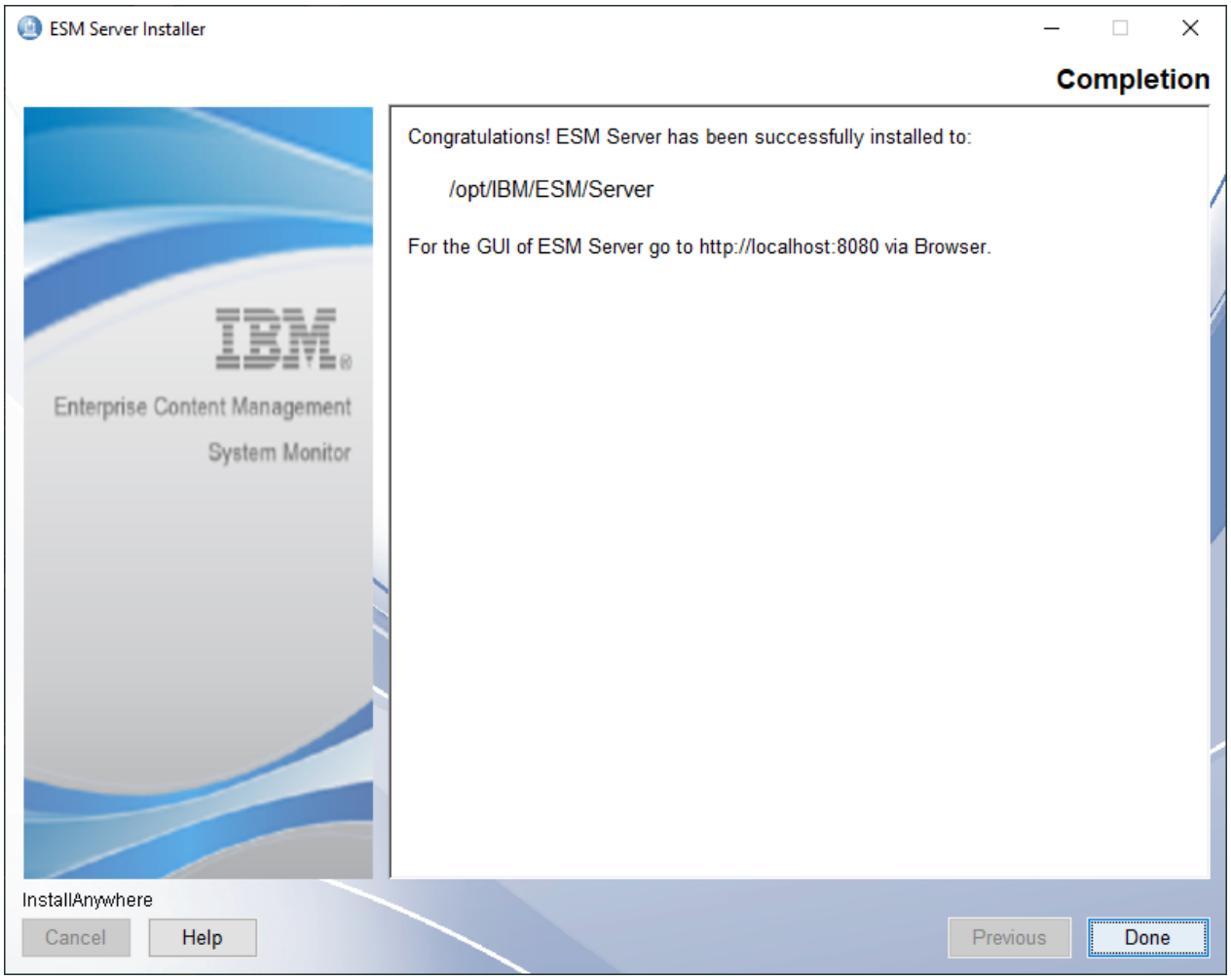

Image of Installation Complete

IMPORTANT If the installation was done with DB2, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy and start the software afterwards.

AIX based server

IMPORTANT Ports < 1000 will only work for root based installations

IMPORTANT Large page support must be activated before the product can be installed.

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NOTE

In some cases we have seen issues when installing on AIX. Typically, you can see an error message that "Graphical Installers are not supported by th VM". This is often combined with the context "User interface mode not supported" and "Unable to load and to prepare the installer in console or silent mode."

If that happens, try to unset the LIBPATH and DISPLAY variable and run the installer in silent or console mode. A typical cause is that the LIBPATH is set to /opt/freeware/lib as first entry.

- Start the installation by executing the file "ESM_Server_Installer.bin"
- The "Software License Agreement" window is loaded. Accept the license agreement and proceed with "Next".

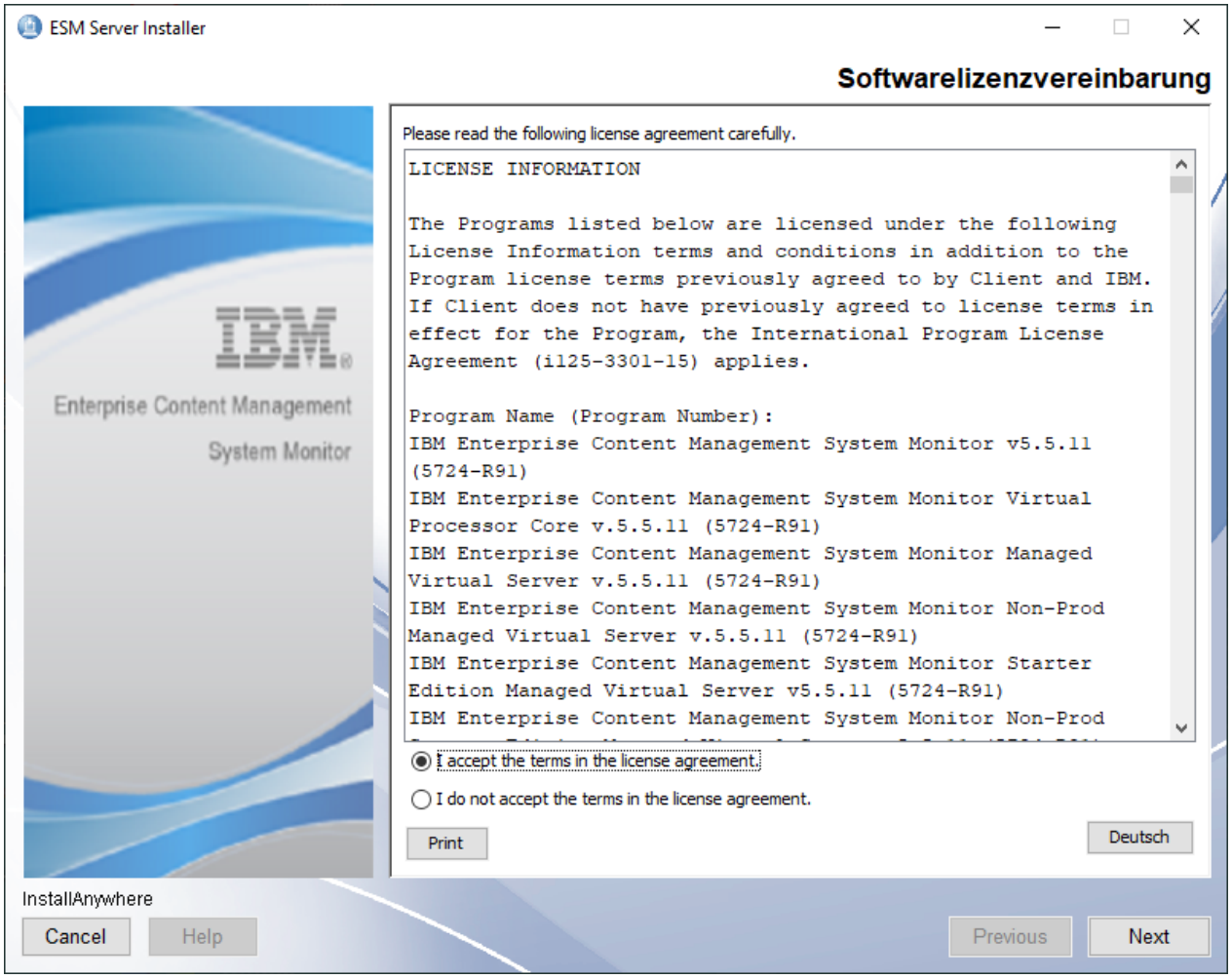

Image of Software License Agreement

- The next window is "Installation of ESM Server". It shows some information about the installation. Click "Next" to proceed.

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Image of Installation of ESM Server

- The next window is "Choose Installation Folder". Specify your path for the installation here. The default is `/opt/IBM/ESM/Server`. Click "Next" to proceed.

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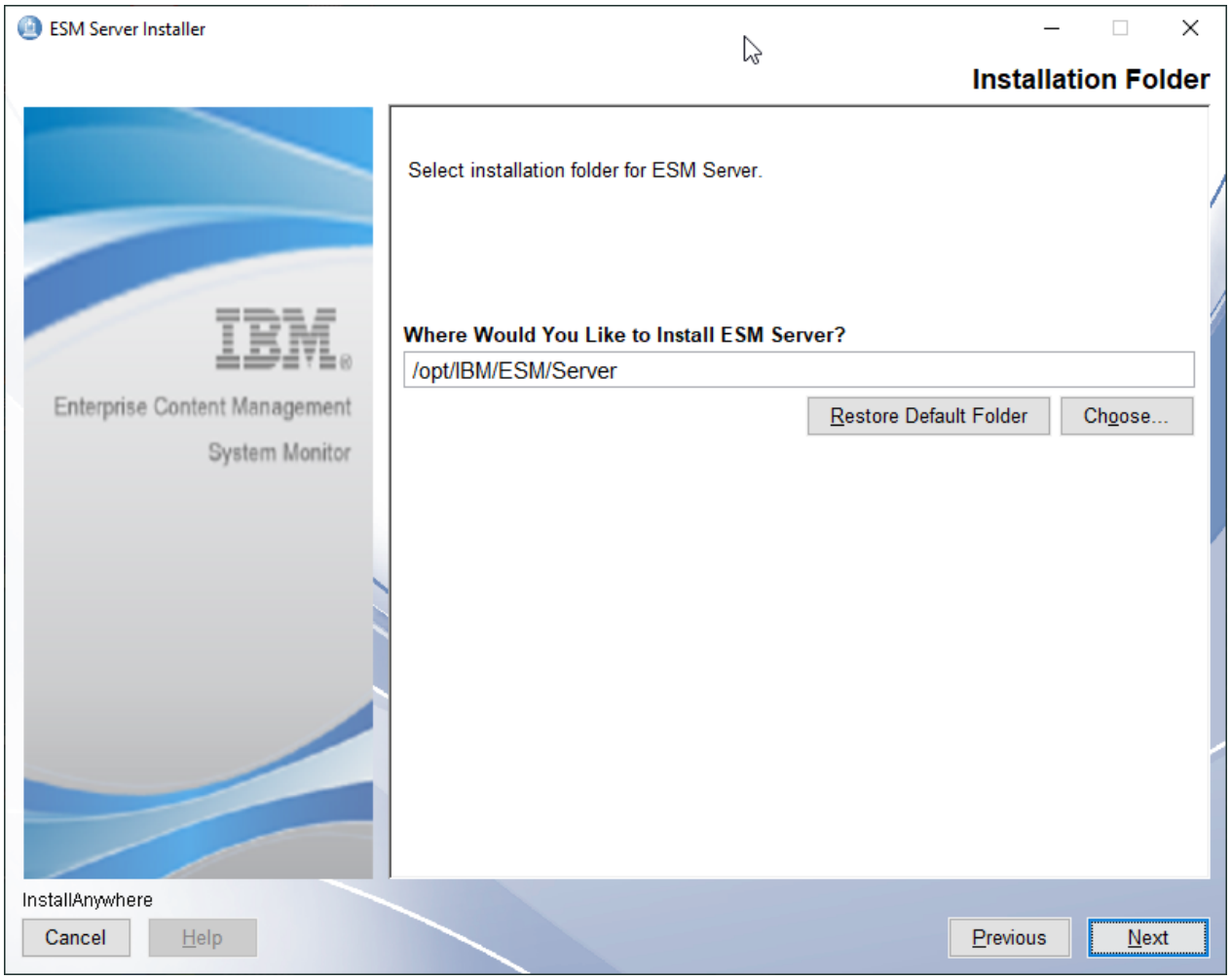

Image of Choose Installation Folder

- The next window is "Server Settings". The following parameters can be specified. Click "Next" to proceed. We recommend to keep https enabled.

  Hostname

  Default: *<server name>*

  Server IP

  Default: *0.0.0.0*

  MQTT Port

  Default: *1883*

  HTTP Port

  Default: *80*

  HTTPS

  Default: *Enabled*

  HTTPS Port

  Default: *443*

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RMI Registry Port

Default: *1099*

RMI Server Port

Default: *44444*

SSH Port

Default: *8101*

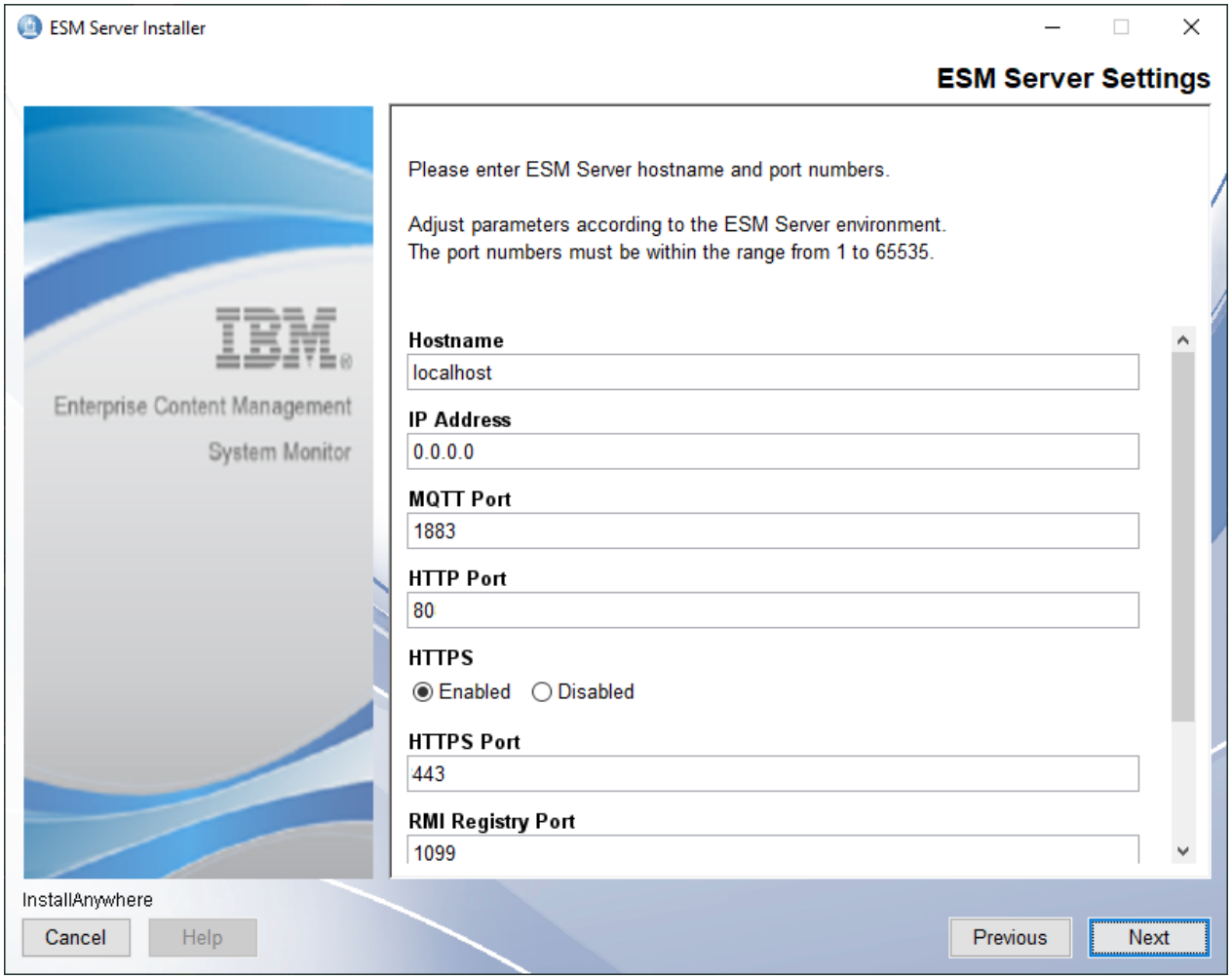

Image of Server Settings

- The next window is "Configuration Database Settings". The default settings are for usage with the internal H2 DB. DB2 and MSSQL is possible as well.

IMPORTANT

If the installation is done with DB2 or MSSQL, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy after a successful installation and start the software afterwards. The default settings must be changed to fit your MSSQL or DB2 database.

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JDBC Url

Default:
jdbc:h2:./configuration;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MODE=LEGACY

Database Driver Class Name

Default: *org.h2.Driver*

Database Username

Default: *db*

Database Password

Default: *pw is hidden*

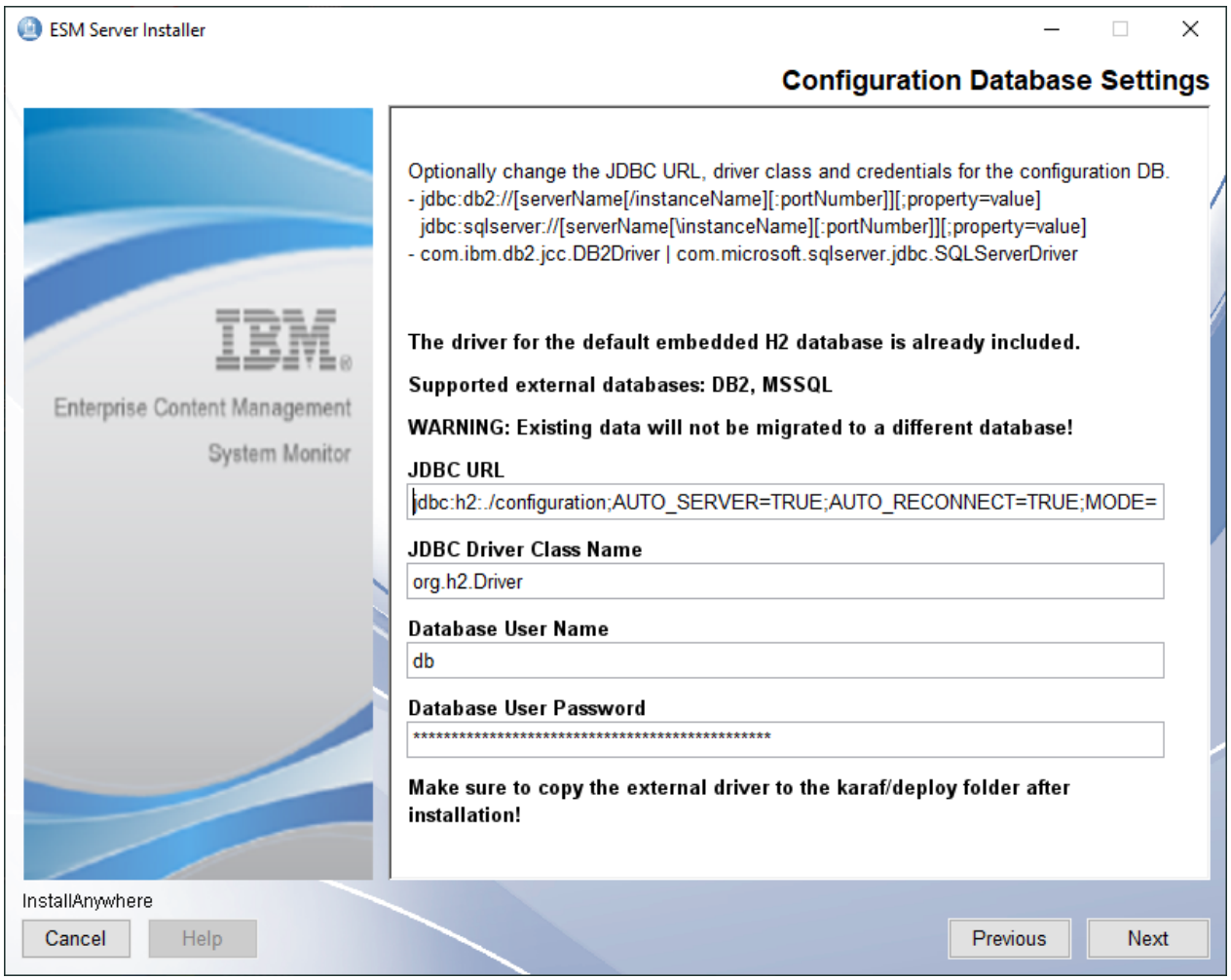

Image of Configuration Database Settings

- The next window is "Monitoring Database Settings". The default settings are for usage with the internal H2 DB. DB2 and MSSQL is possible as well.

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IMPORTANT

If the installation is done with DB2 or MSSQL, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy after a successful installation and start the software afterwards. The default settings must be changed to fit your MSSQL or DB2 database.

JDBC Url

Default:
jdbc:h2:./monitoring;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MODE=LEGACY

Database Driver Class Name

Default: *org.h2.Driver*

Database Username

Default: *db*

Database Password

Default: *pw is hidden*

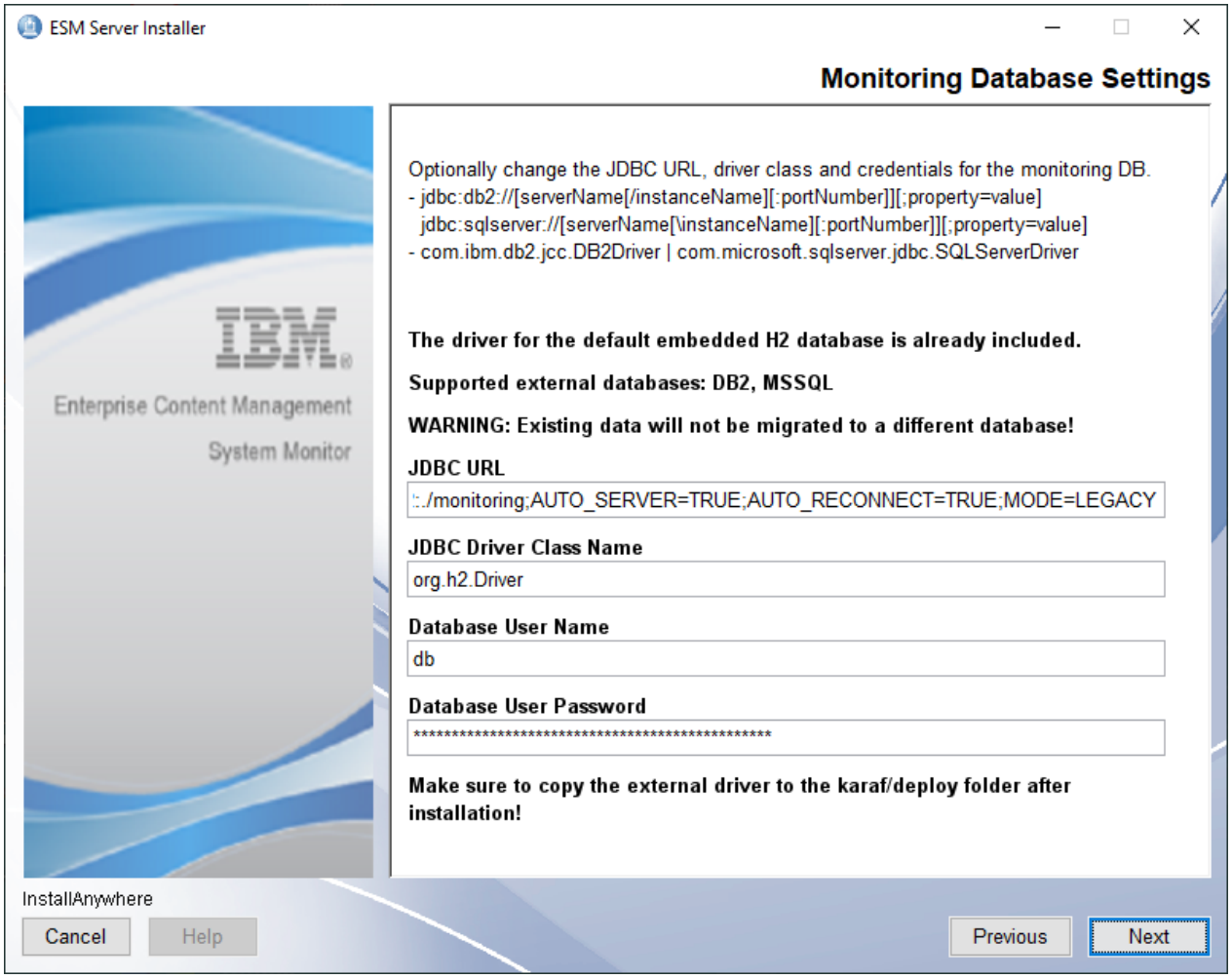

Image of Monitoring Database Settings

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- The next window is "Autostart and Systemstart". The following parameters can be specified. Click "Next" to proceed.

