IBM® Water Operations for Waternamics 用户指南

注意：在使用本资料及其支持的产品之前，请阅读文档末尾的<u>声明</u>部分中的信息。

本版本适用于 IBM ® Water Operations for Waternamics V5R1M0 以及所有后续发行版和修订版，直到新版本中另有指示为止。

内容

1. 简介

本指南是 IBM® Water Operations for Waternamics 中各种功能的简介,并描述了解决方案实施的某些用例。

有关使用该解决方案的更多信息,请参阅 IBM® Intelligent Operations Center 产品文档。

2. 解决方案概述

IBM® Water Operations for Waternamics 是构建于 IBM® Intelligent Operations Center 软件至少并增强了其功能的解决方案。

IBM® Water Operations for Waternamics 设计为基于情境的解决方案,用于协助城市自来水网络或水资源区域的有效运行控制。

该解决方案带来以下好处:

- 从传感器和企业系统收集数据并关联数据。这包括关于资产、度量读数和事件的数据。
- 将地理空间上下文中的该数据提供给不同用户概要文件,因此向用户提供相关信息以使他们能够每天以及在危机情况下做出明智的决策。在展示之前,可选择由解决方案来分析数据以及对数据进行预处理。数据通过两个视图提供:"操作"视图和"状态"视图。
- 促进通过标准操作过程 (SOP) 的手动或自动触发来返回到普通操作。

该解决方案的目标不是为了取代您的每个功能性、历史性、专用和已得到证明的系统,例如地理信息系统 (GIS)、企业资产管理 (EAM) 系统、监控和数据采集 (SCADA) 系统,而是为了收集和关联最佳操作控制所需的相关数据。

2.1. "操作"视图

在"操作"视图中,可以在地理空间图上、位置图上或列表中查看数据。数据包括:

- 资产,带有或不带有关联传感器读数
- 事件,包括来自传感器和企业系统的工单和警报
- (可选)源外的数据,例如天气订阅源和"公开数据"存储库。

选择**我的视图 > 列表**可查看、监视和管理列表中的数据项。

选择**我的视图 > 逻辑图**可监视地图中的语义模型,并显示选定资产和语义数据模型中其他项的关系。模型通过对现实世界的抽象描述来呈现基础结构、资产和度量。有关语义模型的更多信息,请参阅 IBM® Intelligent Operations Center 产品文档:填充基础结构。

使用"过滤器"窗口可定义所显示的数据。不同过滤器将分组为过滤器窗格。

有关"操作"视图的更多信息,请参阅 IBM® Intelligent Operations Center 产品文档中的"查看、过滤和分析 Device Management Enablement 数据"。

3. 用户角色和访问权
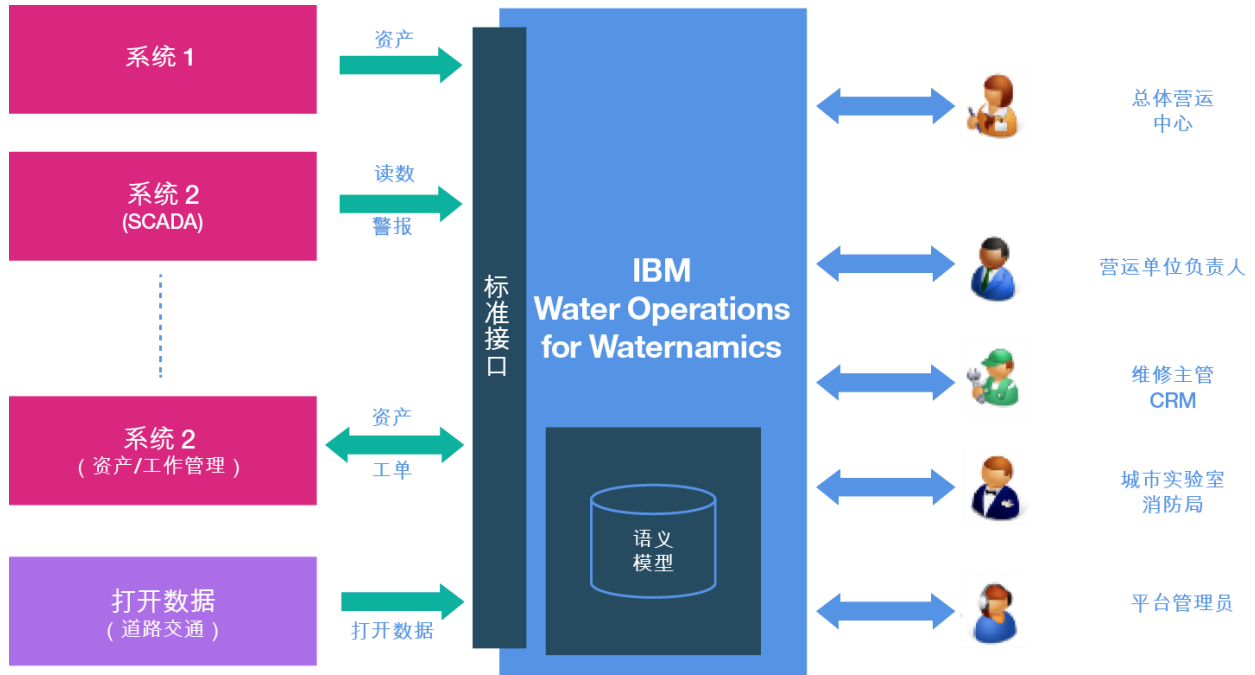
图 1：IBM® Water Operations for Waternamics 用户上下文

IBM® Water Operations for Waternamics 聚集来自组织中负责自来水网络操作的不同系统的数据，以及来自外部系统的数据。从一个实现到另一个实现，这些系统都不相同。但是，解决方案使用预定义接口，如果您遵循这些接口，那么部署将比较简单。

处理该数据之后，它将根据用户概要文件而被呈现给不同用户。以下是随解决方案一起安装的缺省角色。根据部署了解决方案的城市的需求，可激活某些或所有角色；

标签	专用操作视图	性能指示器页面
管理员	X	X
管理员	X	X
监管者	X	X
本地政府	X	
客户服务中心	X	
供水处理人员	X	X
废水处理人员	X	X
维护工作人员	X	X
消防员	X	

标签	专用操作视图	性能指示器页面
操作员	X	X

将为每个概要文件创建用户组。将为每个组创建一个视图或"操作"页面，以便每个组都可访问其角色所需的所有数据。

4. 在地图和列表上过滤数据

可通过从"过滤器"窗口选择一个或多个过滤器来选择想要显示在地图或列表中的数据。为您提供的过滤器由您的用户概要文件确定。例如，您可能选择按地理空间位置和状态来过滤数据。

有关更多信息，请参阅 IBM® Intelligent Operations Center 产品文档：过滤地图和列表上的资产。

4.1. 仅过滤 饮用水系统数据

如果部署仅与饮用水系统相关，那么可使用解决方案提供的用于处理饮用水系统的过滤器。这些过滤器在"过滤器"窗口中分组为过滤器窗格。过滤器组包含以下内容：

- 水务系统：管道设备
- 水务系统：区域
- 水务系统：传感器
- 事件
- 水务系统：客户
- 水务系统：质量
- 水务系统：干预
- 水务系统：警报

如果需要，可以在安装解决方案之后重新组织这些过滤器。

4.2. 过滤饮用水和废水系统 的数据

如果 IBM® Water Operations for Waternamics 解决方案仅与饮用水和废水网络相关，那么可使用解决方案为这些系统提供的过滤器组。过滤器组包含以下内容：

- 水务系统：管道设备
- 水务系统：区域
- 水务系统：传感器
- 事件
- 水务系统：质量
- 水务系统：干预
- 水务系统：警报
- 废水：下水道

- 废水：系统元素
- 废水：区域
- 废水：传感器
- 废水：干预
- 表面区域网络：下水道
- 表面区域网络：事件
- 表面区域网络：站点
- 表面区域网络：传感器

如果需要，可以在安装解决方案之后重新组织这些过滤器。

5. IBM® Water Operations for Waternamics 的用例

5.1. 查看系统和区域

5.1.1. 水资源系统

5.1.1.1. 管道部分

您可能需要通过地图上的资产属性来轻松地识别资产。例如，您可能需要通过特定线粗度来显示特定直径的管道，或者用管道颜色来指示管道的状态。该解决方案提供了两个配置：

- 通过单个颜色和常量粗度来显示管道。颜色为所选择的过滤器组的颜色。

  或者，
- 代表管道的线宽度与管道部分的直径成正比，线的颜色根据网络类型以及管道部分的状态而有所不同。

如果采用了第二个解决方案，那么主层展示管道部分及其直径和网络类型，在辅助层中，颜色指示管道部分的状态。该状态由度量读数以及这些读数与 GIS 中名称相同属性的值对应的情况来确定。这意味着如果 GIS 显示与读数所记录状态不同的状态，那么管道颜色的指示异常。否则，颜色指示正常状态。

如果没有读数可用，那么将根据在资产级别声明的当前值来确定状态，如以下表中所示：

区段 （类：Esri.wMain）	属性 ENABLED （"已充满"）	无读数	状态
	值 = 1，已启用	无	值 = 0（普通阈值）- 绿色
	值 = 0，已禁用	无	值 = 2（关键阈值）- 红色

5.1.2. 分区和效率

您可以显示测压管水位区域。

5.1.2.1. 测压管水位

IBM® Water Operations for Waternamics 显示测压管水位区域。区域数据必须通过资产接口提供。将显示属于相同测压管水位的多边形资产以及在逻辑上与级别关联的所有资产，例如传感器和设备。资产属性指示资产所述的区域。

选择测压管水位以显示其特征。与每个测压管水位关联的多边形具有填充色。

可以使用两个解决方案来显示测压管水位：

- 分区通过统一填充色显示，或者通过其变的表示来区分。

或者，

- 分区以在接口中指定的单独颜色显示，以反映分区的测压管水位。这信息通过资产接口来反馈。线颜色反映了分区与关联读数类型和已配置阈值关联的状态。

将与每个测压管水位关联的颜色、读数类型和阈值将根据资产接口发送到解决方案。"状态"颜色为 IBM® Water Operations for Waternamics 标准状态颜色。五个状态包括：未确定、无值、可接受、注意和关键。

5.1.3. 资产界面

资产数据将通过资产接口进行更新。

<u>描述</u>

接口标识	I1
接口名称	IOW-IN-ASSETS-CORE
输入数据格式	XML
输出数据格式	RDF/ IBM® Water Operations for Waternamics 格式
接口客户机	IBM® Water Operations for Waternamics
该接口的合作伙伴的示例 (*)	存在 ESRI 和 GAMA 系统的可复用连接器。
接口拓扑	频率为一天两次的批处理方式。数据最初是在平台安装期间装入的，然后每天进行添加或更新。 重要信息：初始装入时间可能需要一点时间。

注意：对于所有接口，提供源数据的工具的唯一需求是：该数据支持该数据格式。

数据格式

该接口处理的数据为 XML 格式。格式在 XSD 文件 **VDS_IOW-IN-ASSETS-CORE.xsd 中描述。**

5.2. 查看设备和传感器

5.2.1. 一般行为

选择相关过滤器来显示地图上的资产。无论资产是否具有关联的度量读数，都将被显示出来。

可配置资产类型，以便资产可按如下方式显示：

- 状态与由外部系统发送的读数值或由解决方案计算的读数值一起显示。
- 可根据该状态或 IBM® Water Operations for Waternamics 地理区域的选择来过滤显示。
- 资产状态由资产类型配置确定。

这些资产类型以如下方式显示在地图上：

- 每个数据项显示一个唯一的图标。
- 如果多个数据项彼此之间都在特定距离之内，那么集群图标用于代表地图上临近属性集的分组。
- 资产图标具有背景色，背景色基于与包含资产的层关联的过滤器窗格。
- 资产图标具有状态框架，其颜色根据先前配置的阈值和关联读数来确定。当读数不可用时，该框架被禁用。

针对可能会在地图上同时显示超过 3000－5000 个资产的资产层，您还可以配置服务器端呈现。有关服务器端呈现的更多信息，请参阅 IBM® Intelligent Operations Center 产品文档：优化地图呈现。当前，只有网络在服务器端呈现。

5.2.2. 资产和资产状态

5.2.2.1. 数据加载程序上的值状态

此处的需求是显示值的位置及其属性，其中所显示的每个值的状态都与其期望状态不同。例如，阀门是打开的，但实际上其应为关闭的，反之亦然。

期望状态由操作员的系统提供。该状态将通过资产接口发送到 IBM® Water Operations for Waternamics。

实际状态通过读数界面作为度量发送。

- 可根据为语义模型中的阀门定义的设备类型来进行过滤。结果层根据以下表中概括的规则来显示阀门数据。颜色不会表示普通/异常情况，但反过来颜色会指示阀门是打开（绿色）还是关闭（红色）。橙色显示"暂时"关闭的阀门：

阀门 （类： Esri.wSystemValve）	属性 CURROPEN （"当前打开"）	CURROPEN 读数 （"当前打开"）	状态
	值 = 1，"阀门打开"	值 = 1，"阀门打开"	值 = 0（可接受阈值）-绿色
	值 = 1，"阀门打开"	值 = 0，"阀门关闭"	值 = 1（需注意阈值）-橙色
	值 = 0，"阀门关闭"	值 = 0，"阀门关闭"	值 = 2（关键阈值）- 红色
	值 = 0，"阀门关闭"	值 = 1，"阀门打开"	值 = 0（可接受阈值）-绿色

如果没有读数可用，那么状态将根据在资产级别声明的当前值来确定： 阀门 （类： Esri.wSystemValve）	属性 CURROPEN （"当前打开"）	无读数	状态
	值 = 1，"阀门打开"	无	值 = 0（可接受阈值）-绿色
	值 = 0，"阀门关闭"	无	值 = 2（关键阈值）- 红色

因此，可根据阀门的状态来过滤阀门数据，显示打开、关闭或临时关闭的阀门。

图标	▶◀

5.2.2.2.   网络资产

5.2.2.2.1.   消防栓

可显示消防栓的位置和属性。显示根据确定消防栓状态特征的读数而有所不同。与阀门的显示类似，该规则根据属性/读数对应性来应用于显示消防栓。

可根据为语义模型中的消防栓定义的资产类型来进行过滤。结果层根据以下表中概括的规则来显示消防栓数据。

颜色不会表示普通/异常情况，但指定消防栓是已充满（绿色）还是干的（红色）。橙色显示"暂时"干的消防栓。

消防栓 （类： Esri.wHydrant）	属性 ENABLED （"已充满"）	读数 ENABLED （"已充满"）	状态
	值 = 1，"已充满消防栓"	值 = 1，"已充满消防栓"	值 = 0（可接受阈值）- 绿色
	值 = 1，"已充满消防栓"	值 = 0，"干的消防栓"	值 = 1（需注意阈值）- 橙色
	值 = 0，"干的消防栓"	值 = 0，"干的消防栓"	值 = 2（关键阈值）- 红色

	值 = 0，"干的消防栓"	值 = 1，"已充满消防栓"	值 = 0（可接受阈值）- 绿色

如果没有读数可用，那么将根据在资产级别声明的当前值来确定状态：

	属性 **ENABLED**（"已充满"）	无读数	状态
消防栓（类：Esri.wHydrant）	值 = 1，"已充满消防栓"	无	值 = 0（可接受阈值）- 绿色
	值 = 0，"干的消防栓"	无	值 = 2（关键阈值）- 红色

