

iEM System 培训 (六) 系统维护

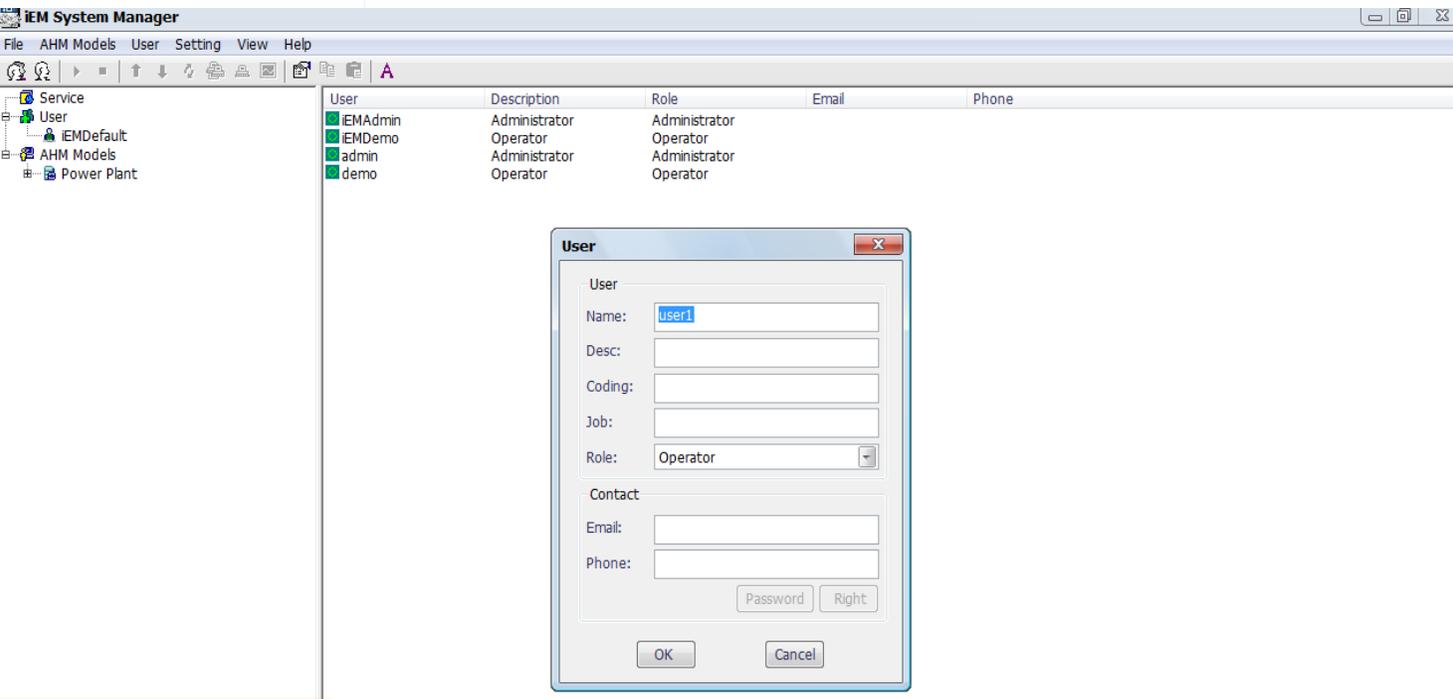
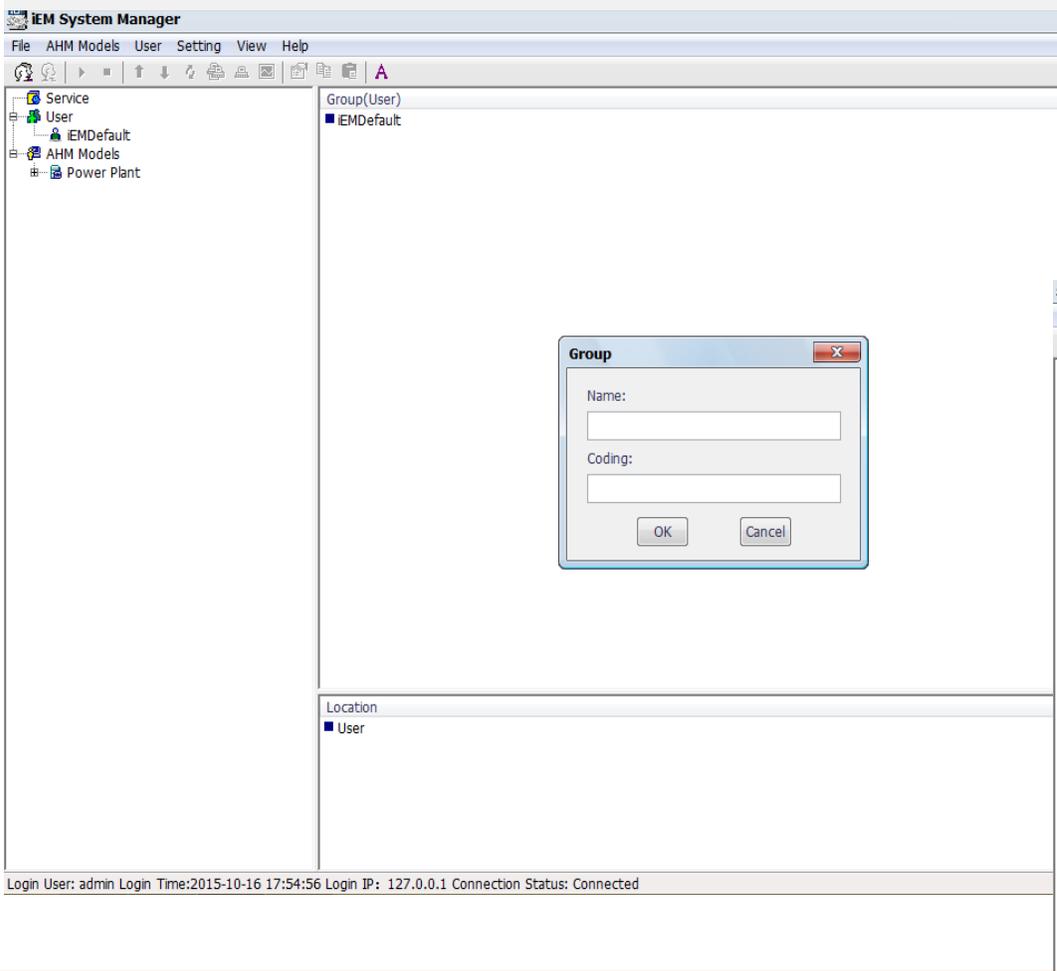
2019/01