  Start ESM Server after Installation

  Default: Yes = checked

  Start ESM Server at OS Start

  Default: Yes = unchecked

NOTE If unchecked, the no service entry is created in inittab or systemctl. Also root rights are needed for this.

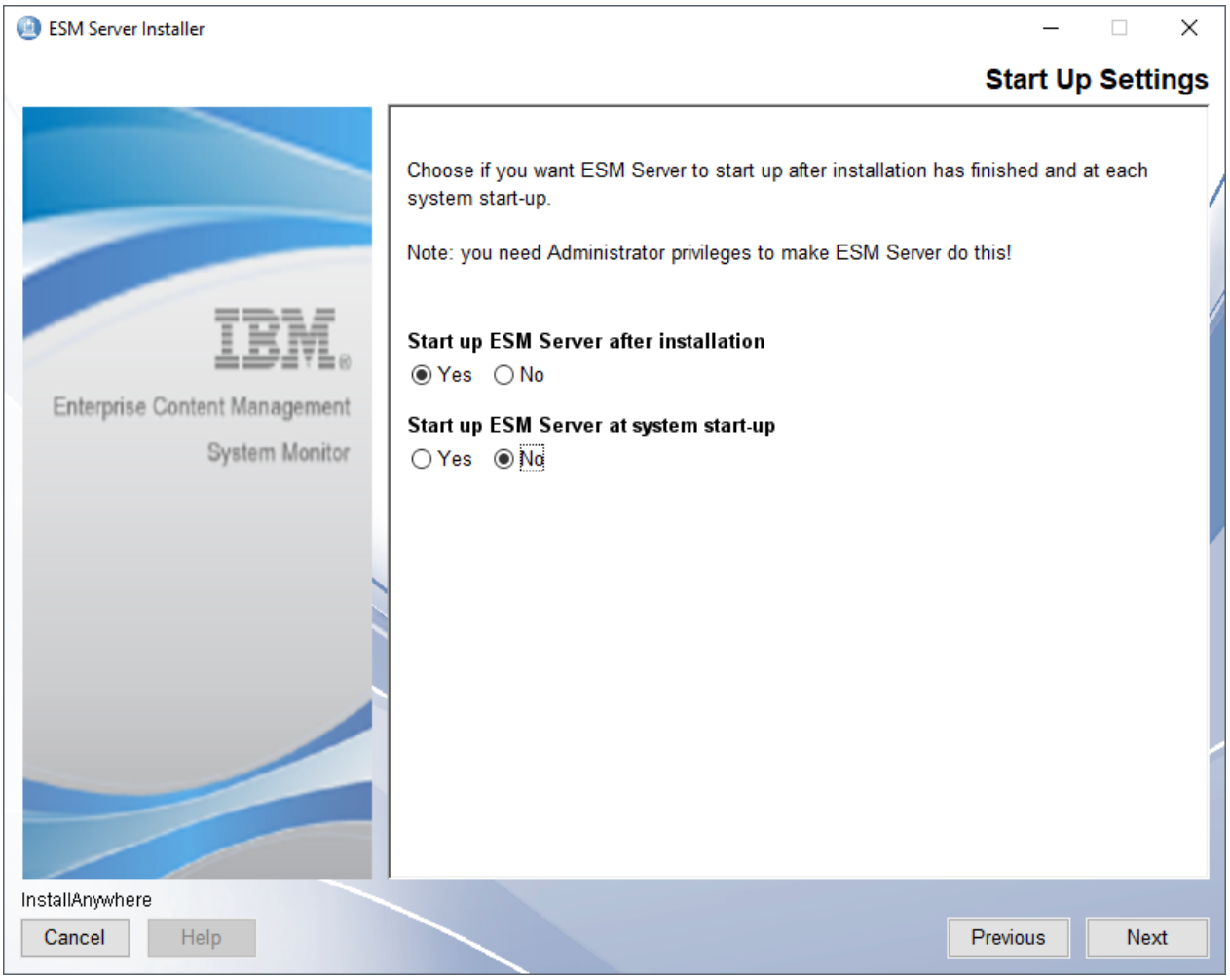

Image of Autostart and Systemstart

- The next window is "Pre-Installation Summary". Click "Install" to proceed.

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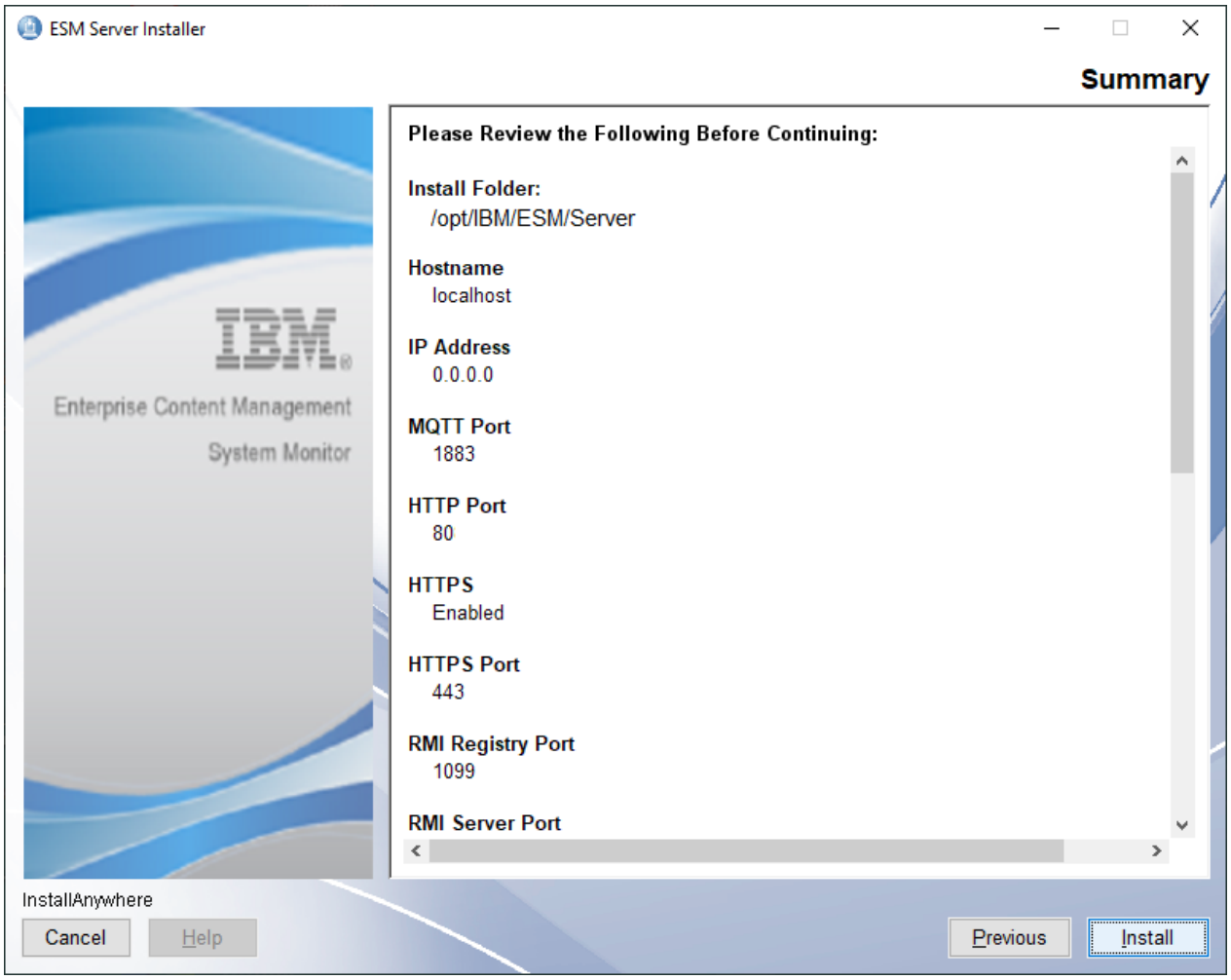

Image of Pre-Installation Summary

- The installation starts and finishes with the window "Install Complete". Click "Done" to close and finish the installation procedure.

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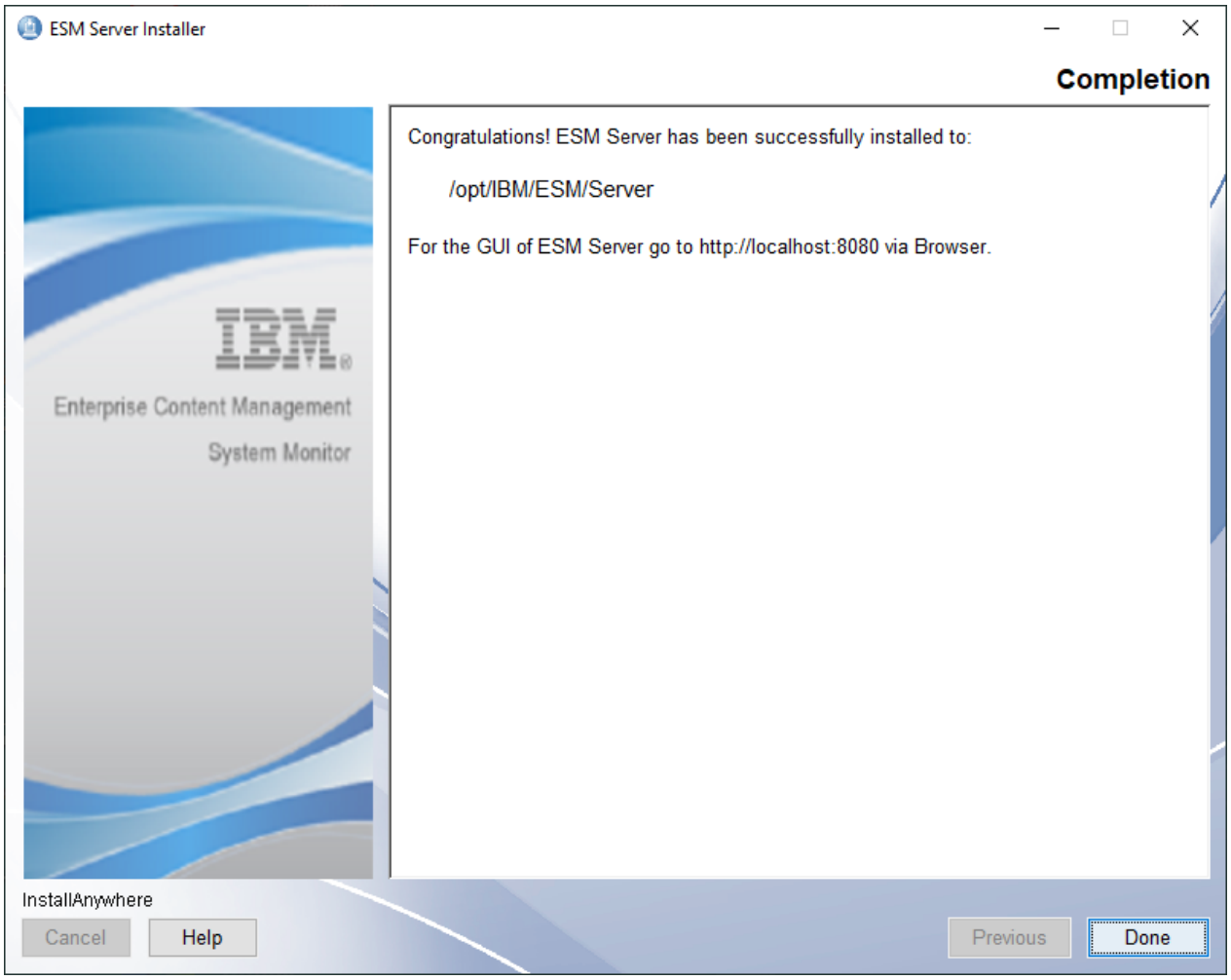

Image of Installation Complete

IMPORTANT If the installation was done with DB2, copy a suitable jdbc driver to <Installation-Dir>/karaf/deploy and start the software afterwards.

Windows based agent

- Start the installation by executing the file "ESM_Agent_Installer.exe" as administrator.
- The "Software License Agreement" window is loaded. Accept the license agreement and proceed with "Next".

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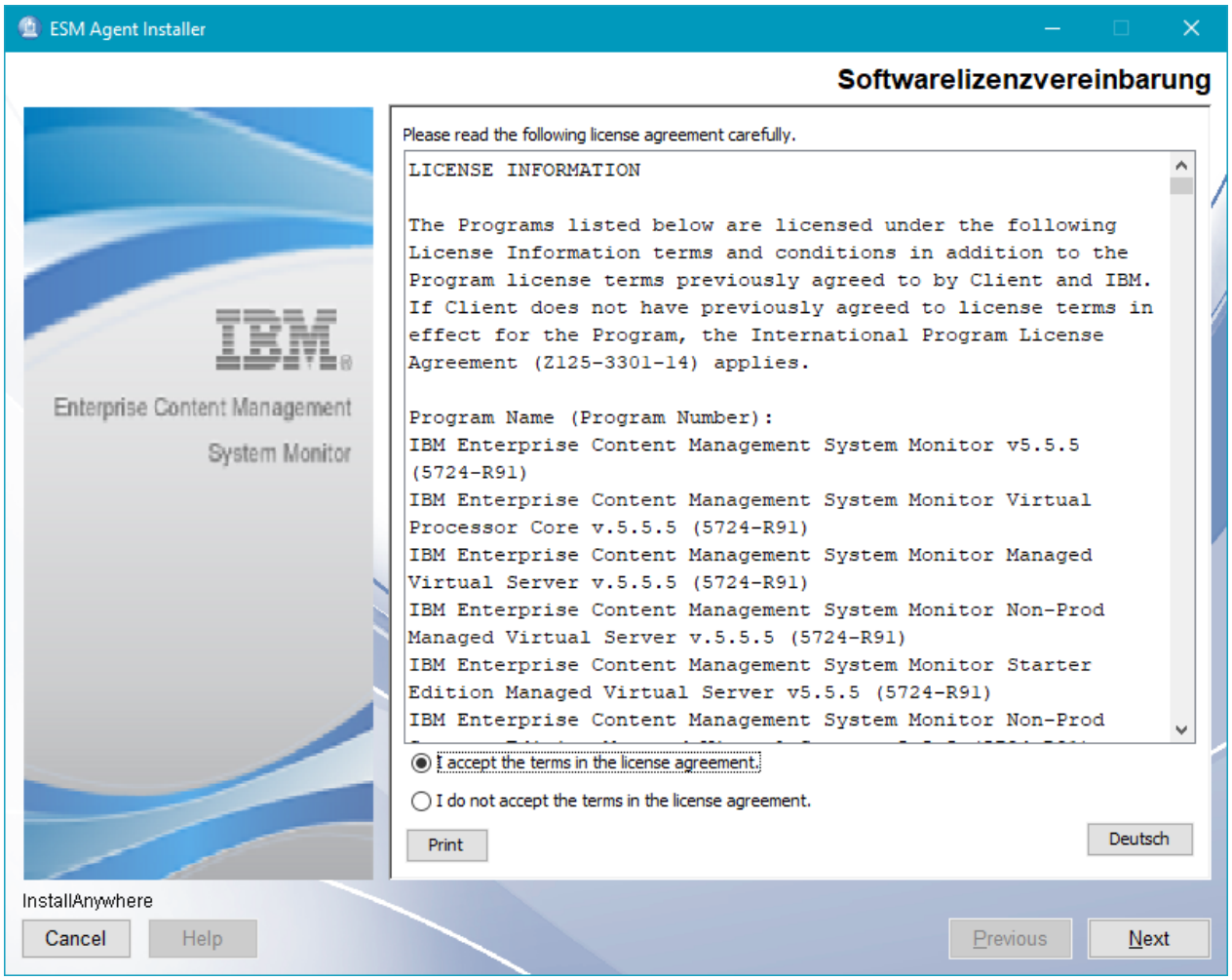

Image of Software License Agreement

- The next window is "Welcome to ESM Agent". It shows some information about the installation. Click "Next" to proceed.

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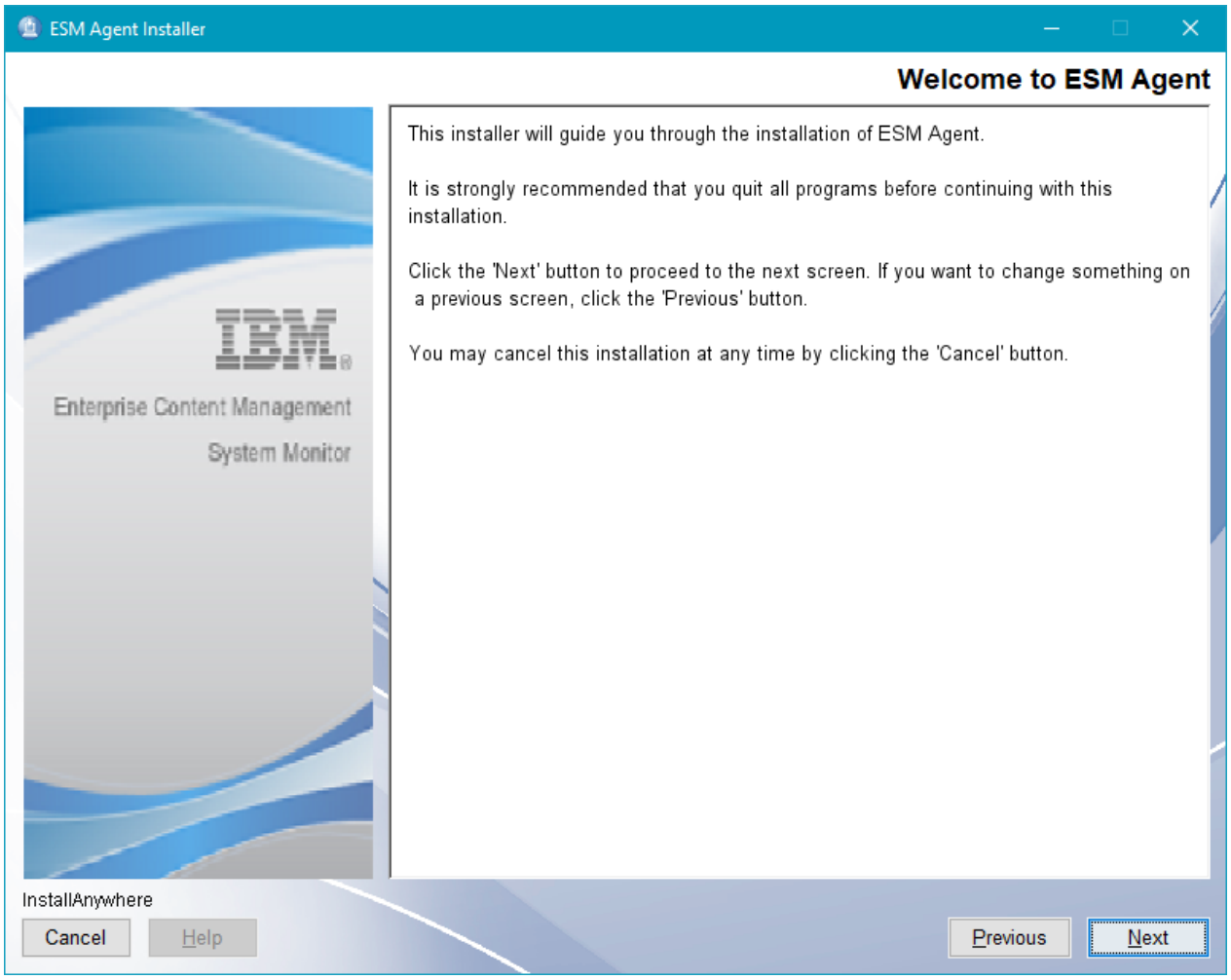

Image of Welcome to ESM Agent

- The next window is "Choose Installation Folder". Specify your path for the installation here. The default is `C:\Program Files\IBM\ESM\Agent`. Click "Next" to proceed.

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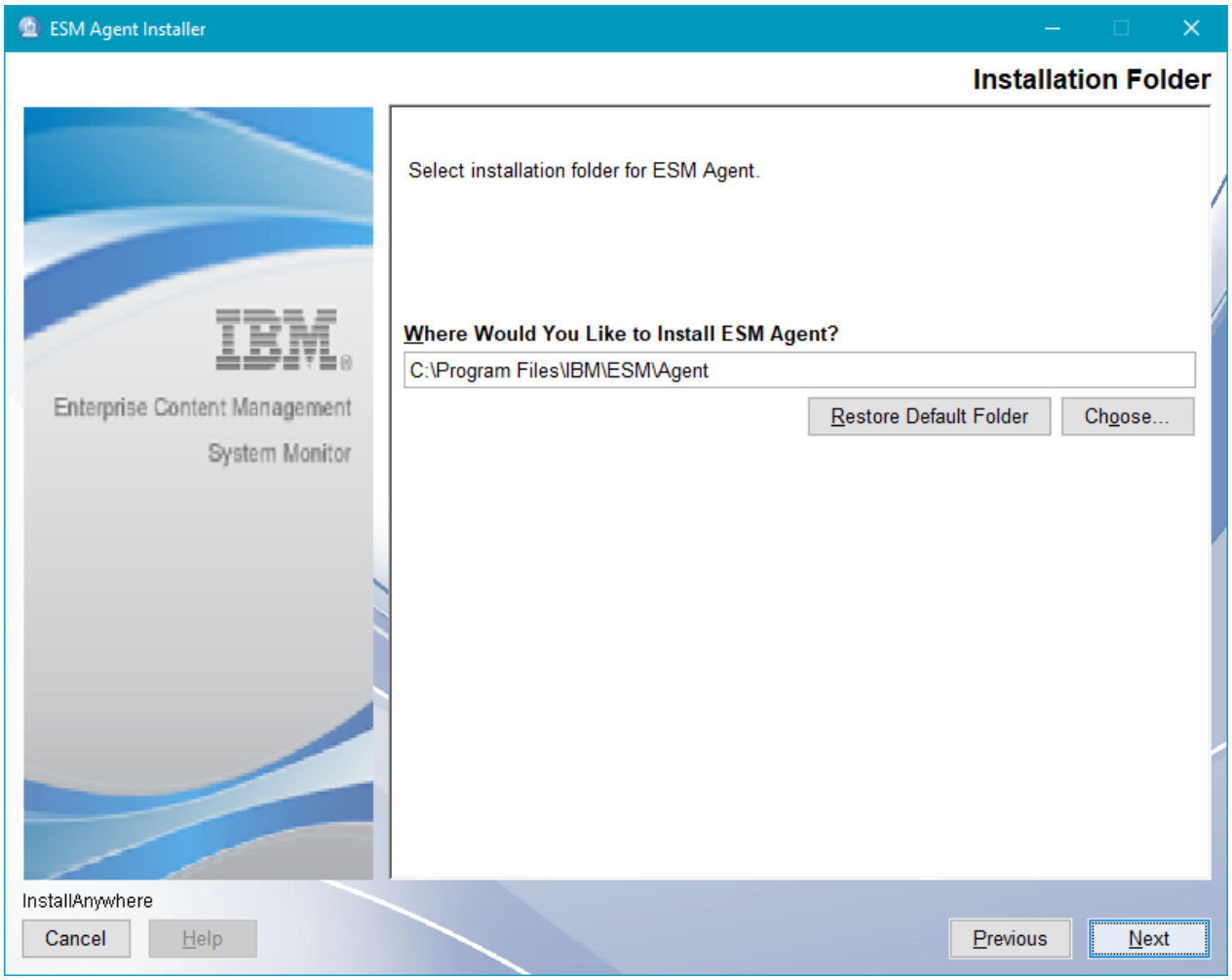

Image of Choose Installation Folder

- The next window is "Enter Agent Name, Hostname and Ports". The following parameters can be specified. Click "Next" to proceed. We recommend to keep https enabled.