消防栓数据通过资产接口提供，消防栓读数（包括开头）通过读数接口提供。

消防栓的图表	

5.2.2.2.2.　　清洗

可根据为语义模型中的清洗定义的资产类型来进行过滤。结果层显示清洗的位置和属性。还可显示清洗的永久流警报。

差异分析:

存在显示永久流警报的专用警报层

有两个单独的层，一个是"资产"层，另一个是"警报"层。

清洗数据通过资产界面提供，读数通过读数界面提供。

清洗级别的"永久流"警报通过警报接口在 IBM® Water Operations for Waternamics 中反馈。

在设备级别，特定属性框用于查看与清洗关联的警报的列表。

清洗的图标	

5.2.2.2.3.　　减压阀

可查看没有特殊符号规则的减压阀的位置，即没有"红色/琥珀色/绿色"状态的减压阀。还可以查看关联压力传感器的上游和下游压力。

- 为减压阀资产显示了一层。
- 为压力传感器资产显示了一层。
- 减压阀的传感器压力显示在逻辑视图中。

减压阀的图标	
压力传感器的图标	

5.2.2.2.4. 测光区域检测工具

该视图显示测光区域检测工具的位置。

测光区域检测工具的图标	

5.2.2.2.5. 互联

该视图显示互联的位置。为互联显示了一层。

互联的图标	✳

5.2.2.3. 工厂资产

将显示泵站、水库和工厂的位置和属性，而且每个楼宇类型用单个图标表示。

为每种类型的工厂资产或安装定义了过滤器，例如，水库/水塔、提水工厂和增压站。

水库的图标	
提水工厂的图标	
集水的图标	
警报站的图标	
水厂的图标	
升压工厂的图标	

5.2.2.4. 压力传感器

工厂压力传感器及其状态的处理方式与网络上压力传感器的处理方式相同。

压力传感器的图标	

5.2.2.5. KAPTA™ 传感器

KAPTA™ 传感器和其状态通过与网络上的压力传感器的相同处理方式来进行处理。

KAPTA™ 传感器的图标	

5.2.2.6. 自监视采样点

采样点的位置和属性必须可显示。您必须能够查看自监视采样点，以及常规采样点。

采样点的状态由上次分析的结果确定。

为自监视程序的采样点创建一层，为常规监视点创建一层。

自监视采样点的图标	
常规采样点的图标	

5.2.2.7. 工厂出水口传感器

这些传感器是单读数传感器，包括氯、浑浊度和温度传感器。

可显示这些传感器的位置和属性。

其状态通过将度量与其类型的已定义阈值进行比较来确定。

为所有工厂排水口传感器创建一层。

工厂排水口传感器的图标	

5.2.3. 资产界面

传感器和工厂资产通过资产接口更新。

描述

接口标识	I1
接口名称	IOW-IN-ASSETS-CORE
输入数据格式	XML
输出数据格式	RDF/ IBM® Water Operations for Waternamics 格式
接口客户机	IBM® Water Operations for Waternamics

接口拓扑	频率为一天两次的批处理方式。

数据格式

该接口处理的数据为 XML 格式。数据格式由 XSD 文件 **VDS_IOW-IN-ASSETS-CORE.xsd** 描述。

5.3. 查看资产属性

5.3.1. 一般行为

单击资产可显示包含项属性的预览卡。这些属性通过资产接口返回到 IBM® Water Operations for Waternamics 中。

5.3.2. 在外部服务器上查看其它信息

某些设备可与超文本链接关联,例如,数据仓库中存储的 PDF 文档的链接。

如果 URL 属性存在,将通过资产接口以超文本链接的形式返回属性。

5.3.3. 查看与资产关联的警报和工单

要查看与选定资产关联的警报和工单,单击预览卡上的**更多信息**。

5.3.4. 资产界面

资产属性通过资产接口同步。

描述

接口标识	I1
接口名称	IOW-IN-ASSETS-CORE
输入数据格式	XML
输出数据格式	RDF/ IBM® Water Operations for Waternamics 格式
接口客户机	IBM® Water Operations for Waternamics

接口拓扑	频率为一天两次的批处理方式。

数据格式

该接口处理的数据为 XML 格式。格式在 XSD 文件 **VDS_IOW-IN-ASSETS-CORE.xsd** 中描述。

5.4. 搜索资产

5.4.1. 一般行为

有三种方式来搜索 IBM® Water Operations for Waternamics 中的资产：

- 按地图上的资产标识搜索资产
- 按逻辑图上的资产标识搜索资产
- 按资产地址搜索资产

5.4.2. 搜索地图上的资产

要使用资产标识搜索资产，单击"过滤器"窗口中的**搜索资产**，输入标识，并单击**搜索**。资产的预览卡将显示在地图上。

5.4.3. 按逻辑图上的标识搜索

还可以按资产在逻辑图上的 IBM® Water Operations for Waternamics 标识来搜索资产。选择资产之后，上下文菜单使您能够看到地图上的资产。

5.4.4. 按地图上的地址搜索

要按地址搜索，单击"过滤器"窗口中的**按地址搜索**，并输入位置。成功的搜索会将地图重新定位到该位置。

5.5. 查看资产的读数和状态

5.5.1. 一般行为

一个或多个读数可与每个资产关联。对于每个读数，读数和已定义阈值之间的比较在读数级别按颜色显示。有三个标准阈值，每个阈值都有预定义颜色。阈值按资产或按资产类型定义，并将自动应用于每个资产上。

某个读数有资格成为主读数，它确定地图上图标状态的颜色。对于每个资产类型都会定义一个主读数。

在 IBM® Water Operations for Waternamics 中，仅可定义三个阈值：

- 可接受：以绿色显示
- 注意：以橙色显示
- 关键：以红色显示

当读数在阈值之外，并因此无法用于确定级别时，那么状态无法确定且被灰掉。

示例：
通过以下限制定义三个阈值：

- 可接受：大于或等于 0 且小于 -5
- 注意：大于或等于 0 且小于 100
- 关键：大于或等于 100 且小于 200

值为 排除下限而且 包含上限。例如：

- 如果值 = -50，那么级别 = **不确定**（灰色），即在限制之外
- 如果值 = 0，那么级别 = **可接受**（绿色）
- 如果值 = 100，那么级别 = **注意**（橙色）
- 如果值 = 200，那么级别 = **关键** （红色），
- 如果值 = 250，那么级别 = **不确定**（灰色），即在限制之外

读数类型和阈值通过资产接口为每个资产定义。读数通过读数接口导入到 IBM® Water Operations for Waternamics 中。

5.5.2. 资产状态

资产状态由资产的最差读数确定。例如，如果涉及到三种类型的读数，其中一种读数为关键，其他两种类型为普通，那么资产状态指示为关键，因此解决整体一致性的问题。

5.5.2.1. 压力传感器和减压阀

压力传感器由六个属性确定其特征。执行属性的值通过读数接口导入到 IBM® Water Operations for Waternamics 中。这些属性是：

- 压力
- 维护状态
- 错误状态（无论传感器是否有缺陷）
- 短期错误
- 长期错误
- 一般错误

错误值指示传感器的问题。"常规错误"读数是其他错误的最大值。该值指示传感器的整体状态。

如果压力传感器与减压阀关联，那么传感器的压力读数可被认为是减压阀的特征，而且应考虑传感器的常规错误来确定减压阀的状态。要查找关联的值，可从父代到子代导航逻辑视图，并查看相关读数和状态。

维护读数还与减压阀关联。

5.5.2.2. KAPTA™ 传感器

KAPTA™ 传感器通过四个度量来确定：氯、导电性、压力和温度。

正如水质读数一样，传感器的整体状态由最差读数确定，这根据读数阈值来确定。

5.5.2.3. 流读数

流和压力传感器与生产单元关联。可从传感器查看这些读数的日志和状态。

了解与生产单元关联的传感器的状态和读数是非常有利的。该信息可通过逻辑视图导航到关联传感器来获取。

可按传感器的每个类型来过滤。

5.5.2.4. 互联读数

测量点、门、压力传感器和压力调节阀与每个互联关联。

可按设备类型和互联来过滤。

可导航逻辑视图来获取源自互联设备的流读数、门状态、压力读数和调节阀状态。

5.5.2.5. 分区和效率

夜间流和容量读数与分区水表关联。

将为分区水表定义过滤器。

通过与水表关联的测压管分区获取信息是非常有利的。可在逻辑视图中找到该信息。

5.5.3. 读数接口

设备分析读数通过读数接口来更新。

<u>描述</u>

接口标识	I2
接口名称	IOW-IN-READINGS-CORE
输入数据格式	XML
输出数据格式	CSV / IBM® Water Operations for Waternamics 格式

接口客户机	IBM® Water Operations for Waternamics
接口拓扑	频率待确定的批处理方式

数据格式

该接口处理的数据为 XML 格式。格式在 XSD 文件 **VDS_IOW-IN-READINGS-Core.xsd** 中描述。

5.6. 查看水库和水位

5.6.1. 一般行为

水库的行为与设备和状态监视的行为相同。状态取决于通过读数接口导入的水箱的水位，将使用最差水箱的状态。

5.7. 事件和警报管理

5.7.1. 一般行为

对于特定层，可由系统自动创建事件，还可手动创建警报。警报通过警报接口自动生成。

5.7.1.1. 图标

事件或警报类型在特定层中进行标识。标识地图上的事件或警报的图标与每个过滤器组关联。图标的背景色与过滤器组的颜色匹配。

事件或警报类型通过特定图标来标识。背景色与每个过滤器组关联，"轮廓"颜色指示事件状态。

- 已关闭：绿色

- 未关闭（可疑、可处理、待处理：红色）

示例：

当您在"过滤器"窗口中选择一个或多个过滤器时，与得到的层关联的事件和警报显示在地图上。

要显示事件或警报的属性，单击地图上的事件或警报图标。还可更新或取消事件或警报。

5.7.1.2. 状态

四个事件和警报状态如下所示：

- 可疑
- 可处理
- 待处理
- 已关闭

要确认事件或警报，单击警报或事件的预览卡上的**更多操作**，并单击**确认事件/警报**。

值"是"将被分配到事件或警报的**已确认**字段，当前日期显示在**结束日期**字段中。

根据应用于"已确认"字段的过滤器，已确认事件或警报不会被除去，并仍可查看。缺省情况下，无论事件和警报是否确认，所有事件和警报都可见。

您无法在警报确认操作期间添加注释。但是，可通过单击**更多操作 > 更新**在确认操作之前或之后添加注释。

5.7.1.3. 过滤器

可根据以下内容过滤事件和警报：

- 类型（每层仅一个类型）

- 状态

- 关联区域

- 确认（是否确认）

- 创建事件或警报的人员

- 日期

应用日期过滤器后，只有开始日期在搜索开始日期和结束日期之间的事件才会显示。

5.7.2. 事件功能

5.7.2.1. 事件类型

可显示以下事件类型：

- 紧急泄露

- 火

- 水资源盗窃

- 气候事件

- 其他

5.7.2.2. 图标

特定图标标识每个事件类型。

事件	图标
主水质量非合规性	⊗
可见和紧急泄露	
火	
河道污染	
大洪水	
水坝泄洪	
水资源盗窃	
热浪	
寒潮	
大风暴	
增强安全限制	

5.7.2.3. 创建事件

要创建事件，首先在"过滤器"窗口中选择一个或多个过滤器来显示所需数据层。单击**更多操作 > 新建项**，然后将新项拖放到地图上以选择地理位置。

以下字段将自动填充：

- **创建者**通过相关用户登录来完成。

- **测压管区域**字段通过发生事件的区域来完成（根据地理空间查询）。

- 坐标，基于拖放选择的位置

- 事件的**地址**属性通过根据坐标调用的 ESRI 地理空间服务来更新。可手动调整地址，然后坐标将使用相同地理位置服务来更新

5.7.3. 警报功能

5.7.3.1. 要查看的警报的类型

警报的类型包括：

- 回流

- 永久泄漏

- 侵入

- 移动计量表警报

- 泄漏

- Gutermann 关联泄露

5.7.3.2. 图标

每个警报类型都通过特定图标来识别。

警报	图标
回流	
连续流	
侵入	
移动水表	
Gutermann 关联泄露	
有缺陷的减压阀	

5.7.3.3. 创建警报

警报仅通过警报接口生成。

5.7.3.4. 警报通知和缩放

根据以下规则发送通知：

- 如果警报为紧急（警报接口的"紧急性"字段中的 Y）而且状态为"未关闭"，那么关键通知将触发条幅中消息的显示和声音警报。
- 如果警报不紧急而且状态为"未关闭"，那么将发送"待监视"通知。
- 否则，将发送普通通知。

打开通知以在地图上显示警报。

5.7.3.5. 触发创建标准操作过程

当 IBM® Water Operations for Waternamics 触发警报时，可自动触发标准操作过程 (SOP)。请参阅已实施过程描述的标准操作过程部分。

5.7.4. 警报接口

IBM® Water Operations for Waternamics 中的警报将通过警报接口来更新。

描述

接口标识	I3
接口名称	IOW-IN-ALERTS-CORE
输入数据格式	XML
输出数据格式	CAP/CSV/ IBM® Water Operations for Waternamics 格式
接口客户机	IBM® Water Operations for Waternamics
接口拓扑	频率待确定的批处理方式

数据格式

该接口处理的数据为 XML 格式。格式在 XSD 文件 **VDS_IOW-IN-ALERTS-CORE_1.7.xsd** 中描述

5.8. 查看工单及其状态

5.8.1. 一般行为

工单的视觉表示类似于视觉或警报的视觉表示。

可按工单类型和工单属性来进行过滤。应用日期过滤器后，只有开始日期在搜索开始日期和结束日期之间的工单才会显示。

工单类型：

- 客户工单

- 网络工单

- 工厂工单

- 街道工作

- 断水

5.8.2. 工单功能

5.8.2.1. 图标

特点图标标识每个工单类型。

工单	图标
客户工单	
工厂工单	
网络工单	
街道工作	
断水	

图标的轮廓取决于工单的状态：

- 工单已完成：绿色

- 在过去或将来而且不包含当前日期的周期内调度的工单：橙色

- 工单正在进行中（在包含当前日期的周期内调度）：红色

图标的背景色与工单与其关联的过滤器组关联。

5.8.2.2. 查看响应车辆的位置

车队跟踪数据源可将响应车辆的位置及其属性装入到 IBM® Water Operations for Waternamics 中。属性包括关联的单位和类型。可显示车辆在地图上的上一个已知位置，并用特定图标表示特定车辆类型。

显示层时，将定期触发更新查询。单击图标可显示车队跟踪数据源发送的值：

- 车辆标识
- 与车辆关联的代理程序的名称
- 车辆注册编号
- 关联组或单位
- 车辆状态
- 驾驶员电话
- 车队跟踪站点上上次更新的日期和时间
- 车辆状态
- 车辆速度
- GPS 状态