- 一： 用户管理；
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一：用户管理

采用部门/使用者的使用者管理方式

- 部门（群）
- 用户



可对部门或用户设定区域权限
在iEM Manager中配置的部门、用户将出现在网页客户端的用户登录页上。

二：测点配置

iEM系统中，每个设备模型都包含若干测点，如果一些测点因为传感器故障，暂时无法修复，则错误的测量值会造成系统长期大量的预警信息，这时，可以通过将测点配置成无效的方式来暂时取消测点，待传感器修复之后再恢复有效即可。

The screenshot shows the iEM System Manager interface. On the left, a tree view displays the system hierarchy: Service, User, iEMDefault, AHM Models, and Power Plant. Under Power Plant, components like Turbine Proper, Generator Proper, Feed Water Pump, Induced Draft Fan, Air Condenser, and Air Pre-heater are listed. The main window displays a table of tags with columns: Tag, No., Description, Unit, High Limit, Low Limit, Enable, and Tag Type. A 'Tag Properties' dialog box is open, showing configuration for tag 'DCS01:TC161701_QJBT'. The dialog includes sections for Properties and Tag Writeback.

Tag	No.	Description	Unit	High Limit	Low Limit	Enable	Tag Type
DCS01:T2229_QJBT	1	HP Exhaust Steam Pressure(Left)	MPa	3.00	1.00	Enable	Basic Tag
DCS01:TC161601_QJBT	2	HP Exhaust Steam Upper Temper...	DEG C	342.00	293.00	Enable	Basic Tag
DCS01:TC161602_QJBT	3	HP Exhaust Steam Lower Temper...	DEG C	342.00	294.00	Enable	Basic Tag
DCS01:TC161603_QJBT						Enable	Basic Tag
DCS01:TC161604_QJBT						Enable	Basic Tag
DCS01:TC161605_QJBT						Enable	Basic Tag
DCS01:TC161606_QJBT						Enable	Basic Tag
DCS01:TC161607_QJBT						Enable	Basic Tag
DCS01:TC161608_QJBT						Enable	Basic Tag
DCS01:TC161609_QJBT						Enable	Basic Tag
DCS01:TC161610_QJBT						Enable	Basic Tag
DCS01:TC161611_QJBT						Enable	Basic Tag
DCS01:TC161612_QJBT						Enable	Basic Tag
DCS01:TC161613_QJBT						Enable	Basic Tag
DCS01:TC161614_QJBT						Enable	Basic Tag
DCS01:TC161615_QJBT						Enable	Basic Tag
DCS01:TC161616_QJBT						Enable	Basic Tag
DCS01:TC161617_QJBT						Enable	Basic Tag
DCS01:TC161618_QJBT						Enable	Basic Tag
DCS01:TC161619_QJBT						Enable	Basic Tag
DCS01:TC161620_QJBT						Enable	Basic Tag
DCS01:TC161621_QJBT						Enable	Basic Tag
DCS01:TC161622_QJBT						Enable	Basic Tag
DCS01:TC161623_QJBT						Enable	Basic Tag
DCS01:TC161624_QJBT						Enable	Basic Tag
DCS01:TC161625_QJBT						Enable	Basic Tag
DCS01:TC161626_QJBT						Enable	Basic Tag
DCS01:TC161627_QJBT						Enable	Basic Tag
DCS01:TC161628_QJBT						Enable	Basic Tag
DCS01:TC161629_QJBT						Enable	Basic Tag
DCS01:TC161630_QJBT						Enable	Basic Tag
DCS01:TC161631_QJBT						Enable	Basic Tag
DCS01:TC161632_QJBT						Enable	Basic Tag
DCS01:TC161633_QJBT						Enable	Basic Tag