  Unique Agent Name

  Default: `EsmAgent`

  ESM Server Name

  Default: `localhost`

  Server Port

  Default: `1883`

  Http Port

  Default: `1180`

  Https Port

  Default: `1543`

  RMI Registry Port

  Default: `2099`

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RMI Server Port

Default: *55555*

SSH Port

Default: *9202*

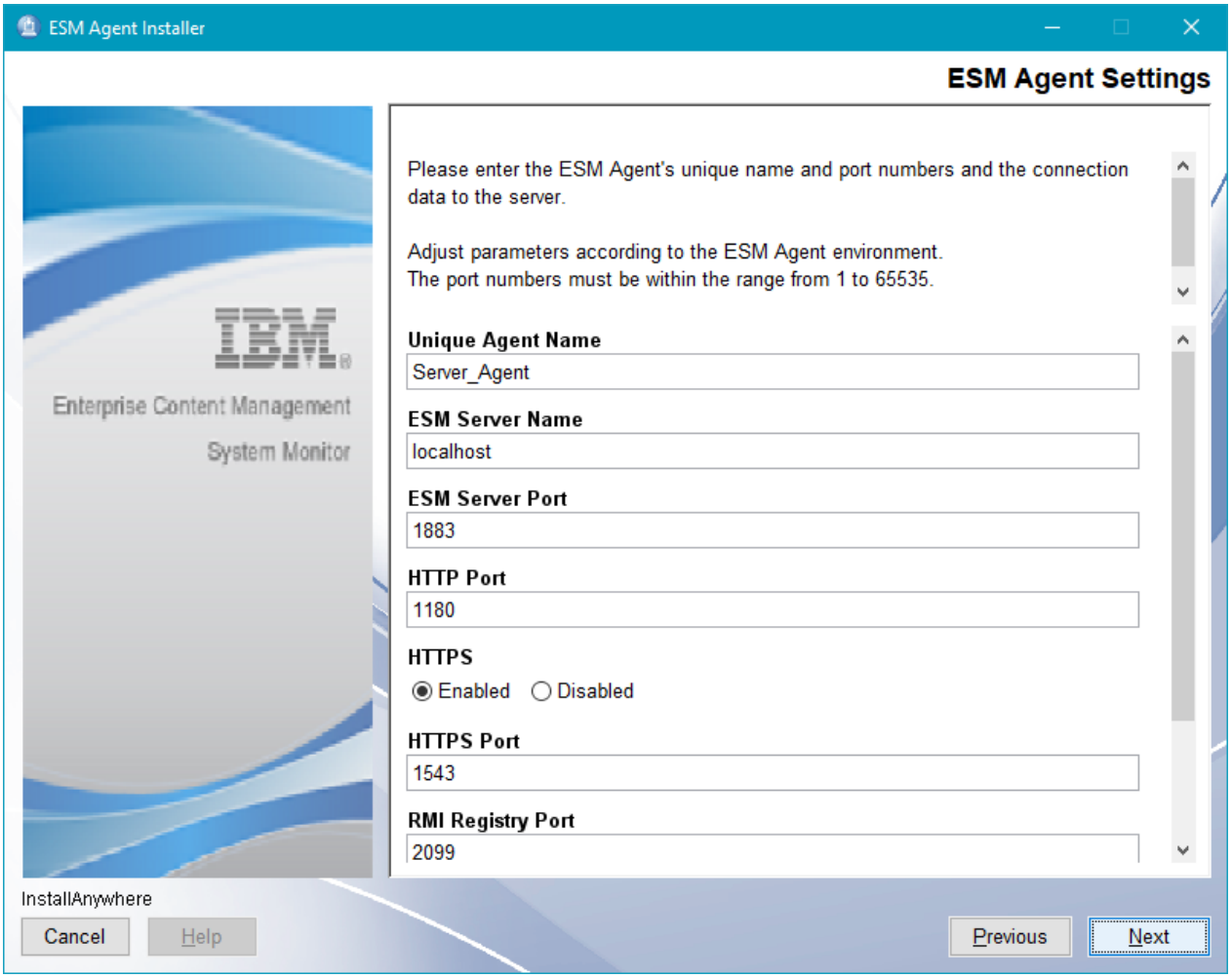

Image of Agent Settings (1)

- The next window is "Autostart and Systemstart". The following parameters can be specified. Click "Next" to proceed.

  Start ESM Agent after Installation

  Default: Yes = checked

  Start at OS Start

  Default: Yes = unchecked

NOTE If unchecked, the service will be installed with manual startup type.

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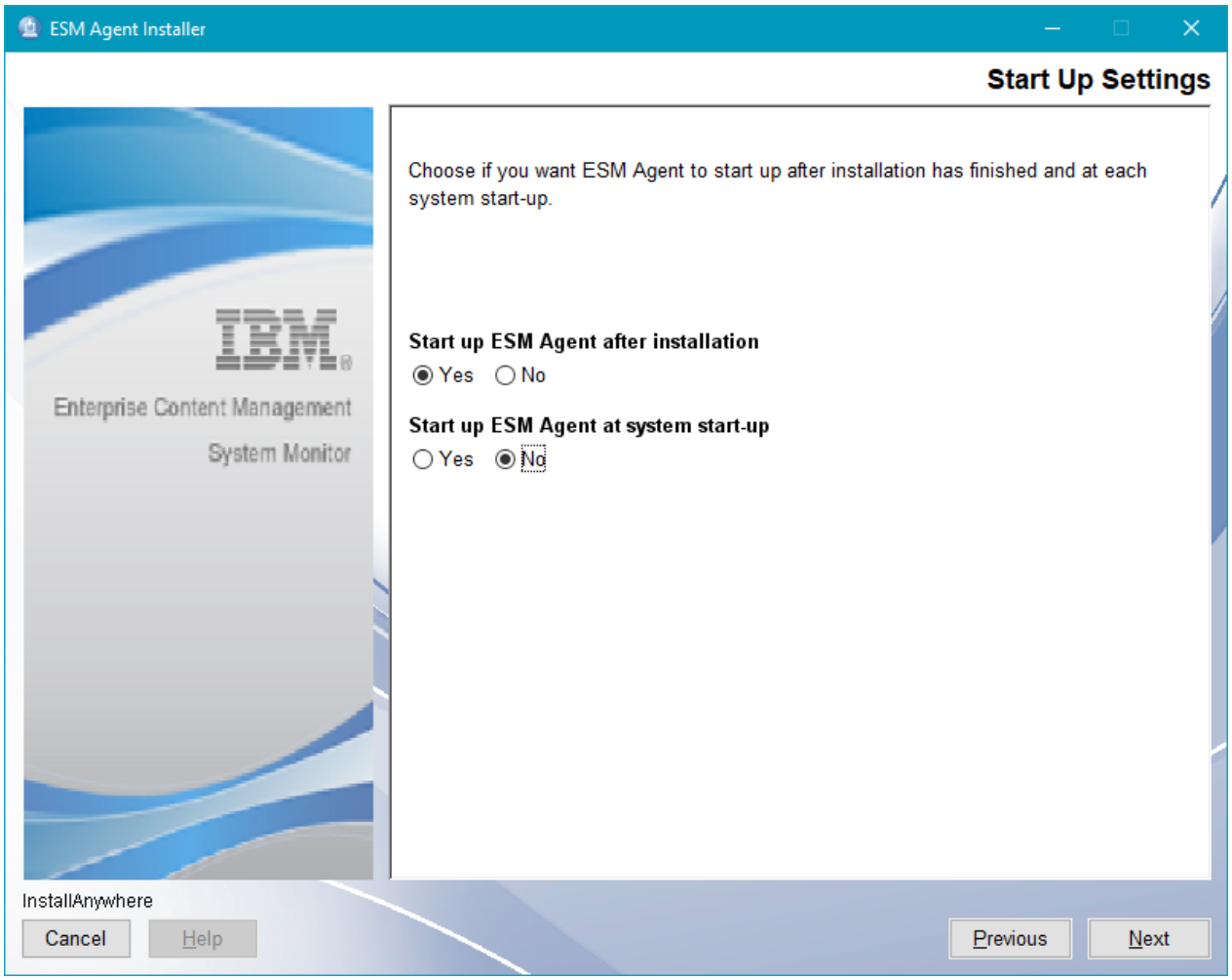

Image of Autotstart and Systemstart

- The next window is "Service Installation". The following parameters can be specified. Click "Next" to proceed.

  Re-Install ESM Agent Service

  Default: No = checked

NOTE This Window will only be shown if the OS is Windows, the installation is an update installation and a service is used in the previous installation already.

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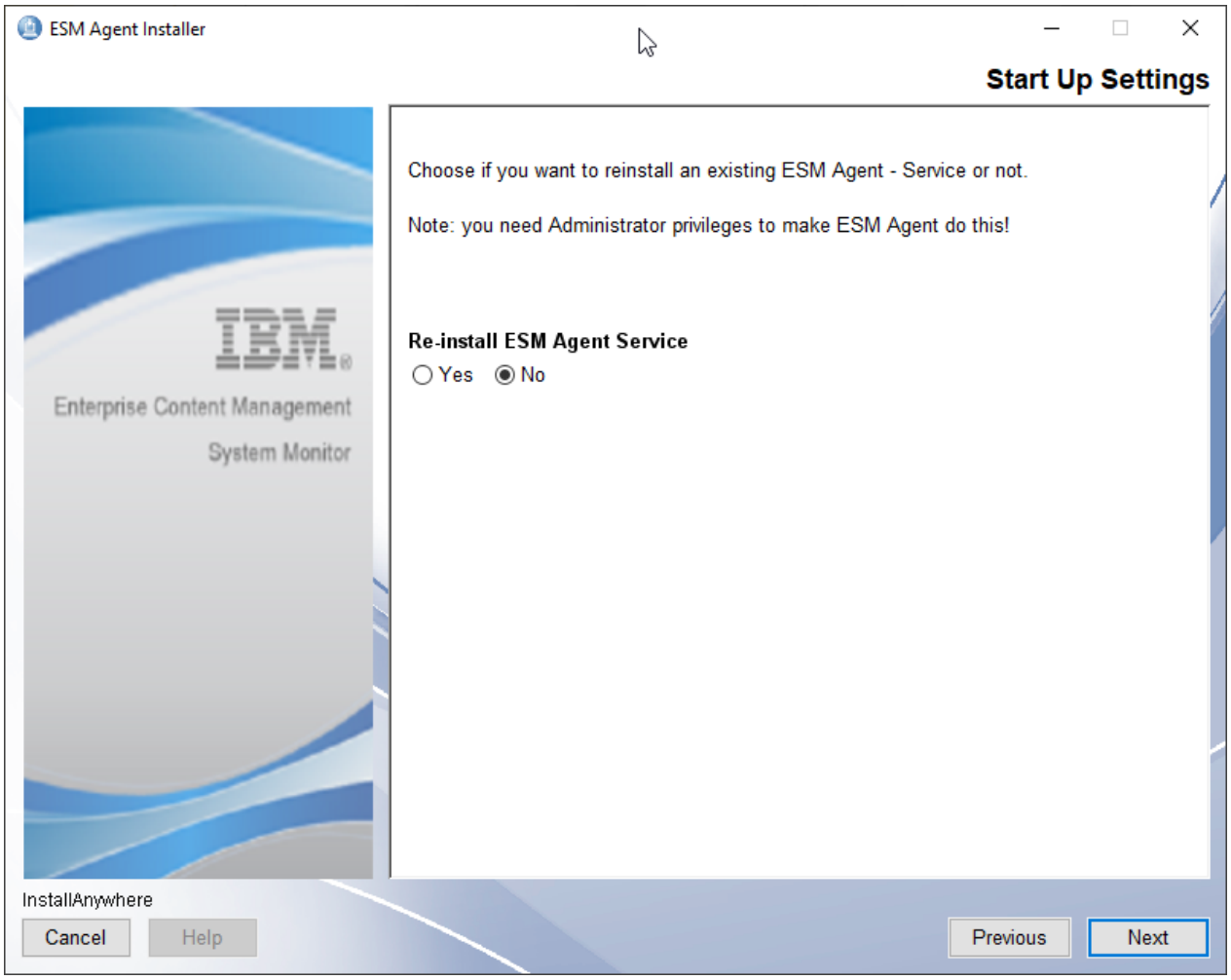

Image of Service Installation

- The next window is "Pre-Installation Summary". Click "Install" to proceed.

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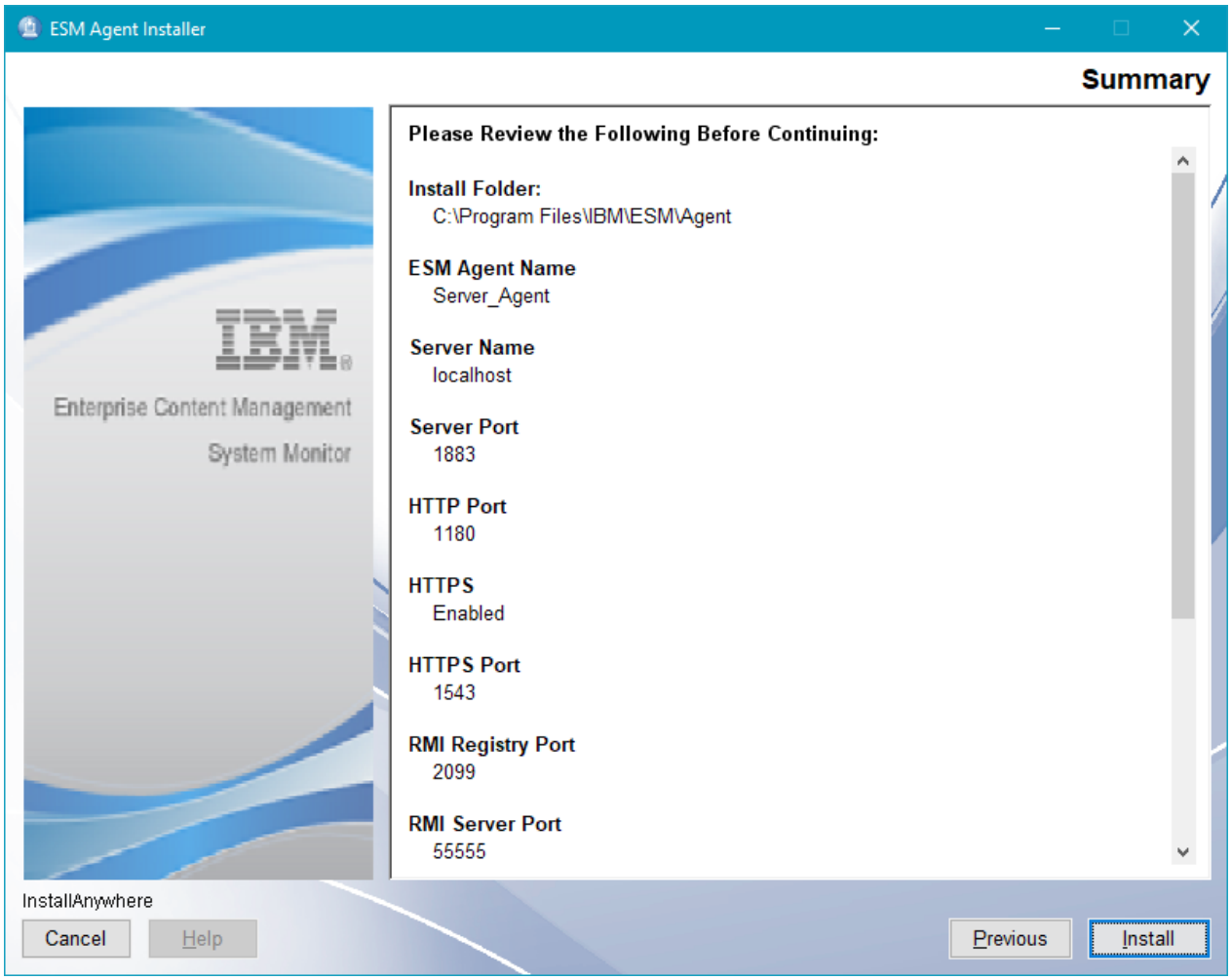

Image of Pre-installation Summary

- The installation starts and finishes with the window "Install Complete". Click "Done" to close and finish the installation procedure.

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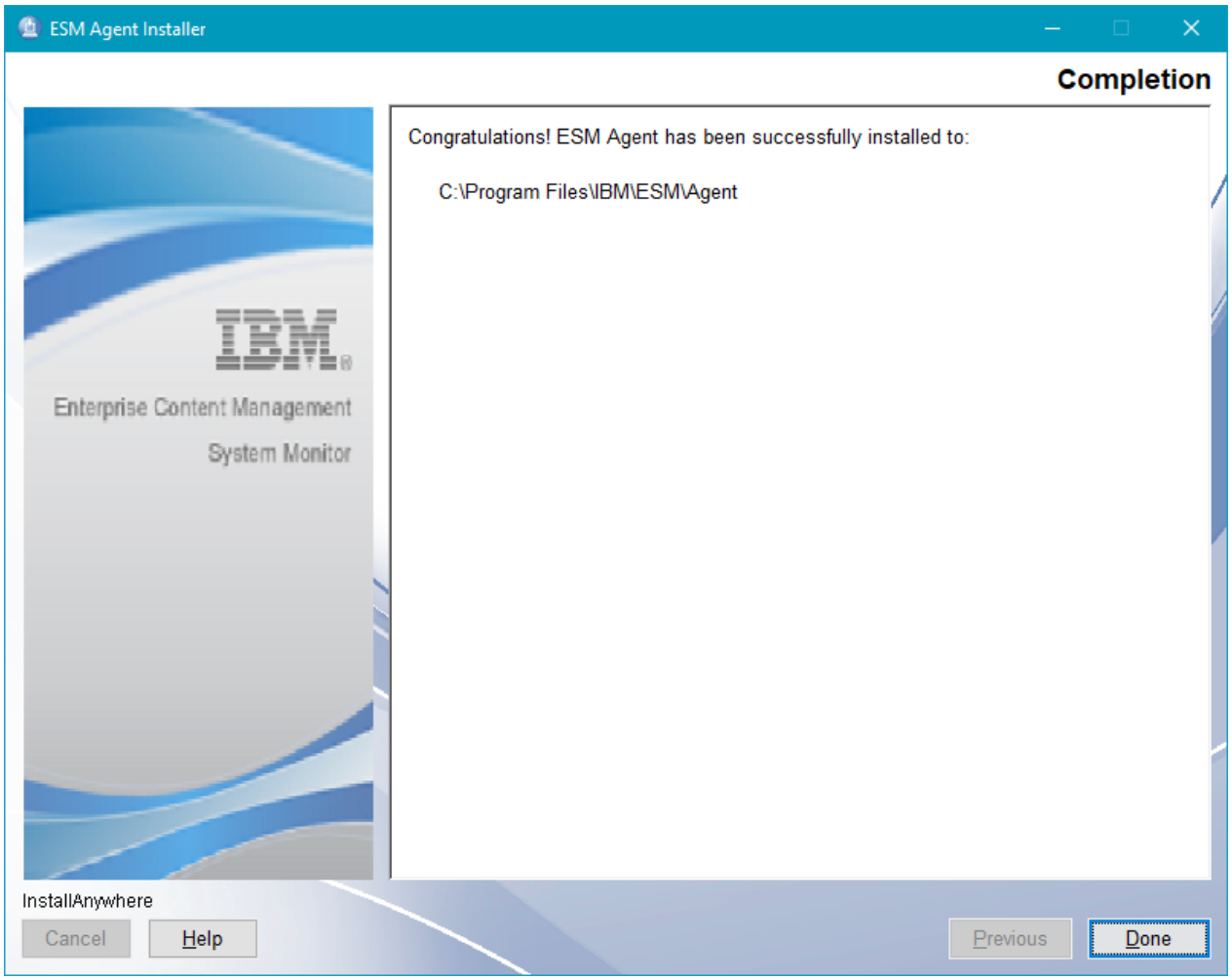

Image of Installation Complete

NOTE

Every Agent that connects to an ESM server for the first time, will automatically have basic monitoring activated. Per default 3 probes (cpu, memory and diskspace) will run. For more details see the Probes and Situation Guide chapter "Default (standard) base probes for all agent".

Linux based agent

- Start the installation by executing the file "ESM_Agent_Installer.bin"
- The "Software License Agreement" window is loaded. Accept the license agreement and proceed with "Next".

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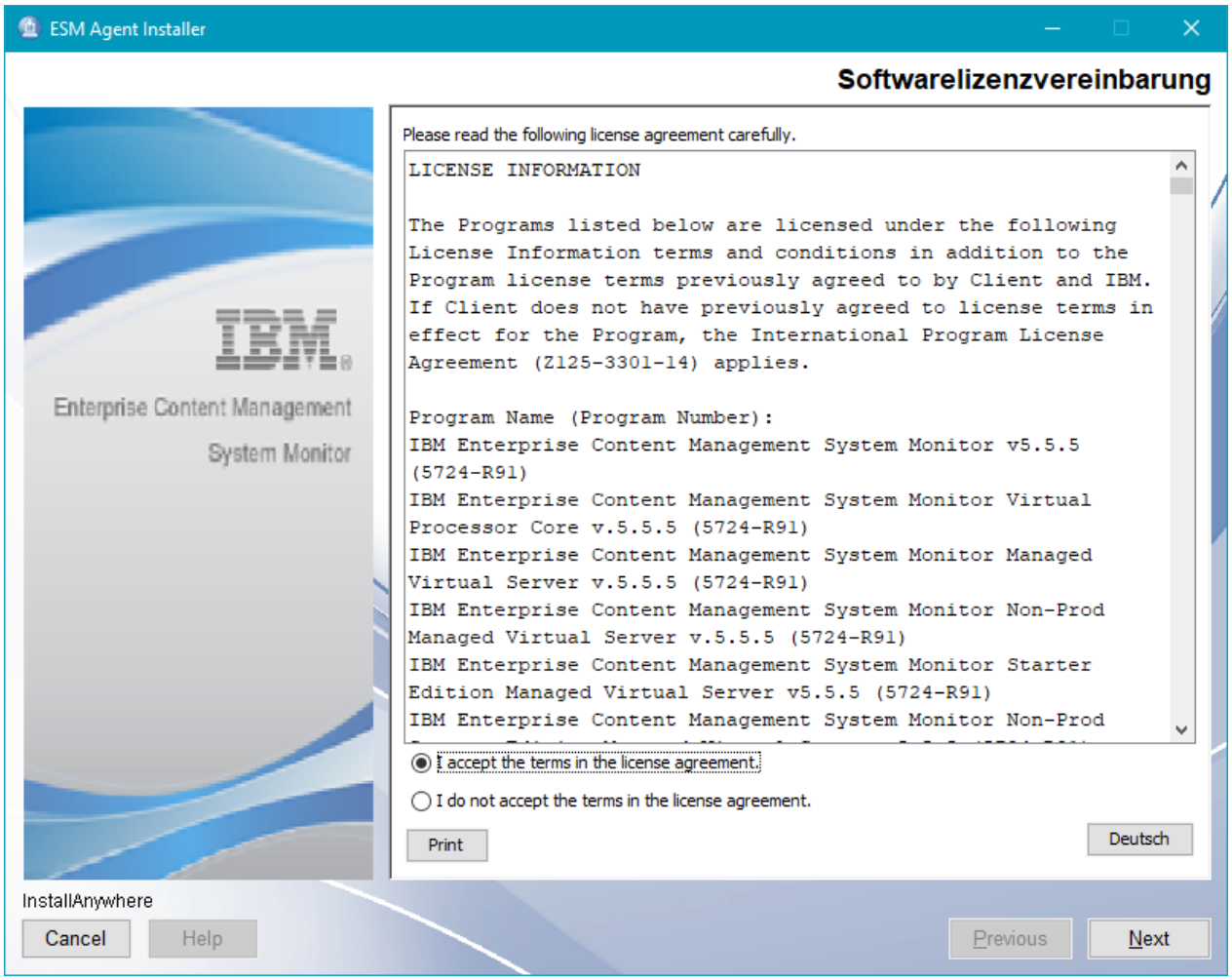

Image of Software License Agreement

- The next window is "Welcome to ESM Agent". It shows some information about the installation. Click "Next" to proceed.