该数据未存储在 IBM® Water Operations for Waternamics 中。这只是地理重叠。

图标的轮廓颜色由车辆的状态确定：

- 车辆正在移动（绿色）
- 引擎已打开但车辆未移动（黄色）
- 引擎关闭（红色）
- 未确定，状态未知（灰色）

车辆图标	🚌

5.8.2.3. 查看交通状况

交通数据源在平台上装入城市区域的交通状况。

5.8.3. 创建工单

5.8.3.1. 创建独立工单

要创建工单，首先选择所需过滤器来显示数据层，然后单击**更多操作 > 新建项**。选择您要添加的项类型并将其拖动到地图上。在"添加新项"窗口中输入值，并单击**保存**。工单将立即显示在地图上，状态为"已计划"。

当外部系统接收请求时，您将接收到通知。当外部系统处理了请求后，您将收到通知。然后，请求的状态为"已调度"或"已完成"。

您可以通过显示工单属性来直接查看工单状态的进度。

5.9. 标准操作过程 (SOPS)

5.9.1. 概述

解决方案包括激活标准操作过程的手动或自动系统。这些过程可包括一个或多个活动，某些活动可专用于指定用户或用户组中的用户；其他启动完全自动化的过程或工作流。有关 SOP 的更多信息，请参阅 IBM® Intelligent Operations Center 产品文档中的"配置标准操作过程"。

5.9.2. 随解决方案一起提供的 SOP

通过解决方案，管理器可创建特定过程，无论它们仅包含手动活动还是完全自动化的过程。

例如，解决方案提供以下过程，它们实施完全自动化过程：

- **事件管理**：创建事件时，将启动过程及其自动化过程。例如，自动化过程验证事件的区域，并在自动完成过程之前根据需要向一个或多个接收方发送电子邮件。
- **警报管理**：在平台中（由接口）创建警报时，将启动过程及其流程。例如，自动化过程生成允许对每个接口创建一个干预的消息，然后等待请求被确认或被拒绝，然后在完成过程之前通过电子邮件和通过应用程序通知来通知一组用户。
- **超过阈值管理**：当读数超过在平台中配置的关键阈值时，过程及其自动化流程可启动电子邮件或应用程序通知。

这些过程和关联自动化流程需要配置来根据事件、警报和超过的阈值的类型来激活过程。还可配置电子邮件和通知接收方和内容。

5.9.3. 配置自动化过程和流程

解决方案提供了可通过 web 浏览器实现的图形工具，用于配置过程、手动活动和自动化流程（无论是先前描述的内容还是新内容）。

设计自动化流程时，设计者可将流程逻辑基于过程所源于的数据主属性的值（例如：事件、警报、读数等）。可从解决方案提供的操作库选择流程将执行的操作：

- 发送通知
- 发送电子邮件
- 更改干预状态
- 自动关闭活动

附录 A：V5.2.1 的 XSD 文件

V5.2.1 的警报模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 * © Copyright Veolia Environment-VE 2017, 2018.
 * © Copyright International Business Machines Corporation 2012, 2018.
 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="flowSource" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      <xsd:attribute name="requestType" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
      <xsd:documentation>Event data source record</xsd:documentation>
    </xsd:annotation>
    <xsd:all>
```

```
<!--
  * 最少属性
  */
-->
<xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="STARTTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
<xsd:element name="LASTUPDATEDTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
<xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />

<xsd:element name="ENDTS" type="alert:iibDateTime" minOccurs="0" maxOccurs="1" />
<xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ASSET_STRING_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />

  </xsd:all>
</xsd:complexType>
```

```
  <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
Value= "\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})"
/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:schema>
```

V5.2.1 的资产模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017, 2018.
 * © Copyright International Business Machines Corporation 2015, 2018.
 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/assetTypes"

        xmlns:asset="http://vds.com/assetTypes"

        xmlns:xsd="http://www.w3.org/2001/XMLSchema"

        elementFormDefault="qualified">

  <xsd:complexType name="modelrefType">

    <xsd:annotation>

      <xsd:documentation>modelref 将指的是语义的标识

              多个租户环境的模型。

              If the id attribute of modelref

              为空，那么所有请求

              将针对缺省模型来执行。</xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>

      <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />

    </xsd:sequence>
```

```xml
    <xsd:attribute name="id" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationType">

  <xsd:annotation>

    <xsd:documentation>

            RelationType 用于描述资产之间的关系。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:attribute name="relationName" type="xsd:string" />

  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationsType">

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="thresholdType">

  <xsd:attribute name="range" type="xsd:string" />

  <xsd:attribute name="level" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold" type="asset:thresholdType" />

  </xsd:sequence>

  <xsd:attribute name="unit" type="xsd:string" />

  <xsd:attribute name="no_reading_timeout" type="xsd:string" />

  <xsd:attribute name="name" type="xsd:string" />

  <xsd:attribute name="measureLabel" type="xsd:string" />
```

```
    <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="1" name="value"

                    type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                       type="xsd:string" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

  <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

  <xsd:annotation>

    <xsd:documentation>

          AssetType 用于描述要创建/更新/删除的资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />

    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />

    <xsd:element minOccurs="0" name="measureTypes" type="asset:measureTypesType" />
```

```
        </xsd:sequence>

        <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

        <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

        <xsd:attribute name="assetLabel" type="xsd:string" />

        <xsd:attribute name="assetDescription" type="xsd:string" />

        <xsd:attribute name="tenantId" type="xsd:string" />

    </xsd:complexType>

    <xsd:complexType name="requestType">

        <xsd:annotation>

            <xsd:documentation>

                        Request is the actual operation that will

                        be executed. 它捕获以下信息：

                        - request type :

                        CREATE / UPDATE / DELETE

                        - 资产数据（属性、关系等等…）

                        请求类型必须是以下某个类型：

                         - INSERT：创建资产。

                         - DELETE：删除资产。

                         - UPDATE：更新资产。

            </xsd:documentation>

        </xsd:annotation>

        <xsd:sequence>

            <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

        </xsd:sequence>

        <xsd:attribute name="type" type="xsd:string" />

    </xsd:complexType>

    <xsd:element name="operation">

        <xsd:annotation>

            <xsd:documentation>
```

操作是 XML 文件的根元素。它

将包含所有请求。

rootTenant：采集的数据的根租户。

timestamp：xml 文件生成日期。

```
      </xsd:documentation>

    </xsd:annotation>

    <xsd:complexType>

      <xsd:sequence>

        <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

      </xsd:sequence>

      <xsd:attribute name="rootTenant" type="xsd:string" />

      <xsd:attribute name="flowSource" type="xsd:string" />

      <xsd:attribute name="timestamp" type="xsd:string" />

      <xsd:attribute name="timeout" type="xsd:string" />

      <xsd:attribute name="timeoutTypeId" type="xsd:string" />

    </xsd:complexType>

  </xsd:element>

</xsd:schema>
```

V5.2 的度量读数模式。1

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017, 2018.
 * © Copyright International Business Machines Corporation 2012, 2018.

 *
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 *  with IBM Corporation.

 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
        xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
   <xsd:complexType name="readingValueType">
     <xsd:attribute name="value" type="xsd:string" />
     <xsd:attribute name="type" type="xsd:string" />
   </xsd:complexType>
   <xsd:complexType name="readingValuesType">
     <xsd:sequence>
       <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
     </xsd:sequence>
   </xsd:complexType>
   <xsd:complexType name="workEquipmentType">
     <xsd:sequence>
       <xsd:element minOccurs="0" maxOccurs="1" name="description"    type="xsd:string" />
       <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
```

```
                                    type="readings:relationsType" />
    <xsd:element minOccurs="0" maxOccurs="1" name="attributes"
                                        type="readings:attributesType" />
    <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                            type="readings:measureTypesType" />
  </xsd:sequence>
  <xsd:attribute name="location" type="xsd:string" />
  <xsd:attribute name="extType" type="xsd:string" />
  <xsd:attribute name="extId" type="xsd:string" />
  <xsd:attribute name="modelRef" type="xsd:string" />
  <xsd:attribute name="tenantId" type="xsd:string" />
  <xsd:attribute name="assetLabel" type="xsd:string" />
  <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
  <xsd:sequence>
    <xsd:element name="workEquipment" type="readings:workEquipmentType" />
    <xsd:element name="readingValues" type="readings:readingValuesType" />
  </xsd:sequence>
  <xsd:attribute name="extReadingSetid" type="xsd:string" />
  <xsd:attribute name="timestamp" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
    <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute"
                                    type="readings:attributeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="relationType">
```

```
    <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
    <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
    <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold"
                      type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="no_reading_timeout" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="measureLabel" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                          type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="flowSource" type="xsd:string" />
```

```
    <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

V5.2 的服务单模式。1

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
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#
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#
# Users Restricted Rights - Use, duplication or
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#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                                type="xsd:integer" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                type="xsd:string" />
```

```xml
        <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
                            type="so:iibDateTime" />
        <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
                            type="so:iibDateTime" />
        <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                            type="so:iibDateTime" />
        <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                            type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                            type="xsd:integer" />
        <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                            type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                            type=" xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="TYPE"
                            type=" xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="CUSTOMER_ID"
                            type=" xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                             type="so:attributes" />
        <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
        <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
    </xsd:all>
</xsd:complexType>
<xsd:complexType name="attributes">
    <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
    </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="assets">
    <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
    </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="workorders">
    <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
    </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="attribute">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="value" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="asset">
    <xsd:attribute name="id" type="xsd:string" />
   <xsd:attribute name="type" type="xsd:string" />
   <xsd:attribute name="relationshipType" type="xsd:string" />
  <xsd:attribute name="usedForGeoLocation" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="workorder">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="relationshipType" type="xsd:string" />
```

```
    </xsd:complexType>
  <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
    </xsd:restriction>
  </xsd:simpleType>
    <xsd:element name="operations">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                        type="so:requestType">
          </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="rootTenant" type="xsd:string" />
        <xsd:attribute name="flowSource" type="xsd:string" />
        <xsd:attribute name="timeout" type="xsd:string" />
        <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      </xsd:complexType>
    </xsd:element>
</xsd:schema>
```

V5.2 的工单模式。1

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
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#
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#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="EXTERNAL_ID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="TENANT_ID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="MODEL_ID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                                    type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                                      type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                          type="wo:iibDateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="TARGETSTARTDATE"
                                          type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                          type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                          type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                          type="wo:iibDateTime " />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                          type="wo:iibDateTime " />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                          type="xsd:string" />
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                            type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="MAINTENANCE_TYPE"
                                            type="xsd:string" />
```

```
            <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_LENGTH_WORKED_ON"
                                                            type="xsd:decimal" />
             <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_STATE"
                                                            type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="WORKER_COMMENT"
                                                            type="xsd:string" />
            <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                                        maxOccurs="1" minOccurs="0">
            </xsd:element>
            <xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                                            type="wo:attributes" />
            <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
        </xsd:all>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                        type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="flowSource" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
<xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                            minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
```

```
                          maxOccurs="1" minOccurs="1">
    <xsd:annotation>
      <xsd:documentation>
            对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

            IOW EVENTTYPE；对于 SRCEVTCATEGORY =

            WORKORDER，这是 IOW

            WORKORDER DOMAIN。对于

            SRCEVTCATEGORY = NOREADING 或

            READINGTHRESHOLD，这是 IOW

            MEASUREMENTTYPE

      </xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"
                          minOccurs="0">
    <xsd:annotation>
      <xsd:documentation>
                  对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

                  IOW EXTEVENTID。对于 SRCEVTCATEGORY =

                  WORKORDER，这是

                  IOW WOEXTID。对于

                  SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，

                  这是 IOW MEASUREMENT_ID（仅针对 WO OUT）

      </xsd:documentation>
    </xsd:annotation>
</xsd:element>
<xsd:element name="SRCEVTDATE" type="wo:iibDateTime" maxOccurs="1" minOccurs="1">
</xsd:element>
<xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
</xsd:element>
<xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
</xsd:element>
<xsd:element name="SRCEVTCURRVALUETS" type="wo:iibDateTime"
                          maxOccurs="1" minOccurs="0">
</xsd:element>
<xsd:element name="SRCEVTCOMMENT" type="xsd:string"
                          maxOccurs="1" minOccurs="0">
```

```
        </xsd:element>
          <xsd:element name="SOPREFERENCE" type="xsd:string"
                                    maxOccurs="1" minOccurs="0"></xsd:element>
      </xsd:all>
    </xsd:complexType>
    <xsd:complexType name="srcEventListType">
      <xsd:sequence>
        <xsd:element name="SRCEVENT" type="wo:srcEventType"
                                    maxOccurs="unbounded" minOccurs="0"></xsd:element>
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attributes">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="assets">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attribute">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="value" type="xsd:string" />
    </xsd:complexType>
    <xsd:complexType name="asset">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="relationshipType" type="xsd:string" />
      <xsd:attribute name="usedForGeoLocation" type="xsd:string" />
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
      <xsd:restriction base="xsd:string">
        <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
</xsd:restriction>
    </xsd:simpleType></xsd:schema>
```

附录 B：V5.2.0.6 的 XSD 文件

V5.2.0.6 的警报模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 * © Copyright Veolia Environment-VE 2017, 2018.
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 *
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="flowSource" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      <xsd:attribute name="requestType" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
```

```
<xsd:annotation>
   <xsd:documentation>Event data source record</xsd:documentation>
</xsd:annotation>
<xsd:all>
   <!--
     * 最少属性
     */
   -->
   <xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="STARTTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
   <xsd:element name="LASTUPDATEDTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
   <xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
   <xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />

   <xsd:element name="ENDTS" type="alert:iibDateTime" minOccurs="0" maxOccurs="1" />
   <xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
   <xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
```

```
    <xsd:element name="ASSET_STRING_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />


  </xsd:all>

 </xsd:complexType>

 <xsd:simpleType name="iibDateTime">

  <xsd:restriction base="xsd:string">

   <xsd:pattern
Value= "\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})"
/>

   </xsd:restriction>

 </xsd:simpleType>

</xsd:schema>
```

V5.2.0.6 的资产模式

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017, 2018.
 * © Copyright International Business Machines Corporation 2015, 2018.
 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/assetTypes"
        xmlns:asset="http://vds.com/assetTypes"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="modelrefType">
    <xsd:annotation>
      <xsd:documentation>modelref 将指的是语义的标识
                多个租户环境的模型。

                If the id attribute of modelref
                为空，那么所有请求
                将针对缺省模型来执行。</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
```

```
    <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />

  </xsd:sequence>

  <xsd:attribute name="id" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationType">

  <xsd:annotation>

    <xsd:documentation>

              RelationType 用于描述资产之间的关系。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:attribute name="relationName" type="xsd:string" />

  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationsType">

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="thresholdType">

  <xsd:attribute name="range" type="xsd:string" />

  <xsd:attribute name="level" type="xsd:string" />

</xsd:complexType>

 <xsd:complexType name="measureTypeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold" type="asset:thresholdType" />

  </xsd:sequence>

  <xsd:attribute name="unit" type="xsd:string" />

  <xsd:attribute name="no_reading_timeout" type="xsd:string" />
```

```xml
    <xsd:attribute name="name" type="xsd:string" />

    <xsd:attribute name="measureLabel" type="xsd:string" />

    <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="1" name="value"

                      type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                              type="xsd:string" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

  <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

  <xsd:annotation>

    <xsd:documentation>

            AssetType 用于描述要创建/更新/删除的资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />
```

```xml
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />

    <xsd:element minOccurs="0" name="measureTypes" type="asset:measureTypesType" />

  </xsd:sequence>

  <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

  <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

  <xsd:attribute name="assetLabel" type="xsd:string" />

  <xsd:attribute name="assetDescription" type="xsd:string" />

  <xsd:attribute name="tenantId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="requestType">

  <xsd:annotation>

    <xsd:documentation>

            Request is the actual operation that will

            be executed. 它捕获以下信息：

            - request type :

            CREATE / UPDATE / DELETE

            - 资产数据（属性、关系等等...）

            请求类型必须是以下某个类型：

            - INSERT：创建资产。

            - DELETE：删除资产。

            - UPDATE：更新资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

</xsd:complexType>

<xsd:element name="operation">
```

```
<xsd:annotation>

  <xsd:documentation>

    操作是 XML 文件的根元素。它

     将包含所有请求。

      rootTenant：采集的数据的根租户。

      timestamp：xml 文件生成日期。

  </xsd:documentation>

</xsd:annotation>

<xsd:complexType>

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

  </xsd:sequence>

  <xsd:attribute name="rootTenant" type="xsd:string" />

  <xsd:attribute name="flowSource" type="xsd:string" />

  <xsd:attribute name="timestamp" type="xsd:string" />

  <xsd:attribute name="timeout" type="xsd:string" />

  <xsd:attribute name="timeoutTypeId" type="xsd:string" />

</xsd:complexType>

</xsd:element>

</xsd:schema>
```

V5.2.0.6 的度量读数模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
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 *
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 *  with IBM Corporation.