DCS01:TC161634_QJBT						Enable	Basic Tag
DCS01:TC161635_QJBT						Enable	Basic Tag
DCS01:TC161636_QJBT						Enable	Basic Tag
DCS01:TC161637_QJBT						Enable	Basic Tag
DCS01:TC161638_QJBT						Enable	Basic Tag
DCS01:TC161639_QJBT						Enable	Basic Tag
DCS01:TC161640_QJBT						Enable	Basic Tag
DCS01:TC161641_QJBT						Enable	Basic Tag
DCS01:TC161642_QJBT						Enable	Basic Tag
DCS01:TC161643_QJBT						Enable	Basic Tag
DCS01:TC161644_QJBT						Enable	Basic Tag
DCS01:TC161645_QJBT						Enable	Basic Tag
DCS01:TC161646_QJBT						Enable	Basic Tag
DCS01:TC161647_QJBT						Enable	Basic Tag
DCS01:TC161648_QJBT						Enable	Basic Tag
DCS01:TC161649_QJBT						Enable	Basic Tag
DCS01:TC161650_QJBT						Enable	Basic Tag
DCS01:TC161501_QJBT	33	Section 1 Extraction Temperature	DEG C	477.00	384.00	Enable	Basic Tag

Tag Properties Dialog Box:

- Tag Alias Name: DCS01:TC161701_QJBT
- Tag Name: DCS01:TC161701
- Source: None
- Type: Basic Tag
- High Limit: 343
- Low Limit: 293
- Unit: DEG C
- HPI Threshold: 0.78599
- Warning Type: All
- Deadband: 0.5
- Enable:
- Tag Writeback: ABS

Location	ID	Time Slot	Tags Total	Service InitModel	Service DataExchange	Service CalExp
Turbine Proper	3	18	52	Running	Running	Running

二：测点配置

双击需要调整配置的测点，即可打开测点配置窗口：



The screenshot displays the iEM System Manager interface. On the left, a tree view shows the project structure under 'AHM Models' > 'Power Plant'. The main area shows a table of tags with columns: Tag, No., Description, Unit, High Limit, Low Limit, Enable, and Tag Type. A 'Tag Properties' dialog box is open, showing configuration for tag 'DCS01:TC161701'. The dialog has two sections: 'Properties' and 'Tag Writeback'. The 'Properties' section includes fields for Tag Alias Name, Tag Name, Source, Type, High Limit, Low Limit, Description, Unit, HPI Threshold, Warning Type, Deadband, and an 'Enable' checkbox. The 'Tag Writeback' section includes fields for Source Tag, Residual Tag, HPI Tag, Expect Tag, Ratio Tag, and an 'ABS' checkbox. The 'OK' and 'Cancel' buttons are at the bottom.

Tag	No.	Description	Unit	High Limit	Low Limit	Enable	Tag Type
DCS01:T2229_QJBT	1	HP Exhaust Steam Pressure(Left)	MPa	3.00	1.00	Enable	Basic Tag
DCS01:TC161601_QJBT	2	HP Exhaust Steam Upper Temper...	DEG C	342.00	293.00	Enable	Basic Tag
DCS01:TC161602_QJBT	3	HP Exhaust Steam Lower Temper...	DEG C	342.00	294.00	Enable	Basic Tag
DCS01:TC161701_QJBT		HP Exhaust Steam Upper Temp	DEG C	343	293	Enable	Basic Tag
DCS01:TC161501_QJBT	33	Section 1 Extraction Temperature	DEG C	477.00	384.00	Enable	Basic Tag