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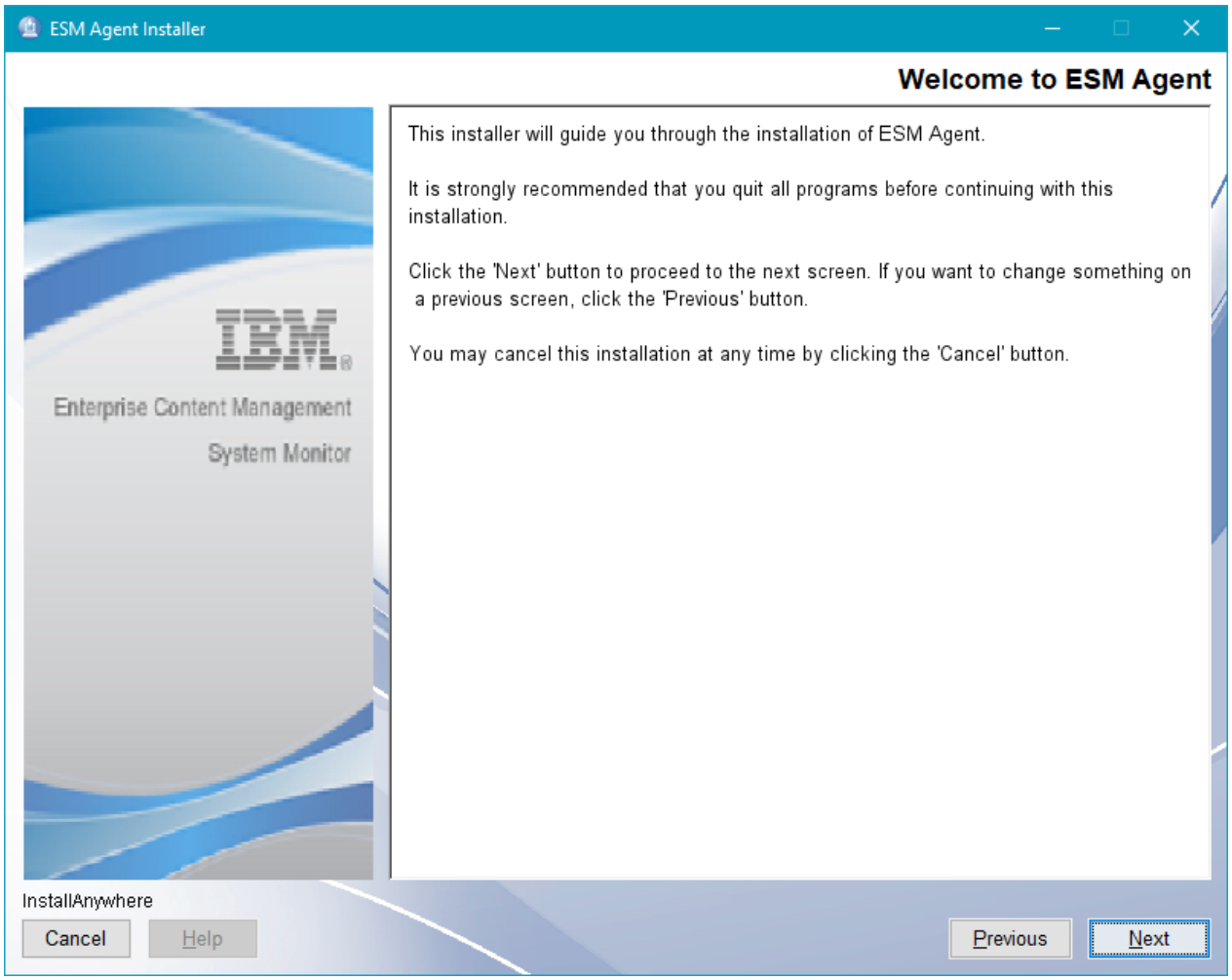

Image of Welcome to ESM Agent

- The next window is "Choose Installation Folder". Specify your path for the installation here. The default is `/opt/IBM/ESM/Agent`. Click "Next" to proceed.

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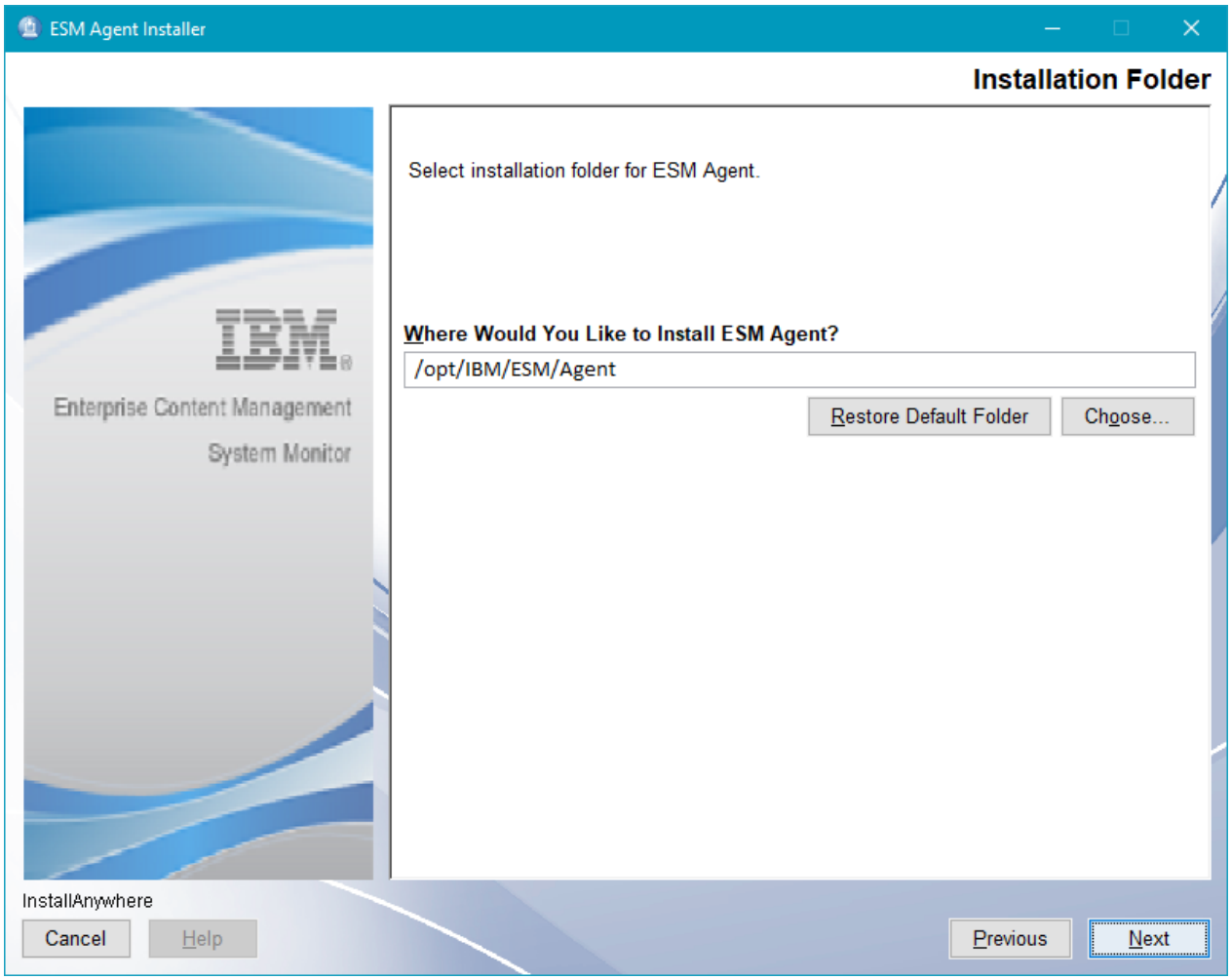

Image of Choose Installation Folder

- The next window is "Enter Agent Name, Hostname and Ports". The following parameters can be specified. Click "Next" to proceed. We recommend to keep https enabled.

  Unique Agent Name

  Default: *EsmAgent*

  ESM Server Name

  Default: *localhost*

  Server Port

  Default: *1883*

  Http Port

  Default: *1180*

  Https Port

  Default: *1543*

  RMI Registry Port

  Default: *2099*

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RMI Server Port

Default: *55555*

SSH Port

Default: *9202*

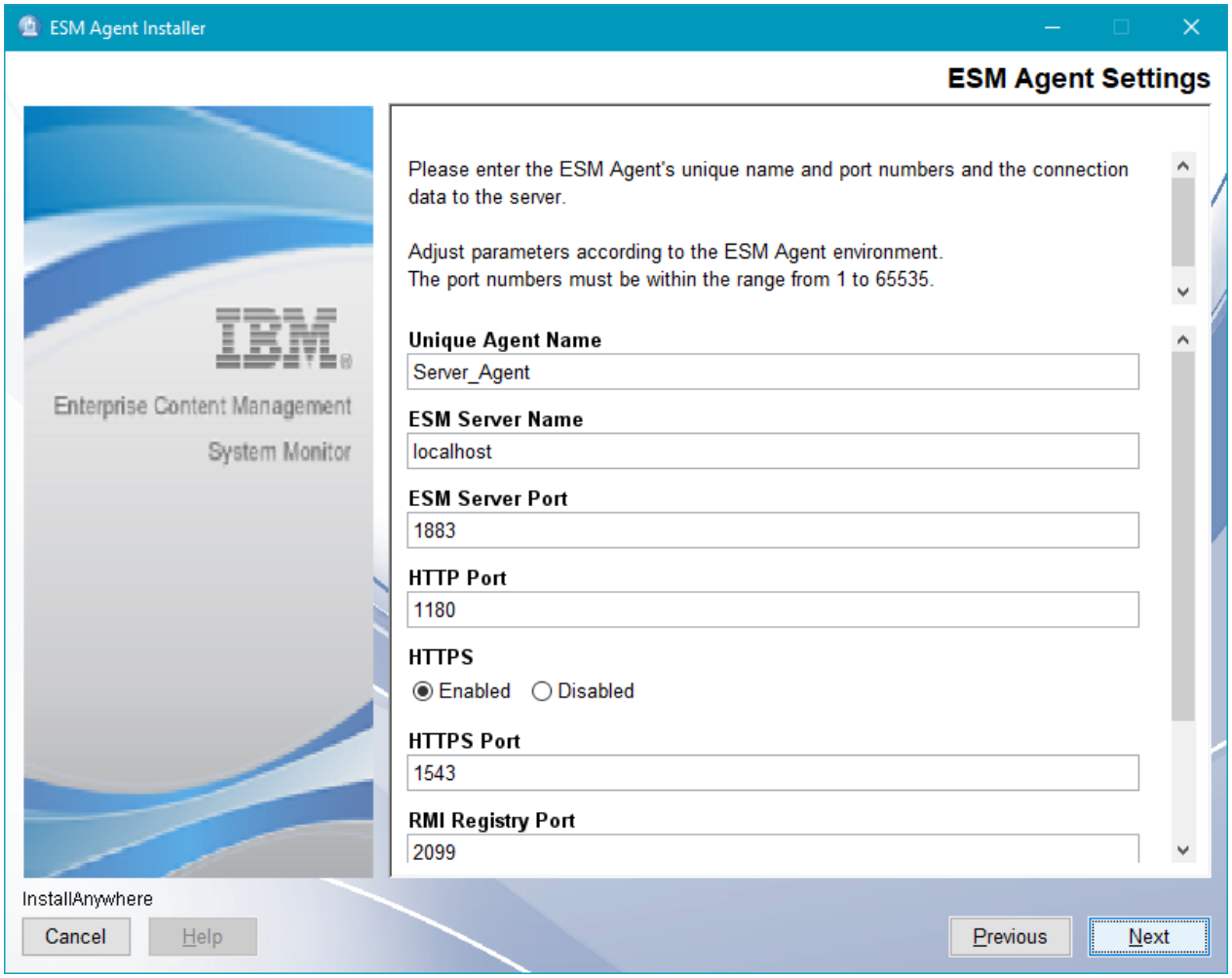

Image of Agent Settings (1)

- The next window is "Autostart and Systemstart". The following parameters can be specified. Click "Next" to proceed.

  Start ESM Agent after Installation

  Default: Yes = checked

  Start at OS Start

  Default: Yes = unchecked

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NOTE If unchecked, the no service entry is created in inittab or systemctl. Also root rights are needed for this.

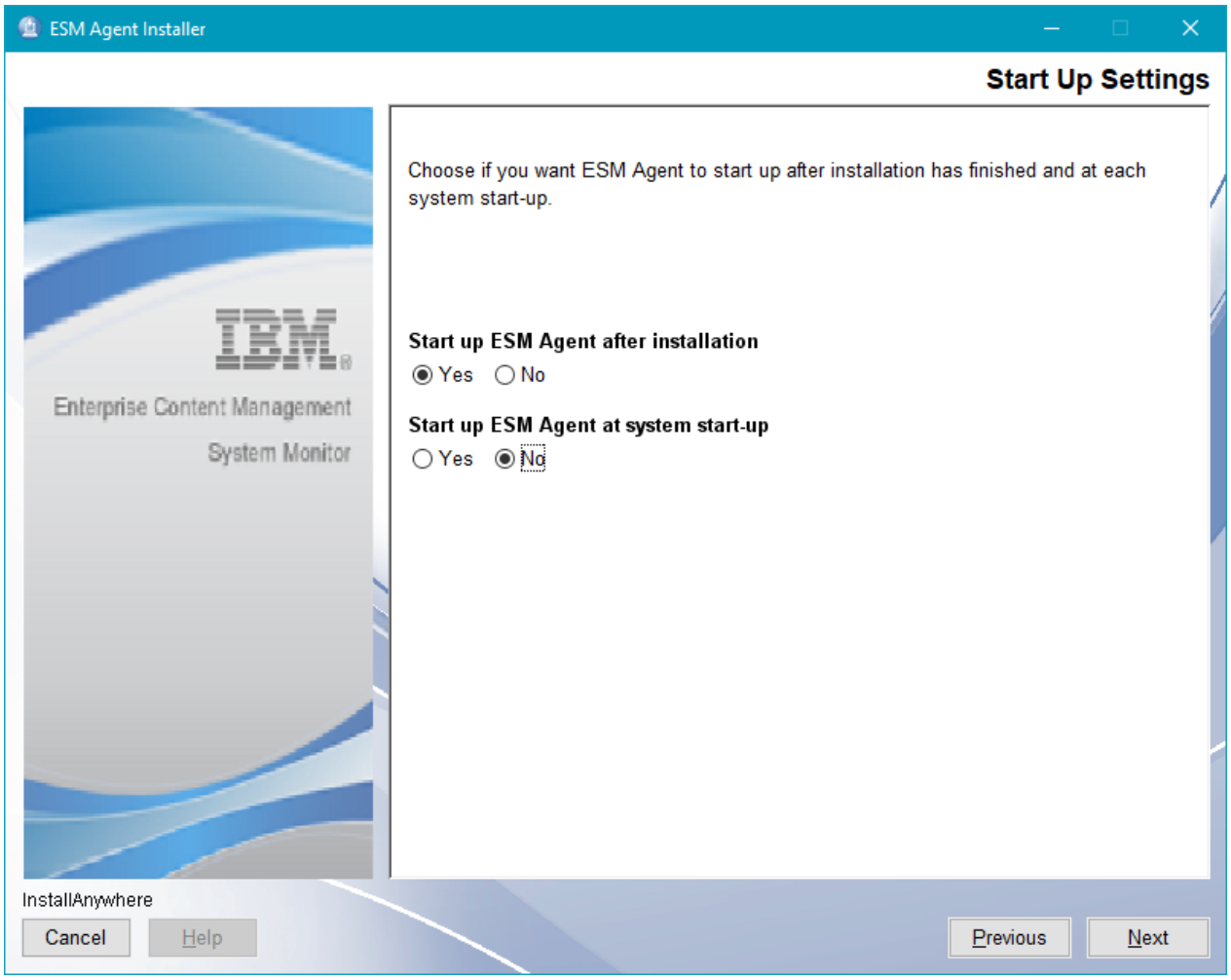

Image of Autotstart and Systemstart

- The next window is "Pre-Installation Summary". Click "Install" to proceed.

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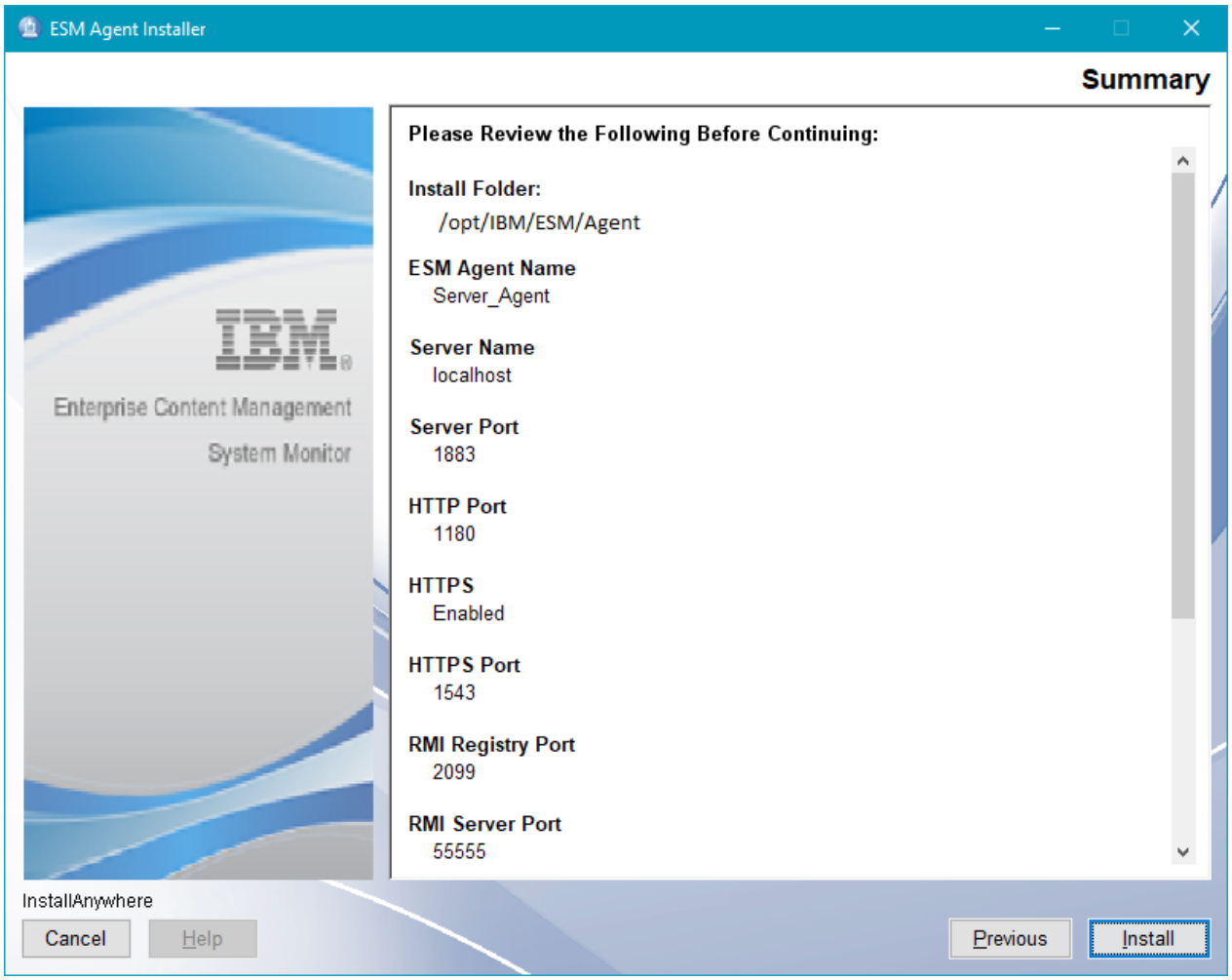

Image of Pre-installation Summary

- The installation starts and finishes with the window "Install Complete". Click "Done" to close and finish the installation procedure.

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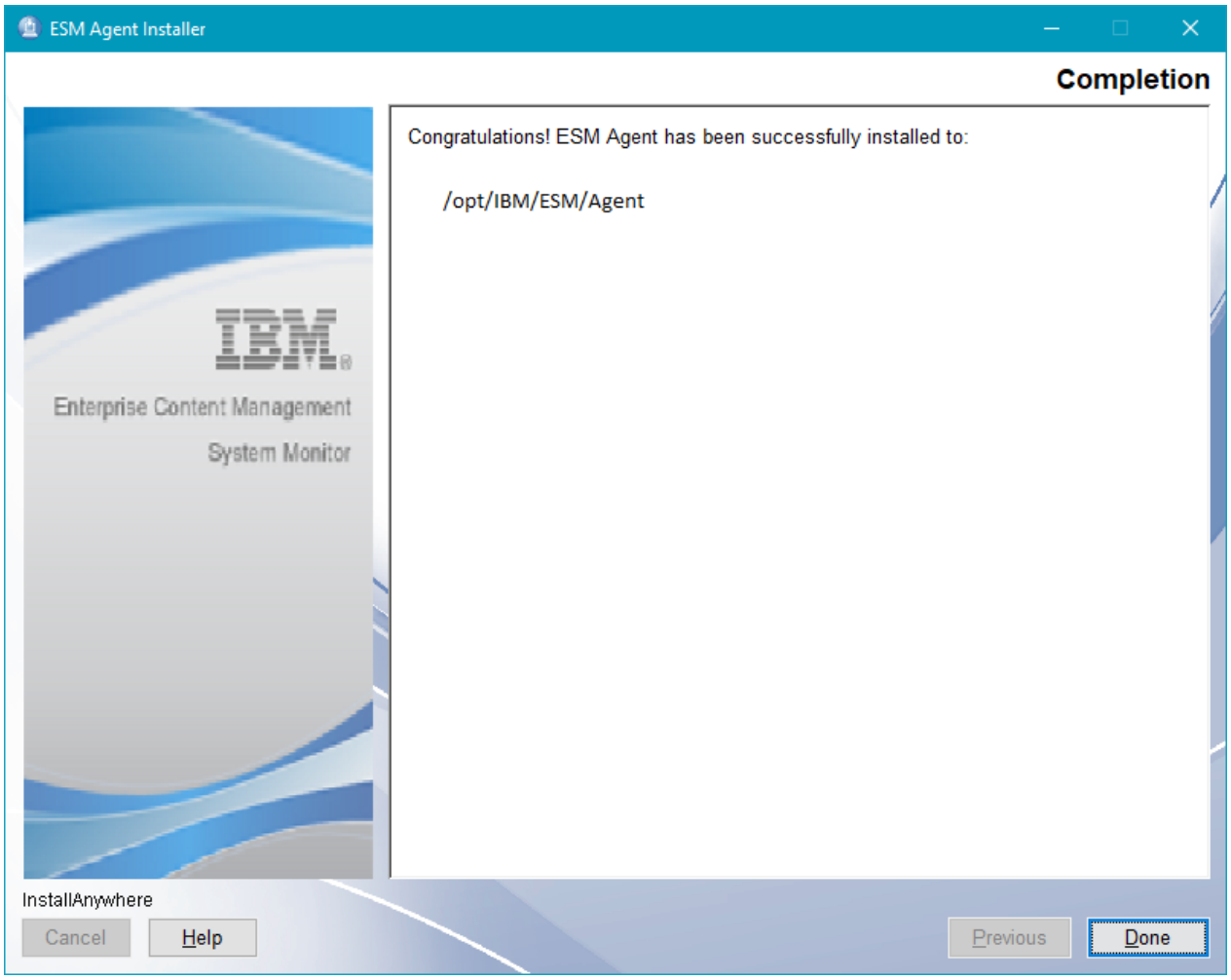

Image of Installation Complete

NOTE Every Agent that connects to an ESM server for the first time, will automatically have basic monitoring activated. Per default 3 probes (cpu, memory and diskspace) will run. For more details see the Probes and Situation Guide chapter "Default (standard) base probes for all agent".

AIX based agent

IMPORTANT Large page support must be activated before the product can be installed.

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NOTE

In some cases we have seen issues when installing on AIX. Typically, you can see an error message that "Graphical Installers are not supported by th VM". This is often combined with the context "User interface mode not supported" and "Unable to load and to prepare the installer in console or silent mode."

If that happens, try to unset the LIBPATH and DISPLAY variable and run the installer in silent or console mode. A typical cause is that the LIBPATH is set to /opt/freeware/lib as first entry.

- Start the installation by executing the file "ESM_Agent_Installer.bin"
- The "Software License Agreement" window is loaded. Accept the license agreement and proceed with "Next".