 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
        xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element minOccurs="0" maxOccurs="1" name="description"    type="xsd:string" />
```

```
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                        type="readings:relationsType" />
    <xsd:element minOccurs="0" maxOccurs="1" name="attributes"
                                        type="readings:attributesType" />
    <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                        type="readings:measureTypesType" />
  </xsd:sequence>
  <xsd:attribute name="location" type="xsd:string" />
  <xsd:attribute name="extType" type="xsd:string" />
  <xsd:attribute name="extId" type="xsd:string" />
  <xsd:attribute name="modelRef" type="xsd:string" />
  <xsd:attribute name="tenantId" type="xsd:string" />
  <xsd:attribute name="assetLabel" type="xsd:string" />
  <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
  <xsd:sequence>
    <xsd:element name="workEquipment" type="readings:workEquipmentType" />
    <xsd:element name="readingValues" type="readings:readingValuesType" />
  </xsd:sequence>
  <xsd:attribute name="extReadingSetid" type="xsd:string" />
  <xsd:attribute name="timestamp" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
    <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute"
                                    type="readings:attributeType" />
  </xsd:sequence>
</xsd:complexType>
```

```
<xsd:complexType name="relationType">
  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
 <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
    <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold"
                         type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="no_reading_timeout" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="measureLabel" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                            type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
```

```
      <xsd:attribute name="flowSource" type="xsd:string" />
     <xsd:attribute name="timeout" type="xsd:string" />
     <xsd:attribute name="timeoutTypeId" type="xsd:string" />
   </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

V5.2.0.6 的服务单模式

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
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#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                              type="xsd:integer" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                              type="xsd:string" />
```

```xml
        <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
                        type="so:iibDateTime" />
        <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
                        type="so:iibDateTime" />
        <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                        type="so:iibDateTime" />
        <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                        type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                        type="xsd:integer" />
        <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                        type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                        type=" xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                         type="so:attributes" />
        <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
        <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
      </xsd:all>
    </xsd:complexType>
    <xsd:complexType name="attributes">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="assets">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="workorders">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attribute">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="value" type="xsd:string" />
    </xsd:complexType>
    <xsd:complexType name="asset">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="relationshipType" type="xsd:string" />
    </xsd:complexType>
    <xsd:complexType name="workorder">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="relationshipType" type="xsd:string" />
    </xsd:complexType>
   <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
```

```
    </xsd:restriction>
  </xsd:simpleType>
    <xsd:element name="operations">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                    type="so:requestType">
          </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="rootTenant" type="xsd:string" />
        <xsd:attribute name="flowSource" type="xsd:string" />
        <xsd:attribute name="timeout" type="xsd:string" />
        <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      </xsd:complexType>
    </xsd:element>
</xsd:schema>
```

V5.2.0.6 的工单模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
# © Copyright Veolia Environment-VE 2016, 2018.
#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                                     type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                                     type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                                     type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="TENANT_ID"
                                                     type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="MODEL_ID"
                                                     type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                                     type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                                     type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                        type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                        type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                        type="wo:iibDateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                        type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                        type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="TARGETSTARTDATE"
                                        type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                        type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                        type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                        type="wo:iibDateTime " />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                        type="wo:iibDateTime " />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                        type="xsd:string" />
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                        type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                        type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="MAINTENANCE_TYPE"
                                        type="xsd:string" />
```

```
        <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_LENGTH_WORKED_ON"
                                        type="xsd:decimal" />
         <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_STATE"
                                        type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="WORKER_COMMENT"
                                        type="xsd:string" />
        <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                            maxOccurs="1" minOccurs="0">
        </xsd:element>
        <xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                            type="wo:attributes" />
        <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
      </xsd:all>
    </xsd:complexType>
  </xsd:element>
 </xsd:sequence>
 <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                    type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="flowSource" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
 </xsd:element>
 <xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                          minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
```

```
                          maxOccurs="1" minOccurs="1">
   <xsd:annotation>
     <xsd:documentation>
            对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

            IOW EVENTTYPE；对于 SRCEVTCATEGORY =

            WORKORDER，这是 IOW

            WORKORDER DOMAIN。对于

            SRCEVTCATEGORY = NOREADING 或

            READINGTHRESHOLD，这是 IOW

            MEASUREMENTTYPE

     </xsd:documentation>

   </xsd:annotation>

</xsd:element>

<xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"

                          minOccurs="0">

   <xsd:annotation>

     <xsd:documentation>

                对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

                IOW EXTEVENTID。对于 SRCEVTCATEGORY =

                WORKORDER，这是

                IOW WOEXTID。对于

                SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，

                这是 IOW MEASUREMENT_ID（仅针对 WO OUT）

     </xsd:documentation>

   </xsd:annotation>

</xsd:element>

<xsd:element name="SRCEVTDATE" type="wo:iibDateTime" maxOccurs="1" minOccurs="1">

</xsd:element>

<xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">

</xsd:element>

<xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">

</xsd:element>

<xsd:element name="SRCEVTCURRVALUETS" type="wo:iibDateTime"

                          maxOccurs="1" minOccurs="0">

</xsd:element>

<xsd:element name="SRCEVTCOMMENT" type="xsd:string"

                          maxOccurs="1" minOccurs="0">
```

```xml
        </xsd:element>
        <xsd:element name="SOPREFERENCE" type="xsd:string"
                               maxOccurs="1" minOccurs="0"></xsd:element>
      </xsd:all>
    </xsd:complexType>
    <xsd:complexType name="srcEventListType">
      <xsd:sequence>
        <xsd:element name="SRCEVENT" type="wo:srcEventType"
                               maxOccurs="unbounded" minOccurs="0"></xsd:element>
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attributes">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="assets">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attribute">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="value" type="xsd:string" />
    </xsd:complexType>
    <xsd:complexType name="asset">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="relationshipType" type="xsd:string" />
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
      <xsd:restriction base="xsd:string">
        <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
</xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

附录 C：V5.2.0.5 的 XSD 文件

V5.2.0.5 的警报模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 * © Copyright Veolia Environment-VE 2017.
 * © Copyright International Business Machines Corporation 2012, 2017.
 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="flowSource" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      <xsd:attribute name="requestType" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
```

```
<xsd:documentation>Event data source record</xsd:documentation>
</xsd:annotation>
<xsd:all>
  <!--
    * 最少属性
    */
  -->
  <xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="STARTTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="LASTUPDATEDTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />

  <xsd:element name="ENDTS" type="alert:iibDateTime" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
```

```
        </xsd:all>
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
        <xsd:restriction base="xsd:string">
            <xsd:pattern
Value= "\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})"
/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

V5.2.0.5 的资产模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017.
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 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/assetTypes"

        xmlns:asset="http://vds.com/assetTypes"

        xmlns:xsd="http://www.w3.org/2001/XMLSchema"

        elementFormDefault="qualified">

  <xsd:complexType name="modelrefType">

    <xsd:annotation>

      <xsd:documentation>modelref 将指的是语义的标识

              多个租户环境的模型。

              If the id attribute of modelref

              为空，那么所有请求

              将针对缺省模型来执行。</xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>

      <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />
```

```
    </xsd:sequence>

    <xsd:attribute name="id" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationType">

    <xsd:annotation>

        <xsd:documentation>

                RelationType 用于描述资产之间的关系。

        </xsd:documentation>

    </xsd:annotation>

    <xsd:attribute name="relationName" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationsType">

     <xsd:sequence>

        <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

    </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="thresholdType">

    <xsd:attribute name="range" type="xsd:string" />

    <xsd:attribute name="level" type="xsd:string" />

</xsd:complexType>

 <xsd:complexType name="measureTypeType">

    <xsd:sequence>

        <xsd:element minOccurs="0" name="threshold" type="asset:thresholdType" />

    </xsd:sequence>

    <xsd:attribute name="unit" type="xsd:string" />

    <xsd:attribute name="no_reading_timeout" type="xsd:string" />

    <xsd:attribute name="name" type="xsd:string" />
```

```
    <xsd:attribute name="measureLabel" type="xsd:string" />

    <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="1" name="value"

                      type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                              type="xsd:string" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

  <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

  <xsd:annotation>

    <xsd:documentation>

            AssetType 用于描述要创建/更新/删除的资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />

    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />
```

```
    <xsd:element minOccurs="0" name="measureTypes" type="asset:measureTypesType" />

  </xsd:sequence>

  <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

  <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

  <xsd:attribute name="assetLabel" type="xsd:string" />

  <xsd:attribute name="assetDescription" type="xsd:string" />

  <xsd:attribute name="tenantId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="requestType">

  <xsd:annotation>

    <xsd:documentation>

            Request is the actual operation that will

            be executed. 它捕获以下信息：

            - request type :

            CREATE / UPDATE / DELETE

            - 资产数据（属性、关系等等...）

            请求类型必须是以下某个类型：

             - INSERT：创建资产。

         - DELETE：删除资产。

             - UPDATE：更新资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

</xsd:complexType>

<xsd:element name="operation">

  <xsd:annotation>
```

```
<xsd:documentation>

    操作是 XML 文件的根元素。它

    将包含所有请求。

    rootTenant：采集的数据的根租户。

    timestamp：xml 文件生成日期。

  </xsd:documentation>

</xsd:annotation>

<xsd:complexType>

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

  </xsd:sequence>

  <xsd:attribute name="rootTenant" type="xsd:string" />

  <xsd:attribute name="flowSource" type="xsd:string" />

  <xsd:attribute name="timestamp" type="xsd:string" />

  <xsd:attribute name="timeout" type="xsd:string" />

  <xsd:attribute name="timeoutTypeId" type="xsd:string" />

</xsd:complexType>

</xsd:element>

</xsd:schema>
```

V5.2.0.5 的度量读数模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
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 *
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 *  with IBM Corporation.

 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
      xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element minOccurs="0" maxOccurs="1" name="description"    type="xsd:string" />
```

```
        <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                        type="readings:relationsType" />
        <xsd:element minOccurs="0" maxOccurs="1" name="attributes"
                                        type="readings:attributesType" />
        <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                        type="readings:measureTypesType" />
    </xsd:sequence>
    <xsd:attribute name="location" type="xsd:string" />
    <xsd:attribute name="extType" type="xsd:string" />
    <xsd:attribute name="extId" type="xsd:string" />
    <xsd:attribute name="modelRef" type="xsd:string" />
    <xsd:attribute name="tenantId" type="xsd:string" />
    <xsd:attribute name="assetLabel" type="xsd:string" />
    <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
    <xsd:sequence>
        <xsd:element name="workEquipment" type="readings:workEquipmentType" />
        <xsd:element name="readingValues" type="readings:readingValuesType" />
    </xsd:sequence>
    <xsd:attribute name="extReadingSetid" type="xsd:string" />
    <xsd:attribute name="timestamp" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
    <xsd:sequence>
        <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
    <xsd:sequence>
        <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute"
                                        type="readings:attributeType" />
    </xsd:sequence>
</xsd:complexType>
```

```xml
<xsd:complexType name="relationType">
  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
    <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold"
                      type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="no_reading_timeout" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="measureLabel" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                              type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
```

```
      <xsd:attribute name="flowSource" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
 </xsd:element>
</xsd:schema>
```

V5.2.0.5 的服务单模式

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
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#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                                 type="xsd:integer" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                 type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
                                 type="so:iibDateTime" />
      <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
```

```
                              type="so:iibDateTime" />
       <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                              type="so:iibDateTime" />
       <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                              type="xsd:string" />
       <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                              type="xsd:string" />
       <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                              type="xsd:string" />
       <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                              type=" xsd:string" />
       <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                               type="so:attributes" />
       <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
       <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
     </xsd:all>
   </xsd:complexType>
   <xsd:complexType name="attributes">
     <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
     </xsd:sequence>
   </xsd:complexType>
   <xsd:complexType name="assets">
     <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
     </xsd:sequence>
   </xsd:complexType>
   <xsd:complexType name="workorders">
     <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
     </xsd:sequence>
   </xsd:complexType>
   <xsd:complexType name="attribute">
     <xsd:attribute name="id" type="xsd:string" />
     <xsd:attribute name="type" type="xsd:string" />
     <xsd:attribute name="value" type="xsd:string" />
   </xsd:complexType>
   <xsd:complexType name="asset">
     <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
     <xsd:attribute name="relationshipType" type="xsd:string" />
   </xsd:complexType>
   <xsd:complexType name="workorder">
     <xsd:attribute name="id" type="xsd:string" />
     <xsd:attribute name="relationshipType" type="xsd:string" />
   </xsd:complexType>
  <xsd:simpleType name="iibDateTime">
   <xsd:restriction base="xsd:string">
     <xsd:pattern
 value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
   </xsd:restriction>
  </xsd:simpleType>
   <xsd:element name="operations">
```

```
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                       type="so:requestType">
        </xsd:element>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="flowSource" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

V5.2.0.5 的工单模式

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
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#
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#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="MODEL_ID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                                type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                          type="wo:iibDateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                          type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                          type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETSTARTDATE"
                                          type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                          type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                          type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                          type="wo:iibDateTime " />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                          type="wo:iibDateTime " />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                          type="xsd:string" />
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                         type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="MAINTENANCE_TYPE"
                                         type="xsd:string" />
```

```
        <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_LENGTH_WORKED_ON"
                                            type="xsd:decimal" />
         <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_STATE"
                                            type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="WORKER_COMMENT"
                                            type="xsd:string" />
        <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                               maxOccurs="1" minOccurs="0">
        </xsd:element>
        <xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                               type="wo:attributes" />
        <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
      </xsd:all>
    </xsd:complexType>
  </xsd:element>
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                    type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="flowSource" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
<xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                           minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
```

```
                                        maxOccurs="1" minOccurs="1">
    <xsd:annotation>
      <xsd:documentation>
            对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

            IOW EVENTTYPE；对于 SRCEVTCATEGORY =

            WORKORDER，这是 IOW

            WORKORDER DOMAIN。对于

            SRCEVTCATEGORY = NOREADING 或

            READINGTHRESHOLD，这是 IOW

            MEASUREMENTTYPE

      </xsd:documentation>

    </xsd:annotation>

</xsd:element>

<xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"

                                        minOccurs="0">

   <xsd:annotation>

     <xsd:documentation>

                  对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

                  IOW EXTEVENTID。对于 SRCEVTCATEGORY =

                  WORKORDER，这是

                  IOW WOEXTID。对于

                  SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，

                  这是 IOW MEASUREMENT_ID（仅针对 WO OUT）

      </xsd:documentation>

    </xsd:annotation>

</xsd:element>

<xsd:element name="SRCEVTDATE" type="wo:iibDateTime" maxOccurs="1" minOccurs="1">

</xsd:element>

<xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">

</xsd:element>

<xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">

</xsd:element>

<xsd:element name="SRCEVTCURRVALUETS" type="wo:iibDateTime"

                                        maxOccurs="1" minOccurs="0">

</xsd:element>

<xsd:element name="SRCEVTCOMMENT" type="xsd:string"

                                        maxOccurs="1" minOccurs="0">
```

```
      </xsd:element>
        <xsd:element name="SOPREFERENCE" type="xsd:string"
                            maxOccurs="1" minOccurs="0"></xsd:element>
      </xsd:all>
    </xsd:complexType>
    <xsd:complexType name="srcEventListType">
      <xsd:sequence>
        <xsd:element name="SRCEVENT" type="wo:srcEventType"
                            maxOccurs="unbounded" minOccurs="0"></xsd:element>
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attributes">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="assets">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attribute">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="value" type="xsd:string" />
    </xsd:complexType>
    <xsd:complexType name="asset">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="relationshipType" type="xsd:string" />
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
      <xsd:restriction base="xsd:string">
        <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
</xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

附录 D：V5.2.0.4 的 XSD 文件

VDS_IOW-IN-ALERTS-CORE_5201.XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *
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 *
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 *  with IBM Corporation.
 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      <xsd:attribute name="requestType" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
      <xsd:documentation>Event data source record</xsd:documentation>
```

```
</xsd:annotation>

<xsd:all>
  <!--
    * 最少属性
    */
  -->

  <xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="STARTTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="LASTUPDATEDTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />
    <!--
      * Key/Full properties
      */
    -->
    <!-- Either of (EXTWORKEQUIPMENTID + EXTWORKEQUIPMENTTYPE) or LOCATION is required -->
  <xsd:element name="ENDTS" type="alert:iibDateTime" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
```

```xml
<xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />

<xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
 <xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="MEASURE" minOccurs="0" maxOccurs="1" >
  <xsd:annotation>
    <xsd:documentation>threshold attribute domain is 0,1 or 2</xsd:documentation>
  </xsd:annotation>
  <xsd:complexType>
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="threshold_value" type="xsd:string" />
    <xsd:attribute name="threshold" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
    </xsd:all>
  </xsd:complexType>
  <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
Value= "\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})"
/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:schema>
```