在测点配置中另一项常用的功能，是调整稳态值的上下限，当某一测点经常出现预警并经确认没有异常时，可以将其上下限稍作调整，以消除不必要的过多预警。

二：测点配置-删除测点



Tag	Description	Unit	High Limit	Low Limit
W522_PI-FW22	FW PRESS	Kg/cm2	130.00	0.00
W522_TI-FW24	FEEDWTR. TEMP.	DEG C	250.00	0.00
W522_FR-FW22	FW FLOW	ton/hr	200.00	0.00
W522_PI-MS03	S.H OUTLET PRESS.	Kg/cm2	120.00	0.00
W522_FR-MS04	STM FLOW	ton/hr	200.00	0.00
W522_TR-MS03	FINAL S.H TEMP	DEG C	600.00	0.00
W522_FR-BG01	BFG FLOW	KNm3/h	142.00	0.00
W522_BTUBG01	BFG HEAT VALUE	Kca/m3	1220.00	610.00
W522_FR-CG03K.OV	COG FLOW	KNm3/h	18836.00	0.00
W522_SR-MI00K.OV	COAL FLOW	ton/hr	40.00	0.00
W522_AI-FW151I.OV	B6 EW PH	pH	14.00	0.00
W522_AI-SI102.OV	FILTER INLET C.C	us/cm	2.00	0.00
W522_FI-CA05I.OV	AIR DMD	%	100.00	0.00
W522_FI-FW26I.OV	SPRAY WTR. FLOW	ton/hr	100.00	0.00
W522_FK-MI11I	EXHAUS.-6A INLET DAMPER	%	100.00	0.00
W522_FK-MI11I.PV	EXHAUS.-6A INLET DAMPER		100.00	0.00
W522_PI-CG01I.OV	COG BNR PRESS	cm H2O	100.00	0.00
W522_PI-MI01I.OV	MILL6-1 INLET PRESS.	cm H2O	4.00	-11.00
W522_PI-MI21I.OV	NO1 EXHAUSTER OUTLET PRES	cm H2O	0.00	-30.00
W522_PI-MI22I.OV	NO2 EXHAUSTER OUTLET PRES	cm H2O	0.00	-30.00
W522_SK-MI00I	PULV. DMD	ton/hr	25.00	0.00
W522_SK-MI01I.PV	FDR6-1 SPEED CTRL.		100.00	0.00
W522_SK-MI02I.PV	FDR6-2 SPEED CTRL.		100.00	0.00
W522_TI-MI11I.OV	MILL6-1 TEMP	DEG C	150.00	0.00
W522_TK-HA01I.PV	HOT AIR DAMPER-A		100.00	0.00
W522_TK-MS03I.PV	NOZZLE TILT		100.00	0.00
W522_TR-FW08I.OV	ECO FW TEMP	DEG C	100.00	0.00
W522_TR-MS01I.OV	PRI S/H OUT TEMP	DEG C	500.00	0.00
W522_TR-MS02I.OV	SEC S/H IN TEMP	DEG C	500.00	0.00
W522_TT-MI15I.OV	MILL6-1 MIX AIR TEMP	DEG C	100.00	0.00
W522_TT-MI16I.OV	MILL6-2 MIX AIR TEMP	DEG C	100.00	0.00

在测点配置中可对设备的测点进行屏蔽或删除，当删除测点后，模型启动时会自动重建模型，不需要对建模数据进行操作。

任务二：测点配置-添加测点

The screenshot shows the iEM System Manager interface. On the left is a tree view of the system hierarchy. The main area displays a list of tags with a context menu open over the selected tag 'W522_BTUBG01K.OV'. The context menu options are: Edit Properties, Add Tag, Delete, Copy Tag, and Paste Tag. The 'Add Tag' option is highlighted. In the foreground, the 'Tag Properties' dialog box is open, showing configuration fields for the selected tag.

Tag	Description	Unit	High Limit	Low Limit
W522_PI-FW22K	FW PRESS	Kg/cm2	130.00	0.00
W522_TI-FW24K	FEEDW/TR. TEMP.	DEG C	250.00	0.00
W522_FR-FW22K	FW FLOW	ton/hr	200.00	0.00
W522_PI-MS03K	S.H OUTLET PRESS.	Kg/cm2	120.00	0.00
W522_FR-MS04K	STM FLOW	ton/hr	200.00	0.00
W522_TR-MS03K	FINAL S.H TEMP	DEG C	600.00	0.00
W522_FR-BG01K				
W522_BTUBG01K.OV				
W522_FR-CG03K.OV				
W522_SR-MI00K.OV				
W522_AI-FW151I.OV				
W522_AI-SI102.OV				
W522_FI-CA05I.OV				
W522_FI-FW26I.OV				
W522_FK-MI11I				
W522_FK-MI11I.PV				
W522_PI-CG01I.OV				
W522_PI-MI01I.OV				
W522_PI-MI21I.OV				
W522_PI-MI22I.OV				
W522_SK-MI00I				
W522_SK-MI01I.PV				
W522_SK-MI02I.PV				
W522_TI-MI11I.OV				

Tag Properties

Properties

Tag Alias Name: Enable

Tag Name: Type:

Source: Warning Type:

Description: High Limit: Auto

Unit: Low Limit:

HPI Threshold: Deadband:

Tag Writeback

Source Tag: Expect Tag:

Residual Tag: Ratio Tag:

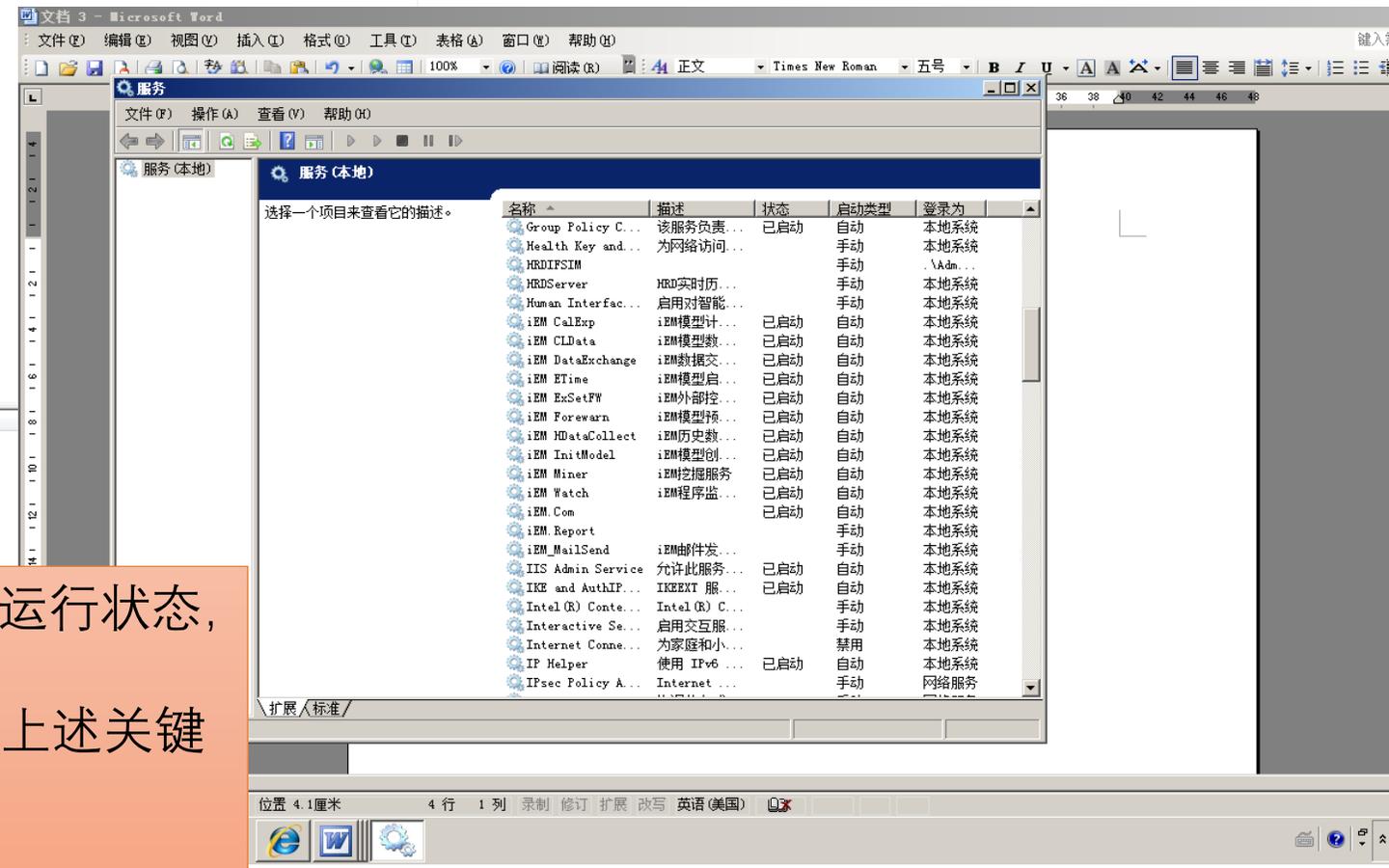
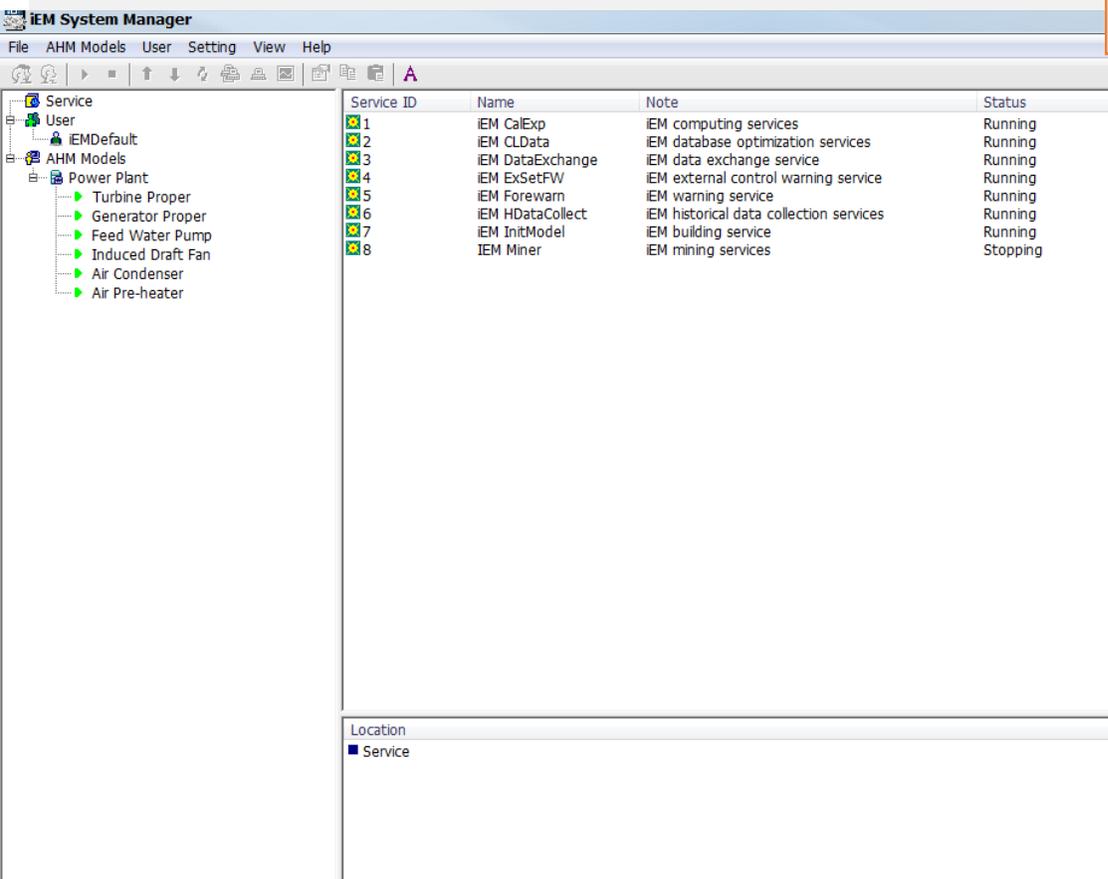
HPI Tag: ABS