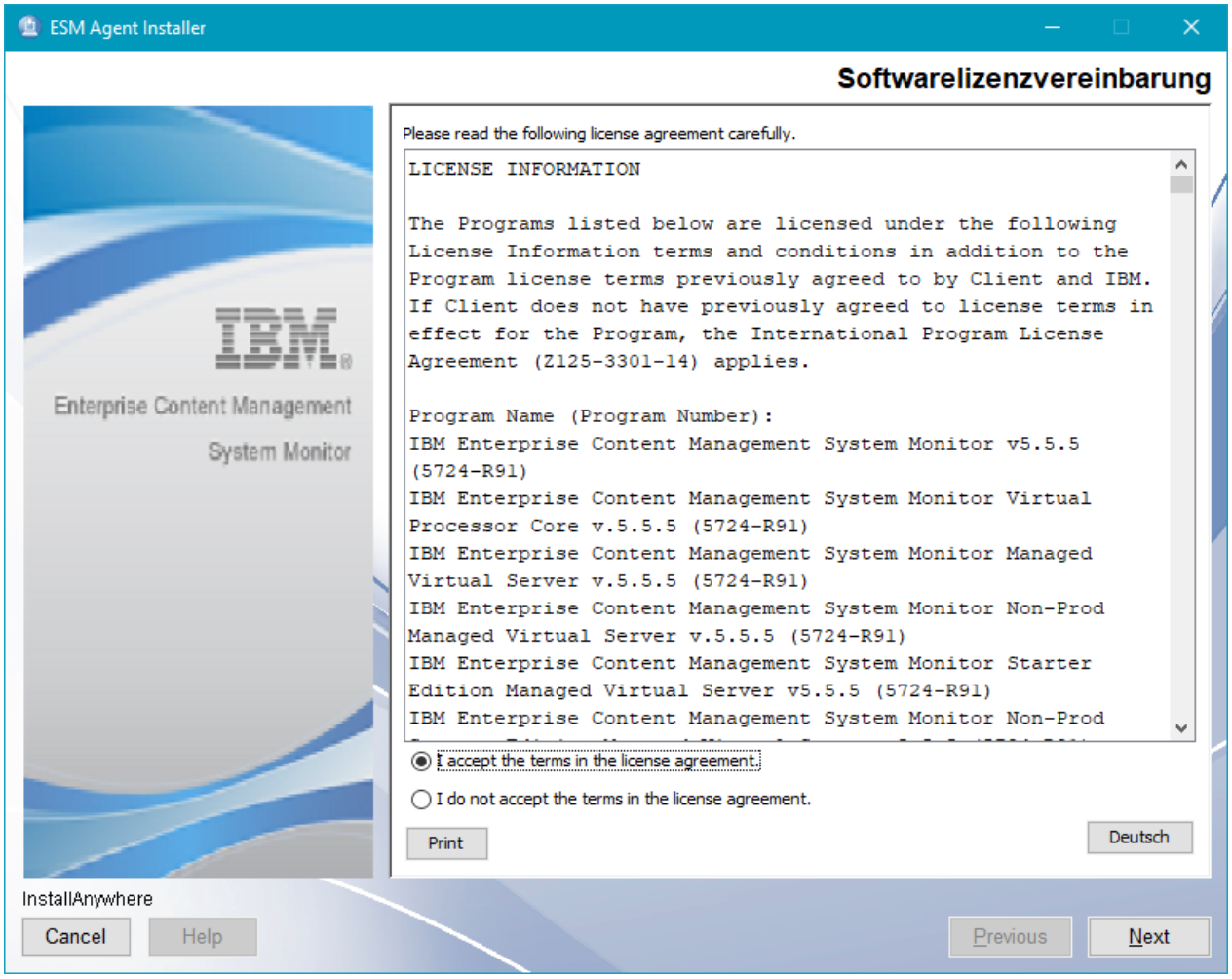

Image of Software License Agreement

- The next window is "Welcome to ESM Agent". It shows some information about the installation. Click "Next" to proceed.

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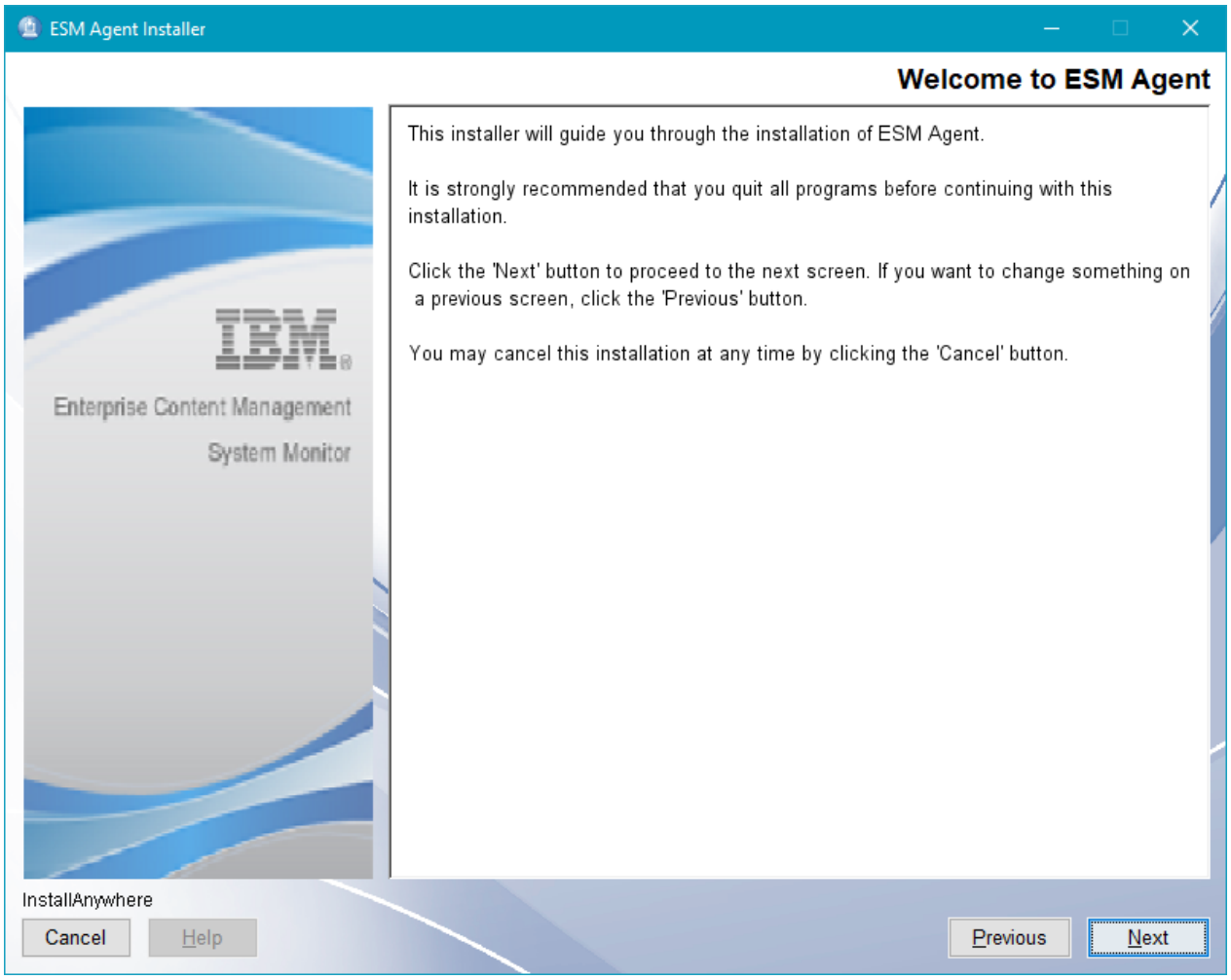

Image of Welcome to ESM Agent

- The next window is "Choose Installation Folder". Specify your path for the installation here. The default is `/opt/IBM/ESM/Agent`. Click "Next" to proceed.

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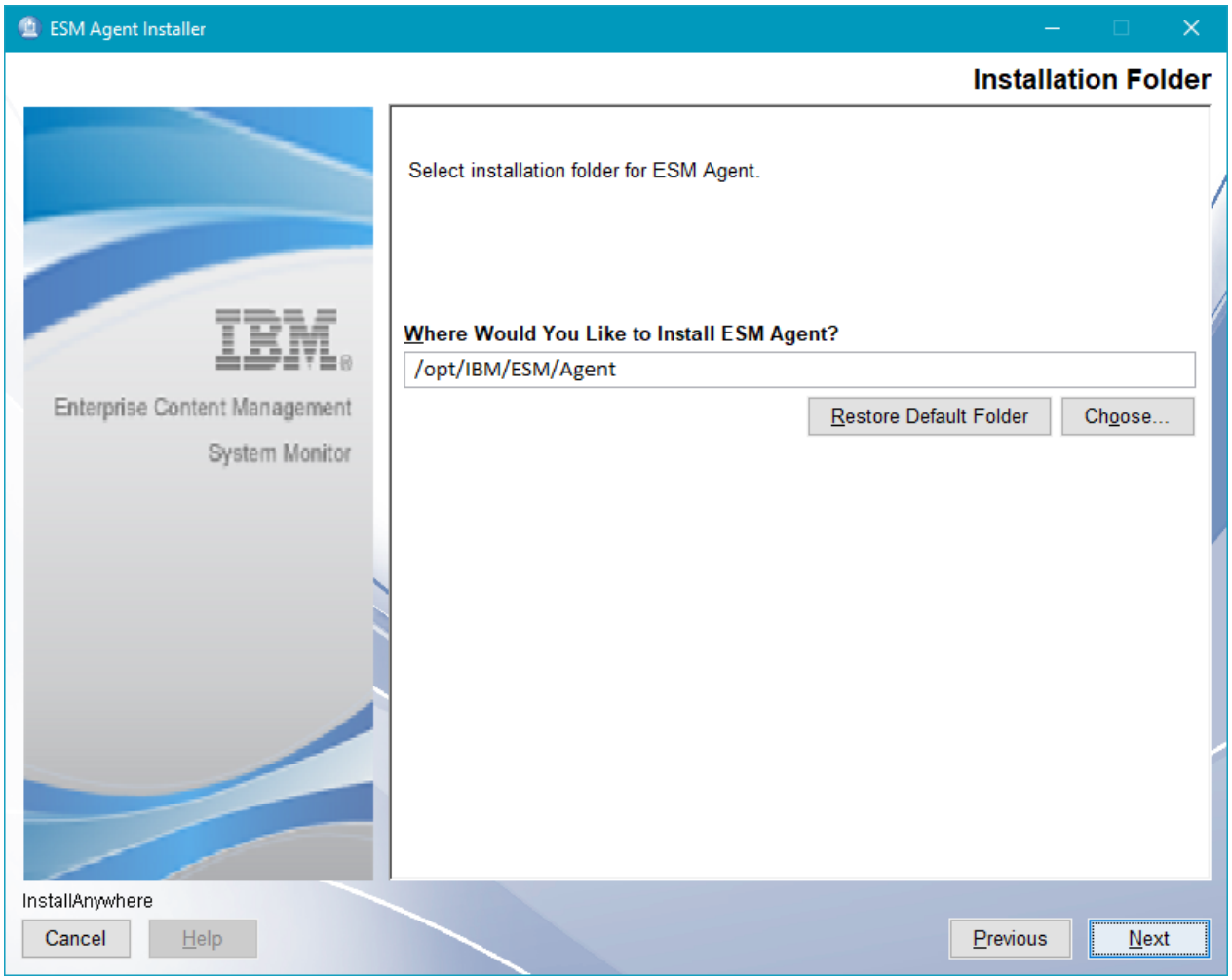

Image of Choose Installation Folder

- The next window is "Enter Agent Name, Hostname and Ports". The following parameters can be specified. Click "Next" to proceed. We recommend to keep https enabled.

  Unique Agent Name

  Default: *EsmAgent*

IMPORTANT The agent name on AIX is limited to 8 characters.

ESM Server Name

Default: *localhost*

Server Port

Default: *1883*

Http Port

Default: *1180*

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Https Port

Default: *1543*

RMI Registry Port

Default: *2099*

RMI Server Port

Default: *55555*

SSH Port

Default: *9202*

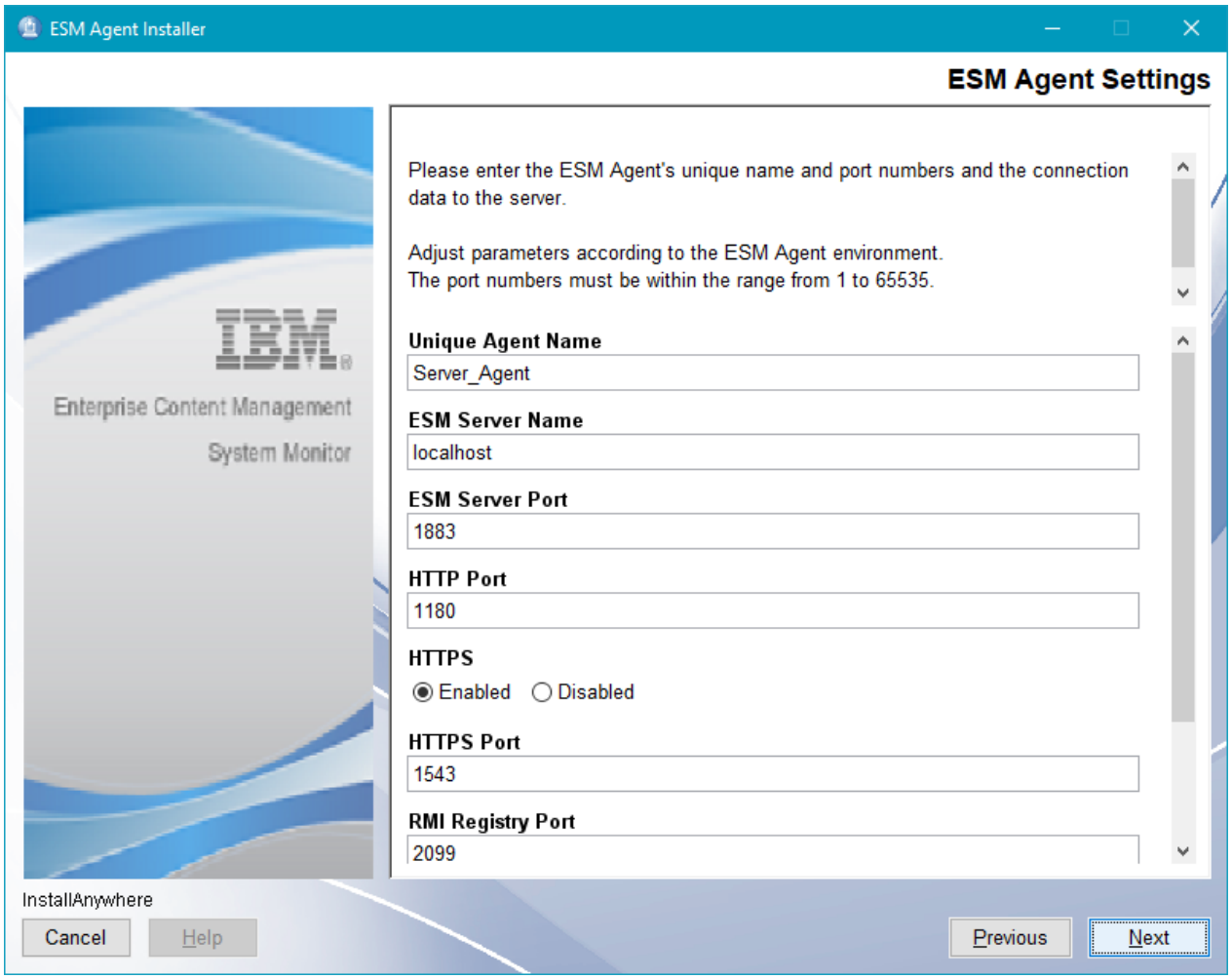

Image of Agent Settings (1)

- The next window is "Autostart and Systemstart". The following parameters can be specified. Click "Next" to proceed.

  Start ESM Agent after Installation

  Default: Yes = checked

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Start at OS Start

Default: Yes = unchecked

NOTE If unchecked, the no service entry is created in inittab or systemctl. Also root rights are needed for this.

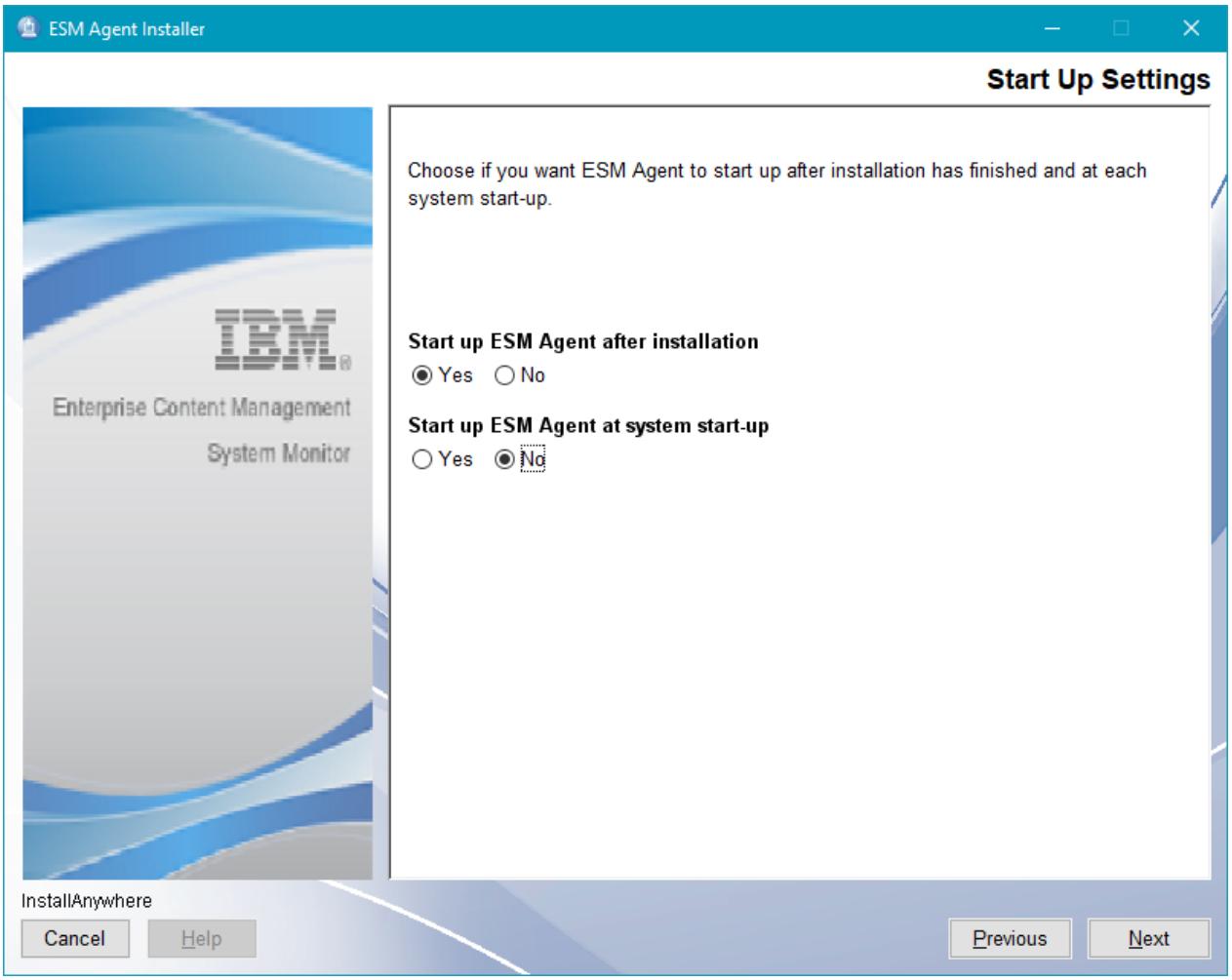

Image of Autotstart and Systemstart

- The next window is "Pre-Installation Summary". Click "Install" to proceed.

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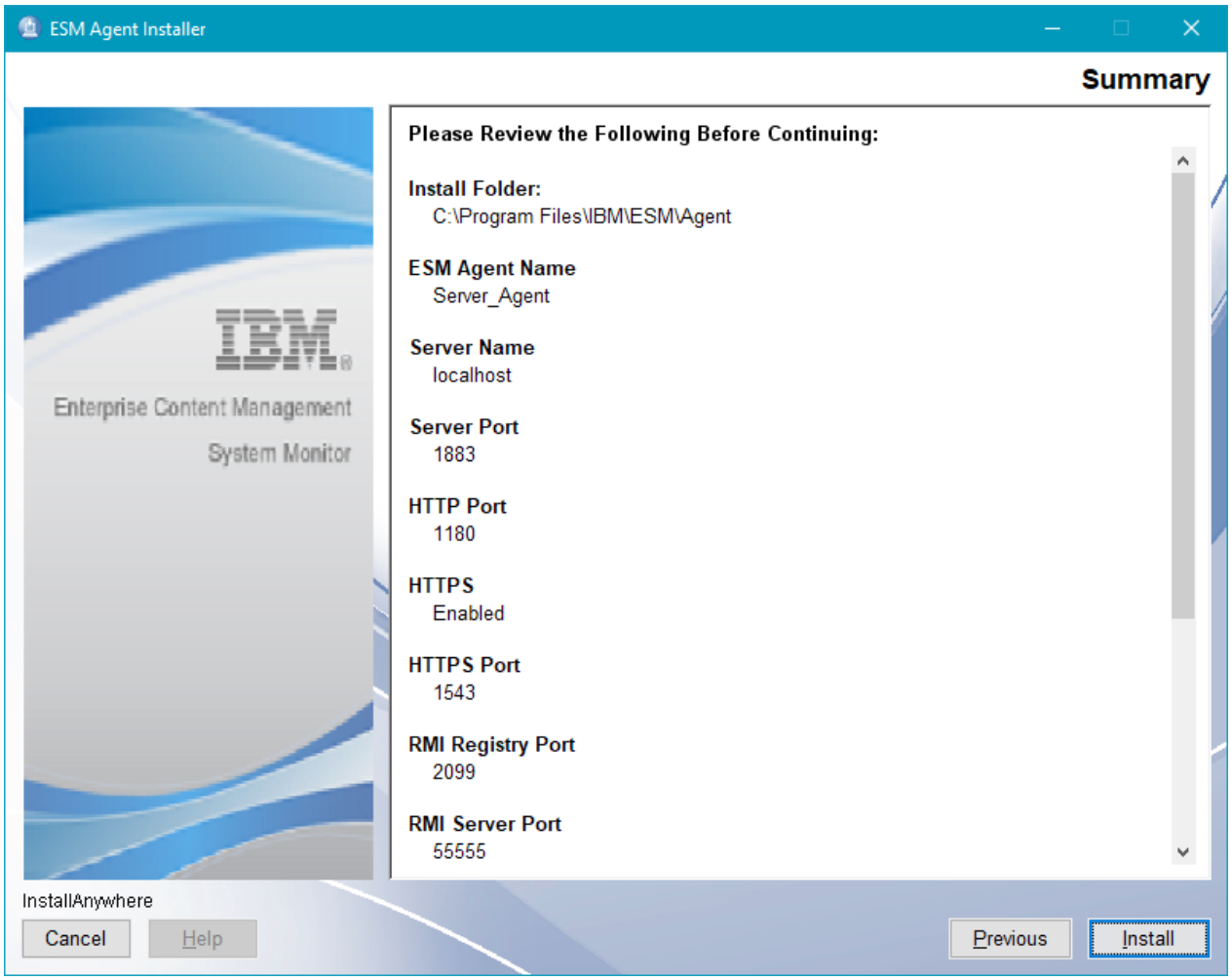

Image of Pre-installation Summary

- The installation starts and finishes with the window "Install Complete". Click "Done" to close and finish the installation procedure.