VDS_IOW-IN-ASSETS-CORE_5210.XSD

<?xml version="1.0" encoding="UTF-8"?>

<!--

/*

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 *

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 *

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 */

 V1.8

 -->

<xsd:schema targetNamespace="http://vds.com/assetTypes"

        xmlns:asset="http://vds.com/assetTypes"

        xmlns:xsd="http://www.w3.org/2001/XMLSchema"

        elementFormDefault="qualified">

  <xsd:complexType name="modelrefType">

    <xsd:annotation>

      <xsd:documentation>modelref 将指的是语义的标识

            多个租户环境的模型。

            If the id attribute of modelref

            为空，那么所有请求

            将针对缺省模型来执行。</xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>

      <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />

```
    </xsd:sequence>

    <xsd:attribute name="id" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationType">

    <xsd:annotation>

        <xsd:documentation>

                RelationType 用于描述资产之间的关系。

        </xsd:documentation>

    </xsd:annotation>

    <xsd:attribute name="relationName" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationsType">

    <xsd:sequence>

        <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

    </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="thresholdType">

    <xsd:attribute name="range" type="xsd:string" />

    <xsd:attribute name="level" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypeType">

    <xsd:sequence>

        <xsd:element minOccurs="0" maxOccurs="3" name="threshold" type="asset:thresholdType" />

    </xsd:sequence>

    <xsd:attribute name="unit" type="xsd:string" />


    <xsd:attribute name="no_reading_timeout" type="xsd:string" />
```

```xml
    <xsd:attribute name="name" type="xsd:string" />

    <xsd:attribute name="measureLabel" type="xsd:string" />

    <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="1" name="value"

                    type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                      type="xsd:string" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

  <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

  <xsd:annotation>

    <xsd:documentation>

          AssetType 用于描述要创建/更新/删除的资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />
```

```
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />

    <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes" type="asset:measureTypesType" />

  </xsd:sequence>

  <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

  <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

  <xsd:attribute name="assetLabel" type="xsd:string" />

  <xsd:attribute name="assetDescription" type="xsd:string" />

  <xsd:attribute name="tenantId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="requestType">

  <xsd:annotation>

    <xsd:documentation>

            Request is the actual operation that will

            be executed. 它捕获以下信息：

            - request type :

            CREATE / UPDATE / DELETE

            - 资产数据（属性、关系等等...）

            请求类型必须是以下某个类型：

             - INSERT：创建资产。

          - DELETE：删除资产。

             - UPDATE：更新资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

  </xsd:sequence>


  <xsd:attribute name="type" type="xsd:string" />

</xsd:complexType>
```

```
<xsd:element name="operation">

  <xsd:annotation>

    <xsd:documentation>

        操作是 XML 文件的根元素。它

         将包含所有请求。

         rootTenant：采集的数据的根租户。

         timestamp：xml 文件生成日期。

      </xsd:documentation>

    </xsd:annotation>

    <xsd:complexType>

      <xsd:sequence>

        <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

      </xsd:sequence>

      <xsd:attribute name="rootTenant" type="xsd:string" />

      <xsd:attribute name="timestamp" type="xsd:string" />

      <xsd:attribute name="timeout" type="xsd:string" />

      <xsd:attribute name="timeoutTypeId" type="xsd:string" />

    </xsd:complexType>

  </xsd:element>

</xsd:schema>
```

VDS_IOW-IN-READINGS-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017.
 * © Copyright International Business Machines Corporation 2012, 2017.


 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.


 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
      xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element maxOccurs="1" minOccurs="0" name="description"    type="xsd:string" />
```

```xml
        <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                        type="readings:relationsType" />
        <xsd:element minOccurs="0" maxOccurs="unbounded" name="attributes"
                                        type="readings:attributesType" />
        <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                        type="readings:measureTypesType" />
    </xsd:sequence>
    <xsd:attribute name="location" type="xsd:string" />
    <xsd:attribute name="extType" type="xsd:string" />
    <xsd:attribute name="extId" type="xsd:string" />
    <xsd:attribute name="modelRef" type="xsd:string" />
    <xsd:attribute name="tenantId" type="xsd:string" />
    <xsd:attribute name="assetLabel" type="xsd:string" />
    <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
    <xsd:sequence>
        <xsd:element name="workEquipment" type="readings:workEquipmentType" />
        <xsd:element name="readingValues" type="readings:readingValuesType" />
    </xsd:sequence>
    <xsd:attribute name="extReadingSetid" type="xsd:string" />
    <xsd:attribute name="timestamp" type="xsd:string" />
    <xsd:attribute name="extRelatedEvtId" type="xsd:string" />
    <xsd:attribute name="extRelatedEvtType" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
    <xsd:sequence>
        <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
    <xsd:sequence>
        <xsd:element name="attribute" type="readings:attributeType" />
    </xsd:sequence>
```

```xml
</xsd:complexType>
<xsd:complexType name="relationType">
   <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
   <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
     <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
     <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold"
                        type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="no_reading_timeout" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
     <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                               type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
       <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
```

```
        <xsd:attribute name="timeout" type="xsd:string" />
        <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      </xsd:complexType>
    </xsd:element>
</xsd:schema>
```

VDS_IOW-IN-SO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
# © Copyright Veolia Environment-VE 2016, 2017.
#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                              type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
                              type="so:iibDateTime" />
      <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
```

```
                                     type="so:iibDateTime" />
            <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                                     type="so:iibDateTime" />
            <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                                     type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                                     type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                                     type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                     type=" xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                                      type="so:attributes" />
            <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
            <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
       </xsd:all>
</xsd:complexType>

<xsd:complexType name="attributes">
    <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="assets">
    <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="workorders">
    <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="attribute">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="value" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="asset">
    <xsd:attribute name="id" type="xsd:string" />
   <xsd:attribute name="type" type="xsd:string" />
   <xsd:attribute name="relationshipType" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="workorder">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="relationshipType" type="xsd:string" />
</xsd:complexType>
```

```xml
  <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                          type="so:requestType">
        </xsd:element>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>

</xsd:schema>
```

VDS_IOW-IN-WO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
# © Copyright Veolia Environment-VE 2016, 2017.
#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="MODEL_ID"
                                                    type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                                    type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                              type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                    type="wo:iibDateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETSTARTDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                    type="wo:iibDateTime " />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                    type="wo:iibDateTime " />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                    type="xsd:string" />
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                           type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                           type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="MAINTENANCE_TYPE"
                                           type="xsd:string" />
```

```xml
            <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_LENGTH_WORKED_ON"
                                    type="xsd:decimal" />
             <xsd:element minOccurs="0" maxOccurs="1" name="ASSET_STATE"
                                    type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="WORKER_COMMENT"
                                    type="xsd:string" />
            <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                        maxOccurs="1" minOccurs="0">
            </xsd:element>
            <xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                        type="wo:attributes" />
            <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
        </xsd:all>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
<xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                            minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
                            maxOccurs="1" minOccurs="1">
```

```
  <xsd:annotation>
    <xsd:documentation>
            对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
            IOW EVENTTYPE；对于 SRCEVTCATEGORY =
            WORKORDER，这是 IOW
            WORKORDER DOMAIN。对于
            SRCEVTCATEGORY = NOREADING 或
            READINGTHRESHOLD，这是 IOW
            MEASUREMENTTYPE
    </xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"
                              minOccurs="0">
  <xsd:annotation>
    <xsd:documentation>
                    对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
                    IOW EXTEVENTID。对于 SRCEVTCATEGORY =
                    WORKORDER，这是
                    IOW WOEXTID。对于
                    SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，
                    这是 IOW MEASUREMENT_ID（仅针对 WO OUT）
    </xsd:documentation>
  </xsd:annotation>
</xsd:element>
<xsd:element name="SRCEVTDATE" type="wo:iibDateTime" maxOccurs="1" minOccurs="1">
</xsd:element>
<xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
</xsd:element>
<xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
</xsd:element>
<xsd:element name="SRCEVTCURRVALUETS" type="wo:iibDateTime"
                              maxOccurs="1" minOccurs="0">
</xsd:element>
<xsd:element name="SRCEVTCOMMENT" type="xsd:string"
                              maxOccurs="1" minOccurs="0">
</xsd:element>
```

```xml
      <xsd:element name="SOPREFERENCE" type="xsd:string"
                                maxOccurs="1" minOccurs="0"></xsd:element>
    </xsd:all>
  </xsd:complexType>
  <xsd:complexType name="srcEventListType">
    <xsd:sequence>
      <xsd:element name="SRCEVENT" type="wo:srcEventType"
                                maxOccurs="unbounded" minOccurs="0"></xsd:element>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="attributes">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
    </xsd:sequence>
  </xsd:complexType>

  <xsd:complexType name="assets">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="attribute">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="value" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="asset">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="relationshipType" type="xsd:string" />
  </xsd:complexType>
  <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[0-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
</xsd:restriction>
  </xsd:simpleType>
</xsd:schema>
```

附录 E：V5.2.0.3 的 XSD 文件

VDS_IOW-IN-ALERTS-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 * © Copyright Veolia Environment-VE 2017.
 * © Copyright International Business Machines Corporation 2012, 2017.
 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
      <xsd:documentation>Event data source record</xsd:documentation>
    </xsd:annotation>
```

```
<xsd:all>
  <!--
    * 最少属性
    */
  -->

  <xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="STARTTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="LASTUPDATEDTS" type="alert:iibDateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />
    <!--
      * Key/Full properties
      */
    -->
    <!-- Either of (EXTWORKEQUIPMENTID + EXTWORKEQUIPMENTTYPE) or LOCATION is required -->
  <xsd:element name="ENDTS" type="alert:iibDateTime" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
```

```xml
        <xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
         <xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
        <xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
        <xsd:element name="MEASURE" minOccurs="0" maxOccurs="1" >
          <xsd:annotation>
            <xsd:documentation>threshold attribute domain is 0,1 or 2</xsd:documentation>
          </xsd:annotation>
          <xsd:complexType>
            <xsd:attribute name="value" type="xsd:string" />
            <xsd:attribute name="unit" type="xsd:string" />
            <xsd:attribute name="type" type="xsd:string" />
            <xsd:attribute name="threshold_value" type="xsd:string" />
            <xsd:attribute name="threshold" type="xsd:string" />
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
      <xsd:restriction base="xsd:string">
        <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[1-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
      </xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

VDS_IOW-IN-ASSETS-CORE_5210.XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017.
 * © Copyright International Business Machines Corporation 2015, 2017.
 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/assetTypes"

        xmlns:asset="http://vds.com/assetTypes"

        xmlns:xsd="http://www.w3.org/2001/XMLSchema"

        elementFormDefault="qualified">

  <xsd:complexType name="modelrefType">

    <xsd:annotation>

      <xsd:documentation>modelref 将指的是语义的标识

                多个租户环境的模型。

                If the id attribute of modelref

                为空，那么所有请求

                将针对缺省模型来执行。</xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>

      <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />
```

```
    </xsd:sequence>

    <xsd:attribute name="id" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationType">

    <xsd:annotation>

        <xsd:documentation>

                RelationType 用于描述资产之间的关系。

        </xsd:documentation>

    </xsd:annotation>

    <xsd:attribute name="relationName" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationsType">

     <xsd:sequence>

        <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

    </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="thresholdType">

    <xsd:attribute name="range" type="xsd:string" />

    <xsd:attribute name="level" type="xsd:string" />

</xsd:complexType>

 <xsd:complexType name="measureTypeType">

    <xsd:sequence>

        <xsd:element minOccurs="0" maxOccurs="3" name="threshold" type="asset:thresholdType" />

    </xsd:sequence>

    <xsd:attribute name="unit" type="xsd:string" />


    <xsd:attribute name="no_reading_timeout" type="xsd:string" />
```

```
      <xsd:attribute name="name" type="xsd:string" />

      <xsd:attribute name="measureLabel" type="xsd:string" />

      <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

   <xsd:sequence>

      <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

   </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

   <xsd:sequence>

      <xsd:element minOccurs="0" maxOccurs="1" name="value"

                        type="xsd:string" />

      <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                           type="xsd:string" />

   </xsd:sequence>

   <xsd:attribute name="type" type="xsd:string" />

   <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

   <xsd:annotation>

      <xsd:documentation>

            AssetType 用于描述要创建/更新/删除的资产。

      </xsd:documentation>

   </xsd:annotation>

   <xsd:sequence>

      <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

      <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />
```

```xml
      <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />

      <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes" type="asset:measureTypesType" />

    </xsd:sequence>

    <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

    <xsd:attribute name="assetLabel" type="xsd:string" />

    <xsd:attribute name="assetDescription" type="xsd:string" />

    <xsd:attribute name="tenantId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="requestType">

  <xsd:annotation>

    <xsd:documentation>

            Request is the actual operation that will

            be executed. 它捕获以下信息：

            - request type :

            CREATE / UPDATE / DELETE

            - 资产数据（属性、关系等等...）

            请求类型必须是以下某个类型：

             - INSERT：创建资产。

          - DELETE：删除资产。

             - UPDATE：更新资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>

    <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

  </xsd:sequence>


  <xsd:attribute name="type" type="xsd:string" />

</xsd:complexType>
```

```xml
<xsd:element name="operation">

  <xsd:annotation>

    <xsd:documentation>

      操作是 XML 文件的根元素。它

       将包含所有请求。

       rootTenant：采集的数据的根租户。

       timestamp：xml 文件生成日期。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:complexType>

    <xsd:sequence>

      <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

    </xsd:sequence>

    <xsd:attribute name="rootTenant" type="xsd:string" />

    <xsd:attribute name="timestamp" type="xsd:string" />

    <xsd:attribute name="timeout" type="xsd:string" />

    <xsd:attribute name="timeoutTypeId" type="xsd:string" />

  </xsd:complexType>

</xsd:element>

</xsd:schema>
```

VDS_IOW-IN-READINGS-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017.
 * © Copyright International Business Machines Corporation 2012, 2017.