OK Cancel

在测点配置中可添加设备的关键测点，添加测点后，需要对建模数据重新梳理并加入新测点的历史数据。

三：系统诊断

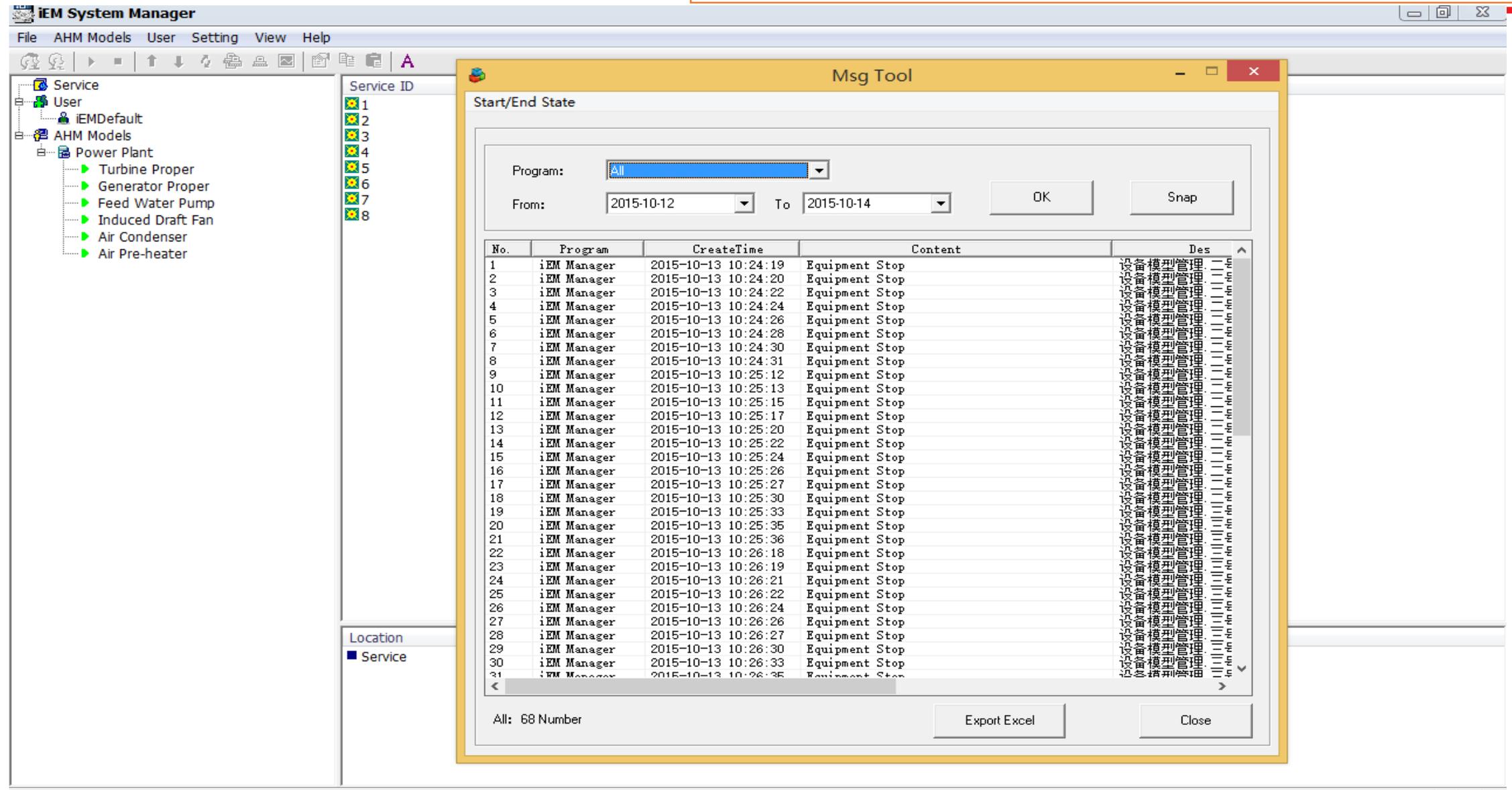
iEM Manager提供丰富的自诊断功能，一旦iEM系统出现故障，利用这些工具可以简单快速的定位故障。需要指出的是，iEM系统的启动与停止并不会影响现场SCADA等系统的运行。