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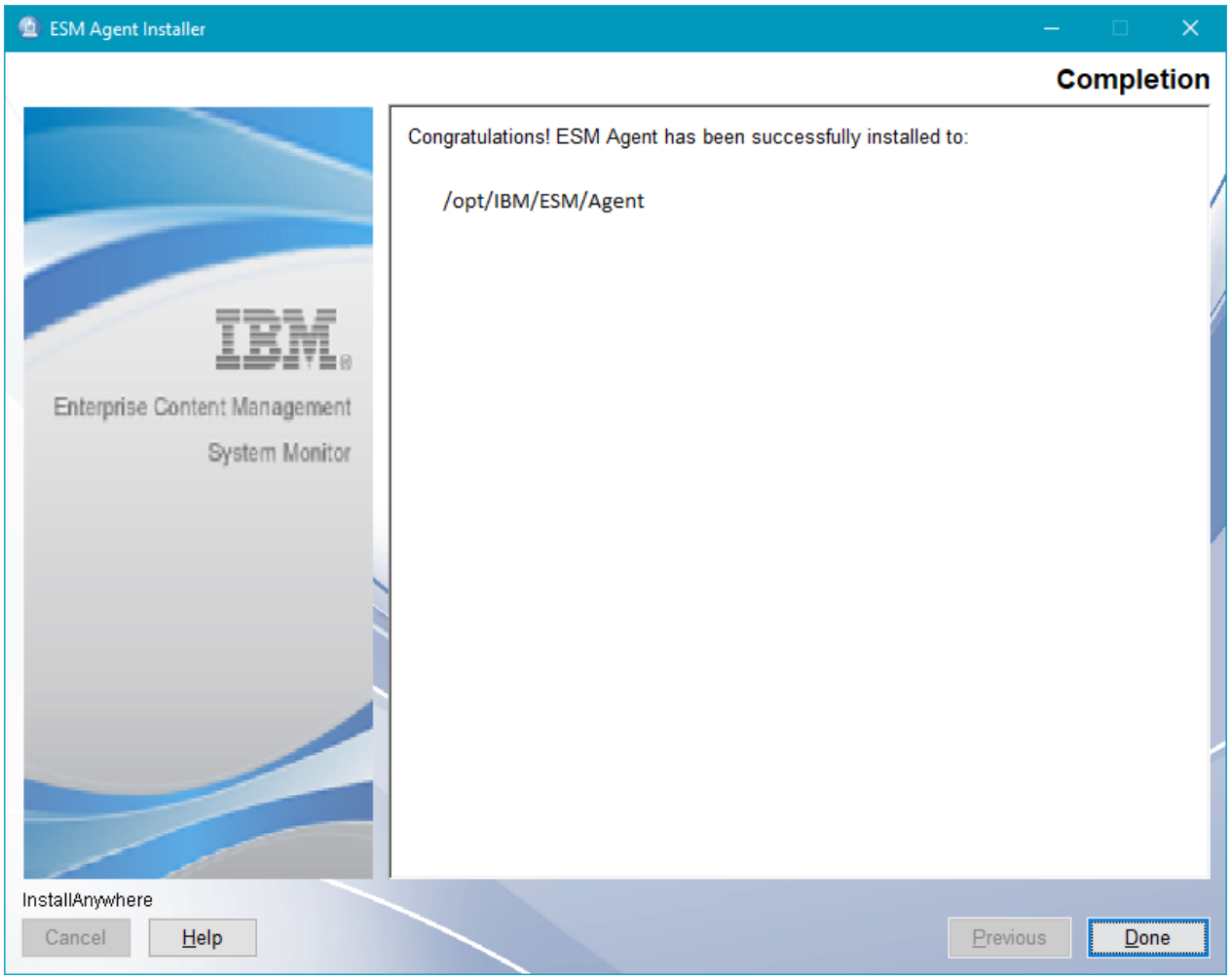

Image of Installation Complete

NOTE

Every Agent that connects to an ESM server for the first time, will automatically have basic monitoring activated. Per default 3 probes (cpu, memory and diskspace) will run. For more details see the Probes and Situation Guide chapter "Default (standard) base probes for all agent".

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Installation using silent mode

For the silent installation a properties file is needed. An example file will be given for each possible OS and the execution command will be listed.

Windows based server

- Open a "Command Prompt (Admin)" and execute the installation package as shown:

```
<YourPackageLocation>\ESM_Server_Installer.exe -i silent -f
<YourPropertiesLocation>\installer.properties
```

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Example 1. Example for installer.properties file with H2 Database

```
# Thu Aug 10 07:26:01 PDT 2017
# Replay feature output
# ---------------------
# This file was built by the Replay feature of InstallAnywhere.
# It contains variables that were set by Panels, Consoles or Custom Code.


#Indicate whether the license agreement been accepted
#-----------------------------------------------------
LICENSE_ACCEPTED=TRUE

#Choose Installation Folder
#--------------------------
USER_INSTALL_DIR=C:\\Program Files\\IBM\\ESM\\Server

#Server Settings
#---------------
SERVER_HOSTNAME=localhost
SERVER_IP=0.0.0.0
SERVER_PORT=1883
JETTY_PORT=80
JETTY_SECURE_ENABLED=true
JETTY_SECURE_DISABLED=false
JETTY_SECURE_PORT=443
RMI_REGISTRY_PORT=1099
RMI_SERVER_PORT=44444
SSH_PORT=8101

#Configuration Database Settings
#-------------------------------
JDBC_URL=jdbc:h2:./configuration;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MOD
E=LEGACY
JDBC_DRIVER_NAME=org.h2.Driver
JDBC_USER=db
JDBC_PASSWORD=ENC(JWvE1aMYXp+TQMRha6gROg==,PasswordEncryptor)

#Monitoring Database Settings
#----------------------------
MONITORING_JDBC_URL=jdbc:h2:./monitoring;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=1
0000;MODE=LEGACY
MONITORING_JDBC_DRIVER_NAME=org.h2.Driver
MONITORING_JDBC_USER=db
MONITORING_JDBC_PASSWORD=ENC(JWvE1aMYXp+TQMRha6gROg==,PasswordEncryptor)

#Start Up Settings
#-----------------
AUTO_START=1
NOT_AUTO_START=0
SYSTEM_START=1
NOT_SYSTEM_START=0
SYSTEM_START_INSTALLATION=0
NOT_SYSTEM_START_INSTALLATION=1

#Install
#-------
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Server\\Uninstall_ESM_Server.lax=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Server\\resource\\iawin64_x64.dll=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Server\\resource\\iawin32.dll=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Server\\resource\\win64_32_x64.exe=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Server\\resource\\remove.exe=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Server\\resource\\invoker.exe=Yes
-fileOverwrite_C\:\\Program\
Files\\IBM\\ESM\\Server\\version\\ibm.com_IBM_Enterprise_Content_Management_System_Monitor_S
erver-5.5.2.swidtag.xml=Yes
```

Windows based agent

- Open a "Command Prompt (Admin)" and execute the installation package as shown:

```
<YourPackageLocation>\ESM_Agent_Installer.exe -i silent -f
<YourPropertiesLocation>\installer.properties
```

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Example 2. Example for installer.properties file

```
# Thu Aug 17 07:54:20 PDT 2017
# Replay feature output
# ---------------------
# This file was built by the Replay feature of InstallAnywhere.
# It contains variables that were set by Panels, Consoles or Custom Code.


#Indicate whether the license agreement been accepted
#-----------------------------------------------------
LICENSE_ACCEPTED=TRUE

#Choose Installation Folder
#--------------------------
USER_INSTALL_DIR=C:\\Program Files\\IBM\\ESM\\Agent

#Agent Settings
#--------------
CLIENT_ID=Agent
SERVER_HOSTNAME=localhost
SERVER_PORT=1883
JETTY_PORT=1180
JETTY_SECURE_ENABLED=true
JETTY_SECURE_DISABLED=false
JETTY_SECURE_PORT=1543
RMI_REGISTRY_PORT=2099
RMI_SERVER_PORT=55555
SSH_PORT=9202

#Start Up Settings
#-----------------
AUTO_START=1
NOT_AUTO_START=0
SYSTEM_START=1
NOT_SYSTEM_START=0
SYSTEM_START_INSTALLATION=0
NOT_SYSTEM_START_INSTALLATION=1

#Install
#-------
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Agent\\Uninstall_ESM_Agent.lax=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Agent\\resource\\iawin64_x64.dll=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Agent\\resource\\iawin32_dll=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Agent\\resource\\win64_32_x64.exe=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Agent\\resource\\remove.exe=Yes
-fileOverwrite_C\:\\Program\ Files\\IBM\\ESM\\Agent\\resource\\invoker.exe=Yes
-fileOverwrite_C\:\\Program\
Files\\IBM\\ESM\\Agent\\version\\ibm.com_IBM_Enterprise_Content_Management_System_Monitor_Ag
ent-5.5.2.swidtag.xml=Yes
```

Linux based server

- Open a "shell (root)" and execute the installation package as shown:

```
<YourPackageLocation>./ESM_Server_Installer.bin -i silent -f
<YourPropertiesLocation>\installer.properties
```

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Example 3. Example for installer.properties file with H2 Database

```
# Thu Jan 04 01:40:27 EST 2018
# Replay feature output
# ---------------------
# This file was built by the Replay feature of InstallAnywhere.
# It contains variables that were set by Panels, Consoles or Custom Code.


#Indicate whether the license agreement been accepted
#-----------------------------------------------------
LICENSE_ACCEPTED=TRUE

#Choose Installation Folder
#--------------------------
USER_INSTALL_DIR=/opt/IBM/ESM/Server

#Server Settings
#---------------
SERVER_HOSTNAME=localhost
SERVER_IP=0.0.0.0
SERVER_PORT=1883
JETTY_PORT=80
JETTY_SECURE_ENABLED=true
JETTY_SECURE_DISABLED=false
JETTY_SECURE_PORT=443
RMI_REGISTRY_PORT=1099
RMI_SERVER_PORT=44444
SSH_PORT=8101

#Configuration Database Settings
#-------------------------------
JDBC_URL=jdbc:h2:./configuration;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MOD
E=LEGACY
JDBC_DRIVER_NAME=org.h2.Driver
JDBC_USER=db
JDBC_PASSWORD=ENC(JWvE1aMYXp+TQMRha6gROg==,PasswordEncryptor)

#Monitoring Database Settings
#----------------------------
MONITORING_JDBC_URL=jdbc:h2:./monitoring;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=1
0000;MODE=LEGACY
MONITORING_JDBC_DRIVER_NAME=org.h2.Driver
MONITORING_JDBC_USER=db
MONITORING_JDBC_PASSWORD=ENC(JWvE1aMYXp+TQMRha6gROg==,PasswordEncryptor)

#Start Up Settings
#-----------------
AUTO_START=1
NOT_AUTO_START=0
SYSTEM_START=1
NOT_SYSTEM_START=0

#Install
#-------
-fileOverwrite_/opt/IBM/ESM/Server/karaf/version=Yes
-fileOverwrite_/opt/IBM/ESM/Server/Uninstall_ESM_Server.lax=Yes
-fileOverwrite_/opt/IBM/ESM/Server/properties/version/ibm.com_IBM_Enterprise_Content_Managem
ent_System_Monitor_Server-5.5.2.swidtag.xml=Yes
```

Linux based agent

- Open a "shell (root)" and execute the installation package as shown:

<YourPackageLocation>/ESM_Agent_Installer.bin -i silent -f <YourPropertiesLocation>\installer.properties

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Example 4. Example for installer.properties file

```
# Thu Jan 04 01:54:20 EST 2018
# Replay feature output
# ---------------------
# This file was built by the Replay feature of InstallAnywhere.
# It contains variables that were set by Panels, Consoles or Custom Code.


#Indicate whether the license agreement been accepted
#-----------------------------------------------------
LICENSE_ACCEPTED=TRUE

#Choose Installation Folder
#--------------------------
USER_INSTALL_DIR=/opt/IBM/ESM/Agent

#Agent Settings
#--------------
CLIENT_ID=Agent
SERVER_HOSTNAME=localhost
SERVER_PORT=1883
JETTY_PORT=1180
JETTY_SECURE_ENABLED=true
JETTY_SECURE_DISABLED=false
JETTY_SECURE_PORT=1543
RMI_REGISTRY_PORT=2099
RMI_SERVER_PORT=55555
SSH_PORT=9202

#Start Up Settings
#-----------------
AUTO_START=1
NOT_AUTO_START=0
SYSTEM_START=1
NOT_SYSTEM_START=0

#Install
#-------
-fileOverwrite_/opt/IBM/ESM/Agent/karaf/version=Yes
-fileOverwrite_/opt/IBM/ESM/Agent/Uninstall_ESM_Agent.lax=Yes
-fileOverwrite_/opt/IBM/ESM/Agent/properties/version/ibm.com_IBM_Enterprise_Content_Manageme
nt_System_Monitor_Agent-5.5.4.swidtag.xml=Yes
```

AIX based server

- Open a "shell (root)" and execute the installation package as shown:

```
<YourPackageLocation>/ESM_Server_Installer.bin          -i          silent          -f
<YourPropertiesLocation>\installer.properties
```

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Example 5. Example for installer.properties file with H2 Database

```
# Thu Jan 04 01:40:27 EST 2018
# Replay feature output
# ---------------------
# This file was built by the Replay feature of InstallAnywhere.
# It contains variables that were set by Panels, Consoles or Custom Code.


#Indicate whether the license agreement been accepted
#-----------------------------------------------------
LICENSE_ACCEPTED=TRUE

#Choose Installation Folder
#--------------------------
USER_INSTALL_DIR=/opt/IBM/ESM/Server

#Server Settings
#---------------
SERVER_HOSTNAME=localhost
SERVER_IP=0.0.0.0
SERVER_PORT=1883
JETTY_PORT=80
JETTY_SECURE_ENABLED=true
JETTY_SECURE_DISABLED=false
JETTY_SECURE_PORT=443
RMI_REGISTRY_PORT=1099
RMI_SERVER_PORT=44444
SSH_PORT=8101

#Configuration Database Settings
#-------------------------------
JDBC_URL=jdbc:h2:./configuration;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=10000;MOD
E=LEGACY
JDBC_DRIVER_NAME=org.h2.Driver
JDBC_USER=db
JDBC_PASSWORD=ENC(JWvE1aMYXp+TQMRha6gROg==,PasswordEncryptor)

#Monitoring Database Settings
#----------------------------
MONITORING_JDBC_URL=jdbc:h2:./monitoring;AUTO_SERVER=TRUE;AUTO_RECONNECT=TRUE;LOCK_TIMEOUT=1
0000;MODE=LEGACY
MONITORING_JDBC_DRIVER_NAME=org.h2.Driver
MONITORING_JDBC_USER=db
MONITORING_JDBC_PASSWORD=ENC(JWvE1aMYXp+TQMRha6gROg==,PasswordEncryptor)

#Start Up Settings
#-----------------
AUTO_START=1
NOT_AUTO_START=0
SYSTEM_START=1
NOT_SYSTEM_START=0

#Install
#-------
-fileOverwrite_/opt/IBM/ESM/Server/Uninstall_ESM_Server.lax=Yes
```

AIX based agent

- Open a "shell (root)" and execute the installation package as shown:

```
<YourPackageLocation>/ESM_Agent_Installer.bin -i silent -f
<YourPropertiesLocation>\installer.properties
```

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Example 6. Example for installer.properties file

```
# Thu Jan 04 01:54:20 EST 2018
# Replay feature output
# ---------------------
# This file was built by the Replay feature of InstallAnywhere.
# It contains variables that were set by Panels, Consoles or Custom Code.


#Indicate whether the license agreement been accepted
#-----------------------------------------------------
LICENSE_ACCEPTED=TRUE

#Choose Installation Folder
#--------------------------
USER_INSTALL_DIR=/opt/IBM/ESM/Agent

#Agent Settings
#--------------
CLIENT_ID=Agent
SERVER_HOSTNAME=localhost
SERVER_PORT=1883
JETTY_PORT=1180
JETTY_SECURE_ENABLED=true
JETTY_SECURE_DISABLED=false
JETTY_SECURE_PORT=1543
RMI_REGISTRY_PORT=2099
RMI_SERVER_PORT=55555
SSH_PORT=9202

#Start Up Settings
#-----------------
AUTO_START=1
NOT_AUTO_START=0
SYSTEM_START=1
NOT_SYSTEM_START=0

#Install
#-------
-fileOverwrite_/opt/IBM/ESM/Agent/Uninstall_ESM_Agent.lax=Yes
```

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Tests for a successful installation

- Check if the services or start up files have been created.
- Login to your console (http(s)://<hostname>:<port>
- The default login is admin / admin, please change the password.
- See if the console is behaving normal. Switch between dashboards and check if it is working, etc.

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Security hints

CAUTION

Do not forget to change the admin password from the default to a more secure one!

CAUTION

When using https, it is strongly recommended to replace the self-signed certificate shipped with the product. See chapter "Running the ESM server with https - Using self-signed or authority signed certificates" for details.

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De-installation of the software

InstallAnywhere offers an uninstall method that can be used.

Windows based systems

On Windows based installations the uninstall can be triggered via ControlPanel → Programs → Programs and Features. Select the Software (Server / Agent) you want to uninstall and click on the uninstall button.

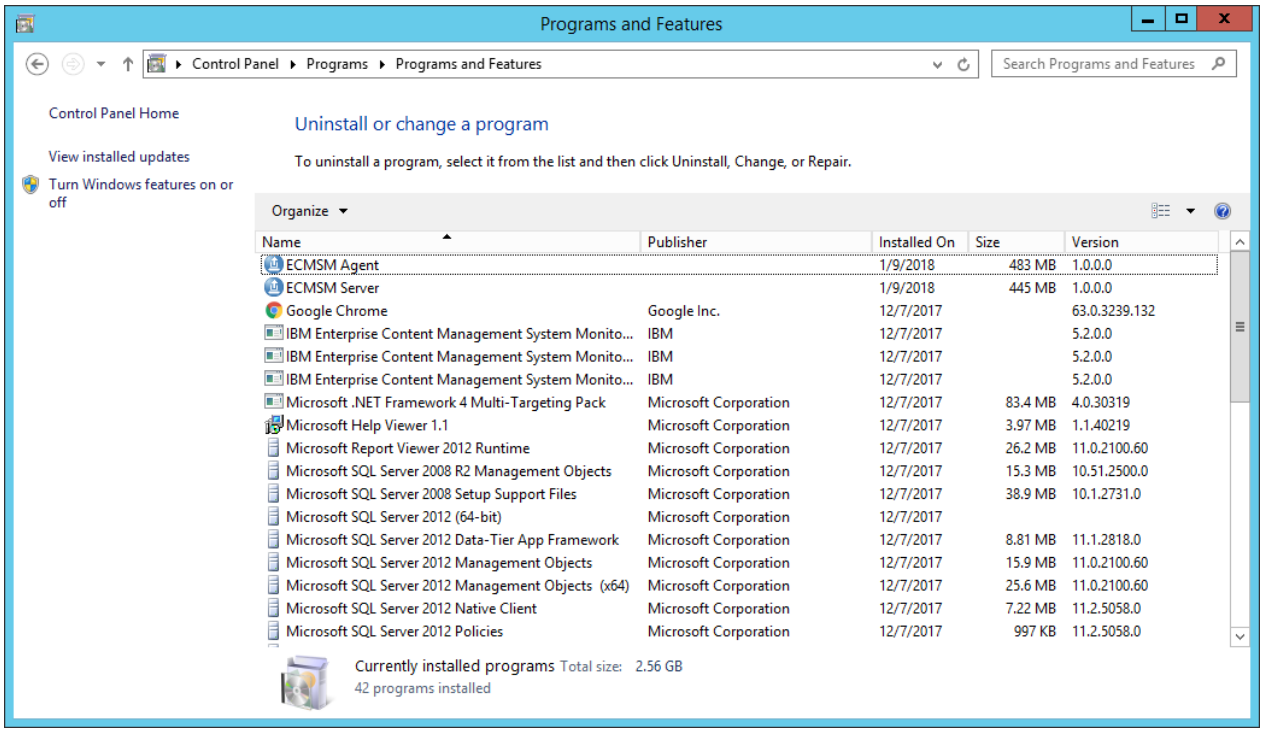

Image of Program and Features

Follow the procedure, the first window will point out that you are about to uninstall the product.

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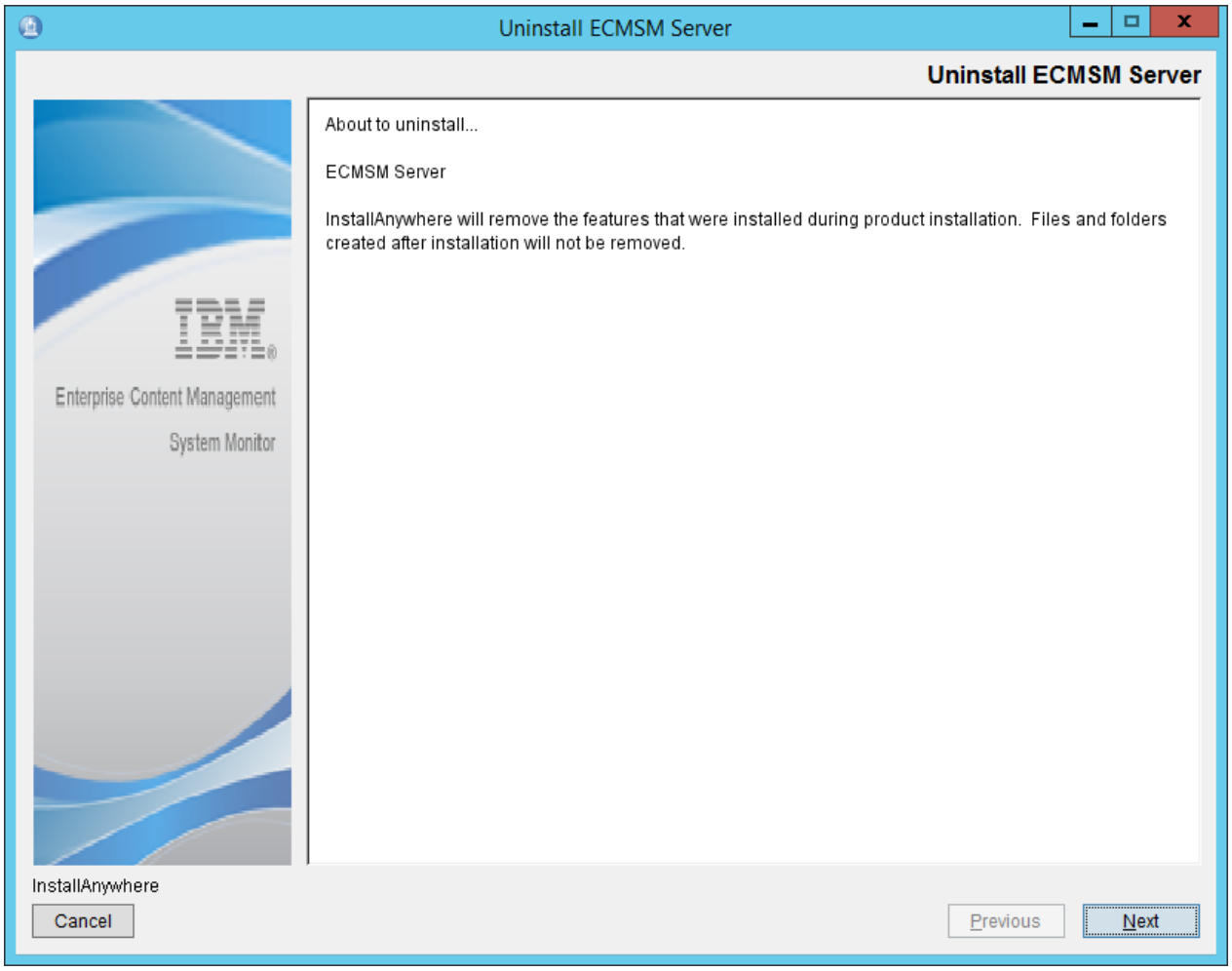

Image of Uninstall ESM Server

Select the Uninstall Option, by default "Complete Uninstall" is selected.

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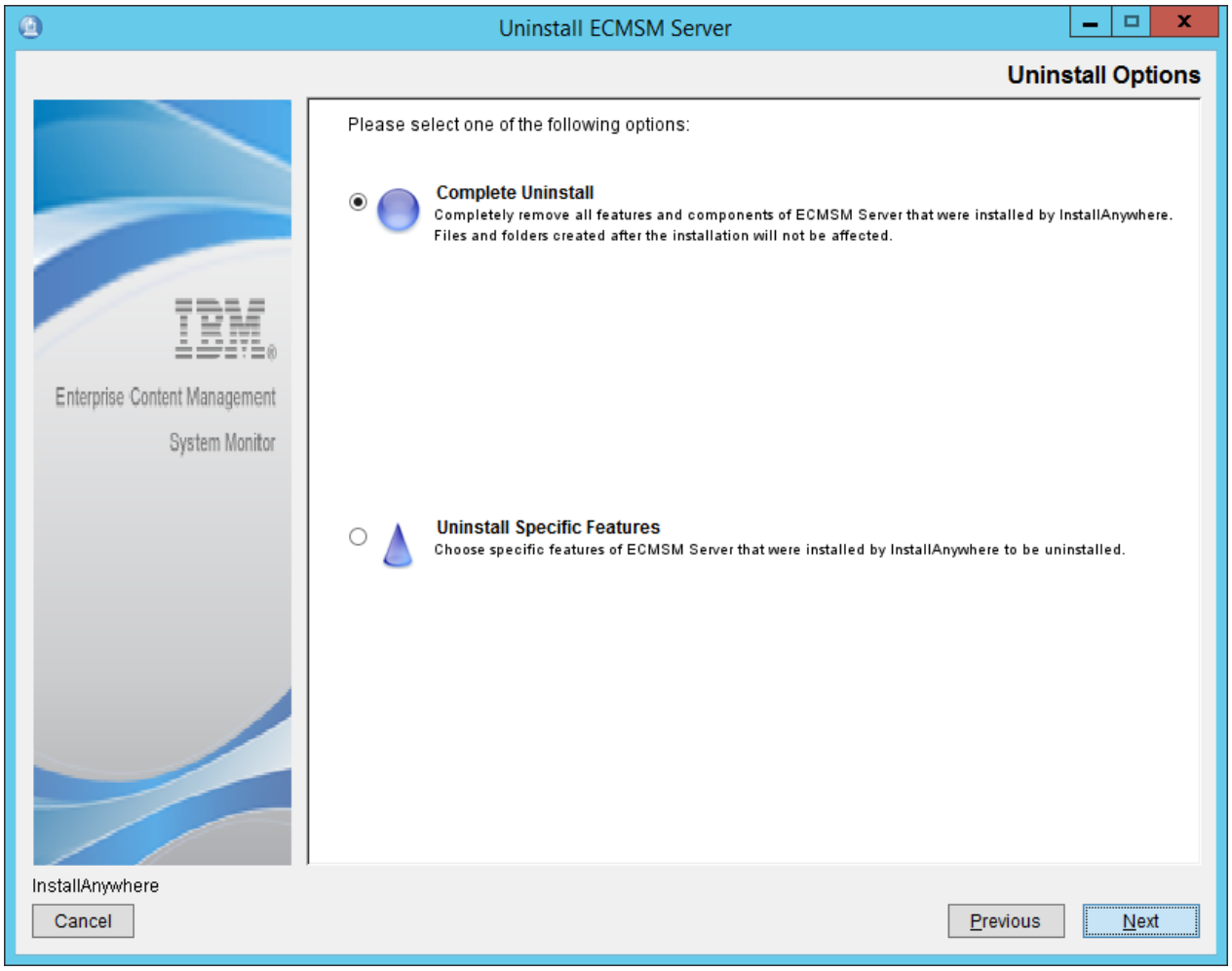

Image of Uninstall Options

The software is getting uninstalled. It can happen that not all files could be removed during uninstall process.