 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.


 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
        xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element maxOccurs="1" minOccurs="0" name="description"   type="xsd:string" />
```

```
      <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                        type="readings:relationsType" />
      <xsd:element minOccurs="0" maxOccurs="unbounded" name="attributes"
                                        type="readings:attributesType" />
      <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                        type="readings:measureTypesType" />
   </xsd:sequence>
   <xsd:attribute name="location" type="xsd:string" />
   <xsd:attribute name="extType" type="xsd:string" />
   <xsd:attribute name="extId" type="xsd:string" />
   <xsd:attribute name="modelRef" type="xsd:string" />
   <xsd:attribute name="tenantId" type="xsd:string" />
   <xsd:attribute name="assetLabel" type="xsd:string" />
   <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
   <xsd:sequence>
      <xsd:element name="workEquipment" type="readings:workEquipmentType" />
      <xsd:element name="readingValues" type="readings:readingValuesType" />
   </xsd:sequence>
   <xsd:attribute name="extReadingSetid" type="xsd:string" />
   <xsd:attribute name="timestamp" type="xsd:string" />
   <xsd:attribute name="extRelatedEvtId" type="xsd:string" />
   <xsd:attribute name="extRelatedEvtType" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
   <xsd:sequence>
      <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
   </xsd:sequence>
   <xsd:attribute name="type" type="xsd:string" />
   <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
   <xsd:sequence>
      <xsd:element name="attribute" type="readings:attributeType" />
   </xsd:sequence>
```

```
</xsd:complexType>
<xsd:complexType name="relationType">
   <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
   <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
     <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
     <xsd:element minOccurs="0" maxOccurs="unbounded" name="threshold"
                          type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="no_reading_timeout" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
     <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                                    type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
       <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
```

```
        <xsd:attribute name="timeout" type="xsd:string" />

        <xsd:attribute name="timeoutTypeId" type="xsd:string" />

      </xsd:complexType>

    </xsd:element>

  </xsd:schema>
```

VDS_IOW-IN-SO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
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#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                  type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
                                  type="so:iibDateTime" />
      <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
```

```
                                type="so:iibDateTime" />
      <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                                type="so:iibDateTime" />
      <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                type=" xsd:string" />


      <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                                type="so:attributes" />
      <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
      <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
    </xsd:all>
</xsd:complexType>

<xsd:complexType name="attributes">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="assets">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="workorders">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="attribute">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="value" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="asset">
    <xsd:attribute name="id" type="xsd:string" />
  <xsd:attribute name="type" type="xsd:string" />
  <xsd:attribute name="relationshipType" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="workorder">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="relationshipType" type="xsd:string" />
</xsd:complexType>
```

```
  <xsd:simpleType name="iibDateTime">
    <xsd:restriction base="xsd:string">
      <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[1-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
    </xsd:restriction>
  </xsd:simpleType>

  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                        type="so:requestType">
        </xsd:element>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>

</xsd:schema>
```

VDS_IOW-IN-WO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
# © Copyright Veolia Environment-VE 2016, 2017.
#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="MODEL_ID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                                type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                            type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                    type="wo:iibDateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETSTARTDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                    type="wo:iibDateTime " />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                    type="wo:iibDateTime " />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                    type="xsd:string" />
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                     type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                     type="xsd:string" />
<xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                     maxOccurs="1" minOccurs="0">
</xsd:element>
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                        type="wo:attributes" />
<xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
   </xsd:all>
  </xsd:complexType>
 </xsd:element>
</xsd:sequence>
<xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                   type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
   </xsd:complexType>
 </xsd:element>
 <xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                              minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
                              maxOccurs="1" minOccurs="1">
      <xsd:annotation>
        <xsd:documentation>
               对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
               IOW EVENTTYPE；对于 SRCEVTCATEGORY =
               WORKORDER，这是 IOW
               WORKORDER DOMAIN。对于
               SRCEVTCATEGORY = NOREADING 或
               READINGTHRESHOLD，这是 IOW
               MEASUREMENTTYPE
```

```
                </xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"
                                  minOccurs="0">
            <xsd:annotation>
              <xsd:documentation>
                            对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
                            IOW EXTEVENTID。对于 SRCEVTCATEGORY =
                            WORKORDER，这是
                            IOW WOEXTID。对于
                            SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，
                            这是 IOW MEASUREMENT_ID（仅针对 WO OUT）
              </xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element name="SRCEVTDATE" type="wo:iibDateTime" maxOccurs="1" minOccurs="1">
        </xsd:element>
        <xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
        </xsd:element>
        <xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
        </xsd:element>
        <xsd:element name="SRCEVTCURRVALUETS" type="wo:iibDateTime"
                                  maxOccurs="1" minOccurs="0">
        </xsd:element>
        <xsd:element name="SRCEVTCOMMENT" type="xsd:string"
                                  maxOccurs="1" minOccurs="0">
        </xsd:element>
        <xsd:element name="SOPREFERENCE" type="xsd:string"
                                  maxOccurs="1" minOccurs="0"></xsd:element>
      </xsd:all>
 </xsd:complexType>
<xsd:complexType name="srcEventListType">
  <xsd:sequence>
    <xsd:element name="SRCEVENT" type="wo:srcEventType"
                                  maxOccurs="unbounded" minOccurs="0"></xsd:element>
  </xsd:sequence>
```

```xml
    </xsd:complexType>
    <xsd:complexType name="attributes">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
      </xsd:sequence>
    </xsd:complexType>


    <xsd:complexType name="assets">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attribute">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="value" type="xsd:string" />
     </xsd:complexType>
     <xsd:complexType name="asset">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="relationshipType" type="xsd:string" />
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
      <xsd:restriction base="xsd:string">
        <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[1-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
      </xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

附录 F：V5.2.0.2 的 XSD 文件

VDS_IOW-IN-ALERTS-CORE_5201.XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *
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 *
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 *  with IBM Corporation.
 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
      <xsd:documentation>Event data source record</xsd:documentation>
    </xsd:annotation>
```

```
<xsd:all>
  <!--
    * 最少属性
    */
  -->

  <xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="STARTTS" type="xsd:dateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="LASTUPDATEDTS" type="xsd:dateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />
    <!--
      * Key/Full properties
      */
    -->
    <!-- Either of (EXTWORKEQUIPMENTID + EXTWORKEQUIPMENTTYPE) or LOCATION is required -->
  <xsd:element name="ENDTS" type="xsd:dateTime" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
```

```
<xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
 <xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="MEASURE" minOccurs="0" maxOccurs="1" >
  <xsd:annotation>
    <xsd:documentation>threshold attribute domain is 0,1 or 2</xsd:documentation>
  </xsd:annotation>
  <xsd:complexType>
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="threshold_value" type="xsd:string" />
    <xsd:attribute name="threshold" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>
</xsd:schema>
```

VDS_IOW-IN-ASSETS-CORE_5210.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
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 *
 * For IBM Corporation provided versions, releases and modifications: US Government Users
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/assetTypes"
        xmlns:asset="http://vds.com/assetTypes"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="modelrefType">
    <xsd:annotation>
      <xsd:documentation>modelref 将指的是语义的标识
              多个租户环境的模型。
              If the id attribute of modelref
              为空，那么所有请求
              将针对缺省模型来执行。</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
```

```
            <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />

        </xsd:sequence>

        <xsd:attribute name="id" type="xsd:string" />

    </xsd:complexType>

    <xsd:complexType name="relationType">

        <xsd:annotation>

            <xsd:documentation>

                        RelationType 用于描述资产之间的关系。

            </xsd:documentation>

        </xsd:annotation>

        <xsd:attribute name="relationName" type="xsd:string" />

        <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

        <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

    </xsd:complexType>

    <xsd:complexType name="relationsType">

        <xsd:sequence>

            <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

        </xsd:sequence>

    </xsd:complexType>

    <xsd:complexType name="thresholdType">

        <xsd:attribute name="range" type="xsd:string" />

        <xsd:attribute name="level" type="xsd:string" />

    </xsd:complexType>

    <xsd:complexType name="measureTypeType">

        <xsd:sequence>

            <xsd:element minOccurs="0" maxOccurs="3" name="threshold" type="asset:thresholdType" />

        </xsd:sequence>

        <xsd:attribute name="unit" type="xsd:string" />
```

```xml
      <xsd:attribute name="no_reading_timeout" type="xsd:string" />

      <xsd:attribute name="name" type="xsd:string" />

      <xsd:attribute name="measureLabel" type="xsd:string" />

      <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

   <xsd:sequence>

      <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

   </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

   <xsd:sequence>

      <xsd:element minOccurs="0" maxOccurs="1" name="value"

                        type="xsd:string" />

      <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                              type="xsd:string" />

   </xsd:sequence>

   <xsd:attribute name="type" type="xsd:string" />

   <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

   <xsd:annotation>

      <xsd:documentation>

            AssetType 用于描述要创建/更新/删除的资产。

      </xsd:documentation>

   </xsd:annotation>

   <xsd:sequence>
```

```
        <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

        <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />

        <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />

        <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes" type="asset:measureTypesType" />

    </xsd:sequence>

    <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

    <xsd:attribute name="assetLabel" type="xsd:string" />

    <xsd:attribute name="assetDescription" type="xsd:string" />

    <xsd:attribute name="tenantId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="requestType">

    <xsd:annotation>

        <xsd:documentation>

                Request is the actual operation that will

                be executed. 它捕获以下信息：

                - request type :

                CREATE / UPDATE / DELETE

                - 资产数据（属性、关系等等...）

                请求类型必须是以下某个类型：

                - INSERT：创建资产。

            - DELETE：删除资产。

                - UPDATE：更新资产。

        </xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>

        <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

    </xsd:sequence>
```

```
    <xsd:attribute name="type" type="xsd:string" />

  </xsd:complexType>

  <xsd:element name="operation">

    <xsd:annotation>

      <xsd:documentation>

        操作是 XML 文件的根元素。它

         将包含所有请求。

         rootTenant：采集的数据的根租户。

         timestamp：xml 文件生成日期。

       </xsd:documentation>

    </xsd:annotation>

    <xsd:complexType>

      <xsd:sequence>

        <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

      </xsd:sequence>

      <xsd:attribute name="rootTenant" type="xsd:string" />

      <xsd:attribute name="timestamp" type="xsd:string" />

      <xsd:attribute name="timeout" type="xsd:string" />

      <xsd:attribute name="timeoutTypeId" type="xsd:string" />

    </xsd:complexType>

  </xsd:element>

</xsd:schema>
```

VDS_IOW-IN-READINGS-CORE_1.7.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
      xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element maxOccurs="1" minOccurs="0" name="description"    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                        type="readings:relationsType" />
```

```
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attributes"
                                    type="readings:attributesType" />
    <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                    type="readings:measureTypesType" />
  </xsd:sequence>
  <xsd:attribute name="location" type="xsd:string" />
  <xsd:attribute name="extType" type="xsd:string" />
  <xsd:attribute name="extId" type="xsd:string" />
  <xsd:attribute name="modelRef" type="xsd:string" />
  <xsd:attribute name="assetLabel" type="xsd:string" />
  <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
  <xsd:sequence>
    <xsd:element name="workEquipment" type="readings:workEquipmentType" />
    <xsd:element name="readingValues" type="readings:readingValuesType" />
  </xsd:sequence>
  <xsd:attribute name="extReadingSetid" type="xsd:string" />
  <xsd:attribute name="timestamp" type="xsd:string" />
  <xsd:attribute name="extRelatedEvtId" type="xsd:string" />
  <xsd:attribute name="extRelatedEvtType" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
    <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
  <xsd:sequence>
    <xsd:element name="attribute" type="readings:attributeType" />
  </xsd:sequence>
</xsd:complexType>
```

```
<xsd:complexType name="relationType">
  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
 <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
    <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="3" name="threshold"
                     type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                         type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:schema>
```

VDS_IOW-IN-SO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
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#
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#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
                          type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
```

```
                                    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                                    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                                    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                                    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                                    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                    type="xsd:string" />


      <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                                    type="so:attributes" />
      <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
      <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
   </xsd:all>
</xsd:complexType>

<xsd:complexType name="attributes">
   <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
   </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="assets">
   <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
   </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="workorders">
   <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
   </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="attribute">
   <xsd:attribute name="id" type="xsd:string" />
   <xsd:attribute name="type" type="xsd:string" />
   <xsd:attribute name="value" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="asset">
   <xsd:attribute name="id" type="xsd:string" />
   <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="workorder">
   <xsd:attribute name="id" type="xsd:string" />
   <xsd:attribute name="relationshipType" type="xsd:string" />
</xsd:complexType>
```

```
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                      type="so:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
</xsd:element>

</xsd:schema>
```

VDS_IOW-IN-WO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
# Licensed Materials - Property of Veolia Environment-VE
#
# © Copyright Veolia Environment-VE 2016, 2017.
#
# Users Restricted Rights - Use, duplication or
# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                              type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                              type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                              type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                              type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="MODEL_ID"
                                              type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                              type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                              type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                               type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                    type="wo:iibDateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                    type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                    type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETSTARTDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                    type="wo:iibDateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                    type="xsd:string" />
```

```xml
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                     type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                     type="xsd:string" />
  <xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                     type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                     type="xsd:string" />
  <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                     maxOccurs="1" minOccurs="0">
</xsd:element>
```

```
        <xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                                type="wo:attributes" />
        <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
      </xsd:all>
    </xsd:complexType>
  </xsd:element>
</xsd:sequence>
<xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                    type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
<xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                            minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
                            maxOccurs="1" minOccurs="1">
      <xsd:annotation>
        <xsd:documentation>
                对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
                IOW EVENTTYPE；对于 SRCEVTCATEGORY =
                WORKORDER，这是 IOW
                WORKORDER DOMAIN。对于
                SRCEVTCATEGORY = NOREADING 或
                READINGTHRESHOLD，这是 IOW
                MEASUREMENTTYPE
```