iEM Manager的主画面显示了系统的关键服务的运行状态，正常情况下所有的服务均呈现“运行中”状态：在Windows系统的“服务”功能中，也可以观察到上述关键服务的状态：如果发生服务停止的情况，只需将其重启即可。

三：系统诊断

iEM Manager包含了一个系统运行日志工具，可以浏览系统主要操作的执行过程，如果在日志中发现异常，请联系系统管理员解决。



四：模型更新

当设备进行大小修等维护后，设备正常运行时各参数指标有可能发生较大变化，此时需要对模型进行手动更新，在模型属性中加入维护后设备正常运行的时间，系统会自动获取新工况数据重新建模，如下图所示：

The screenshot shows the iEM System Manager interface. On the left, a tree view shows the hierarchy: Service > User > iEMDefault > AHM Models > Power Plant > Generator Proper. The main window displays a table of tags with columns: Tag, No., Description, Unit, High Limit, Low Limit, Enable, and Tag Type. A dialog box titled 'hModel Configuration' is open, showing the configuration for the 'Generator Proper' model. The dialog includes fields for Name, Description, Coding, DataSource, HPI Tag, Refresh Time, Offset, Storage Time, Graphic Type, and HPI Threshold. It also has a 'Data Pool' section with radio buttons for 'By Time' and 'By File', and a table with columns 'Start Time', 'End Time', and 'Sampling Interval'. The 'Triggers (Optional)' section contains an 'Add' button and a table with columns 'No.', 'Name', 'Description', 'Unit', 'Source Tag', 'High Limit', and 'Low Lim'. The background table shows various tags with their respective values and limits.

Tag	No.	Description	Unit	High Limit	Low Limit	Enable	Tag Type
DCS01:M				70.00		Enable	Enable Tag
DCS01:A				-20.00		Enable	Enable Tag
DCS01:A				270.00		Enable	Basic Tag
DCS01:R				26.00		Enable	Basic Tag
DCS01:S				15.00		Enable	Basic Tag
DCS01:A				376.00		Enable	Basic Tag
DCS01:R				363.00		Enable	Basic Tag
DCS01:A				12.00		Enable	Basic Tag
DCS01:2				361.00		Enable	Basic Tag
DCS01:R				370.00		Enable	Basic Tag
DCS01:1				30.00		Enable	Basic Tag
DCS01:R				30.00		Enable	Basic Tag
DCS01:1				-19.00		Enable	Basic Tag
DCS01:1				-19.00		Enable	Basic Tag
DCS01:1				5.00		Enable	Basic Tag
DCS01:1				5.00		Enable	Basic Tag
DCS01:1				5.00		Enable	Basic Tag
DCS01:R				20.00		Enable	Basic Tag
DCS01:R				31.00		Enable	Basic Tag
DCS01:A				0.01		Enable	Basic Tag
DCS01:A				96.50		Enable	Basic Tag
DCS01:S				-43.00		Enable	Basic Tag
DCS01:A				0.01		Enable	Basic Tag
DCS01:A				0.10		Enable	Basic Tag
DCS01:1				-43.00		Enable	Basic Tag
DCS01:R				10.00		Enable	Basic Tag
DCS01:G				20.00		Enable	Basic Tag
DCS01:A				20.00		Enable	Basic Tag
DCS01:A				120.00		Enable	Basic Tag
DCS01:A				650.00		Enable	Basic Tag
DCS01:A				3.00		Enable	Basic Tag
DCS01:A				0.20		Enable	Basic Tag