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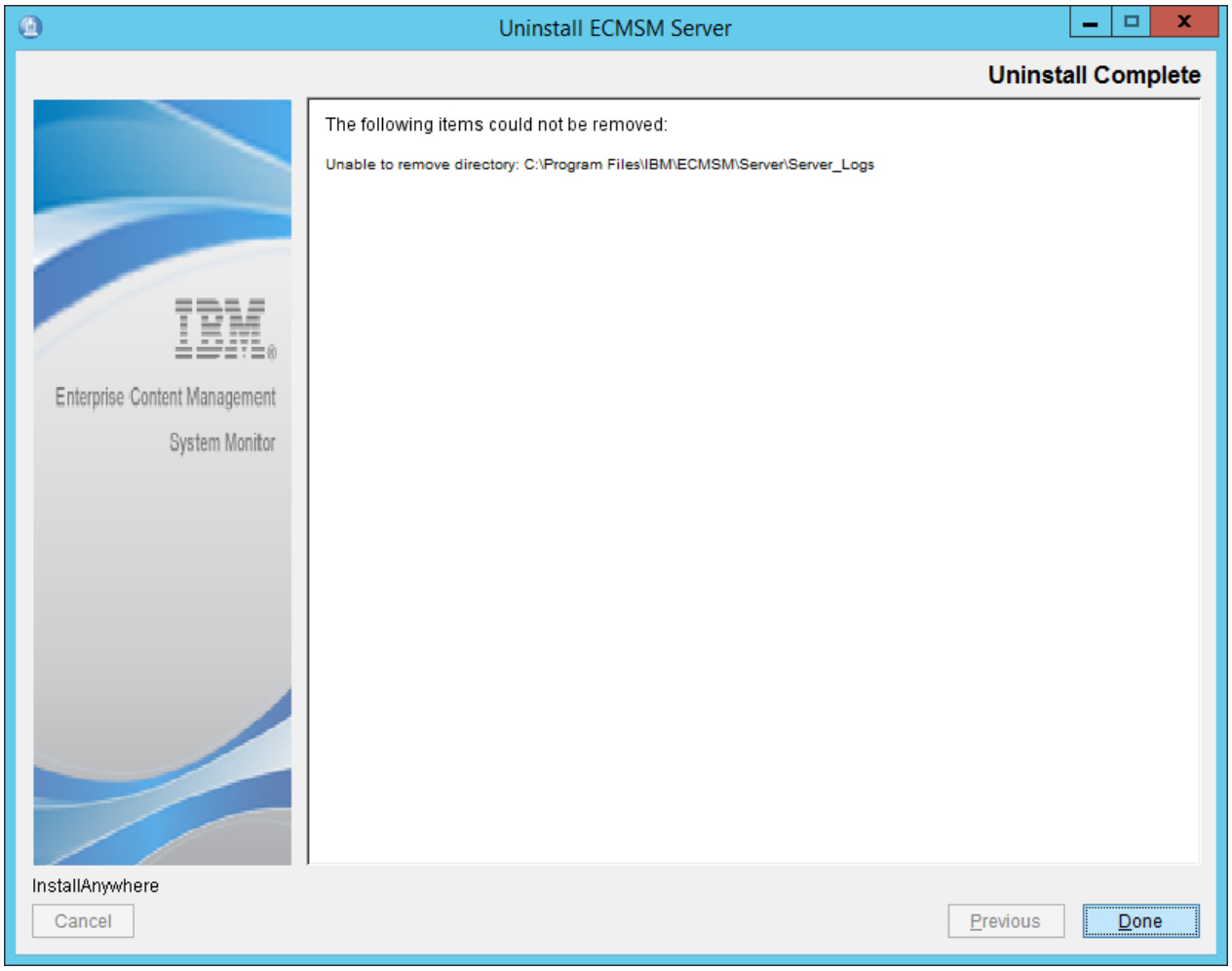

Image of Uninstall Complete

Please review the installation folder afterwards. You can delete any leftover files and folders.

Linux based systems

On Linux based installations the uninstall can be triggered via an uninstall binary (Uninstall_ESM_Agent or Uninstall_ESM_Server both located in the *`Installation_Root`*). Please make sure that you have the possibility of running a graphical installer (X11 is enabled) otherwise the procedure starts in console mode.

Follow the procedure, the first window will point out that you are about to uninstall the product.

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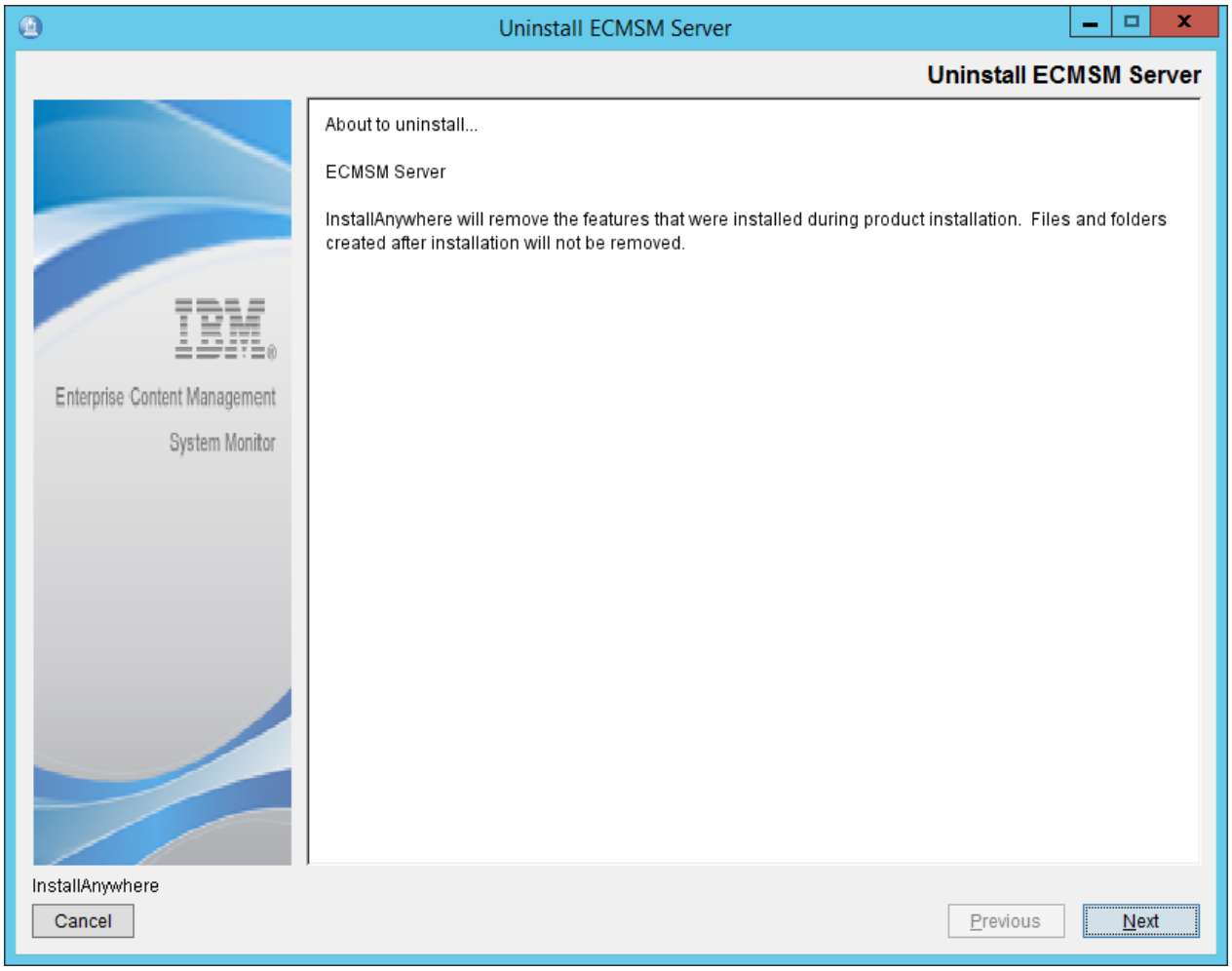

Image of Uninstall ESM Server

Select the Uninstall Option, by default "Complete Uninstall" is selected.

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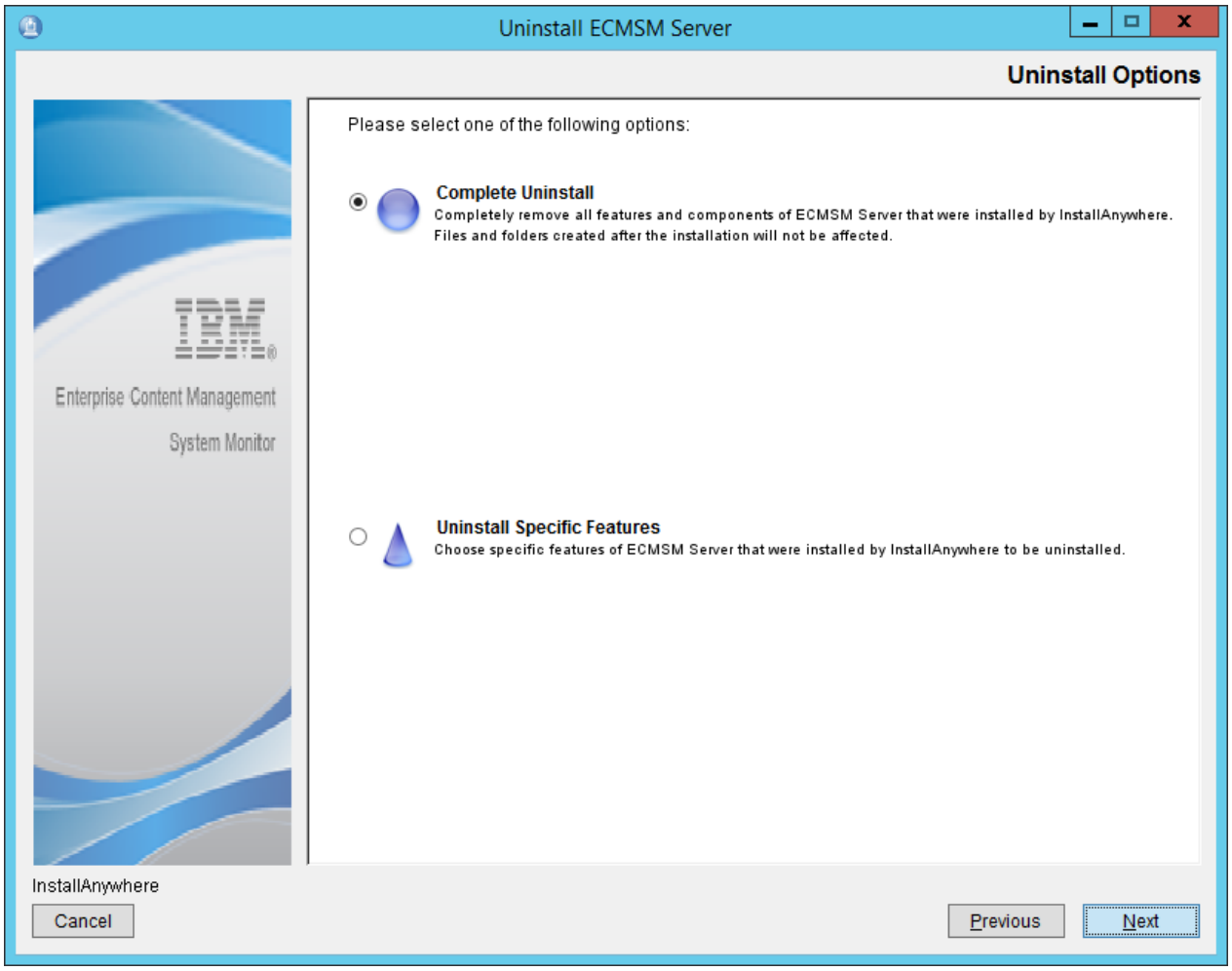

Image of Uninstall Options

The software is getting uninstalled. It can happen that not all files could be removed during uninstall process.

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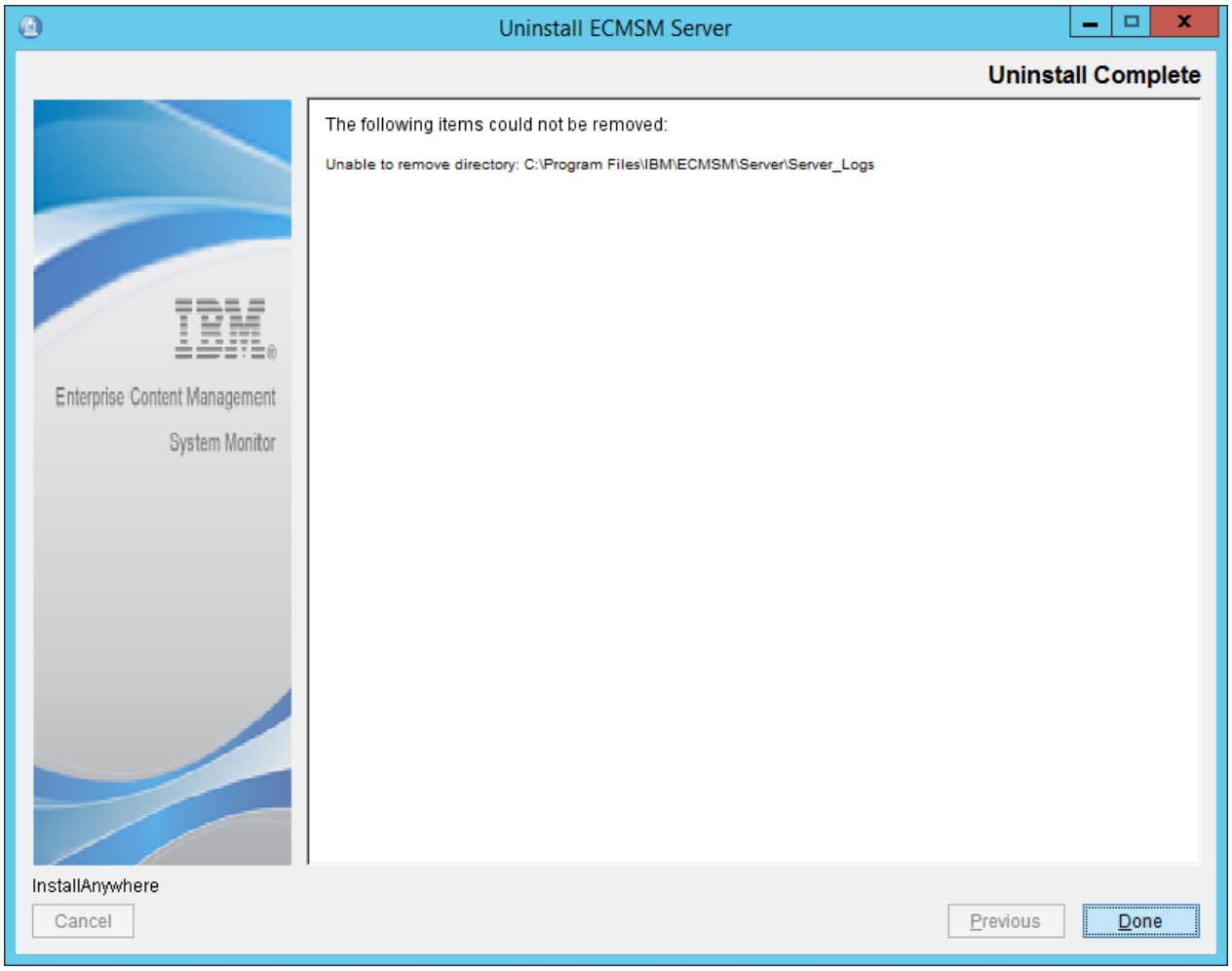

Image of Uninstall Complete

Please review the installation folder afterwards. You can delete any leftover files and folders.

AIX based systems

On AIX based installations the uninstall can be triggered via an uninstall binary (Uninstall_ESM_Agent or Uninstall_ESM_Server both located in the *`Installation_Root`*). Please make sure that you have the possibility of running a graphical installer (X11 is enabled) otherwise the procedure starts in console mode.

Follow the procedure, the first window will point out that you are about to uninstall the product.

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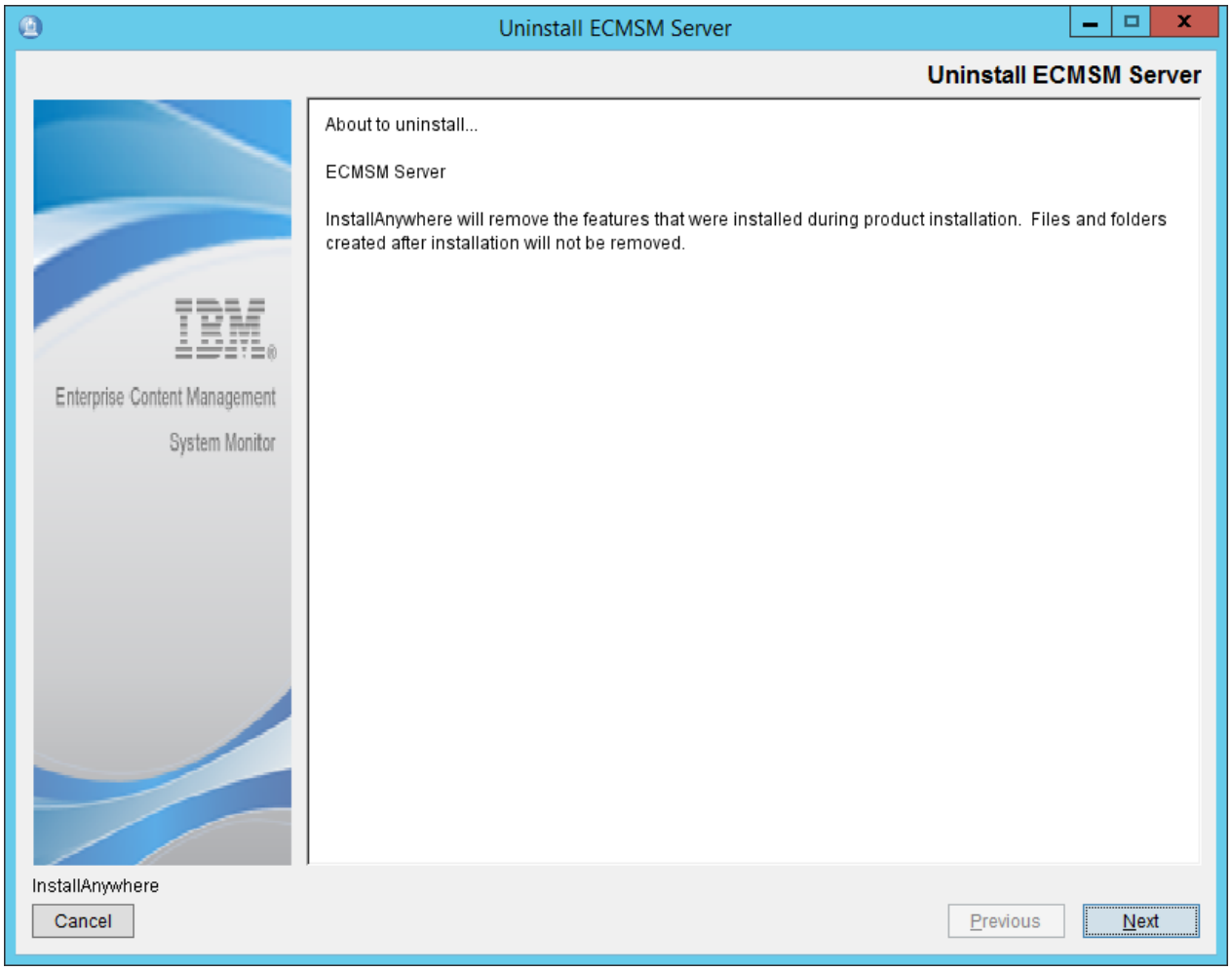

Image of Uninstall ESM Server

Select the Uninstall Option, by default "Complete Uninstall" is selected.

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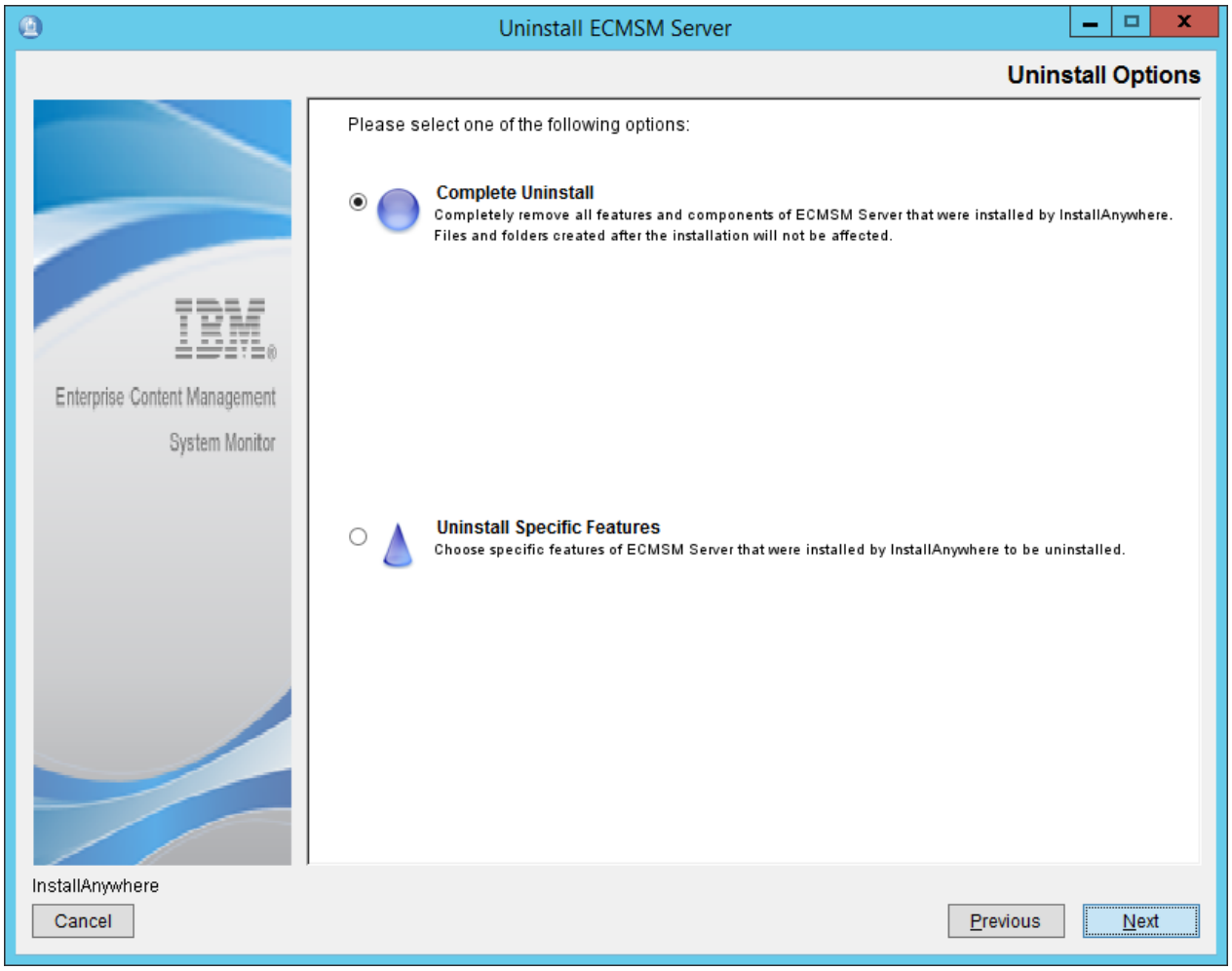

Image of Uninstall Options

The software is getting uninstalled. It can happen that not all files could be removed during uninstall process.