```xml
        </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"
                              minOccurs="0">
      <xsd:annotation>
        <xsd:documentation>
                    对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
                    IOW EXTEVENTID。对于 SRCEVTCATEGORY =
                    WORKORDER，这是
                    IOW WOEXTID。对于
                    SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，
                    这是 IOW MEASUREMENT_ID（仅针对 WO OUT）
        </xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <xsd:element name="SRCEVTDATE" type="wo:iibDateTime" maxOccurs="1" minOccurs="1">
    </xsd:element>
    <xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
    </xsd:element>
    <xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
    </xsd:element>
    <xsd:element name="SRCEVTCURRVALUETS" type="wo:iibDateTime"
                              maxOccurs="1" minOccurs="0">
    </xsd:element>
    <xsd:element name="SRCEVTCOMMENT" type="xsd:string"
                              maxOccurs="1" minOccurs="0">
    </xsd:element>
    <xsd:element name="SOPREFERENCE" type="xsd:string"
                              maxOccurs="1" minOccurs="0"></xsd:element>
  </xsd:all>
 </xsd:complexType>
<xsd:complexType name="srcEventListType">
  <xsd:sequence>
    <xsd:element name="SRCEVENT" type="wo:srcEventType"
                              maxOccurs="unbounded" minOccurs="0"></xsd:element>
  </xsd:sequence>
```

```
      </xsd:complexType>


    <xsd:complexType name="attributes">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
      </xsd:sequence>
    </xsd:complexType>


    <xsd:complexType name="assets">
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="attribute">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
      <xsd:attribute name="value" type="xsd:string" />
     </xsd:complexType>
     <xsd:complexType name="asset">
      <xsd:attribute name="id" type="xsd:string" />
      <xsd:attribute name="type" type="xsd:string" />
    </xsd:complexType>
    <xsd:simpleType name="iibDateTime">
      <xsd:restriction base="xsd:string">
        <xsd:pattern
value="\d{4}-(0[1-9]|1[012])-(0[1-9]|[12][0-9]|3[01])\s(0[0-9]|[1][0-9]|2[1-3]):([0-5][0-9]):([0-5][0-9]).([0-9]{3})" />
      </xsd:restriction>
    </xsd:simpleType>
</xsd:schema>
```

附录 G：V5.2.0.1 的 XSD 文件

VDS_IOW-IN-ALERTS-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *
 * 5725-D69
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 * © Copyright International Business Machines Corporation 2012, 2017.
 *
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 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/alertsType"
        xmlns:alert="http://vds.com/alertsType"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
      <xsd:attribute name="rootTenant" type="xsd:string" />
      <xsd:attribute name="timeout" type="xsd:string" />
      <xsd:attribute name="timeoutTypeId" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
      <xsd:documentation>Event data source record</xsd:documentation>
    </xsd:annotation>
```

```xml
<xsd:all>
  <!--
    * 最少属性
    */
  -->

  <xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="TENANT_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="MODEL_ID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="STARTTS" type="xsd:dateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="LASTUPDATEDTS" type="xsd:dateTime" minOccurs="1" maxOccurs="1" />
  <xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="EVENTSUBTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="COSTS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CONSEQUENCES" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
  <xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />
    <!--
      * Key/Full properties
      */
    -->
    <!-- Either of (EXTWORKEQUIPMENTID + EXTWORKEQUIPMENTTYPE) or LOCATION is required -->
  <xsd:element name="ENDTS" type="xsd:dateTime" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
  <xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
```

```
<xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
 <xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="MEASURE" minOccurs="0" maxOccurs="1" >
  <xsd:annotation>
    <xsd:documentation>threshold attribute domain is 0,1 or 2</xsd:documentation>
  </xsd:annotation>
  <xsd:complexType>
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="threshold_value" type="xsd:string" />
    <xsd:attribute name="threshold" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>
</xsd:schema>
```

VDS_IOW-IN-ASSETS-CORE_5210.XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
 * Licensed Materials - Property of Veolia Environment-VE and IBM
 *
 * 5725-D69
 *
 * © Copyright Veolia Environment-VE 2017.
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 *
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 * Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract
 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/assetTypes"

        xmlns:asset="http://vds.com/assetTypes"

        xmlns:xsd="http://www.w3.org/2001/XMLSchema"

        elementFormDefault="qualified">

  <xsd:complexType name="modelrefType">

    <xsd:annotation>

      <xsd:documentation>modelref 将指的是语义的标识

              多个租户环境的模型。

              If the id attribute of modelref

              为空，那么所有请求

              将针对缺省模型来执行。</xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>
```

```
        <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />

    </xsd:sequence>

    <xsd:attribute name="id" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationType">

    <xsd:annotation>

        <xsd:documentation>

                RelationType 用于描述资产之间的关系。

        </xsd:documentation>

    </xsd:annotation>

    <xsd:attribute name="relationName" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="relationsType">

    <xsd:sequence>

        <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />

    </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="thresholdType">

    <xsd:attribute name="range" type="xsd:string" />

    <xsd:attribute name="level" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypeType">

    <xsd:sequence>

        <xsd:element minOccurs="0" maxOccurs="3" name="threshold" type="asset:thresholdType" />

    </xsd:sequence>

    <xsd:attribute name="unit" type="xsd:string" />
```

```xml
    <xsd:attribute name="no_reading_timeout" type="xsd:string" />

    <xsd:attribute name="name" type="xsd:string" />

    <xsd:attribute name="measureLabel" type="xsd:string" />

    <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="measureTypesType">

  <xsd:sequence>

    <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"

                              type="asset:measureTypeType" />

  </xsd:sequence>

</xsd:complexType>

<xsd:complexType name="attributeType">

  <xsd:sequence>

    <xsd:element minOccurs="0" maxOccurs="1" name="value"

                      type="xsd:string" />

    <xsd:element minOccurs="0" maxOccurs="1" name="unit"

                          type="xsd:string" />

  </xsd:sequence>

  <xsd:attribute name="type" type="xsd:string" />

  <xsd:attribute name="name" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="assetType">

  <xsd:annotation>

    <xsd:documentation>

      AssetType 用于描述要创建/更新/删除的资产。

    </xsd:documentation>

  </xsd:annotation>

  <xsd:sequence>
```

```xml
        <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />

        <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />

        <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />

        <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes" type="asset:measureTypesType" />

    </xsd:sequence>

    <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />

    <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />

    <xsd:attribute name="assetLabel" type="xsd:string" />

    <xsd:attribute name="assetDescription" type="xsd:string" />

    <xsd:attribute name="tenantId" type="xsd:string" />

</xsd:complexType>

<xsd:complexType name="requestType">

    <xsd:annotation>

        <xsd:documentation>

            请求是将执行的实际

            操作。它捕获以下信息：

                    - request type :

                CREATE / UPDATE / DELETE

                - 资产数据（属性、关系等等...）

                请求类型必须是以下之一：

                 - INSERT：创建资产。

        -       DELETE：删除资产。

                - UPDATE：更新资产。

        </xsd:documentation>

    </xsd:annotation>

    <xsd:sequence>

        <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />

    </xsd:sequence>
```

```
    <xsd:attribute name="type" type="xsd:string" />

  </xsd:complexType>

  <xsd:element name="operation">

    <xsd:annotation>

      <xsd:documentation>

        操作是 XML 文件的根元素。它

        将包含所有请求。

        rootTenant：采集的数据的根租户。

        timestamp：xml 文件生成日期。

      </xsd:documentation>

    </xsd:annotation>

    <xsd:complexType>

      <xsd:sequence>

        <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />

      </xsd:sequence>

      <xsd:attribute name="rootTenant" type="xsd:string" />

      <xsd:attribute name="timestamp" type="xsd:string" />

      <xsd:attribute name="timeout" type="xsd:string" />

      <xsd:attribute name="timeoutTypeId" type="xsd:string" />

    </xsd:complexType>

  </xsd:element>

</xsd:schema>
```

VDS_IOW-IN-READINGS-CORE_1.7.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
       xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
       elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element maxOccurs="1" minOccurs="0" name="description"    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                          type="readings:relationsType" />
```

```
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attributes"
                                      type="readings:attributesType" />
      <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                      type="readings:measureTypesType" />
   </xsd:sequence>
   <xsd:attribute name="location" type="xsd:string" />
   <xsd:attribute name="extType" type="xsd:string" />
   <xsd:attribute name="extId" type="xsd:string" />
   <xsd:attribute name="modelRef" type="xsd:string" />
   <xsd:attribute name="assetLabel" type="xsd:string" />
   <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
   <xsd:sequence>
      <xsd:element name="workEquipment" type="readings:workEquipmentType" />
      <xsd:element name="readingValues" type="readings:readingValuesType" />
   </xsd:sequence>
   <xsd:attribute name="extReadingSetid" type="xsd:string" />
   <xsd:attribute name="timestamp" type="xsd:string" />
   <xsd:attribute name="extRelatedEvtId" type="xsd:string" />
   <xsd:attribute name="extRelatedEvtType" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
   <xsd:sequence>
      <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
   </xsd:sequence>
   <xsd:attribute name="type" type="xsd:string" />
   <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
   <xsd:sequence>
      <xsd:element name="attribute" type="readings:attributeType" />
   </xsd:sequence>
</xsd:complexType>
```

```xml
<xsd:complexType name="relationType">
  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
    <xsd:element name="relation" type="readings:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="3" name="threshold"
                      type="readings:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                          type="readings:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingSet" type="readings:readingSetType" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:schema>
```

VDS_IOW-IN-SO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
#
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#
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#
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# disclosure restricted by Contract with Veolia Environment-VE
#
-->
<xsd:schema targetNamespace="http://vds.com/serviceOrdersType"
        xmlns:so="http://vds.com/serviceOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="serviceorder" type="so:serviceOrder" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="serviceOrder">
    <xsd:all>
      <xsd:element minOccurs="0" maxOccurs="1" name="EXTERNAL_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="EAM_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="GIS_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="NAME"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_NO"
                                type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                type="xsd:string" />


      <xsd:element minOccurs="0" maxOccurs="1" name="REGISTRATION_DATE"
```

```
                                    type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="OPENING_DATE"
                                    type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_DATE"
                                    type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="ATTACHMENTS"
                                    type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="COMPLETION_STATUS"
                                    type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="STATUS"
                                    type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                    type="xsd:dateTime" />

        <xsd:element minOccurs="0" maxOccurs="1" name="customServiceOrderAttributes"
                                    type="so:attributes" />
        <xsd:element minOccurs="0" maxOccurs="1" name="assets" type="so:assets" />
        <xsd:element minOccurs="0" maxOccurs="1" name="workorders" type="so:workorders" />
     </xsd:all>
</xsd:complexType>

<xsd:complexType name="attributes">
    <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="so:attribute" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="assets">
    <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="so:asset" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="workorders">
    <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder" type="so:workorder" />
    </xsd:sequence>
</xsd:complexType>

<xsd:complexType name="attribute">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="value" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="asset">
    <xsd:attribute name="id" type="xsd:string" />
</xsd:complexType>

<xsd:complexType name="workorder">

    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="relationshipType" type="xsd:string" />
```

```
    </xsd:complexType>
    <xsd:element name="operations">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                           type="so:requestType">
          </xsd:element>
        </xsd:sequence>
        <xsd:attribute name="rootTenant" type="xsd:string" />
        <xsd:attribute name="timeout" type="xsd:string" />
        <xsd:attribute name="timeoutTypeId" type="xsd:string" />
      </xsd:complexType>
    </xsd:element>

</xsd:schema>
```

VDS_IOW-IN-WO-CORE_5201.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
#
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#
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#
-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
        xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
          <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TENANT_ID"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="MODEL_ID"
                                                type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT"
                                                type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION"
                                                type="xsd:string" />
```

```
<xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE"
                                 type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="FAILURE"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY"
                                         type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="STATUS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN"
                                         type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE"
                                         type="xsd:dateTime" />
 <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE"
                                         type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETSTARTDATE"
                                         type="xsd:dateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE"
                                         type="xsd:dateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE"
                                         type="xsd:dateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE"
                                         type="xsd:dateTime" />
<xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS"
                                         type="xsd:dateTime" />
<xsd:element minOccurs="0" maxOccurs="1" name="ZONE"
                                         type="xsd:string" />
```

```
<xsd:element minOccurs="0" maxOccurs="1" name="LOCATION"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="customWorkOrderAttributes"
                                         type="wo:attributes" />
<xsd:element minOccurs="0" maxOccurs="1" name="assets" type="wo:assets" />
<xsd:element minOccurs="0" maxOccurs="1" name="URL"
                                         type="xsd:string" />
 <xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTTYPE"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LEAD"
                                         type="xsd:string" />
<xsd:element minOccurs="1" maxOccurs="1" name="NETWORK"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="ISSUERCOMPANY"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="AFFECTED"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTDETAILS"
                                         type="xsd:string" />
<xsd:element minOccurs="0" maxOccurs="1" name="REPORT"
                                         type="xsd:string" />
```

```
    <xsd:element minOccurs="0" maxOccurs="1" name="SITE_ID"
                                            type="xsd:string" />
    <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                                            maxOccurs="1" minOccurs="0">
    </xsd:element>
  </xsd:all>
 </xsd:complexType>
</xsd:element>
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="request"
                                     type="wo:requestType">
      </xsd:element>
    </xsd:sequence>
    <xsd:attribute name="rootTenant" type="xsd:string" />
    <xsd:attribute name="timeout" type="xsd:string" />
    <xsd:attribute name="timeoutTypeId" type="xsd:string" />
  </xsd:complexType>
</xsd:element>
<xsd:complexType name="srcEventType">
  <xsd:all>
    <xsd:element name="SRCEVTCATEGORY" maxOccurs="1"
                              minOccurs="1" type="xsd:string">
    </xsd:element>
    <xsd:element name="SRCEVTTYPE" type="xsd:string"
                              maxOccurs="1" minOccurs="1">
      <xsd:annotation>
        <xsd:documentation>
            对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
            IOW EVENTTYPE；对于 SRCEVTCATEGORY =
            WORKORDER，这是 IOW
            WORKORDER DOMAIN。对于
```

```
            SRCEVTCATEGORY = NOREADING 或
            READINGTHRESHOLD，这是 IOW
            MEASUREMENTTYPE
      </xsd:documentation>


    </xsd:annotation>
  </xsd:element>
  <xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1"
                            minOccurs="0">
    <xsd:annotation>
      <xsd:documentation>
              对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是
              IOW EXTEVENTID。对于 SRCEVTCATEGORY =
              WORKORDER，这是
              IOW WOEXTID。对于
              SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，
              这是 IOW MEASUREMENT_ID（仅针对 WO OUT）
      </xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <xsd:element name="SRCEVTDATE" type="xsd:dateTime" maxOccurs="1" minOccurs="1">
  </xsd:element>
  <xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
  </xsd:element>
  <xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">
  </xsd:element>
  <xsd:element name="SRCEVTCURRVALUETS" type="xsd:dateTime"
                            maxOccurs="1" minOccurs="0">
  </xsd:element>
  <xsd:element name="SRCEVTCOMMENT" type="xsd:string"
                            maxOccurs="1" minOccurs="0">
  </xsd:element>
  <xsd:element name="SOPREFERENCE" type="xsd:string"
                            maxOccurs="1" minOccurs="0"></xsd:element>
  </xsd:all>
 </xsd:complexType>
<xsd:complexType name="srcEventListType">
```

```xml
    <xsd:sequence>
      <xsd:element name="SRCEVENT" type="wo:srcEventType"
                              maxOccurs="unbounded" minOccurs="0"></xsd:element>
    </xsd:sequence>
  </xsd:complexType>


  <xsd:complexType name="attributes">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="attribute" type="wo:attribute" />
    </xsd:sequence>
  </xsd:complexType>


  <xsd:complexType name="assets">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="asset" type="wo:asset" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="attribute">
    <xsd:attribute name="id" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="value" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="asset">
    <xsd:attribute name="id" type="xsd:string" />
  </xsd:complexType>
</xsd:schema>
```

