

## art - Feature #2886

### All configured services shall be created

08/17/2012 03:25 PM - Adam Lyon

<b>Status:</b>	Closed	<b>Start date:</b>	08/17/2012
<b>Priority:</b>	High	<b>Due date:</b>	
<b>Assignee:</b>		<b>% Done:</b>	0%
<b>Category:</b>	Infrastructure	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>		<b>Spent time:</b>	0.00 hour
<b>Scope:</b>	Internal	<b>SSI Package:</b>	
<b>Experiment:</b>	-		

#### Description

This is a feature request resulting from a conversation that Marc Paterno and I had about g-2's plans for a generic Geant+Art based simulation system.

Currently, a service configured in a FHICL file is not actually created until some piece of code requests a handle to it (this is unlike producer/filter/analyzer modules which are always created if they are configured in the FHICL). Marc could not remember a good reason for this delayed service creation, except that it was possibly inherited from CMS. Unlike the CMS configuration system, FHICL has the notion of a PROLOG, where modules and services can be pre-defined and are only brought into a run of Art if the FHICL file brings them in via @local. So we think having PROLOG in FHICL alleviates the need for delayed service creation.

Delayed service creation means that for a service to be created, some other piece of code needs to know about that service by name (it's type) in order to get the handle. This requires some "uber-code" to know about all of the expected services and makes a modular "generic" system of services impossible (see below).

I want to request that Art be changed so that if a service is mentioned specifically in a FHICL file, it be constructed just as regular modules do. This does not change the behavior of services mentioned in a FHICL PROLOG.

The specific use case here is that we want to make a completely generic Geant simulation system within Art, where detectors and actions are embodied by services. We do not want an "uber-module" to know what services are expected - rather, when a detector service is created, it will register itself with a "DetectorHolder" service. This DetectorHolder service will maintain a container of the detector services. For this to work, the detector service must be created without some other code asking a handle for it, in order to avoid the uber-code situation. With such a system, it would be possible to construct a simulation by listing services in a FHICL file without **any** changes to infrastructure code.

The order of service creation may be arbitrary. BUT, if a service's constructor does ask for a handle of a service that has not yet been created, that corresponding service should be created on the spot, just like it is now.

So in summary, the request is...

- 1) All services configured in a FHICL file are created before the beginJob state (no delayed creation).
- 2) The order of service creation is arbitrary, but if a service's constructor gets a handle to a yet-to-be created service, that service is created on the spot and returned.
- 3) Services mentioned in a FHICL PROLOG have the same behavior as now (not created unless brought in via @local).

#### Possible risks:

If a user's FHICL file has a service configured but never used by the code, that service is never created. With this change, the service will be constructed. If the constructor fails, the Art run may die.

#### History

##### #1 - 08/17/2012 03:28 PM - Adam Lyon

Arrgh - (it's type) -> (its type)

##### #2 - 08/24/2012 11:56 AM - Christopher Green

- Category set to Infrastructure

- Status changed from New to Closed

This feature is already in place. We have discussed with the experiments and there are no plans to change this feature in future.