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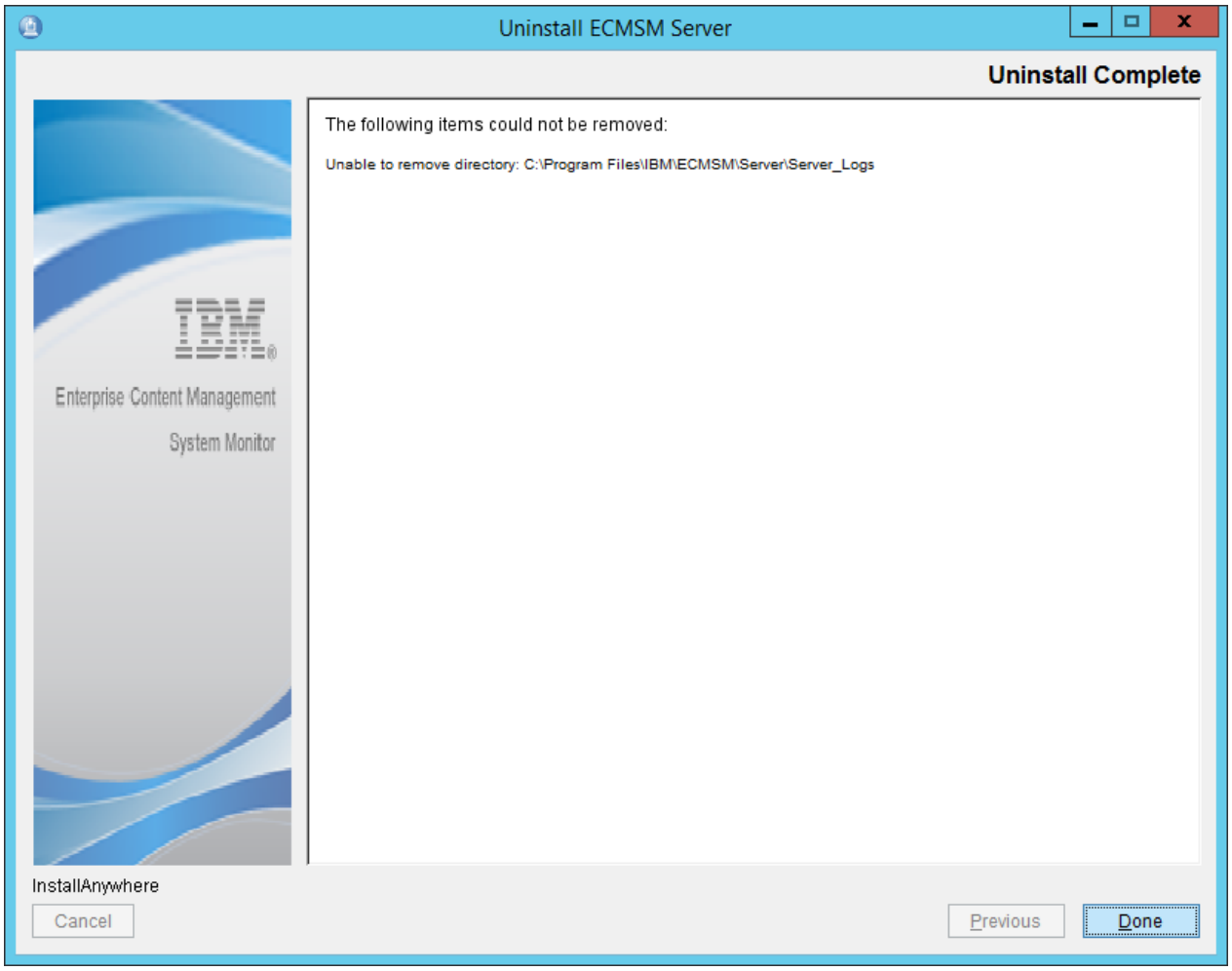

Image of Uninstall Complete

Please review the installation folder afterwards. You can delete any leftover files and folders.

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Running the ESM server with https - Using self-signed or authority signed certificates

The configuration for starting the ESM gui https based is located in the file org.ops4j.pax.web.cfg. The file can be found in <Installation-Root>/karaf/etc. The file also contains a java command which can be executed to create a self-signed certificate. The keystore file is located in the subdirectory ssl and named keystore and per default just contains a dummy certificate.

Create a self-signed certificate

Delete or rename the keystore file before running the command. The ESM server must be stopped.

Example 7. Java Command

```
$JAVA_HOME/bin/keytool -genkey -keyalg RSA -alias selfsigned -keystore keystore -storepass
password -validity 9999 -sigalg SHA256withRSA -keysize 2048 -storetype jks
```

To create a new self-signed certificate open a cmd or shell and switch to <Installation-Root>/karaf/etc/ssl. Execute the following command:

Windows

(CMD with full admin rights) ..\..\..\jre\bin\keytool -genkey -keyalg RSA -alias selfsigned -keystore keystore -storepass password -validity 9999 -sigalg SHA256withRSA -keysize 2048 -storetype jks

Unix/Linux

../../../jre/bin/keytool -genkey -keyalg RSA -alias selfsigned -keystore keystore -storepass password -validity 9999 -sigalg SHA256withRSA -keysize 2048 -storetype jks

Answer the question for username with FQDN of the ESM server. Leave the rest empty or answer if you like.

Restart the ESM - The GUI is available via https on port 443 (default) now.

Use an authority signed certificate

- Request a certificate and private key for the certificate. The certificate must contain all possible subject alternative names like alias, hostname and hostname + domain.
- Make sure you have the password for the private key, best is if the password is already password.
- Create a keystore with the name keystore from type jks.
- As password for the keystore use password.
- Add the server certificate and the private key to this keystore.
- The private key password must be password within the keystore.
- Replace the keystore file in <Install-Dir>/karaf/etc/ssl on the ESM Server

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- Restart the ESM Server afterwards - The GUI is available via https on port 443 (default) now and uses the new certificate.

NOTE Use a tool like keystore explorer for this procedure. It can be used to export and import certificates and private keys with password change etc.

IMPORTANT The keystore file is not maintained and is overwritten during the update process, please keep a copy and replace the file again after the update.

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Installing ESM 5.5.11 Containers

This section is intended for administrators and developers who want to operate ESM in a Container environment. Two installation types are covered:

- **Installation on a Container Orchestration Platform** Running ESM on a Kubernetes or OpenShift 4.x Cluster. This is the primary option if the cluster runs the applications that are to be monitored using the capabilities of ESM.
- **Installation on a Container Runtime:** Running ESM directly on a Container Runtime (i.e. Docker). This option is suitable for getting familiar with the product or in scenarios in which there is no Container Orchestration Platform (like OpenShift) available. This type of installation is described in this document

To follow this guide the reader should be familiar with the following topics:

- Operating on a Linux Shell
- Linux Containers concepts (Docker, containerd, CRI-O …)
- YAML

Tracking License Consumption of ESM

License Service is required for monitoring and measuring license usage of ESM in accord with the pricing rule for containerized environments. Manual license measurements are not allowed. Deploy License Service on all clusters where ESM is installed.

Overview

The integrated licensing solution collects and stores the license usage information which can be used for audit purposes and for tracking license consumption in cloud environments. The solution works in the background and does not require any configuration. Only one instance of the License Service is deployed per cluster regardless of the number of Cloud Paks and containerized products that you have installed on the cluster.

Deploying License Service

Deploy License Service on each cluster where ESM is installed. License Service can be deployed on any Kubernetes cluster. For more information about License Service, how to install and use it, see the License Service documentation.

Validating if License Service is deployed on the cluster

To ensure license reporting continuity for license compliance purposes make sure that License Service is successfully deployed. It is recommended to periodically verify whether it is active.

To validate whether License Service is deployed and running on the cluster, you can, for example, log in to

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the cluster and run the following command:

```
kubectl get pods --all-namespaces | grep ibm-licensing | grep -v operator
```

The following response is a confirmation of successful deployment:

```
1/1 Running
```

You can also check the License Service is running and the license metrics of ESM pods are measured corectly by accessing the status page. Follow the steps on Obtaining a status page.

Installation on Kubernetes & OpenShift 4.x

For this option a Helm Chart is available to automate the installation of ESM in a Kubernetes or OpenShift 4.x Cluster. The Helm Chart and all associated documentation can be found on GitHub.

Installation on a Container Runtime

Prerequisites

- A **Container Runtime**, such as `docker` is available on the system on which ESM shall be installed. Installing a Container Runtime is out of scope of this documentation.
- The **ESM Container Images** are either available in `.tgz` file format or are pullable from a Container Registry.
- A **Linux Shell** to execute the described commands on.

Load Container Images

A locally running Container Registry is not mandatory in order to install the ESM container images. To simplify the installation, the images are loaded from `.tgz` archives consisting of the ESM Container Images.

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Example 8. Example for loading the images

```
docker load -i esmserver.tgz
docker load -i esmagent.tgz
```

NOTE Images can alternatively be pulled from a registry using `docker pull <image name>`, in case the images are provided by a Container Image Registry to which the host has access to.

Provide a Common Container Network

A complete installation of ESM consists of a `esmserver` container and a `esmagent` container, whereat both containers need to communicate with each other. For this purpose, either use an exisiting Virtual Container Network, or create a dedicated one for ESM, like in this example:

Example 9. Example for creation of virtual container network

```
docker network create smnet
```

Run ESM Server Container With a Built-in H2 Database

In case the `esmserver` is executed without custom JDBC settings, the default behaviour is to initialize built-in H2 databases. H2 database instances run within the main container process of `esmserver` and do neither require a separate database container nor require a remote database to be provided.

Ephemeral Storage

Run a `esmserver` container with default settings and ephemeral storage:

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Example 10. Example for running the container with default settings and ephemeral storage

```
docker run -d --name smserver \
    --net=smnet \
    -p 8080:8080 \
    -p 1883:1883 \
    esmserver:5.5.11.0-004
```

The option `--net=smnet` is not required to run the container, but is needed to attach `esmagent` containers later.

CAUTION This container deployment stores all configuration on ephemeral storage, which will vanish on deletion of the container.

Persistent Storage

When using persistent storage, configuration and monitoring data collected with ESM Server will survive a complete removal and recreation of the container. To prepare persistent storage, create two directories on your local system which will each be mounted as volume on the container:

Example 11. Example for creation of volumes

```
docker volume create smdb

docker volume create smdeploy
```

Directory `smdb` will be used to store the H2 database files of ESM Server. Directory `smdeploy` can be used to provide additional dependencies to the ESM Server like 3rd party libraries or JDBC drivers.

The following command creates a ESM Server container with both of these directories mounted as volumes on the appropriate paths within the ESM Server's directory structure:

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Example 12. Example for the container configuration and mounting the volume for the H2 databases

```
docker run -d --name smserver \
    --net=smnet \
    -p 8080:8080 \
    -p 1883:1883 \
    -v smdb:/opt/sm/server/karaf/db \
    -v smdeploy:/opt/sm/server/karaf/deploy \
    esmserver:5.5.11.0-004
```

CAUTION

If existing H2 database files are found on the volume mounted, ESM Server will attempt to use these databases instead of overwriting them. In case the existing database files originate from an older version of ESM than the current container, the databases will be updated automatically.

Run ESM Server Container With IBM DB2

ESM provides support for IBM DB2 databases to store monitoring data and configuration data. With this option, collected monitoring data are stored in a DB2 database, instead of the built-in H2 database. Configuration data originating from configuration procedures in the Web UI cannot be stored in a DB2 database, but are still written to a built-in H2 database.

NOTE

ESM Server needs access to an *existing*, but empty database. ESM Server will not create the database itself. Hence, the user id for accessing the database does not require permissions to create a database, but only to create database objects.

Run a Local IBM DB2 Container

For testing and learning purposes it is possible to use an IBM DB2 database in a container on the same host. The following command will run an IBM Db2 database instance, which is attached to the common container network.

NOTE

ESM Server needs a Db2 database with a page size of 32768. By default the Db2 container used in these instructions does use a smaller page size. To mitiate this behaviour, the Db2 container's database creation scripts are modified.

The following commands instantiate a fresh Db2 container for later usage by ESM Server with all the

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neccessary prerequisities:

Example 13. Example for optional Db2 Container

```
# Create a directory to mount as a volume for persistence of the Db2
container's database data
docker volume create db2vol

# Run the container using the volume
docker run -itd -h mydb2 --name mydb2 \
    --net=smnet \
    --privileged=true \
    -p 50000:50000 \
    -e LICENSE=accept \
    -e DB2INST1_PASSWORD='MyDb2Database!' \
    -v db2vol:/database \
    docker.io/ibmcom/db2:11.5.5.0
```

On container start, the required image will be pulled automatically from Docker Hub's Image Registry, in case an internet connection is available. Find more information in the container's official documentation on Docker Hub. Startup and database initialization may take some time. The installation progress can be monitored by checking the container's log stream output for the term `Setup has completed`:

Example 14. Example for checking the log stream

```
docker logs -f mydb2 | grep "Setup has completed"
```

In the next step, the required Db2 database is created by using the CLI tools within the Db2 container:

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Example 15. Example for creating the required Db2 databases

```
# Enter the container (the prompt will look like this: [db2inst1@mydb2 ~]$)
docker exec -ti mydb2 bash -c "su - db2inst1"

# Create the databases for {productName} Server (it may take several minutes
for the commands to complete)
db2 create database confdb pagesize 32768
db2 create database mondb pagesize 32768

# Check whether the database has been created correctly
db2 list database directory

# Quit the Db2 container's shell
exit
```

Provide Db2 JDBC Driver

It is required to provide a JDBC driver for IBM Db2. JDBC drivers required for ESM to establish connections to a DB2 database are not delivered with the ESM Container Images. Suitable JDBC drivers can be obtained from IBM's website or the Maven repository.

The JDBC driver has to be provided to the container on a volume. This is accomplished by creating a new volume and copying the driver into a volume, which will then later be used during the creation of the ESM Server container.

Example 16. Example for downloading the Db2 JDBC driver

```
wget -O db2jdbc.jar
https://repo1.maven.org/maven2/com/ibm/db2/jcc/11.5.5.0/jcc-11.5.5.0.jar
```

To make the JDBC driver accessible to the ESM Server it needs to be copied to the `smdeploy` volume.

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Example 17. Example for copying the Db2 JDBC driver to the "smdeploy" volume

```
# Create a temporary container
docker container create \
    --name temp \
    -v smdeploy:/data \
    esmserver:5.5.11.0-004

# Use the container to copy the driver to the volume
docker cp db2jdbc.jar temp:/data

# Remove the temporary container
docker rm temp
```

Run ESM Server Container

In addition to running the container with a built-in database, using a Db2 database requires passing of JDBC parameters to the container:

- `JDBC_DRIVER_NAME`: Most likely `com.ibm.db2.jcc.DB2Driver`. May differ for future versions of DB2 JDBC drivers.
- `JDBC_URL`: URL including host, port, and database name. In a container context, make sure a to use a valid IP or DNS name that resolves to the remote DB2 database or a local DB2 container.
- `JDBC_USER` and `JDBC_PASSWORD`: Credentials for accessing the database.
- `JDBC*` variables without prefix `MONITORING_` refer to the ESM configuration database. Variables including the prefix `MONITORING_` refer to the ESM monitoring database.

The following example shows how to start the ESM Server container based on the Db2 preparations accomplished previously:

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Example 18. Example for using the local Db2 container with ESM Server

```
docker run -d --name smserver \
    --net=smnet \
    -p 8080:8080 \
    -p 1883:1883 \
    -v smdeploy:/opt/sm/server/karaf/deploy \
    -e JDBC_DRIVER_NAME='com.ibm.db2.jcc.DB2Driver' \
    -e JDBC_URL='jdbc:db2://mydb2:50000/confdb' \
    -e JDBC_USER='db2inst1' \
    -e JDBC_PASSWORD='MyDb2Database!' \
    -e MONITORING_JDBC_DRIVER_NAME='com.ibm.db2.jcc.DB2Driver' \
    -e MONITORING_JDBC_URL='jdbc:db2://mydb2:50000/mondb' \
    -e MONITORING_JDBC_USER='db2inst1' \
    -e MONITORING_JDBC_PASSWORD='MyDb2Database!' \
    esmserver:5.5.11.0-004
```

Run ESM Server Container With SQL Server

ESM provides support for Microsoft SQL Server databases to store monitoring data and configuration data. With this option, collected monitoring data are stored in a DB2 database, instead of the built-in H2 database. Configuration data originating from configuration procedures in the Web UI cannot be stored in a DB2 database, but are still written to a built-in H2 database.

NOTE ESM Server needs access to an *existing*, but empty database. ESM Server will not create the database itself. Hence, the user id for accessing the database does not require permissions to create a database, but only to create database objects.

Run a Local SQL Server Container

For testing and learning purposes it is possible to use a SQL Server database in a container on the same host. The following command will run an SQL Server database instance, which is attached to the common container network:

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Example 19. Example for runnig an SQL Server container

```
# Create a Docker volume for persistence of the SQL Server container's database
data
docker volume create sqlvol

# Run the container
docker run -d --name sqlserver \
    --net=smnet \
    -p 1433:1433 \
    --name sqlserver \
    -h sqlserver \
    -e ACCEPT_EULA='Y' \
    -e SA_PASSWORD='MySQLServerDatabase!' \
    -v sqlvol:/var/opt/mssql \
    mcr.microsoft.com/mssql/server:2019-latest
```

On container start, the required image will be pulled automatically from Microsoft's Image Registry, in case an internet connection is available. Find more information on the container in its official documentation at Microsoft. Startup and database initialization may take some time. The installation progress can be monitored by checking the container's log stream output for the message `SQL Server is now ready for client connections.`:

Example 20. Example for checking the log stream

```
docker logs -f sqlserver | grep 'ready for client connections'
```

To create the database required by ESM Server, run the following command in the container:

Example 21. Example for creating a database on the newly started SQL Server container

```
docker exec -it sqlserver /opt/mssql-tools/bin/sqlcmd \
    -S localhost -U SA -P "MySQLServerDatabase!" \
    -Q 'CREATE DATABASE confdb COLLATE Latin1_General_CI_AS;
        CREATE DATABASE mondb COLLATE Latin1_General_CI_AS;
        SELECT name FROM master.sys.databases'
```

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Provide SQL Server JDBC Driver

It is required to provide a JDBC driver for Microsoft SQL Server. JDBC drivers required for ESM to establish connections to a DB2 database are not delivered with the ESM Container Images. Suitable JDBC drivers can be obtained from Microsoft's website or the Maven repository.

The JDBC driver has to be provided to the continer on a volume. This is accomplished by creating a new volume and copying the driver into a volume, which will then later be used during the creation of the ESM Server container.

Example 22. Example for downlading the SQL Server JDBC driver

```
wget -O sqljdbc.jar
https://repo1.maven.org/maven2/com/microsoft/sqlserver/mssql-
jdbc/9.2.1.jre8/mssql-jdbc-9.2.1.jre8.jar
```

To make the JDBC driver accessible to the ESM Server it needs to be copied to the `smdeploy` volume.

Example 23. Example for copying the SQL Server JDBC driver to the "smdeploy" volume

```
# Create a temporary container
docker container create \
    --name temp \
    -v smdeploy:/data \
    esmserver:5.5.11.0-004

# Use the container to copy the driver to the volume
docker cp sqljdbc.jar temp:/data

# Remove the temporary container
docker rm temp
```

Run ESM Server Container

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Example 24. Example for using the local SQL Server container with ESM Server

```
docker run -d --name smserver \
    --net=smnet \
    -p 8080:8080 \
    -p 1883:1883 \
    -v smdeploy:/opt/sm/server/karaf/deploy  \
    -e JDBC_DRIVER_NAME='com.microsoft.sqlserver.jdbc.SQLServerDriver' \
    -e JDBC_URL='jdbc:sqlserver://sqlserver:1433;databaseName=confdb' \
    -e JDBC_USER='sa' \
    -e JDBC_PASSWORD='MySQLServerDatabase!' \
    -e
MONITORING_JDBC_DRIVER_NAME='com.microsoft.sqlserver.jdbc.SQLServerDriver' \
    -e MONITORING_JDBC_URL='jdbc:sqlserver://sqlserver:1433;databaseName=mondb'
\
    -e MONITORING_JDBC_USER='sa' \
    -e MONITORING_JDBC_PASSWORD='MySQLServerDatabase!' \
    esmserver:5.5.11.0-004
```

Run ESM Agent Container

Run an instance of ESM Agent with the following commands:

Example 25. Example for runnig an instance

```
docker run -d --name smagent \
    --net=smnet \
    -p 1180:1180 \
    -e SERVER_HOSTNAME='smserver' \
    -e CLIENT_ID='agent01' \
    esmagent:5.5.11.0-004
```

Variable `SERVER_HOSTNAME` must contain an IP address or DNS name that resolves to the ESM Server Container. In the example above it can use the name ESM Server Container as all containers have been started within the same network (`smnet`). The value for `CLIENT_ID` must be unique among all instances of Agents that connect to the same Server.

Accessing ESM Server Web GUI

Access the Web GUI using a http://IP-or-DNS-to-container:8080. Section "Agents" should list the previously started Agent Container with status `online`.

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Troubleshooting

Container Logs

Extended logging can configured with the container environment variable `LOG_LEVEL`. Example:

Example 26. Example for adjusting the logging

```
-e LOG_LEVEL='DEBUG'
```

Validating DB2 Database Initialization

If an IBM Db2 database is used for the storage of Monitoring Data, ESM Server Container will automatically create all required database objects. To verify this on a DB2 database running as local container, enter the container:

Example 27. Example for entering the container

```
docker exec -ti mydb2 bash -c "su - db2inst1"
```

Run the Db2 CLI in the container:

Example 28. Example for running DB2 CLI in the container

```
db2
```

On the DB2 CLI, check the contents of the database for tables created by ESM Server:

Example 29. Example for checking the content

```
db2 => connect to smdb
db2 => list tables
```

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The `list tables` command should print an output similar to the following:

Example 30. Example output of list tables

```
Table/View                      Schema          Type  Creation time
------------------------------- --------------- ----- --------------------------
DATABASECHANGELOG               db2inst1        T     2020-03-23-
11.04.47.610978
INCIDENT                        db2inst1        T     2020-03-23-
11.04.50.708366
INCIDENT_SAMPLEIDS              db2inst1        T     2020-03-23-
11.04.53.040725
SAMPLE                          db2inst1        T     2020-03-23-
11.04.53.600320
[...]
```

Validating SQL Server Database Initialization

If an SQL Server database is used for the storage of Monitoring Data, ESM Server Container will automatically create all required database objects. To verify this on a SQL Server database running as local container, enter the container:

Example 31. Example for querying for tables in "smdb"

```
docker exec -it sqlserver /opt/mssql-tools/bin/sqlcmd \
    -S localhost -U SA -P "MySQLServerDatabase!" \
    -Q 'SELECT TOP 10 TABLE_NAME FROM smdb.INFORMATION_SCHEMA.TABLES'
```

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Example 32. Example output of tables

```
TABLE_NAME
------------------------------
INCIDENT
INCIDENT_SAMPLEIDS
SAMPLE
DATABASECHANGELOG
AGENT
AGENT_FILES
AUDITLOG
CONFIGURATION
CONFIGURATION_CONFIGURATION
CONFIGURATION_PROPERTY
[...]
```

Teardown & Cleanup

The ESM Server and ESM Agent containers catch signals sent by commands such as `docker stop` and thereupon attempt to stop themselves gracefully.

Example 33. Example for docker stop

```
docker stop smserver
docker stop smagent
```

To forcefully stop and delete the ESM containers at once, use:

Example 34. Example for forcefull stop

```
docker rm -f smserver
docker rm -f smagent
```

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Appendix A: Copyright notice

IBM Enterprise Content Management System Monitor

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