VDS_IOW-IN-ALERTS-CORE_1.7.XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *  with IBM Corporation.
 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/alertsType"
            xmlns:alert="http://vds.com/alertsType"
            xmlns:xsd="http://www.w3.org/2001/XMLSchema"
            elementFormDefault="qualified">
  <xsd:element name="operations">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element minOccurs="1" maxOccurs="unbounded" name="record" type="alert:recordType"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:complexType name="recordType">
    <xsd:annotation>
      <xsd:documentation>Event data source record</xsd:documentation>
    </xsd:annotation>
    <xsd:all>
      <!--
        * 最少属性
```

```
*/
 -->
<xsd:element name="EXTEVENTID" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="MODEL_ID" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="STARTTS" type="xsd:dateTime" minOccurs="1" maxOccurs="1" />
<xsd:element name="LASTUPDATEDTS" type="xsd:dateTime" minOccurs="1" maxOccurs="1" />
<xsd:element name="SUBJECT" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="CATEGORY" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="EVENTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="CREATIONTYPE" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="NETWORK" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="DOMAIN" type="xsd:string" minOccurs="1" maxOccurs="1" />
<xsd:element name="STATUS" type="xsd:string" minOccurs="1" maxOccurs="1" />

<!--
     * Key/Full properties
     */
-->
<!-- Either of (EXTWORKEQUIPMENTID + EXTWORKEQUIPMENTTYPE) or LOCATION is required -->
<xsd:element name="ENDTS" type="xsd:dateTime" minOccurs="0" maxOccurs="1" />
<xsd:element name="EXTWORKEQUIPMENTID" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="EXTWORKEQUIPMENTTYPE" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="LOCATION" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="DESCRIPTION" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ADDRESS" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="OWNER" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="CREATEDBY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="URGENCY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="CERTAINTY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ZONE" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="SEVERITY" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="ACK" type="xsd:string" minOccurs="0" maxOccurs="1" />
<xsd:element name="MEASURE" minOccurs="0" maxOccurs="1" >
  <xsd:annotation>
    <xsd:documentation>threshold attribute domain is 0,1 or 2</xsd:documentation>
  </xsd:annotation>
```

```
      <xsd:complexType>
        <xsd:attribute name="value" type="xsd:string" />
        <xsd:attribute name="unit" type="xsd:string" />
        <xsd:attribute name="type" type="xsd:string" />
        <xsd:attribute name="threshold_value" type="xsd:string" />
        <xsd:attribute name="threshold" type="xsd:string" />
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
 </xsd:complexType>
</xsd:schema>
```

VDS_IOW-IN-ASSETS-CORE_1.7.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
/*
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 *  with IBM Corporation.
 */

 V1.8
-->
<xsd:schema targetNamespace="http://vds.com/assetTypes"
      xmlns:asset="http://vds.com/assetTypes"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">
  <xsd:complexType name="modelrefType">
    <xsd:annotation>
      <xsd:documentation>modelref 将指的是语义的标识
                         多个租户环境的模型。
                         如果 modelref 的属性标识
                         为空，那么所有请求
                         将针对缺省模型
                         模型进行播放。</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="request" type="asset:requestType" />
    </xsd:sequence>
    <xsd:attribute name="id" type="xsd:string" />
  </xsd:complexType>
```

```xml
<xsd:complexType name="relationType">

  <xsd:attribute name="relationName" type="xsd:string" />
  <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
  <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
  <xsd:sequence>
    <xsd:element maxOccurs="unbounded" minOccurs="1" name="relation" type="asset:relationType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
  <xsd:attribute name="range" type="xsd:string" />
  <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="3" name="threshold" type="asset:thresholdType" />
  </xsd:sequence>
  <xsd:attribute name="unit" type="xsd:string" />
  <xsd:attribute name="name" type="xsd:string" />
  <xsd:attribute name="measureLabel" type="xsd:string" />
  <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
  <xsd:sequence>
    <xsd:element minOccurs="1" maxOccurs="unbounded" name="measureType"
                    type="asset:measureTypeType" />
  </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="attributeType">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
    <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
  </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="name" type="xsd:string" />
```

```xml
</xsd:complexType>

<xsd:complexType name="assetType">
  <xsd:sequence>
    <xsd:element minOccurs="1" maxOccurs="1" name="internalLocation" type="xsd:string" />
    <xsd:element minOccurs="0" maxOccurs="1" name="relations" type="asset:relationsType" />
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="attribute" type="asset:attributeType" />
    <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes" type="asset:measureTypesType" />
  </xsd:sequence>
  <xsd:attribute name="extWorkEquipmentType" type="xsd:string" />
  <xsd:attribute name="extWorkEquipmentId" type="xsd:string" />
  <xsd:attribute name="assetLabel" type="xsd:string" />
  <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="requestType">
  <xsd:annotation>
    <xsd:documentation>请求是将执行的
                      实际操作。它捕获以下信息：
                      请求类型：
                      CREATE / UPDATE / DELETE
                      - 资产数据（
                      属性，关系等等
                      ...)

                      请求类型必须为
                      以下某个类型：
                      - INSERT：创建资产。
                      - DELETE：删除资产。
                      - UPDATE：更新资产
    </xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element maxOccurs="unbounded" name="asset" type="asset:assetType" />
  </xsd:sequence>
  <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operation">
```

```
    <xsd:annotation>

      <xsd:documentation>operation is the root element of the xml file.
                        它将包含所有请求。
                        timestamp：xml 文件生成日期。
      </xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element maxOccurs="unbounded" name="modelref" type="asset:modelrefType" />
      </xsd:sequence>
      <xsd:attribute name="timestamp" type="xsd:string" />
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

VDS_IOW-IN-READINGS-CORE_1.7.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
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 */

 V1.8
 -->
<xsd:schema targetNamespace="http://vds.com/readingsTypes"
       xmlns:readings="http://vds.com/readingsTypes" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
       elementFormDefault="qualified">
  <xsd:complexType name="readingValueType">
    <xsd:attribute name="value" type="xsd:string" />
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
  </xsd:complexType>
  <xsd:complexType name="readingValuesType">
    <xsd:sequence>
      <xsd:element maxOccurs="unbounded" name="readingValue" type="readings:readingValueType" />
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="workEquipmentType">
    <xsd:sequence>
      <xsd:element maxOccurs="1" minOccurs="0" name="description"    type="xsd:string" />
      <xsd:element minOccurs="0" maxOccurs="unbounded" name="relations"
                                        type="readings:relationsType" />
```

```xml
            <xsd:element minOccurs="0" maxOccurs="unbounded" name="attributes"
                                        type="readings:attributesType" />
        <xsd:element minOccurs="0" maxOccurs="1" name="measureTypes"
                                        type="readings:measureTypesType" />
    </xsd:sequence>
    <xsd:attribute name="location" type="xsd:string" />
    <xsd:attribute name="extType" type="xsd:string" />
    <xsd:attribute name="extId" type="xsd:string" />
    <xsd:attribute name="modelRef" type="xsd:string" />
    <xsd:attribute name="assetLabel" type="xsd:string" />
    <xsd:attribute name="assetDescription" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="readingSetType">
    <xsd:sequence>
        <xsd:element name="workEquipment" type="readings:workEquipmentType" />
        <xsd:element name="readingValues" type="readings:readingValuesType" />
    </xsd:sequence>
    <xsd:attribute name="extReadingSetid" type="xsd:string" />
    <xsd:attribute name="timestamp" type="xsd:string" />
    <xsd:attribute name="extRelatedEvtId" type="xsd:string" />
    <xsd:attribute name="extRelatedEvtType" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributeType">
    <xsd:sequence>
        <xsd:element minOccurs="0" maxOccurs="1" name="value" type="xsd:string" />
        <xsd:element minOccurs="0" maxOccurs="1" name="unit" type="xsd:string" />
    </xsd:sequence>
    <xsd:attribute name="type" type="xsd:string" />
    <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="attributesType">
    <xsd:sequence>
        <xsd:element name="attribute" type="readings:attributeType" />
    </xsd:sequence>
</xsd:complexType>
```

```
<xsd:complexType name="relationType">
    <xsd:attribute name="targetExtWorkEquipmentType" type="xsd:string" />
    <xsd:attribute name="targetExtWorkEquipmentId" type="xsd:string" />
    <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="relationsType">
    <xsd:sequence>
        <xsd:element name="relation" type="readings:relationType" />
    </xsd:sequence>
</xsd:complexType>
<xsd:complexType name="thresholdType">
    <xsd:attribute name="range" type="xsd:string" />
    <xsd:attribute name="level" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypeType">
    <xsd:sequence>
        <xsd:element minOccurs="0" maxOccurs="3" name="threshold"
                            type="readings:thresholdType" />
    </xsd:sequence>
    <xsd:attribute name="unit" type="xsd:string" />
    <xsd:attribute name="name" type="xsd:string" />
    <xsd:attribute name="isPrimaryMeasurement" type="xsd:string" />
</xsd:complexType>
<xsd:complexType name="measureTypesType">
    <xsd:sequence>
        <xsd:element minOccurs="0" maxOccurs="unbounded" name="measureType"
                                        type="readings:measureTypeType" />
    </xsd:sequence>
</xsd:complexType>
<xsd:element name="readings">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element maxOccurs="unbounded" name="readingSet″ type="readings:readingSetType" />
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
</xsd:schema>
```

VDS_IOW-IN-WO-CORE_1.7.XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
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-->
<xsd:schema targetNamespace="http://vds.com/workOrdersType"
      xmlns:wo="http://vds.com/workOrdersType" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">
  <xsd:complexType name="requestType">
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="unbounded" name="workorder">
        <xsd:complexType>
         <xsd:all>
            <xsd:element minOccurs="0" maxOccurs="1" name="DATASOURCEID" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="RECORDID" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="WOEXTID" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="MODEL_ID" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="SUBJECT" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="DESCRIPTION" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="DOMAIN" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="CATEGORY" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="WORKORDERTYPE" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="WORKTYPE" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="SUBTYPE" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="FAILURE" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="PRIORITY" type="xsd:string" />
```

```xsd
            <xsd:element minOccurs="1" maxOccurs="1" name="STATUS" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="JOBPLAN" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONDATE" type="xsd:dateTime" />
            <xsd:element minOccurs="1" maxOccurs="1" name="CREATIONTYPE" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="CREATEDBY" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TARGETSTARTDATE" type="xsd:dateTime" />
            <xsd:element minOccurs="0" maxOccurs="1" name="TARGETENDDATE" type="xsd:dateTime" />
            <xsd:element minOccurs="0" maxOccurs="1" name="ACTSTARTDATE" type="xsd:dateTime" />
            <xsd:element minOccurs="0" maxOccurs="1" name="ACTENDDATE" type="xsd:dateTime" />
            <xsd:element minOccurs="1" maxOccurs="1" name="LASTUPDATEDTS" type="xsd:dateTime" />
            <xsd:element minOccurs="0" maxOccurs="1" name="ZONE" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="LOCATION" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="EXTWORKEQUIPMENTID" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1"
                            name="EXTWORKEQUIPMENTTYPE" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="UPDATEDBY" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="LEAD" type="xsd:string" />
            <xsd:element minOccurs="1" maxOccurs="1" name="NETWORK" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="ADDRESS" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="PERFORMEDBY"
                            type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERID" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="LOCOWNERDETAILS" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="LOCCONTACTID" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1"
                            name="LOCCONTACTDETAILS" type="xsd:string" />
            <xsd:element minOccurs="0" maxOccurs="1" name="REPORT" type="xsd:string" />
            <xsd:element name="SRCEVENTLIST" type="wo:srcEventListType"
                            maxOccurs="1" minOccurs="0">
            </xsd:element>
        </xsd:all>
      </xsd:complexType>
    </xsd:element>
</xsd:sequence>
```

```
    <xsd:attribute name="type" type="xsd:string" />
</xsd:complexType>
<xsd:element name="operations">
   <xsd:complexType>
     <xsd:sequence>
       <xsd:element minOccurs="1" maxOccurs="unbounded" name="request" type="wo:requestType">
        </xsd:element>
     </xsd:sequence>
   </xsd:complexType>
</xsd:element>


<xsd:complexType name="srcEventType">
   <xsd:all>
     <xsd:element name="SRCEVTCATEGORY" maxOccurs="1" minOccurs="1" type="xsd:string">
      </xsd:element>


     <xsd:element name="SRCEVTTYPE" type="xsd:string" maxOccurs="1" minOccurs="1">
       <xsd:annotation>
         <xsd:documentation>
             对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

             IOW EVENTTYPE；对于 SRCEVTCATEGORY =

             WORKORDER，这是 IOW

             WORKORDER DOMAIN For a SRCEVTCATEGORY = NOREADING or

             READINGTHRESHOLD, this is the IOW MEASUREMENTTYPE

         </xsd:documentation>
       </xsd:annotation>
     </xsd:element>
     <xsd:element name="SRCEVTID" type="xsd:string" maxOccurs="1" minOccurs="0">
       <xsd:annotation>
         <xsd:documentation>
                 对于 SRCEVTCATEGORY = ALERT 或 EVENT，这是

                 IOW EXTEVENTID；对于 SRCEVTCATEGORY =     WORKORDER，这是

                 IOW WOEXTID；对于      SRCEVTCATEGORY = NOREADING 或 READINGTHRESHOLD，

                 这是 IOW MEASUREMENT_ID（仅针对 WO OUT）
```

```
            </xsd:documentation>

         </xsd:annotation>

      </xsd:element>

      <xsd:element name="SRCEVTDATE" type="xsd:dateTime" maxOccurs="1" minOccurs="1">

      </xsd:element>

      <xsd:element name="SRCEVTORIGVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">

      </xsd:element>

      <xsd:element name="SRCEVTCURRVALUE" type="xsd:string" maxOccurs="1" minOccurs="0">

      </xsd:element>


      <xsd:element name="SRCEVTCURRVALUETS" type="xsd:dateTime"

                        maxOccurs="1" minOccurs="0"> </xsd:element>

      <xsd:element name="SRCEVTCOMMENT" type="xsd:string"

                        maxOccurs="1" minOccurs="0"> </xsd:element>

      <xsd:element name="SOPREFERENCE" type="xsd:string"

                        maxOccurs="1" minOccurs="0"> </xsd:element>

    </xsd:all>

  </xsd:complexType>

  <xsd:complexType name="srcEventListType">

    <xsd:sequence>

      <xsd:element name="SRCEVENT" type="wo:srcEventType"

                        maxOccurs="unbounded" minOccurs="0"> </xsd:element>

    </xsd:sequence>

  </xsd:complexType>

</xsd:schema>
```

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