改变模型历史数据时间段之后，需要重启设备模型。

五：配置屏蔽测点

为了避免iEM在开停机等工况变化频繁的工况下产生过多预警，可以对每个模型配置屏蔽测点，例如在本项目中，各个模型均以转速为屏蔽测点，当转速为80-100之间时，系统才启动模型运算，转速低于80的工况下，系统不计算。

The screenshot displays the iEM System Manager interface. The 'Trigger' dialog box is the primary focus, with the following fields:

- Tag Name: DCS01:MWDISAI.OUT
- Source Tag: None
- High Limit: 300
- Low Limit: 70
- Active offset: None

The background shows the 'hModel Configuration' window with the following properties:

- Name: Generator Proper
- Description: Generator Proper
- Refresh Time: 5m
- Offset: 45s
- Storage Time: 360d
- Data Source: PI,10.66.16.24
- Graphic Type: None
- HPI Threshold: 0.96162

A table of tags is visible in the background, showing values and 'Basic Tag' status.

Value	Status	Tag Name
361.00	Enable	Basic Tag
370.00	Enable	Basic Tag
30.00	Enable	Basic Tag
30.00	Enable	Basic Tag
30.00	Enable	Basic Tag
-19.00	Enable	Basic Tag
-19.00	Enable	Basic Tag
5.00	Enable	Basic Tag
20.00	Enable	Basic Tag
31.00	Enable	Basic Tag
0.01	Enable	Basic Tag
96.50	Enable	Basic Tag
-43.00	Enable	Basic Tag
0.01	Enable	Basic Tag
0.10	Enable	Basic Tag
-43.00	Enable	Basic Tag
10.00	Enable	Basic Tag
20.00	Enable	Basic Tag
20.00	Enable	Basic Tag
120.00	Enable	Basic Tag
650.00	Enable	Basic Tag
3.00	Enable	Basic Tag
0.20	Enable	Basic Tag

六：通讯故障-资料恢复

当iEM系统与实时数据库通讯发生故障后，iEM系统会停止模型运算，网页客户端中所有模型状态为停止。在数据通讯恢复正常后需要手工补码。

The screenshot shows the iEM System Manager interface. The 'Setting' menu is open, and 'Backfiller-Source' is selected. The 'Backfiller' dialog box is open, showing a tree view of model components. The 'w52' model is selected, and its sub-components 'boiler', 'boiler6', 'compressor', and 'compressor9' are checked. A date selection dialog is also visible, showing a date of 2016-06-01 00:00:00.

No.	Description	Unit	High Limit	Low Limit
1	FW PRESS	Kg/cm2	130.00	0.00
2	FEEDWTR. TEMP.	DEG C	250.00	0.00
	FW FLOW	ton/hr	200.00	0.00
	S.H OUTLET PRESS.	Kg/cm2	120.00	0.00
	STM FLOW	ton/hr	200.00	0.00
	FINAL S.H TEMP	DEG C	600.00	0.00
	BFG FLOW	KNm3/h	142.00	0.00
	BFG HEAT VALUE	Kca/m3	1220.00	610.00
	COG FLOW	KNm3/h	18836.00	0.00
		ton/hr	40.00	0.00
		pH	14.00	0.00
		us/cm	2.00	0.00
		%	100.00	0.00
		ton/hr	100.00	0.00
		%	100.00	0.00
			100.00	0.00
		cm H2O	100.00	0.00
		cm H2O	4.00	-11.00
		cm H2O	0.00	-30.00
		cm H2O	0.00	-30.00
		ton/hr	25.00	0.00
	FDR6-1 SPEED CTRL.		100.00	0.00
	FDR6-2 SPEED CTRL.		100.00	0.00
	MILL6-1 TEMP	DEG C	150.00	0.00
	HOT AIR DAMPER-A		100.00	0.00
	NOZZLE TILT		100.00	0.00
	ECO FW TEMP	DEG C	100.00	0.00
	PRI S/H OUT TEMP	DEG C	500.00	0.00
	SEC S/H IN TEMP	DEG C	500.00	0.00
	MILL6-1 MIX AIR TEMP	DEG C	100.00	0.00
	MILL6-2 MIX AIR TEMP	DEG C	100.00	0.00

- 配置iEM系统日常备份
- 恢复iEM系统

下一节：
系统部署和配置

